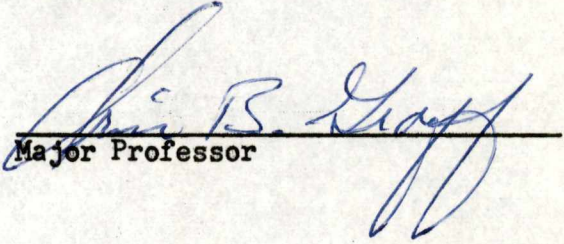


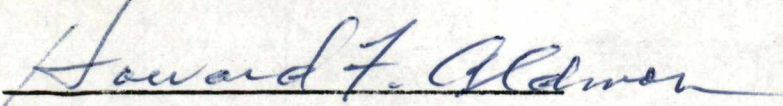
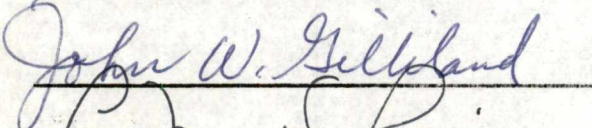
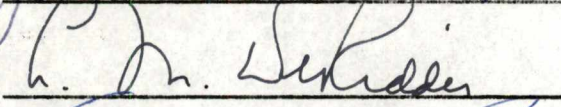
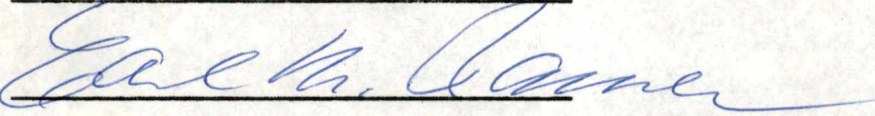
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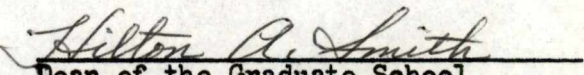
I am submitting herewith a dissertation written by William J. Fuller entitled "Instructional Space Utilization at The University of Tennessee." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Educational Administration and Supervision.


Major Professor

We have read this dissertation and
recommend its acceptance:

Accepted for the Council:


Dean of the Graduate School

INSTRUCTIONAL SPACE UTILIZATION AT
THE UNIVERSITY OF TENNESSEE

A Dissertation
Presented to
The Graduate Council of
The University of Tennessee

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
William J. Fuller
August 1963

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CHAPTER I

STATEMENT OF THE PROBLEM

I. INTRODUCTION

Increasing enrollments and the difficulty of providing funds for new building programs have caused college administrators to conduct evaluations of existing instructional facilities and to attempt some estimate of future physical plant needs.

During the next twenty years the colleges and universities of the nation can expect a doubling of enrollments. The expectation is that by 1970 enrollment figures will approach seven million. With the rise in enrollment there has been and will continue to be an increase in the costs of building, operating, and maintaining facilities. Colleges and universities can meet space requirements for this "impending tidal wave of students" by three principal ways. One is to limit the enrollment so that it will fit the present available space. However, this practice is inconsistent with the aspirations and needs of our democratic society. A second solution is to enlarge the physical plant, a too costly but often necessary step. A third solution is to make more effective use of existing facilities, a step which certainly should be taken prior to the planning of new ones.

Space utilization data, consisting of mechanical and statistical measures of the physical plant, can form the basis from which wise administrative decisions regarding the best use of the physical plant may be

made.¹ But space utilization studies must be more than the arithmetic of efficiency experts. Weinstock cautions:

The educational aims and objectives of the institution must be taken into account, as well as the institution's image of itself. A high degree of utilization is at most a matter of efficient means to an end. Efficiency alone must not and cannot dictate the arrangement and use of space. The quality and type of educational program, the purpose for which the space exists in the first place, must be the primary consideration which determines how it shall be used.²

Since the academic program is of primary importance in a university, the physical plant should be adjusted and arranged to fit the program, rather than the program be warped and distorted to fit the physical plant. At the same time, however, the provision of a larger amount of instructional space than is actually needed to house a given academic program is costly and involves an inefficient use of funds. State legislators and private and corporate donors are beginning to ask pointed questions as to why college budgets continue to skyrocket. Such legislators and donors may suggest that there is a bottom to the money barrel and that a business-as-usual policy cannot be considered defensible.³ They are entitled to objective evidence rather than subjective opinion in support of any request for building funds.

¹John Dale Russell and James I. Doi, Manual for Studies of Space Utilization in Colleges and Universities (Athens: American Association of Collegiate Registrars and Admissions Officers, 1957), pp. 2-9.

²Ruth Weinstock, Space and Dollars: An Urban University Expands (New York: Educational Facilities Laboratories, 1961), p. 31.

³Harold W. Herman, "Utilization of Building Space in Institutions of Higher Education," College and University Business, XXII (April, 1957), 22.

Utilization studies provide this evidence. Wise use of space utilization data may also save money that would otherwise be required for construction, operation, and maintenance of an over-extended plant.

The University of Tennessee, during the next decade, will be one of those institutions of higher learning which must cope with an increasing enrollment. Existing physical plant facilities should be better utilized, and additional academic and service facilities added. Additions to The University of Tennessee's physical plant should be made only after careful study indicates a lack of adequate space in existing facilities to house the proposed services. Careful study of The University of Tennessee's physical plant should involve a consideration of many factors; however, this study will be concerned with three factors and their effects on The University of Tennessee's physical plant utilization and future instructional needs. These factors are: (1) utilization of existing instructional space at The University of Tennessee for the fall quarter, 1962, (2) the effect on these facilities of an increased enrollment, and (3) the projected instructional space needs of each college and the Physical Education Department from 1962 through 1970.

II. THE PROBLEM

The purpose of this study was to determine the effects of increased resident student enrollment and the effects of projected instructional space needs from 1962 through 1970 on The University of Tennessee's utilization of instructional space.

Sub-problems

To achieve the purposes of this investigation, it was necessary to collect and analyze data concerning the physical plant of The University of Tennessee. The specific purposes of this study are presented under the following sub-problems:

1. To report the assignable instructional square feet and the student-stations available on the Knoxville campus of The University of Tennessee for the fall quarter, 1962.
2. To determine space utilization in existing instructional facilities for the fall quarter, 1962.
3. To report the effects of projected resident student enrollment on room and student-station utilization of The University of Tennessee.
4. To report the projected instructional space needs of each college and the Physical Education Department from 1962 through 1970 and to compare 1962 available instructional space with that projected for 1970.

III. BASIC ASSUMPTIONS

Colleges and universities are inclined to assume that an increased enrollment will require many more classrooms, lecture rooms, and laboratories than may be needed. This assumption is frequently made without awareness that existing spaces have much less than a satisfactory degree of utilization. Without this knowledge there can be no adequate estimate of the number of additional students who could be accommodated

without expansion of present spaces.

The following assumptions were pertinent to this study:

1. College and university leaders need accurate knowledge in order to utilize present facilities and to chart plans for future building expansion.

2. Knowledge of the degree and kind of use made of the physical plant is a requisite of good management.

3. Providing adequate housing for an increased college enrollment is a critical problem in education today.

4. Space utilization data may be examined in relation to the objectives and functions of the institution's curriculum.

IV. DELIMITATIONS

This study was limited to the instructional buildings of the Main and Agriculture campuses of The University of Tennessee located in Knoxville, Tennessee. The utilization data presented in this study were limited to regularly scheduled student activity in campus buildings from the first regularly scheduled period through what the administration had agreed was the final regularly scheduled period in the school day.

Various types of structures located on the College of Agriculture campus such as barns, storage sheds, feed mills, corporation yards and processing yards were not included in this study. A study of the utilization of these types of facilities would not have provided relevant data for this study.

The utilization of residential space and the utilization of

service facilities were not considered in this study. There was a need, however, for a comprehensive study of both of these areas.

This investigation did not enter into the question of the suitability or economy of a particular room for particular functions; nor did it attempt to decide the question of the most efficient class size; nor did it consider questions of efficiency of space use as they were related to cost of operation.

V. DEFINITIONS

1. Space utilization refers to an organized procedure to obtain objective measures of the use made of space designed for a particular kind or kinds of activity.⁴

2. Utilization index refers to any statistic or figure which indicates the amount of use of instructional space.

3. Instructional space refers to the area or space on a campus where students assemble regularly for scheduled instructional activities. In this study instructional space is subdivided into two categories--general classrooms and teaching laboratories. These classifications of instructional space are based primarily on the methods of instruction required in the area, the type of student-station, and the equipment needed in the room.

4. A general classroom is an instructional room used chiefly for lecture, recitation, and seminar types of class meetings.⁵

⁴Russell and Doi, op. cit., p. 1.

⁵Ibid., p. 23.

5. A teaching laboratory is an instructional room equipped for a special purpose such as chemistry experiments, food preparation and service in home economics, shop work in industrial arts, and painting.⁶

6. A research laboratory is a teaching laboratory that provides research facilities and is not made available for regular class meetings.⁷

7. A demonstration classroom is a teaching laboratory with special equipment such as typewriters, calculators, stoves and laboratory desks with utilities. These rooms could be used for general lectures but will normally be restricted for specialized instruction.

8. A conference room is a teaching laboratory generally equipped with a large table and chairs, to which classes or staff members are not regularly assigned.⁸

9. Inside gross space is the square feet of area in the interior of a building, excluding structural elements such as walls and columns.⁹

10. Assignable space is the inside gross space excluding all floor area used for janitorial and building maintenance services, public washrooms, unfinished rooms, offices, teaching service areas, and general circulation areas, such as corridors, stairways, and elevators.

⁶Ibid., p. 24.

⁷Ibid., p. 25.

⁸Ibid.

⁹Ibid., p. 20.

11. Classroom utilization is the ratio between the number of rooms available for instructional purposes and the actual number of rooms used for instructional purposes.

12. Student-station is a place or seat at which a student may be located such as a classroom seat, laboratory seat, bench, table or lecture-room chair.¹⁰

13. Student-station utilization is the ratio of the number of student-stations used for all class periods to the number available for all class periods of all days of a week.¹¹

14. Physical plant refers to the land, buildings, and other plots used for university and college activities. This includes buildings for instruction and administration, libraries, gymnasiums, residence halls, and power plant, plus the equipment and furniture of such buildings.¹²

15. Class size refers to the number of students officially enrolled in a class.

VI. RELATED LITERATURE

An examination of the literature finds a limited number of instructional utilization studies available. Russell and Doi encountered a similar lack of literature in 1957 when they reported:

¹⁰Carter V. Good, Dictionary of Education (second edition; New York: McGraw Hill Book Company, Inc., 1959), p. 530.

¹¹Ibid., p. 592.

¹²Ibid., p. 398.

It appears that the written report of a space utilization study made by an individual institution is generally not reproduced in quantity. Several institutions reported the existence of only two or three copies of their study, with circulation limited to certain administrative officials and no copy available for use by anyone outside the institution. It seems that, in general, institutions prefer to maintain a certain degree of secrecy about information as to how their space is utilized. Sometimes, on reviewing the data, one would suspect that there is good reason for reticence about making information public.¹³

However, Russell and Doi did obtain space utilization data pertaining to 223 institutions by means of an inquiry sent to the members of the American Association of Collegiate Registrars and Admissions Officers and by correspondence with directors of state-wide surveys of higher education.¹⁴ The data revealed the following results of room utilization:

1. Of ninety institutions reporting, 60 per cent indicated that their classrooms were used less than half of the total school hours per week.

2. Of eighty-eight institutions reporting, 80 per cent indicated that their teaching laboratories were in use less than half of the total school hours per week. Forty per cent reported that these laboratories were in use less than one-third of the time.

3. During these hours of use, in 90 per cent of the cases, less than 75 per cent of the seats in the rooms were occupied.

John X. Jamrich's report on the utilization and planning of instructional facilities in small colleges reinforced and extended the

¹³Russell and Doi, op. cit., pp. 11-12.

¹⁴Ibid., p. 11.

study of Russell and Doi.¹⁵ Jamrich's study, based on sixty-four liberal arts colleges in the north central region in the United States, revealed the following:

1. In fifty-six institutions, based on a forty-four-hour week, the average figure for classroom utilization was 40 per cent. The range was from a low of 21 per cent to a high of 58 per cent.

2. In fifty-six institutions, the average figure for utilization of laboratories was 25 per cent. The range in this category was from a low of 10 per cent to a high of 44 per cent.

3. Improved level of classroom utilization for the colleges in Jamrich's study could result in the accommodation of 50 to 70 per cent more students without new construction. For these colleges this could be a saving of twelve to seventeen million dollars in capital outlay.

One of the best sources of state-wide surveys of higher education was the "Restudy of the Needs of California in Higher Education," published by the California Department of Education in 1955.¹⁶

Among the many recommendations made by the restudy committee, the following were pertinent to utilization of classroom space:

1. That the same standard of space for a full-time equivalent student and for utilization of all teaching facilities be used for the University of California and all state colleges.

¹⁵John X. Jamrich, To Build or Not To Build (New York: Educational Facilities Laboratories, 1962).

¹⁶"A Restudy of Recommended Plan for Higher Education in California," California Schools, XXVI (May, 1955), 215-31.

2. That the recommended utilization for classrooms be thirty-six hours per week at 67 per cent of capacity of institution; for teaching laboratories, twenty-four hours per week at 80 per cent of capacity.

3. That a smaller amount of floor space per student in the planning of new facilities be used. To accomplish this the restudy committee suggested a better matching of room size and class size.

The California study appears to be the best source of standards for plant space needs and utilization in institutions with enrollments ranging from two thousand to twenty-five thousand full-time equivalent students.

Another example of a state-wide survey of higher education was the 1957 survey of public higher education in Tennessee.¹⁷ The purposes of the study were: (1) to point up possible improvements in current programs of public higher education in Tennessee with present resources and (2) to provide a design for intelligent planning to meet future needs. Chapter VII, "Plant and Plant Utilization," was concerned with the following purposes:

1. To determine the status and degree of utilization of physical facilities now available.

2. To set forth recommendations for securing greater utilization of physical facilities.

¹⁷Public Higher Education in Tennessee, A Report Prepared by the Education Survey Sub-Committee (Nashville: George Peabody College, Division of Surveys and Field Services, 1957).

3. To project building requirements for selected periods through 1972-73.

The following recommendations were made by the committee on plant utilization:

1. Provisions should be made for state-wide coordination of plant utilization, planning and development.

2. Steps should be taken to acquire sufficient land areas for purposes of expansion in the light of projected enrollment increases.

3. Obsolete and temporary space should be replaced as rapidly as possible.

4. More attention should be given to the development of an attractive physical environment for learning which will contribute to the effectiveness of programs and services.

5. Steps should be taken to increase the degree of adequacy of available rooms for instructional purposes.

6. The degree of room utilization should be increased.

7. Substantial increases in coefficients of student-station utilization should be achieved.

8. Additional physical facilities should be provided as needed for increased enrollments after greater utilization of existing facilities has been achieved.

9. Continuous studies should be made of plant utilization on institutional and state levels.

10. Serious attention should be given to the possibility of raising the maximum desirable level of utilization above the present

standards.

11. Policies concerning adequate student services should be defined clearly in order to provide a more objective basis for determining needed space for these services.¹⁸

In 1957 Russell and Doi summarized their feelings about the number of studies available on space utilization with the following observation:

The general impression to be gained from an examination of available space utilization studies is that relatively few reports showed imaginative planning or skillful execution. For most part they are limited with respect to the kinds of plant space included, limited in techniques of analysis, and generally lacking in interpretative material.¹⁹

Since 1957 a number of articles have been written about space utilization. Russell and Doi's Manual and the economic crisis of increased enrollments seem to have stimulated many research specialists to report their findings. Particularly significant are the writings of Dahnke, Castaldi, and Smith.

Dahnke²⁰ insisted that space utilization studies require more than the gathering of facts and figures. The philosophy, the aims and objectives, and the curriculum of the institution must be considered to make the data meaningful. Dahnke rejected the use of national norms for interpretation of actual space utilization and suggested optimum usage

¹⁸Ibid., pp. 212-15.

¹⁹Russell and Doi, op. cit., p. 15.

²⁰H. L. Dahnke, "Some Random Thoughts on Space Utilization," College and University, XXXVI (Fall, 1960), 79-87.

rather than maximum usage of space as criteria for interpretation of actual utilization. Dahnke submitted two approaches to the development of optimum classroom utilization rates: (1) a theoretical approach, in which for a given distribution of section sizes, a "best fit" distribution might be developed and (2) a practical approach, in which each institution, taking into account its own particular facilities, courses, staff, students, and educational philosophy, might arrive at an optimum utilization figure. Dahnke stated that unless utilization studies raised questions which challenged existing educational practices, they were sterile. If the questions were answered wholly on the basis of efficient utilization, then the institution was sterile.

Castaldi²¹ believed that the capacity of a school building should be determined according to the specific educational program it houses. Many methods of computation treated capacity as a static number, and this resulted in a capacity figure based on the educational program of the past rather than on pupil experiences of the future. Castaldi's concept of dynamic capacity was based on the hypothesis that the capacity of a school was always subject to change depending upon changes in the educational program. Therefore, the capacity of a school was not a fixed index for a given building, but a number or numbers that change as a program changes; it was a dynamic number.

Castaldi's technique, used to determine dynamic capacity, involved a comparison of the spaces required for a given educational

²¹Basil Castaldi, "Concept of Dynamic Capacity," The School Executive, XXX (August, 1959, 44-45.

program with the spaces available in an existing building. This computation was graphically illustrated by means of a special slide rule computer that matched space needs for a desired educational program with the available spaces in a school. Castaldi stated that his concept of dynamic capacity had been applied in connection with surveys in Illinois for a year, and he was convinced that it provided a more meaningful approach to the entire program of determining capacity.

Smith²² believed that there should be an objective campus-wide long-range basis for physical plant planning. This was especially needed wherever planning was based primarily on the personal ideas and desires of individual members of a department and was transmitted haphazardly and unconnectedly between the individual staff member and the architect. In too many instances the architect was given the task of translating a hazily defined educational program into quantities and dimensions. Smith believed that the activities to be housed in a modern university or college were too complex to be fully understood by any outsider, however good his intentions or his professional qualifications. He also recognized that no administrator could accurately predict what the future would bring or could foresee all possible developments in educational methods or research techniques.

But someone has to assume some fairly specific numbers, quantities and types of students, staff, equipment and methods before the plans of a building can be drawn. Multipurpose or flexible buildings are only a limited solution. Whether the

²²Donovan Smith, "Effective Use of Space," College and University, XII (September, 1955), 34-36.

building is flexible or not, the fact remains that it is designed primarily for its initial use, and that it cannot be effectively used for anything but numbers and kinds of people doing the amounts and kinds of things that were assumed as the basis for the design.²³

An academic administrator who continues to avoid the task of defining educational programs in objective, quantitative terms will get no better buildings than he deserves.

The writings of these three authors were selected because they represented viewpoints which were compatible with this study. Dahnke, Castaldi, and Smith insisted that space utilization data be examined in relation to the institution's educational program. This study will examine the effects of an increased resident student enrollment and the effects of projected instructional space needs of each college and the Physical Education Department from 1962 through 1970 on The University of Tennessee's utilization of instructional space, and will raise questions which may not be answered exclusively on the basis of efficient utilization.

VII. SIGNIFICANCE OF THE STUDY

Justification for this study was based on the following:

1. The University of Tennessee is vitally concerned with the problem of better utilization of its facilities in order to meet the demands of present and future enrollments. This study should provide an analysis of the utilization of existing facilities and be of value

²³Ibid., p. 36.

in planning and developing facilities for the future.

2. The University of Tennessee plans to continue an expansion program involving millions of dollars. The information reported in this study should provide useful data for persons charged with making decisions about future needs.

3. The University of Tennessee is now engaged in a six-year study of capital needs. This study will give some indication of priority for instructional space and may provide some justification for requests for capital outlay funds to the General Assembly.

4. The data on utilization of instructional space provided by this study will give some indication of the enrollment that can be adequately housed before additional buildings are needed.

5. The data on projected instructional space needs of each college and the Physical Education Department from 1962 through 1970 will give some indication of future physical plant space needs of the academic program.

6. In 1963 The University of Tennessee activated a plan of computer registration and class scheduling. The space utilization data of this study may be of value for the programming of classroom schedules.

VIII. GENERAL PROCEDURES AND SOURCES OF DATA

The three main sources of utilization data for this study were:

- (1) the inventory of space maintained by the Physical Plant Department,
- (2) the Room Assignment Book maintained by the Room Assignment Officer,

and (3) the record of class size maintained by the Dean of Admissions.

The Room Assignment Book was used to report the type of rooms available, the number of student-stations available, and the hour and the day classrooms were scheduled for instruction. Data reporting the class assignments by college, by departments, by course number, section and number of students enrolled were obtained from the Class Size Book maintained by the Dean of Admissions. The inventory of space was also used to report the assignable instructional square feet available in each room.

A copy of an IBM Master Deck card used to record utilization data in this study may be found in Appendix A. A copy of the room assignment form used by the Room Assignment Officer for scheduling classes may be found in Appendix B. A sample page taken from the Class Size Book may be found in Appendix C.

To accomplish the purposes of this study, an inventory of assignable instructional space on The University of Tennessee Knoxville campus was compiled. This information included the following: the name of the building, room number, type of room, number of student-stations available, and the available assignable instructional square feet of floor space. This information was coded and stored in an IBM Master Deck. An IBM card was established for each instructional space.

In order to determine the utilization of instructional space the Room Assignment Officer was requested to furnish the following information about 1962 fall quarter classes: class size, time of class meeting, room number, and name of building. This information was coded and

located on the proper Master Deck card. Because of the many mathematical computations that had to be repeated to obtain room and student-station utilization, the 1620 Computer was utilized in this study. Various tables were prepared to be used as source material for the sub-problems.

Sub-problem 1

To report the assignable instructional square feet and the student-stations available on the Knoxville campus of The University of Tennessee for the fall quarter, 1962. The inventory of space maintained by the Physical Plant Department was used to report the assignable instructional square feet available in general classrooms, teaching laboratories, and research laboratories for each college, for the Physical Education Department, and for the Knoxville campus of The University of Tennessee. The available student-stations in general classrooms and teaching laboratories were also extracted from the inventory of space maintained by the Physical Plant Department. No data were available reporting the number of student-stations in the research laboratories. Using the inventory of the Physical Plant Department, tables were constructed to show the following: the assignable instructional square feet available in general classrooms, teaching laboratories, and research laboratories for each building, for each college, and for the Physical Education Department; the available student-stations in general classrooms and teaching laboratories for each building, for each college, and for the Physical Education Department; the total assignable instructional square feet available in general classrooms, teaching laboratories,

and research laboratories for the Knoxville campus of The University of Tennessee; and the total student-stations available in general classrooms and teaching laboratories for the Knoxville campus of The University of Tennessee.

Sub-problem 2

To determine space utilization in existing instructional facilities for the fall quarter, 1962. Two indexes, room and student-station, were used for determining the utilization of general classrooms, teaching laboratories, gymnasiums, and seminar rooms for the fall quarter, 1962. Formulas and methods of computing room and student-station utilization were discussed and illustrated. Room and student-station utilization for each type of instructional space was reported for the hour, for the day, and for the forty-four-hour week. Room and student-station utilization for the forty-four-hour week for each building, for each college, and for the Physical Education Department was also reported. Room and student-station utilization of all instructional space, general classrooms, and teaching laboratories for the forty-four-hour week was compared with normative data reported by Russell, Doi and Jamrich. Room and student-station utilization for the fall quarter of 1961 was compared with the 1962 fall quarter utilization. The following information was extracted from the IBM Master Deck by the 1620 Computer to determine room and student-station utilization in existing instructional space for the fall quarter, 1962: building name, room number, type of room, number of student-stations available, class size, and the hour and day of all class meetings in the room during the forty-four-hour week. Tables were

constructed to show the following: room and student-station utilization of all instructional space, teaching laboratories, gymnasiums, seminar rooms, and general classrooms for the hour, for the day, and for the forty-four-hour week; room and student-station utilization for each building for the hour, for the day, and for the forty-four-hour week. These data were compared with norms established by Russell, Doi, and Jamrich.

Sub-problem 3

To report the effects of projected resident student enrollment on room and student-station utilization of The University of Tennessee.

Statistical enrollment data reporting the resident student enrollment for the fall quarters of 1961 and 1962 and the projected increased resident student enrollment from 1963 through 1970 were secured from the Bureau of Business Research. The cumulative per cent increase in resident student enrollment for each year from 1961 through 1970 was computed and reported. To determine the effects of projected increased resident student enrollments on the utilization indexes, the 1962 fall quarter room and student-station indexes for the forty-four-hour week were computed by omitting the increases in the number of available rooms and student-stations from the fall quarter of 1961 to the fall quarter of 1962. This meant that 12,936 rooms and 490,204 student-stations, reported in the 1961 utilization study, were available for instructional purposes for the forty-four-hour week. For the 1962 fall quarter, 6,209 rooms and 178,262 student-stations were used for the forty-four-hour week. Using the formulas for determining room and student-station utilization for the forty-four-hour week, room utilization increased from

46.1 per cent in 1961 to 48.0 per cent in 1962, an increase of 1.9 per cent, and student-station utilization increased from 32.4 per cent to 36.4 per cent, an increase of 4.0 per cent. These increases in room and student-station utilization from 1961 to 1962 were used as constants to predict the effects of projected resident student enrollments on the utilization indexes from 1963 through 1970. A table was prepared showing this effect.

Sub-problem 4

To report the projected instructional space needs of each college and the Physical Education Department from 1962 through 1970 and to compare 1962 available instructional space with that projected for 1970.

The college and departmental reports of The University of Tennessee's self-study of 1962 were examined, and information related to curricular developments from 1962 through 1970 were extracted. Interviews were held with various university faculty and staff members to determine the assignable instructional square feet needed to accommodate the projected curricular developments. The Individual Capital Improvement Project Estimates submitted during August, 1962, by each dean to Vice President E. J. Boling were also used to report estimates of assignable instructional square feet needed to accommodate future curricular developments. The University of Tennessee Capital Outlay Program, 1963 through 1970, reporting projections and allocations of gross instructional space from 1962 through 1970 was reviewed. The 1962 assignable instructional square feet per student enrolled was compared with the 1970 assignable instructional square feet per student enrolled. The 1962 assignable

instructional square feet per student-station was compared with the 1970 assignable instructional square feet per student-station. Contrasts in the 1970 projections of instructional space needs between the various colleges and the Physical Education Department were discussed. Problems evolving from these contrasts were presented for the consideration of University administrators.

IX. ORGANIZATION

Chapter I defined the problem of this study, discussed the various sub-problems, and reviewed a portion of the relevant literature related to the study.

Chapter II discusses the procedures used in this study for determining utilization indexes, discusses special problems encountered in the study, and reviews the availability of normative data.

Chapter III analyzes and interprets the fall quarter, 1962, utilization data. The availability of instructional space and the utilization of instructional space are analyzed and interpreted. The effect of resident student enrollment increases on the utilization indexes from 1961 through 1970 is also reported in Chapter III.

Chapter IV reports the availability of instructional space in each college and the Physical Education Department, projects instructional space needs of each college and the Physical Education Department from 1962 through 1970, and compares 1962 available instructional space with that projected for 1970.

Chapter V summarizes the data, states conclusions, and makes recommendations for improved utilization of instructional space at The University of Tennessee. Recommendations for future studies are also made in Chapter V.

CHAPTER II

PROCEDURES FOR DETERMINING UTILIZATION

I. INTRODUCTION

This chapter presents the methods and procedures used in collecting, tabulating, and computing room and student-station utilization. Whenever feasible, the procedures followed, the forms used for the collection of data, and the use of terminology in making this study were patterned after those suggested by Russell and Doi.¹

II. THE UTILIZATION INDEX

In this study both room and student-station utilization were stated in terms of percentage of utilization; however, it should be recognized that 100 per cent utilization of instructional space was neither possible nor desirable. Even in the secondary school, where subject selection is relatively limited and where the great majority of students follow the same general pattern, the need for flexibility to make the school serve the needs of the student rather than the student fit the pattern of the school, results in a utilization index below the theoretical maximum. At the college and university level, the

¹John Dale Russell and James I. Doi, Manual for Studies of Space Utilization in Colleges and Universities (Athens: American Association of Collegiate Registrars and Admissions Officers, 1957), pp. 17-56.

wider variety of student interests and needs demands an even more varied program in all major fields. Many courses must be presented in carefully determined sequences; many must be integrated with laboratory courses to be pursued concurrently; and many must be so scheduled as to avoid conflict with courses in the same field or in related fields. Such scheduling must provide for a continuity of experiences essential to the understanding and appreciation of the major problems in each field of interest. Furthermore, student interest in particular subjects fluctuates from year to year; therefore, it becomes necessary to make shifts in room assignments in order to schedule classes of different types and sizes in rooms that can accommodate them. From the above discussion it must be assumed that 100 per cent utilization is neither possible nor desirable.

III. UTILIZATION NORMS

Until recently dependable normative data concerning room and student-station utilization of instructional space were not available. In their Manual for Studies of Space Utilization in Colleges and Universities, written in 1957, Russell and Doi presented preliminary and tentative normative data based on reports from 101 institutions.² Included in the 101 institutions were thirty publicly controlled degree-granting colleges and universities, thirty-five privately controlled degree-granting institutions, thirty-five publicly controlled junior

²Ibid., pp. 94-121.

colleges, and one privately controlled junior college. The junior colleges comprising this group all had sole use of their physical plants. Seventy-six of the 101 institutions were from two Pacific Coast states, seven from five Midwestern states, seven from a Southeastern state and eleven from a Southern state. The reports from these 101 institutions left much to be desired in the way of adequate regional representation, but an examination of the data revealed no consistent pattern of variation in utilization rates that might be interpreted as being associated with geographical location of institutions. The utilization data for the 101 institutions were all for the fall quarter or semester.

In 1960 James I. Doi and Keith L. Scott published normative data on the utilization of instructional space in colleges and universities.³ These data were based on reports from 217 institutions. According to Doi and Scott:

The major conclusion to be drawn from the comparisons of the median scores reported in this study with those in the Manual is that norms contained in the Manual, even though based upon a much smaller number of institutions, have a high degree of stability.⁴

A copy of the Doi and Scott report was requested by the writer to compare The University of Tennessee's utilization with their normative data. However, the report was out of print and not available.

³James I. Doi and Keith L. Scott, Normative Data on the Utilization of Instructional Space in Colleges and Universities (Athens: American Association of Collegiate Registrars and Admissions Officers, 1960), pp. 13-14.

⁴Ibid.

In 1962 Jamrich⁵ published normative data based on sixty four-year, degree-granting liberal arts colleges in the north central region of the United States which reinforced and extended the study of Russell and Doi. Although all of the institutions had enrollments under three thousand students, Jamrich felt that the implications of the data applied to large liberal arts colleges as well as the small.

From the above reports, it appeared that the Russell and Doi normative data now available were useful for the purposes of this study.

IV. MEASURING ROOM AND STUDENT-STATION UTILIZATION

Two primary indexes were necessary for determining adequate building utilization measurement. First, there was a need for an index to show the percentage of room use; that is, whether or not a room was being used, regardless of what that use might be. There was a need also for a more refined measurement of the use of rooms, a measurement in terms of the capacity of each room or the over-all capacity of a building or buildings stated in terms of students.

Formulas To Show Room Utilization

Room-period utilization, the first index needed, was a measure of the efficiency of instructional space utilization involving a series of formulas. The basic formula was determined by the average number of periods that rooms were used weekly and the percentage which this

⁵John X. Jamrich, To Build or Not To Build (New York: Educational Facilities Laboratories, 1962), p. 4.

represented of some uniform base such as a forty-four-hour week. Specifically, room-period utilization was expressed in terms of the number of periods a day or a week that a single room was occupied by classes, or the average number of hours that a group of rooms were used per week. These figures were then translated into a percentage of utilization on the basis of a forty-four-hour week. The percentage of utilization for a group of rooms was referred to as the average percentage of room-period utilization.

The formula for determining the percentage of room-period utilization of classrooms for the forty-four-hour week was:

$$\frac{\text{Total number of times classrooms were used per week}}{\text{Total number of rooms available} \times 44 \text{ hours}} \times 100 = \text{Percentage of possible room-period utilization}$$

An illustration may clarify the meaning of this measure. If a college has thirty classrooms and schedule class meetings in these rooms for a total of 660 hours per week, the average room-period utilization would be twenty-two periods; that is, 660 divided by thirty. However, on the basis of a forty-four-hour week, this would be 50 per cent utilization; that is, 1,320 possible room-periods were available (thirty times forty-four) for the forty-four-hour week, and this is divided into the total number of scheduled class meetings for that week (660) resulting in 50 per cent utilization.

The formula for determining the percentage of room-period

utilization of classrooms for any hour of the day was:

$$\frac{\text{Number of rooms used per hour}}{\text{Number of rooms available per hour}} \times 100 = \text{Percentage of room-period utilization for any hour of the day}$$

An illustration may help in understanding the above formula. In Ayres Hall there were forty rooms available for scheduling each hour. If thirty-four rooms were scheduled at 8:00 o'clock, Monday morning, the room utilization at that hour was 85 per cent.

The formula for determining the percentage of room-period utilization of classrooms by the hours of the week was:

$$\frac{\text{Total number of classrooms used during the week by the hours of the day}}{\text{Total number of rooms available} \times A \text{ or } B} \times 100 = \text{Percentage of room-period utilization by hours of the day for the week}$$

- (A) 6 days--Monday-Saturday
- (B) 5 days--Monday-Friday

For example, suppose that in Ayres Hall at 8:00 o'clock, Monday through Saturday, a total of 182 rooms were used, and a total of 240 rooms were available (forty times six), then the room utilization for that hour of the day per week was 75.8 per cent.

The formula for determining the percentage of room-period utilization of classrooms by the days of the week was:

$$\frac{\text{Total number of classrooms used per day}}{\text{Total number of rooms available each hour} \times A \text{ or } B} \times 100 = \text{Percentage of room-period utilization by days of the week}$$

- (A) 8 hours--Monday-Friday
- (B) 4 hours--Saturday

For example, suppose that in Ayres Hall 303 rooms were used on Monday, and a total of 320 rooms were available during an eight-hour day (eight times forty); then the room-period utilization by days of the week for Monday was 94.7 per cent.

In order to apply these formulas to determine the percentage of room-period utilization at The University of Tennessee, the following assumptions were made.

1. A classroom was assumed to be available for instructional purposes when it met any of the following criteria: (a) when the educational function to be performed in a room could be accomplished in that room with little or no modification of function, (b) or where the function was altered, it was not altered, in the opinions of those responsible, to the extent that the desired values sought would not accrue, (c) when the physical fitness of the room was changed to meet the educational requirements, (d) when either the written or implied educational policies of the administration made the room available, or conversely, when such policies prevented use of the room for instructional purposes, it was not considered available for instruction.

2. In this study a classroom was considered as being in use when it met the following criteria: (a) when, in the opinion of administrative authorities, an educational function was being performed in a classroom, or (b) when, in the opinion of administrative authorities, a function which was considered a corollary of an educational function was being performed in a classroom.

There remained one more factor which was a determinant of room

utilization, the absolute number of classrooms in a given building.

This absolute number is the actual number of classrooms in a given building and is available from the architectural floor plans, or can be ascertained by a tour through the building, floor by floor, counting the number of rooms equipped for instructional purposes.

Formulas to Show Student-Station Utilization

Student-station utilization, the second index needed, was a measure of the efficiency of room capacity utilization involving a series of formulas. These formulas measured the extent to which rooms were being used. Were they crowded, or only partially filled?

Student-station utilization was the number of hours that student-stations were occupied. Student-station utilization was expressed as the percentage of student stations used for the week, for the day, or for hours of the day that the student-stations in a room or a group of rooms were occupied. This measure was referred to as the percentage of student-station utilization. The average student-station utilization for a group of rooms was referred to as the average percentage of student-station utilization.

The computations for the following student-station formulas are similar to those for computing room-period utilization; therefore, examples for each formula have been omitted.

The formula for determining the percentage of student-station utilization for the forty-four-hour week was:

$$\frac{\text{Total number of times student-stations were used per week}}{\text{Total number of student-stations available} \times 44 \text{ hours}} \times 100 = \text{Percentage of student-station utilization}$$

The formula for determining the percentage of student-station utilization for any hour of the day was:

$$\frac{\text{Number of student-stations used per hour}}{\text{Number of student-stations available per hour}} \times 100 = \text{Percentage of student-station utilization for any hour of the day}$$

The formula for determining the percentage of student-station utilization by the hours for the week was

$$\frac{\text{Total number of student-stations used during the week by the hours of the day}}{\text{Total number of student-stations available} \times A \text{ or } B} \times 100 = \text{Percentage of student-station utilization by hours of day for the week}$$

- (A) 6 days--Monday-Saturday
- (B) 5 days--Monday-Friday

The formula for determining the percentage of student-station utilization by the days of the week was:

$$\frac{\text{Total number of student-stations used per day}}{\text{Total number of student-stations available each hour} \times A \text{ or } B} \times 100 = \text{Percentage of student-station utilization by days of week}$$

- (A) 8 hours--Monday-Friday
- (B) 4 hours--Saturday

In formulating a measuring index for room and student-station utilization, two principles were observed. The first was that the factors which influenced the utilization of any school plant should be derived primarily from adopted educational policies of the official governing board and/or the administration. No appraisal of existing plants can be made unless general or specific policies actually exist.

The only legal basis for appraising standards must be found in the operating or adopted educational plan of the official governing board and/or in the administration of the institution.

A second principle to be considered was the recognition of those factors which influenced room and student-station utilization. However, it was not the purpose of this study to list and discuss the numerous factors which influence room and student-station utilization. The administrative policies, the curriculum, and the financial status of an institution are some of the major influences which should be considered in determining room and student-station utilization.

V. MEASURING PROCEDURES

The basic definitions and classifications of space, as well as the general techniques and measures of utilization used in this study, were presented in the Russell and Doi⁶ Manual for Studies of Space Utilization in Colleges and Universities. For the purposes of this study, the techniques were adapted for IBM computer processing. The following procedures were used to prepare the data for the tables presented in Chapter III.

1. An IBM card, Appendix A, was established for each room on the campus showing the building number, the room number, the type of room, number of available student-stations, and the square feet of floor space available in each room.

⁶Russell and Doi, op. cit., pp. 17-56.

2. On another set of forms, Appendix B, the class schedules for the 1962 fall quarter were established showing the class, the number of students enrolled, the room in which scheduled, and the hours and days of class meetings. This information was transferred to the room IBM card by IBM card punchers.

3. The final step involved the programming of room and student-station formulas and the extraction of the desired information.

4. All utilization data in this study were rounded to one decimal place.

5. In this study it should be clearly understood that only instructional space scheduled by the Room Assignment Officer was used in computing the utilization indexes.

6. In the conduct of this study certain difficulties and problems were encountered which militated against the highest degree of accuracy. The findings in this report must therefore be considered as approximations. It is believed, however, that the data presented reflect conditions very close to the true situation.

Among the difficulties and problems encountered during the study of The University of Tennessee's utilization of instructional space were the following:

1. The study took no account of the extent to which a given room was used beyond scheduled use. Yet it was known in some instances that a room served additional uses. For example, a given room might serve as a seminar room for several hours per week and then be heavily used during the rest of the week as a reading room, conference

room, or general work room. In this study no consideration was given to use beyond scheduled classroom use.

2. In some instances class location could not be determined for those courses listed as "to be announced" in the Fall Quarter Schedule Handbook. However, many of these were courses with small enrollments which did not have specific room assignments; therefore, the affect of these courses on room and student-station utilization was small.

3. Gymnasiums, when used for regularly scheduled classes, were included as part of the instructional space in this study. They presented a problem in determining capacity inasmuch as many classes regularly scheduled for such facilities were conducted, as the educational program and climatic conditions dictated, in other areas such as play-fields, courts, swimming pools, and classrooms. For this reason, physical education activities are often excluded from a utilization study. They do contribute, however, to the total capacity of a college plant and particularly to the total number of students assigned to regularly scheduled classes over a period of a week. The utilization index for physical education gymnasiums was computed in this study by asking the Physical Education Department head to assign student-station capacities to all gymnasiums. The utilization index was computed on this rated capacity whether the class activity was conducted indoors or outdoors.

4. In computing the utilization index of those regularly scheduled classes held after the 4:50 p.m. class hour, the following recommendation by Russell and Doi was utilized in this study:

These early morning or late afternoon, or night classes are frequently a part of the on-campus adult education program,

and the courses may not be recognized as units of the regular academic programs. They nevertheless constitute a justifiable and scheduled use of campus facilities. If the institution were not to hold such classes on the campus, it would be required to construct or rent off-campus facilities. These classes should therefore be processed as a use of instructional rooms, and reflected in the computations of the percentages of possible utilization. For example, if a room is used for 20 periods during the hours of the regularly scheduled week and is used for 10 additional periods before or after the hours of the regularly scheduled week, the total number of weekly room-periods of use should be shown as 30. In computing the percentage of possible room-period utilization on the basis of a 44-hour weekly schedule, this figure 30 should be used. It is recommended that the same procedure be followed for computing the average percentage of possible student-station use.⁷

VI. SUMMARY

The methods and procedures used in collecting, tabulating, and computing the utilization indexes were described and explained in Chapter II. Whenever feasible, the procedures followed, the forms used for the collection of data, and the use of terminology were patterned after the Russell and Doi Manual for Studies of Space Utilization in Colleges and Universities. The Russell and Doi normative data were also useful for the purposes of this study. Formulas and methods of computing room and student-station utilization were discussed and illustrated. These formulas and methods of computing room and student-station utilization were adapted for IBM computer processing. Only students in regularly scheduled classes and the instructional space utilized by such classes were used in computing the utilization indexes. Special problems encountered in reporting The University of Tennessee's room and

⁷Ibid., p. 61.

student-station utilization were discussed.

Chapter III will present an analysis and interpretation of utilization data for the fall quarter, 1962, at The University of Tennessee.

CHAPTER III

ANALYSIS AND INTERPRETATION OF UTILIZATION DATA

I. INTRODUCTION

This chapter reports the room and student-station utilization of instructional space at The University of Tennessee for the fall quarter, 1962. Also reported are the effects of projected increased resident student enrollments from 1963 through 1970 on the room and student-station indexes, and the effects of projected increased resident student enrollments in 1965, 1968, and 1970 on the availability of instructional space on the Main campus. The procedures and methods of measurement discussed in Chapter II were used to prepare the utilization tables presented.

II. AVAILABILITY OF INSTRUCTIONAL SPACE

Table I reports the assignable instructional space available on the Knoxville campus of The University of Tennessee for the fall quarter, 1962. The table reports the rooms, student-stations, and assignable instructional square feet available on the Main campus, on the Agriculture campus, and the total assignable instructional space available on both campuses. The inventory of space maintained by the Physical Plant Department was used to secure Table I data. The available rooms and student-stations were reported for each type of instructional space except for the research laboratories. The Physical

TABLE I

ASSIGNABLE INSTRUCTIONAL SPACE AVAILABLE ON THE UNIVERSITY OF TENNESSEE
KNOXVILLE CAMPUS, FALL QUARTER, 1962

Type of Space	Main Campus			Agriculture Campus			Total		
	Rooms	Student- Stations	Assign- able In- struc- tional Square Feet	Rooms	Student- Stations	Assign- able In- struc- tional Square Feet	Rooms	Student- Stations	Assign- able In- struc- tional Square Feet
General Classrooms	181	8,484	146,029	24	887	19,839	205	9,371	165,868
Auditoriums ^a	3	629	9,486				3	629	9,486
Reading Rooms	2	250	5,613	1	25	381	3	275	5,994
Conference Rooms	5	188	2,975	5	130	1,975	10	318	4,950
Study Rooms	4	327	5,292				4	327	5,292
Seminar Rooms	6	113	2,157				6	113	2,157
Gymnasiums	8	427	44,479				8	427	44,479
Teaching Laboratories	105	2,893	112,646	21	233	24,323	126	3,126	136,969
Research Laboratories ^b			76,587			47,045			123,632
Total	314	13,311	405,264	51	1,275	93,563	365	14,586	498,827

^aThe following auditoriums were excluded: Alumni Memorial Auditorium, the Armory Fieldhouse Auditorium, and the Animal Science Auditorium.

^bThe Physical Plant Inventory does not maintain an inventory of available rooms and student-stations in the research laboratories.

Plant Department classified research laboratories as a separate category of instructional space, and their inventory reported only assignable square feet available. In this study research laboratories were assumed to be in use as a part of the institution's research and public service programs. A summary of the assignable square feet available for the fall quarter, 1962, in each building on the Knoxville campus of The University of Tennessee may be found in Appendix D.

Table I reports that a total of 498,827 assignable instructional square feet housing 14,586 student-stations in 365 rooms were available on the Knoxville campus of The University of Tennessee for the fall quarter, 1962. On the Agriculture campus, 93,563 assignable instructional square feet housing 1,275 student-stations in fifty-one rooms were available for the fall quarter, 1962. On the Main campus 405,264 assignable instructional square feet housing 13,311 student-stations in 314 rooms were available for the fall quarter, 1962. Table I shows that the 181 general classrooms containing 146,029 assignable instructional square feet housing 8,484 student-stations represented the largest allocation of instructional space available on the Main campus for the 1962 fall quarter. The 105 teaching laboratories containing 112,646 assignable instructional square feet housing 2,893 student-stations represented the second largest allocation. The eight gymnasiums containing 44,479 assignable instructional square feet housing 427 student-stations represented the third largest allocation of instructional space available on the Main campus. Table I shows that the twenty-four general classrooms containing 19,839 assignable instructional square feet housing

887 student-stations represented the largest allocation of instructional space available on the Agriculture campus for the 1962 fall quarter. The twenty-one teaching laboratories containing 24,323 assignable instructional square feet housing 233 student-stations represented the second largest allocation.

Table I also reports the availability of three auditoriums containing 9,486 assignable instructional square feet housing 629 student-stations on the Knoxville campus for the fall quarter, 1962. The auditoriums housed in the Alumni Memorial Auditorium-Gymnasium, in the Armory Fieldhouse and in the Animal Science Building were not reported in Table I as these auditoriums were considered a part of the institution's public service and sports programs. Other types of spaces available on the Knoxville campus of The University of Tennessee for the 1962 fall quarter were: three reading rooms containing 5,994 assignable instructional square feet housing 275 student-stations; ten conference rooms containing 4,950 assignable instructional square feet housing 318 student-stations; four study rooms containing 5,292 assignable instructional square feet housing 327 student-stations; and six seminar rooms containing 2,157 assignable instructional square feet housing 113 student-stations.

Table II reports the assignable instructional space scheduled at The University of Tennessee for the fall quarter, 1962. Assignable instructional space for the quarter was either scheduled by the Room Assignment Officer or was scheduled by the various colleges and departments of The University of Tennessee. The utilization data

TABLE II

**ASSIGNABLE INSTRUCTIONAL SPACE SCHEDULED AT THE UNIVERSITY OF
TENNESSEE KNOXVILLE CAMPUS, FALL QUARTER, 1962**

Type of Space	Instructional Space Scheduled By Room Assignment Officer			Instructional Space Scheduled By Colleges and Departments		
	Rooms	Student- Stations	Assignable Instructional Square Feet	Rooms	Student- Stations	Assignable Instructional Square Feet
General Classrooms	205	9,371	165,868			
Gymnasiums	8	427	44,479			
Seminar Rooms	6	113	2,157			
Teaching Laboratories	88	1,920	124,445	38 ^a	1,206 ^a	12,524 ^a
Auditoriums				3	629	9,486
Reading Rooms				3	275	5,994
Conference Rooms				10	318	4,950
Study Rooms				4	327	5,292
Research Laboratories ^b						123,632
Total	307	11,831	336,949	58	2,755	161,878

^aIncludes the following: five teaching laboratories containing 3,555 assignable instructional square feet housing 349 student-stations in the Hesler Biology Building; four teaching laboratories containing 2,312 assignable instructional square feet housing 184 student-stations in Perkins Hall; six teaching laboratories containing 2,306 assignable instructional square feet housing 182 student-stations in the Geology and Geography Building; seven teaching laboratories containing 3,307 assignable instructional square feet housing 474 student-stations in the Physics Building; six teaching laboratories containing 468 assignable instructional square feet housing six student-stations in the Music Annex; and ten teaching laboratories containing 576 assignable instructional square feet housing eleven student-stations in the Music Building.

^bThe Physical Plant Inventory does not maintain an inventory of available rooms and student-stations in the research laboratories.

presented in Chapter III were based only on the assignable instructional space scheduled by the Room Assignment Officer for the fall quarter, 1962.

Table II shows that the colleges and departments of The University of Tennessee scheduled a total of fifty-eight rooms containing 161,878 assignable instructional square feet housing 2,755 student-stations for the fall quarter, 1962. Of this total space scheduled by the colleges and departments, thirty-eight teaching laboratories containing 12,524 assignable instructional square feet housing 1,206 student-stations were scheduled by the departments and colleges as follows:

1. During the fall quarter, 1962, the new Physics Building was nearing completion, and only a portion of the assignable instructional space was available for instructional purposes. Seven teaching laboratories containing 3,307 assignable instructional square feet housing 474 student-stations were not available for instructional purposes for the fall quarter, 1962.

2. During the fall quarter, 1962, alterations in the Geology and Geography Building were nearing completion and only a part of the assignable instructional space was available for instructional purposes. Six teaching laboratories containing 2,306 assignable instructional square feet housing 182 student-stations were not available for instructional purposes for the fall quarter, 1962.

3. For the fall quarter, 1962, the Biology Department scheduled large lecture classes for one or two class meetings each week and scheduled five teaching laboratories containing 3,555 assignable instructional square feet housing 349 student-stations for students to

participate in laboratory experiences. The large lecture classrooms were scheduled by the Room Assignment Officer and were included in Chapter III utilization data. The five teaching laboratories were not included as the capacity of these teaching laboratories varied from day to day throughout the quarter.

4. The College of Engineering also scheduled four teaching laboratories containing 2,312 assignable instructional square feet housing 184 student-stations for students to participate in laboratory experiences. The four teaching laboratories were not included in this study as the capacity of these teaching laboratories varied from day to day throughout the quarter.

5. The Music Department scheduled sixteen teaching laboratories containing 1,050 assignable instructional square feet housing seventeen student-stations for individual voice and instrumental lessons. These sixteen teaching laboratories were not included as the capacity of these teaching laboratories varied from day to day throughout the quarter.

Other types of spaces scheduled by colleges and departments for the 1962 fall quarter were: three auditoriums containing 9,486 assignable instructional square feet housing 629 student-stations; three reading rooms containing 5,994 assignable instructional square feet housing 275 student-stations; ten conference rooms containing 4,950 assignable instructional square feet housing 318 student-stations; and four study rooms containing 5,292 assignable instructional square feet housing 327 student-stations. The research laboratories containing 123,632 assignable instructional square feet were also scheduled by the

various colleges and departments, and in this study were assumed to be in use at all times as a part of the institution's research and public service programs. Although the three auditoriums and the ten conference rooms were excluded from the utilization data, they were, however, a necessary and an integral part of the instructional program of The University of Tennessee, and it was assumed in this study that optimum use was being made of these facilities. The three reading rooms and the four study rooms were also considered as essential space necessary for the successful operation of the instructional program at The University of Tennessee.

The utilization of assignable instructional space scheduled by the Room Assignment Officer for the fall quarter, 1962, was computed and reported in Chapter III. Table II reports the following assignable instructional space scheduled by the Room Assignment Officer for the 1962 fall quarter: 205 general classrooms containing 165,868 assignable instructional square feet housing 9,371 student-stations; eight gymnasiums containing 44,479 assignable instructional square feet housing 427 student-stations; six seminar rooms containing 2,157 assignable instructional square feet housing 113 student-stations; and eighty-eight teaching laboratories containing 124,445 assignable instructional square feet housing 1,920 student-stations. A total of 307 instructional rooms containing 336,949 assignable instructional square feet housing 11,831 student-stations were scheduled by the Room Assignment Officer for the fall quarter, 1962. These 307 rooms represented 84.1 per cent of the total 365 available instructional rooms reported in Table I, page 40.

The 11,831 student-stations scheduled by the Room Assignment Officer represented 81.1 per cent of the total 14,586 available student-stations reported in Table I, page 40. The 336,949 assignable instructional square feet scheduled by the Room Assignment Officer for the fall quarter, 1962, represented 68.3 per cent of the total 498,827 available assignable instructional square feet reported in Table I, page 40.

III. UTILIZATION OF INSTRUCTIONAL SPACE BY TYPE

Table III shows the utilization of instructional space in all buildings on the Knoxville campus of The University of Tennessee for the fall quarter, 1962. The amount of instructional space is expressed in terms of: (1) the number of rooms and the percentage of utilization of all available instructional space, including general classrooms, teaching laboratories, seminar rooms, and gymnasiums, and (2) the number of student-stations in the available instructional space. All utilization percentages are based on a forty-four-hour week.

Table III indicates that gymnasiums had the highest utilization index for rooms, 71.9 per cent, and for student-stations, 44.2 per cent; while seminar rooms and their student-stations had the lowest utilization indexes, 18.2 per cent and 12.8 per cent, respectively. The 205 general classrooms were scheduled for use 51.6 per cent of the forty-four-hour week, and their 9,371 student-stations were scheduled for use 33.0 per cent of the forty-four-hour week. The eighty-eight teaching laboratories were scheduled for use 32.4 per cent of the forty-four-hour week, and their 1,920 student-stations were scheduled for use 39.6

TABLE III

UTILIZATION OF INSTRUCTIONAL SPACE ON THE KNOXVILLE CAMPUS OF THE
UNIVERSITY OF TENNESSEE FOR THE FALL QUARTER, 1962

Type	Rooms		Student-stations	
	Rooms Available	Per cent Utilization ^a	Student-stations Available	Per cent Utilization ^a
All instructional space	307	46.0	11,831	34.2
General classrooms	205	51.6	9,371	33.0
Teaching laboratories	88	32.4	1,920	39.6
Gymnasiums	8	71.9	427	44.2
Seminar rooms	6	18.2	113	12.8

^aPer cent of utilization based on a 44-hour week.

per cent of the forty-four-hour week. A total of 307 rooms and 11,831 student-stations were scheduled by the Room Assignment Officer for instructional use for the fall quarter, 1962. The 307 rooms were scheduled for use 46.0 per cent of the forty-four-hour week, and the 11,831 student-stations were scheduled for use 34.2 per cent of the forty-four-hour week.

Tables IV through VIII report rooms and student-stations used by days of the week of all instructional space, general classrooms, teaching laboratories, seminar rooms, and gymnasiums. The four tables show that use of instructional facilities may be arranged from most used to least used in this order: gymnasiums (71.9 per cent), general classrooms (51.6 per cent), teaching laboratories (32.4 per cent), and seminar rooms (18.2 per cent). On the basis of student-stations used, instructional facilities may be arranged, from most used to least used, in this order: gymnasiums (44.2 per cent), teaching laboratories (39.6 per cent), general classrooms (33.0 per cent) and seminar rooms (12.8 per cent).

When all types of instructional space were computed and reported in Table IV, room utilization was 46.0 per cent, and student-station utilization was 34.2 per cent for the forty-four-hour week. Sixty per cent room utilization was reported as a saturation of instructional facilities by The Commission on Goals for Higher Education in the South.¹ Both rooms and student-stations of all instructional space were heavily

¹Within Our Reach, A Report Prepared by the Commission on Goals for Higher Education in the South (Atlanta: Southern Regional Education Board, 1962).

TABLE IV
UTILIZATION OF INSTRUCTIONAL SPACE BY DAYS OF THE WEEK
FALL QUARTER, 1962, FOR ALL INSTRUCTIONAL SPACE

Day of the Week	Room Utilization (307 rooms)				Student-Station Utilization (11,831 s.s.)			
	Total		Percentage		Total		Percentage	
	Room Hours Available ^a	Room Hours Used	Average No. of Periods Rooms Used	Utilization of Utilization	Student- Stations Available ^a	Student- Stations Used	Average No. of S.S.Used	Utilization of Utilization
Monday	2,456	1,353	4.4	55.1	94,648	39,042	3.3	41.2
Tuesday	2,456	1,004	3.3	40.9	94,648	27,024	2.3	28.6
Wednesday	2,456	1,336	4.4	54.4	94,648	39,755	3.4	42.0
Thursday	2,456	959	3.1	39.0	94,648	26,862	2.3	28.4
Friday	2,456	1,140	3.7	46.4	94,648	34,512	2.9	36.5
Saturday	1,228	417	1.4	34.0	47,324	11,067	0.9	23.4
Average weekly utilization ^b	13,508	6,209	20.2	46.0	520,564	178,262	15.0	34.2

^aBased on eight hours each day, Monday through Friday, and four hours on Saturday.

^bBased on 44-hour week, eight hours each day, Monday through Friday, and four hours on Saturday.

scheduled on Monday (55.1 per cent) for rooms and 41.2 per cent for student stations) and Wednesday (54.4 per cent for rooms and 42.0 per cent for student-stations). The lowest room and student-station utilization of all instructional space occurred on Saturday, 34.0 per cent for rooms and 23.4 per cent for student-stations.

Table V indicates that general classrooms and their student-stations were heavily utilized on Monday (61.9 per cent for rooms and 39.6 per cent for student-stations), on Wednesday (62.0 per cent for rooms and 40.7 per cent for student-stations), and on Friday (54.0 per cent for rooms and 35.9 per cent for student-stations). The lowest utilization of general classrooms and student-stations occurred on Saturday, 40.6 per cent for rooms and 22.9 per cent for student-stations.

Table VI shows that rooms and student-stations of teaching laboratories were heavily scheduled on Monday (38.2 per cent for rooms and 50.4 per cent for student-stations), and on Wednesday (35.9 per cent for rooms and 47.5 per cent for student-stations). The lowest utilization of teaching laboratories and student-stations occurred on Saturday, 20.7 per cent for rooms and 26.0 per cent for student-stations.

Table VII shows that gymnasiums were heavily utilized throughout the week except on Saturday when room utilization was 21.9 per cent, and student-station utilization was 11.3 per cent. Highest gymnasium utilization occurred on Wednesday, 85.9 per cent. Highest student-station utilization occurred on Tuesday (56.2 per cent), on Wednesday (50.9 per cent), and on Thursday (52.9 per cent).

TABLE V
UTILIZATION OF INSTRUCTIONAL SPACE BY DAYS OF THE WEEK
FALL QUARTER, 1962, FOR GENERAL CLASSROOMS

Day of the Week	Room Utilization (205 rooms)				Student-Station Utilization (9,371 s.s.)			
	Total Room Hours Available ^a	Total Room Hours Used	Average No. of Periods Rooms Used	Percentage of Utilization	Total Student- Stations Available ^a	Total Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
Monday	1,640	1,015	5.0	61.9	74,968	29,712	3.2	39.6
Tuesday	1,640	716	3.5	43.6	74,968	20,329	2.2	27.1
Wednesday	1,640	1,017	5.0	62.0	74,968	30,541	3.2	40.7
Thursday	1,640	686	3.3	41.8	74,968	20,067	2.1	26.8
Friday	1,640	886	4.3	54.0	74,968	26,672	2.8	35.6
Saturday	820	333	1.6	40.6	37,484	8,577	0.9	22.9
Average weekly utilization ^b	9,020	4,653	22.7	51.6	412,324	135,898	14.5	33.0

^aBased on eight hours each day, Monday through Friday, and four hours on Saturday.

^bBased on 44-hour week, eight hours each day, Monday through Friday, and four hours on Saturday.

TABLE VI

UTILIZATION OF INSTRUCTIONAL SPACE BY DAYS OF THE WEEK
FALL QUARTER, 1962, FOR TEACHING LABORATORIES

Day of the Week	Room Utilization (88 rooms)				Student-Station Utilization (1,920 s.s.)			
	Total Room Hours Available ^a	Total Room Hours Used	Average No. of Periods Used	Percentage of Utilization	Total Student- Stations Available ^a	Total Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
Monday	704	269	3.1	38.2	15,360	7,737	4.0	50.4
Tuesday	704	241	2.7	34.2	15,360	4,965	2.6	32.3
Wednesday	704	253	2.9	35.9	15,360	7,294	3.8	47.5
Thursday	704	220	2.5	31.2	15,360	4,857	2.5	31.6
Friday	704	199	2.3	28.3	15,360	6,576	3.4	42.8
Saturday	352	73	.8	20.7	7,680	1,995	1.0	26.0
Average weekly utilization ^b	3,872	1,255	14.2	32.4	84,480	33,424	17.4	39.6

^aBased on eight hours each day, Monday through Friday, and four hours on Saturday.

^bBased on 44-hour week, eight hours each day, Monday through Friday, and four hours on Saturday.

TABLE VII

UTILIZATION OF INSTRUCTIONAL SPACE BY DAYS OF THE WEEK
FALL QUARTER, 1962, FOR GYMNASIUMS

Day of the Week	Room Utilization (8 rooms)				Student-Station Utilization (427 s.s.)			
	Total Room Hours Available ^a	Total Room Hours Used	Average No. of Periods Rooms Used	Percentage of Utilization	Total Student- Stations Available ^a	Total Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
Monday	64	48	6.0	75.0	3,416	1,496	3.5	43.8
Tuesday	64	53	6.6	82.8	3,416	1,920	4.5	56.2
Wednesday	64	55	6.9	85.9	3,416	1,738	4.1	50.9
Thursday	64	49	6.1	76.6	3,416	1,807	4.2	52.9
Friday	64	41	5.1	64.1	3,416	1,152	2.7	33.7
Saturday	32	7	0.9	21.9	1,708	193	0.4	11.3
Average weekly utilization ^b	352	253	31.6	71.9	18,788	8,306	19.4	44.2

^aBased on eight hours each day, Monday through Friday, and four hours on Saturday.

^bBased on 44-hour week, eight hours each day, Monday through Friday, and four hours on Saturday.

As previously indicated seminar rooms had a lower percentage of utilization than any other category of instructional space. Table VIII reports that seminar rooms were most used on Monday (20.8 per cent) and on Thursday (20.8 per cent). The lowest utilization of seminar rooms and their student-stations occurred on Saturday, 8.3 per cent for rooms and 5.8 per cent for student-stations. Some of these seminar rooms served a dual purpose as they were used as conference rooms when not scheduled for regular classes.

Tables IX through XIII report rooms and student-stations used by hours of the day for the week of all instructional space, general classrooms, teaching laboratories, seminar rooms and gymnasiums. Percentages of rooms and student-stations used by the hours of the day were based on the number of rooms and student-stations available each hour of the school day. Each morning hour, any period beginning before 12:00 noon, each room and student-station was considered available six days a week; and each afternoon hour, any hour beginning 12:00 noon or later, each room and student-station was considered available five days a week. Hence, the percentage of utilization of rooms or student-stations for an afternoon hour may be greater than that for a morning hour, even though more rooms and student-stations may have been used during the morning hour.

Table IX reports the highest utilization of all instructional space for 9:00 a.m., 53.5 per cent for rooms and 41.7 per cent for student-stations. Utilization of all instructional space for the noon hour was poor, 19.2 per cent for rooms and 17.3 per cent for

TABLE VIII

UTILIZATION OF INSTRUCTIONAL SPACE BY DAYS OF THE WEEK
FALL QUARTER, 1962, FOR SEMINAR ROOMS

Day of the Week	Room Utilization (8 rooms)				Student-Station Utilization (113 s.s.)			
	Total				Total			
	Room Hours Available ^a	Room Hours Used	Average No. of Periods Used	Percentage of Utilization	Student- Stations Available ^a	Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
Monday	48	10	1.7	20.8	904	105	0.9	11.6
Tuesday	48	8	1.3	16.7	904	142	1.2	15.7
Wednesday	48	9	1.5	18.8	904	113	1.0	12.5
Thursday	48	10	1.7	20.8	904	137	1.2	15.2
Friday	48	9	1.5	18.8	904	111	1.0	12.3
Saturday	24	2	0.3	8.3	452	26	0.2	5.8
Average weekly utilization ^b	264	48	8.0	18.2	4,972	634	5.6	12.8

^aBased on eight hours each day, Monday through Friday, and four hours on Saturday.

^bBased on 44-hour week, eight hours each day, Monday through Friday, and four hours on Saturday.

TABLE IX

WEEKLY UTILIZATION OF INSTRUCTIONAL SPACE BY HOURS OF THE DAY
FALL QUARTER, 1962, FOR ALL INSTRUCTIONAL SPACE

Hour of the Day	Room Utilization (307 rooms)				Student-Station Utilization (11,831 s.s.)			
	Total Room Hours Available ^a	Total Room Hours Used	Average No. of Periods Rooms Used	Percentage of Utilization	Total Student- Stations Available ^a	Total Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
8 - 9	1,842	754	2.4	40.9	70,986	23,031	1.9	32.4
9 - 10	1,842	985	3.2	53.5	70,986	29,614	2.5	41.7
10 - 11	1,842	925	3.0	50.2	70,986	25,820	2.2	36.4
11 - 12N	1,842	807	2.6	43.8	70,986	23,690	2.0	33.4
12N - 1PM	1,535	294	1.1	19.2	59,155	10,217	.9	17.3
1 - 2	1,535	662	2.2	43.1	59,155	17,733	1.5	30.0
2 - 3	1,535	590	1.9	38.4	59,155	15,152	1.3	25.6
3 - 4	1,535	450	1.5	29.3	59,155	11,301	.9	18.4
4 - 5	1,535	241	.8	15.7	59,155	6,209	.5	10.5
5 - 6	1,535	68	.2	4.4	59,155	1,834	.2	3.1
6 - 7	1,535	112	.4	7.3	59,155	3,647	.3	6.2
7 - 8	1,535	112	.4	7.3	59,155	3,535	.3	6.0
8 - 9	1,535	110	.4	7.2	59,155	3,450	.3	5.8
9 - 10	1,535	99	.3	6.4	59,155	3,029	.2	5.1

^aFrom 8 o'clock until 12 noon, 1,842 room hours and 70,986 student-stations were available each week for each hour. At 12 noon and after 1,535 room hours and 59,155 student-stations were available each week for each hour.

student-stations. The lowest utilization of all instructional space was 4.4 per cent for rooms and 3.1 per cent for student-stations at 5:00 p.m.

Table X reports the highest utilization for general classrooms for 9:00 a.m., 62.8 per cent for rooms and 41.2 per cent for student-stations. Utilization of general classrooms for the noon hour was poor, 21.5 per cent for rooms and 15.5 per cent for student-stations. The lowest utilization of general classrooms was 4.8 per cent and 1.8 per cent for student-stations for 5:00 p.m.

Table XI shows that reasonable balance was achieved in scheduling teaching laboratories throughout the hours of 8:00 a.m. to 5:00 p.m. The highest utilization of teaching laboratories was at 2:00 p.m., 36.6 per cent for rooms, and the highest student-station utilization was 45.7 per cent at 9:00 a.m. Utilization of teaching laboratories was poor for the noon hour, 10.2 per cent for rooms and 20.1 per cent for student-stations. The lowest utilization of teaching laboratories was 3.0 per cent for rooms and 4.6 per cent for student-stations at 9:00 a.m.

Table XII indicates that gymnasiums were heavily utilized throughout the day except for 8:00 a.m. when room utilization was 27.1 per cent and student-station utilization was 18.7 per cent, the lowest hourly room and student-station utilization of the day. The highest gymnasium utilization was at 12:00 noon and 2:00 p.m., 77.5 per cent; the highest student-station utilization was at 12:00 noon, 48.3 per cent.

Table XIII indicates that seminar rooms were used more in the afternoons than in the morning hours. The highest room utilization was

TABLE X

WEEKLY UTILIZATION OF INSTRUCTIONAL SPACE BY HOURS OF THE DAY
FALL QUARTER, 1962, FOR GENERAL CLASSROOMS

Hour of the Day	Room Utilization (205 rooms)				Student-Station Utilization (9,371 s.s.)			
	Total Room Hours Available ^a	Room Hours Used	Average No. of Periods Used	Percentage of Utilization	Total Student- Stations Available ^a	Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
8 - 9	1,230	592	2.9	48.1	56,226	19,172	2.0	34.1
9 - 10	1,230	773	3.8	62.8	56,226	23,170	2.5	41.2
10 - 11	1,230	745	3.6	60.6	56,226	21,450	2.3	38.1
11 - 12N	1,230	632	3.1	51.4	56,226	18,914	2.0	33.6
12N - 1PM	1,025	220	1.1	21.5	46,855	7,258	.8	15.5
1 - 2	1,025	482	2.4	47.0	46,855	13,726	1.5	29.3
2 - 3	1,025	386	1.9	37.6	46,855	10,274	1.1	21.9
3 - 4	1,025	255	1.2	24.9	46,855	6,511	.9	13.9
4 - 5	1,025	138	.7	13.5	46,855	3,455	.4	7.4
5 - 6	1,025	49	.2	4.8	46,855	851	.1	1.8
6 - 7	1,025	98	.5	9.6	46,855	2,946	.3	6.3
7 - 8	1,025	98	.5	9.6	46,855	2,834	.3	6.0
8 - 9	1,025	96	.5	9.4	46,855	2,749	.3	5.9
9 - 10	1,025	89	.4	8.7	46,855	2,588	.3	5.5

^aFrom 8 o'clock until 12 noon, 1,230 room hours and 56,226 student-stations were available each week for each hour. At 12 noon and after 1,025 room hours and 46,855 student-stations were available each week for each hour.

TABLE XI

WEEKLY UTILIZATION OF INSTRUCTIONAL SPACE BY HOURS OF THE DAY
FALL QUARTER, 1962, FOR TEACHING LABORATORIES

Hour of the Day	Room Utilization (88 rooms)				Student-Station Utilization (1,920 s.s.)			
	Total		Average No. of Periods		Total		Average No. of	
	Room Hours Available ^a	Room Hours Used	Rooms Used	Percentage of Utilization	Student- Stations Available ^a	Student- Stations Used	S.S. Used	Percentage of Utilization
8 - 9	528	145	1.6	27.5	11,520	3,088	1.6	26.8
9 - 10	528	169	1.9	32.0	11,520	5,266	2.7	45.7
10 - 11	528	146	1.6	27.6	11,520	3,442	1.8	29.9
11 - 12N	528	127	1.4	24.0	11,520	3,876	2.0	33.6
12N - 1PM	440	45	.5	10.2	9,600	1,934	1.0	20.1
1 - 2	440	142	1.6	32.3	9,600	2,941	1.5	30.6
2 - 3	440	161	1.8	36.6	9,600	3,697	1.9	38.5
3 - 4	440	150	1.7	34.1	9,600	3,693	1.9	38.5
4 - 5	440	88	1.0	20.0	9,600	2,022	1.0	21.1
5 - 6	440	18	.2	4.1	9,600	921	.5	9.6
6 - 7	440	17	.2	3.9	9,600	701	.4	7.3
7 - 8	440	17	.2	3.9	9,600	701	.4	7.3
8 - 9	440	17	.2	3.9	9,600	701	.4	7.3
9 - 10	440	13	.1	3.0	9,600	441	.2	4.6

^aFrom 8 o'clock until 12 noon, 390 room hours and 11,052 student-stations were available each week for each hour. At 12 noon and after 325 room hours and 9,210 student-stations were available each week for each hour.

TABLE XII

WEEKLY UTILIZATION OF INSTRUCTIONAL SPACE BY HOURS OF THE DAY
FALL QUARTER, 1962, FOR GYMNASIUMS

Hour of the day	Room Utilization (8 rooms)				Student-Station Utilization (427 s.s.)			
	Total Room Hours Available ^a	Total Room Hours Used	Average No. of Periods Rooms Used	Percentage of Utilization	Total Student- Stations Available ^a	Total Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
8 - 9	48	13	1.6	27.1	2,562	480	1.1	18.7
9 - 10	48	32	4.0	66.7	2,562	1,070	2.5	41.8
10 - 11	48	32	4.0	66.7	2,562	1,033	2.4	40.3
11 - 12N	48	31	3.9	64.6	2,562	1,045	2.4	40.8
12N - 1PM	40	31	3.9	77.5	2,135	1,031	2.4	48.3
1 - 2	40	28	3.5	70.0	2,135	917	2.2	43.0
2 - 3	40	31	3.9	77.5	2,135	879	2.1	41.2
3 - 4	40	29	3.6	72.5	2,135	893	2.1	41.8
4 - 5	40	26	3.2	65.0	2,135	958	2.2	44.9
5 - 6								
6 - 7								
7 - 8								
8 - 9								
9 - 10								

^aFrom 8 o'clock until 12 noon, 48 room hours and 2,562 student-stations were available each week for each hour. At 12 noon and after 40 room hours and 2,135 student-stations were available each week for each hour.

TABLE XIII

WEEKLY UTILIZATION OF INSTRUCTIONAL SPACE BY HOURS OF THE DAY
FALL QUARTER, 1962, FOR SEMINAR ROOMS

Hour of the day	Room Utilization (6 rooms)				Student-Station Utilization (113 s.s.)			
	Total Room Hours Available ^a	Total Room Hours Used	Average No. of Periods Used	Percentage of Utilization	Total Student- Stations Available ^a	Total Student- Stations Used	Average No. of S.S. Used	Percentage of Utilization
8 - 9	36	5	0.8	13.9	678	75	0.7	11.1
9 - 10	36	3	.5	8.3	678	21	.2	3.1
10 - 11	36	1	.2	2.8	678	6	.05	.9
11 - 12N	36	12	2.0	33.3	678	87	.8	12.8
12N - 1PM								
1 - 2	30	4	.7	13.3	565	88	.8	15.6
2 - 3	30	9	1.5	30.0	565	121	1.1	21.4
3 - 4	30	5	.8	16.7	565	94	.8	16.6
4 - 5	30	5	.8	16.7	565	80	.7	14.2
5 - 6	30	4	.7	13.3	565	62	.6	11.0
6 - 7								
7 - 8								
8 - 9								
9 - 10								

^aFrom 8 o'clock until 12 noon, 36 room hours and 678 student-stations were available each week for each hour. At 12 noon and after 30 room hours and 565 student-stations were available each week for each hour.

at 11:00 a.m., 33.3 per cent; the highest student-station utilization was at 2:00 p.m., 21.4 per cent.

IV. UTILIZATION OF INSTRUCTIONAL SPACE BY BUILDINGS

Table XIV reports a summary of utilization of instructional space in each building located on the Knoxville campus for the fall quarter, 1962. The amount of instructional space is expressed in terms of:

(1) the number of rooms and the percentage of utilization of the available instructional classrooms, and (2) the number of student-stations and the percentage of utilization of student-stations in the available instructional rooms. All utilization percentages are based on a forty-four-hour week. Utilization of instructional space for each building by the day of the week and by the hour of the day for the week may be found in Appendix E.

In Table XIV when instructional space in all buildings was computed and reported, the utilization of rooms ranged from 78.6 per cent for Ayres Hall to 14.1 per cent for the Agricultural Engineering Building. When instructional space in all buildings was computed and reported, the utilization of student-stations ranged from 63.3 per cent for the Geology and Geography Building to 5.9 per cent for the Animal Sciences Building. The room and student-station utilization for all buildings for the 1962 fall quarter was 46.0 per cent and 34.2 per cent, respectively.

Ayres Hall was the busiest classroom building on the campus, with 78.6 per cent room utilization and 46.7 per cent student-station

TABLE XIV

SUMMARY OF UTILIZATION DATA BY BUILDINGS FOR THE FALL QUARTER, 1962

Buildings	Room Utilization (307 rooms)				Student-Station Utilization (11,831 s.s.)			
	Total Room Hours Avail.	Total Room Hours Used	Average No. of Periods of Rooms Used	Percent- age of Utiliza- tion ^a	Total Student- Stations Available	Total Student- Stations Used	Average No. of S.S. Used	Percent- age of Utiliza- tion ^a
Agricultural Engineering Building	220	31	6.2	14.1	6,952	809	5.1	11.6
Alumni Memorial Auditorium-								
Gymnasium	440	283	28.3	64.3	22,748	8,993	17.4	39.5
Animal Science	264	56	9.3	21.2	15,840	939	2.6	5.9
Armory Fieldhouse	396	94	10.4	23.7	15,312	2,841	8.0	18.6
Ayres Hall	1,760	1,384	34.6	78.6	81,752	38,202	20.5	46.7
Claxton Education	1,012	450	19.6	44.5	27,940	7,870	12.4	28.2
Dabney Hall	616	276	19.7	44.8	42,152	18,276	18.0	40.8
Estabrook Hall	528	206	17.2	39.0	16,720	3,227	8.5	19.3
Ferris Hall	528	242	20.2	45.8	24,376	4,659	8.4	19.1
Geology and Geography	572	235	18.1	41.1	19,272	12,476	27.8	63.3
Glocker Business Adm.	1,408	897	28.0	63.7	56,628	25,377	19.7	44.8
Hesler Biology	1,056	371	15.4	35.1	27,412	11,446	18.4	41.8
Home Economics	1,232	385	13.7	31.2	25,300	7,920	13.8	31.3
Law Building	176	57	14.2	32.4	14,080	2,886	9.0	20.5

TABLE XIV (continued)

Buildings	Room Utilization (307 rooms)				Student-Station Utilization (11,831 s.s.)			
	Total Room Hours Avail.	Total Room Hours Used	Average No. of Rooms Used	Percent- age of Utiliza- tions	Total Student- Stations Available	Total Student- Stations Used	Average No. of S.S.Used	Percent- age of Utiliza- tions
McCord Hall	264	55	9.2	20.8	6,864	1,089	7.0	15.9
Miscellaneous ^b	484	151	13.7	31.2	8,272	1,928	10.2	23.3
Morgan Hall	220	71	14.2	32.3	7,524	1,088	6.4	14.5
Music Annex	308	143	20.4	46.4	15,972	3,300	9.1	20.7
Perkins Hall	1,056	426	17.7	40.5	34,056	9,139	11.8	26.8
Physics Building	396	182	20.2	46.0	29,392	7,355	11.0	25.0
Science Hall	396	147	16.3	37.1	15,180	7,279	21.1	48.0
South College	176	67	16.8	38.1	6,820	1,143	7.5	17.1
All Buildings	13,508	6,209	20.2	46.0	520,564	178,262	15.0	34.2

^aBased on a 44-hour week, eight hours each day, Monday through Friday, and four hours on Saturday.

^bBuildings with less than four rooms: Craft House, two rooms and twenty-three student-stations; Dairy Products Building, one room and thirty-six student-stations; Family Life Center, two rooms and thirty student-stations; Food Technology Building, one room and eighteen student-stations; Music Building, three rooms and twenty-nine student-stations; Nursery Building, one room and twenty-eight student-stations; and Hoskins Library, one room and twenty-four student-stations.

utilization for the forty-four-hour week. Ayres Hall rooms were used an average of 34.6 periods per week, and Ayres Hall student stations were used an average of 20.5 periods per week.

Glocker Hall, Business Administration Building, had the most constant, day-long utilization with 63.7 per cent for rooms and 44.8 per cent for student-stations. Glocker Hall rooms were used an average of 28.0 periods per week, and the student-stations were used an average of 27.8 periods per week. The Evening School, which begins at 6:00 p.m., used the building until 9:50 p.m. Room and student-station utilization in Glocker Hall after 6:00 p.m. was 20.1 per cent and 38.3 per cent, respectively. These indexes were based on a twenty-hour week, four hours each night Monday through Friday.

Claxton Hall, Education Building, was also used for Evening School classes. For the fall quarter, 1962, Claxton Hall room utilization was 44.5 per cent and student-station utilization was 28.2 per cent. Room and student-station utilization in Claxton Hall after 6:00 p.m. was 19.6 per cent and 12.0 per cent, respectively. These indexes were based on a sixteen-hour week, four hours each night Monday through Thursday. No classes were held on Friday nights, and rooms were considered as unavailable.

McCord Hall, Morgan Hall, Animal Science Building, the Armory Fieldhouse, and the Agricultural Engineering Building had the lowest room and student-station utilization indexes for the forty-four-hour week among the buildings located on the Knoxville campus. Room utilization for these buildings was below 30 per cent, and student-station

utilization was below 19 per cent.

For the fall quarter, 1962, the Armory Fieldhouse was utilized by the military departments. Classrooms and student-stations were utilized only during the morning hours of Monday through Friday, and no utilization occurred on Saturday. This scheduling practice resulted in low utilization, 23.7 per cent for classrooms and 18.2 per cent for student-stations, for the forty-four-hour week. The Armory Fieldhouse rooms were used an average of 10.4 periods per week, and the student-stations were used an average of 8.0 periods per week.

V. COMPARISON OF THE UNIVERSITY OF TENNESSEE'S UTILIZATION WITH OTHER HIGHER EDUCATIONAL INSTITUTIONS

The instructional space utilization indexes of The University of Tennessee compared favorably with those of other institutions granting a Bachelor's or a higher degree. When compared with fifty-seven degree-granting institutions, reported in the Russell and Doi study,² The University of Tennessee ranked at the 70th percentile in utilization of all instructional rooms based on a forty-four-hour weekly basis. In room utilization of general classrooms, The University of Tennessee ranked at the 66th percentile, and in room utilization of teaching laboratories, The University of Tennessee ranked at the 55th percentile. When compared with fifty-one degree-granting institutions, reported in

²John Dale Russell and James I. Doi, Manual for Studies of Space Utilization in Colleges and Universities (Athens: American Association of Collegiate Registrars and Admissions Officers, 1957), p. 115.

the Russell and Doi study.³ The University of Tennessee ranked at the 87th percentile in student-station utilization of all instructional space, at the 83rd percentile in student-station utilization of general classrooms, and at the 93rd percentile in student-station utilization of teaching laboratories.

In 1962 North Carolina completed a utilization study of twelve tax-supported institutions of higher education.⁴ The study, based on a forty-four-hour week, reported that general classrooms were utilized an average of 19.9 hours per week, and teaching laboratories were utilized an average of 14.1 hours per week.⁵ For the 1962 fall quarter, general classrooms at The University of Tennessee were utilized an average of 22.7 hours per week, and teaching laboratories were utilized an average of 14.2 hours per week. This room utilization by The University of Tennessee was higher than the average room utilization of the twelve North Carolina institutions.

General classroom student-stations in the twelve North Carolina institutions were utilized an average of 11.7 hours per week, and teaching laboratory student-stations were utilized an average of 10.4 hours per week.⁶ Student-stations in the general classrooms of The

³Ibid., p. 116.

⁴Education Beyond the High School, A Report Prepared by The Governor's Commission on Education Beyond the High School (Raleigh, North Carolina, 1962).

⁵Ibid., p. 101.

⁶Ibid.

University of Tennessee were utilized an average of 14.5 hours per week, and student-stations in the teaching laboratories were utilized an average of 17.4 hours per week. This student-station utilization by The University of Tennessee was higher than the average student-station utilization of the twelve North Carolina institutions.

Figures 1 through 4 compare fall quarter, 1962, average daily room and student-station utilization of The University of Tennessee's general classrooms and teaching laboratories with norms established by John X. Jamrich.⁷ Figures 1 and 2 show that The University of Tennessee's average daily utilization of general classrooms and teaching laboratories was higher than the Jamrich norms. Figure 3 shows that The University of Tennessee's average daily student-station utilization of general classrooms was only slightly higher than the norms reported by Jamrich. Figure 4 shows that The University of Tennessee's average daily student-station utilization of teaching laboratories was much higher than the norms reported by Jamrich.

Figures 5 through 8 compare The University of Tennessee's general classroom and teaching laboratory average hourly room and student-station utilization for the week with norms established by Jamrich.⁸ Figure 5 shows that The University of Tennessee's average hourly general classroom utilization for the week was higher than the Jamrich norms. Figure 6 shows that The University of Tennessee's average hourly

⁷John X. Jamrich, To Build or Not To Build (New York: Educational Facilities Laboratories, 1962), pp. 31-33.

⁸Ibid.

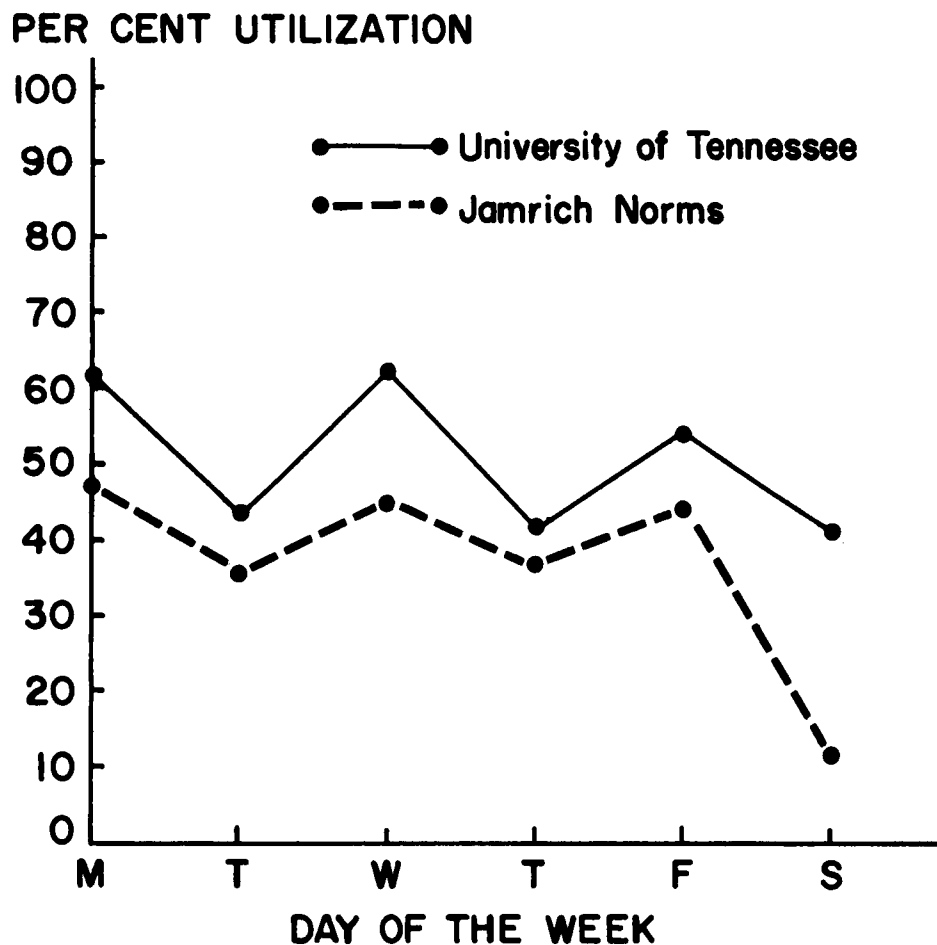


FIGURE 1

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S
DAILY GENERAL CLASSROOM UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

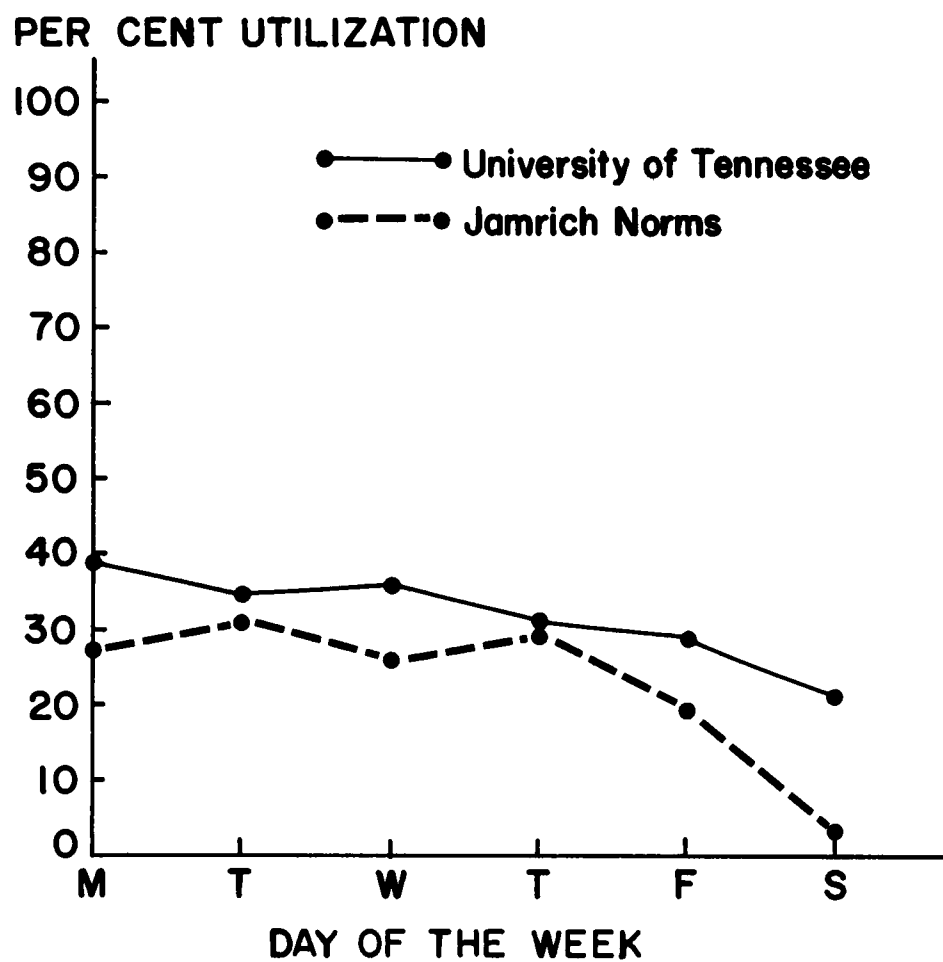


FIGURE 2

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S
DAILY TEACHING LABORATORY UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

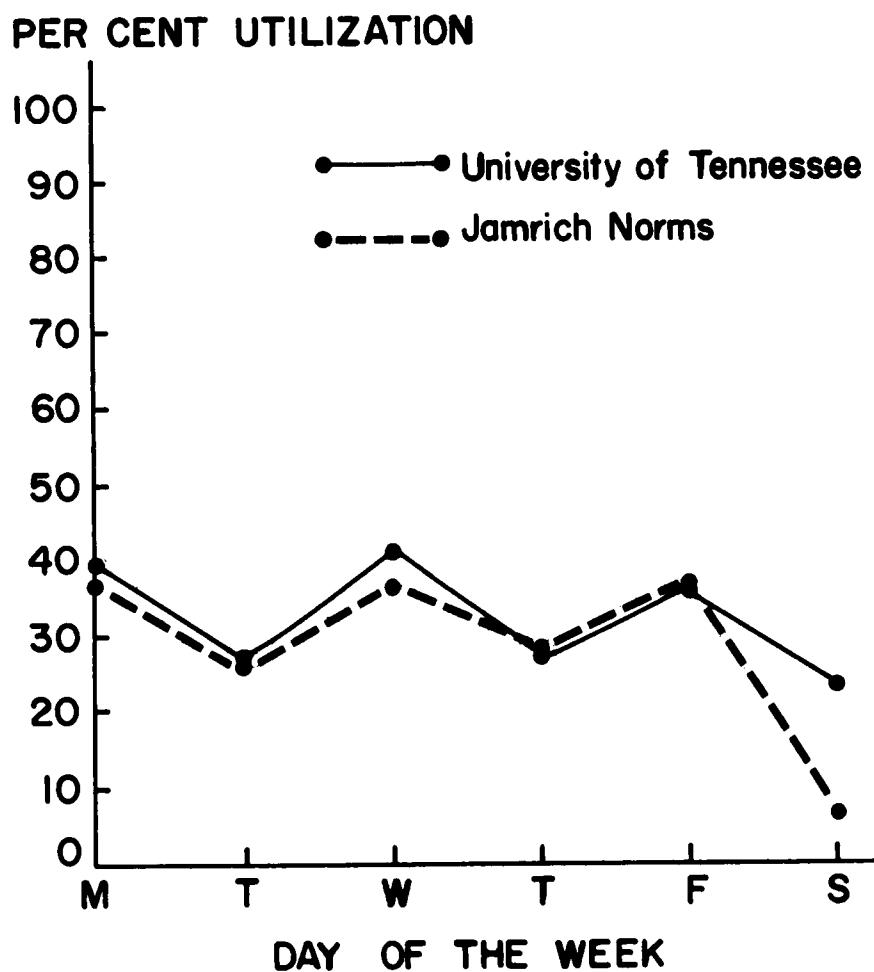


FIGURE 3

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S DAILY
STUDENT-STATION GENERAL CLASSROOM UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

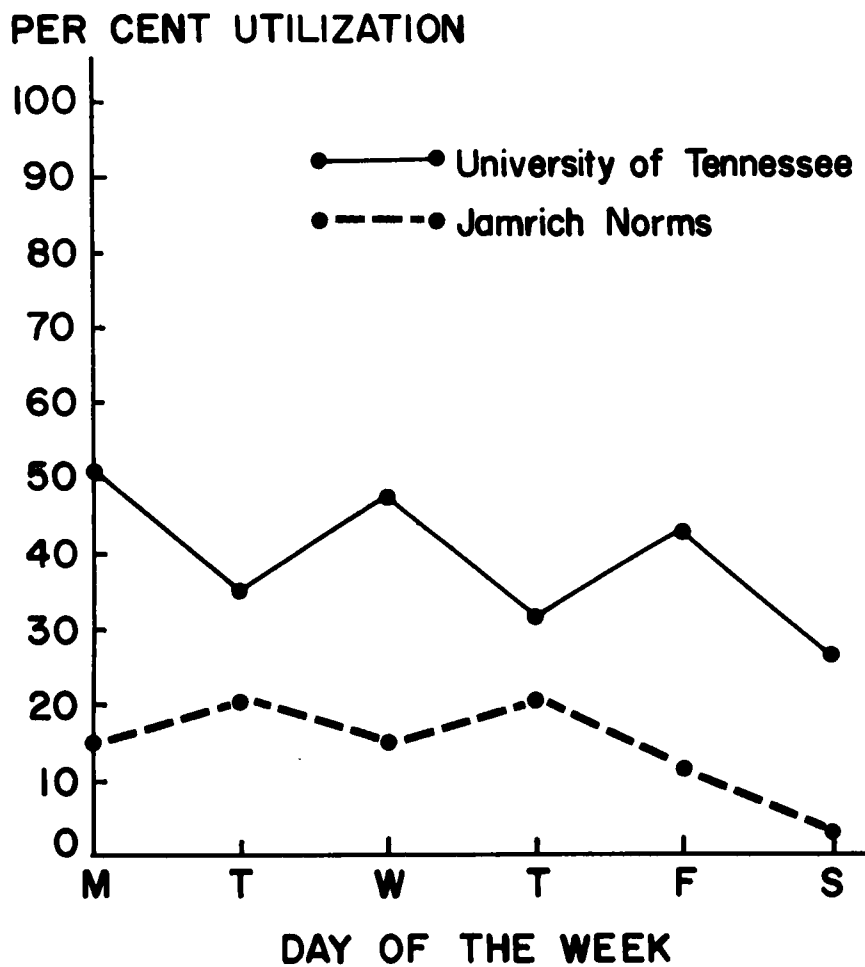


FIGURE 4

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S DAILY
STUDENT-STATION TEACHING LABORATORY UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

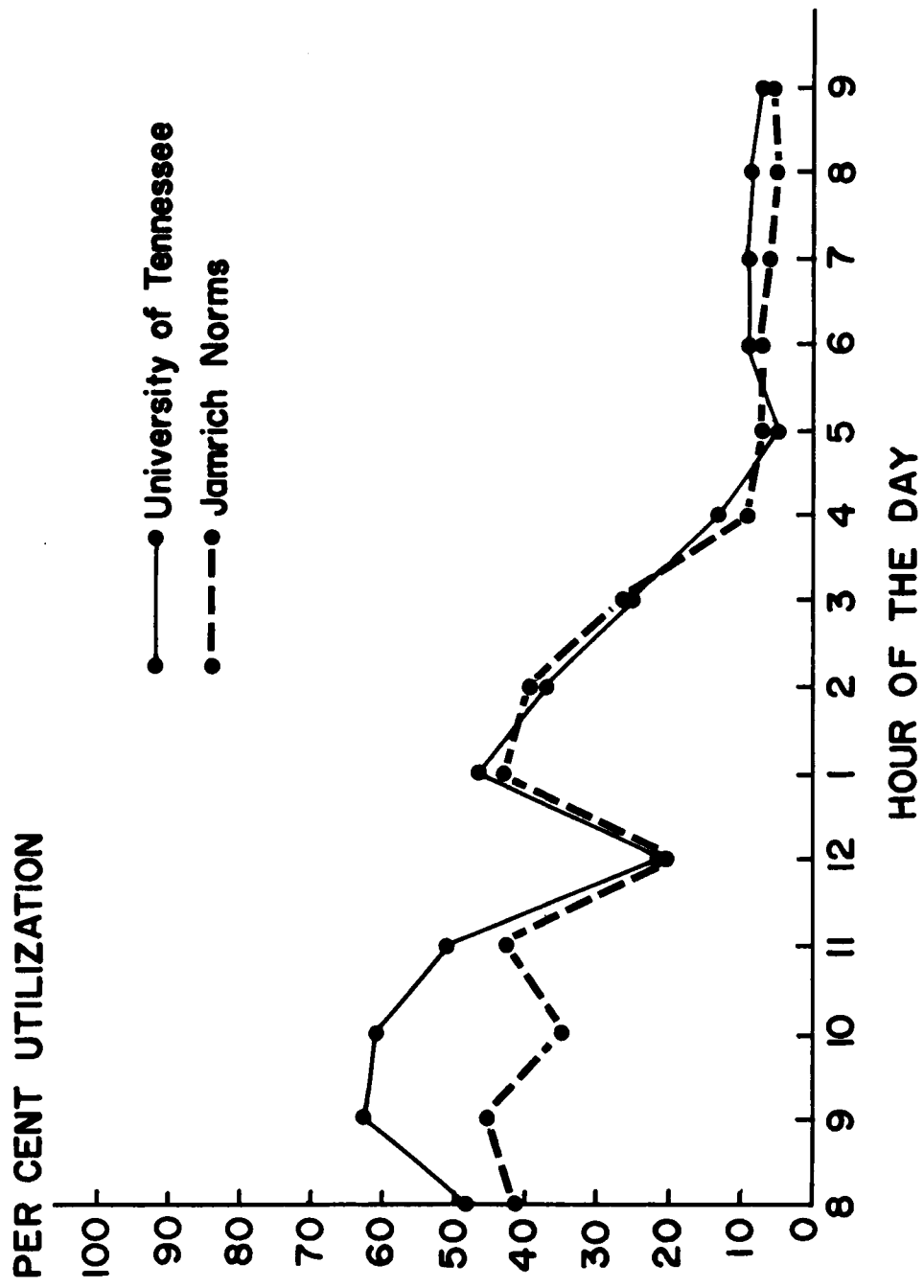


FIGURE 5

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S
HOURLY GENERAL CLASSROOM UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

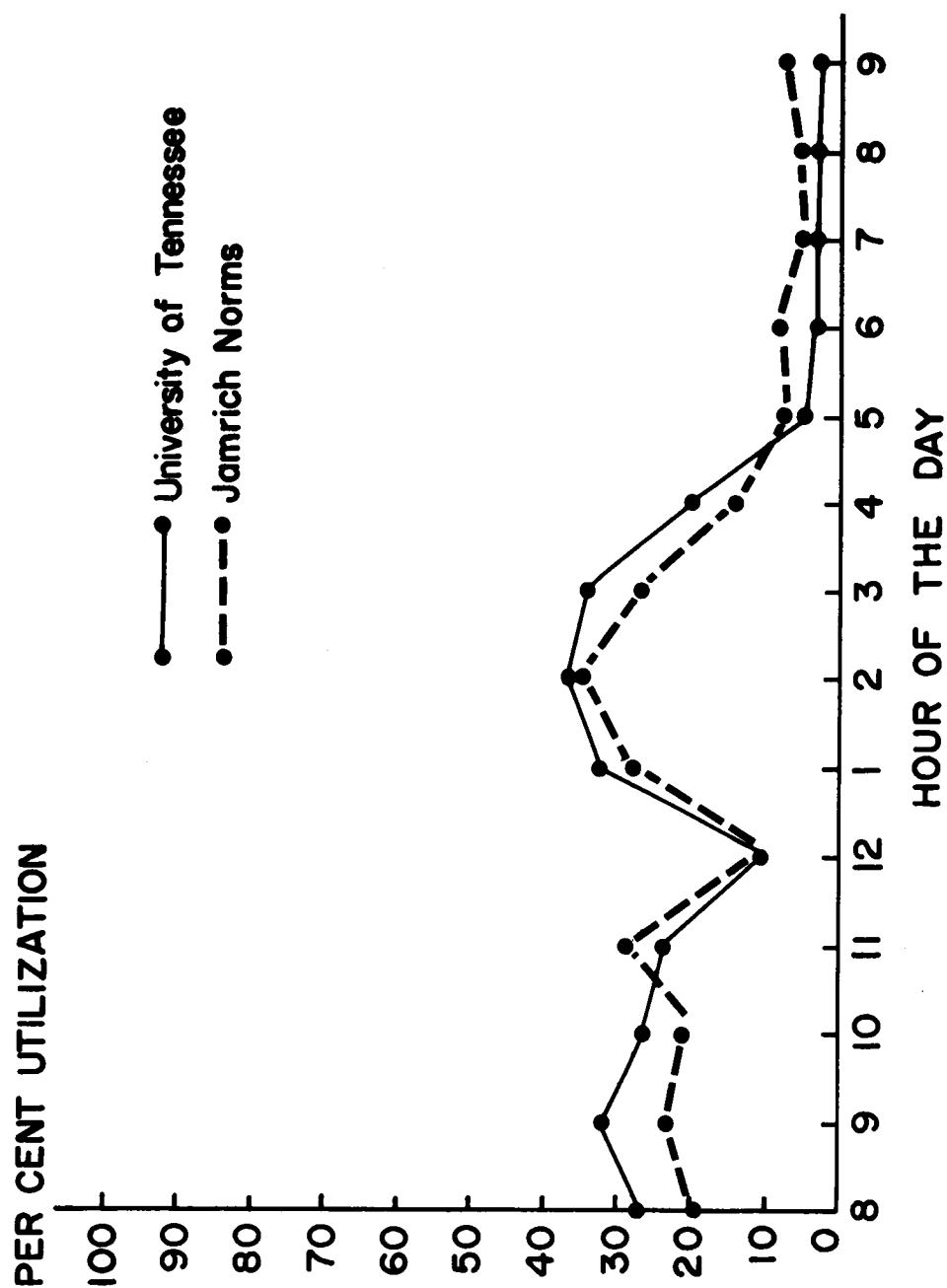


FIGURE 6

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S
HOURLY TEACHING LABORATORY UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

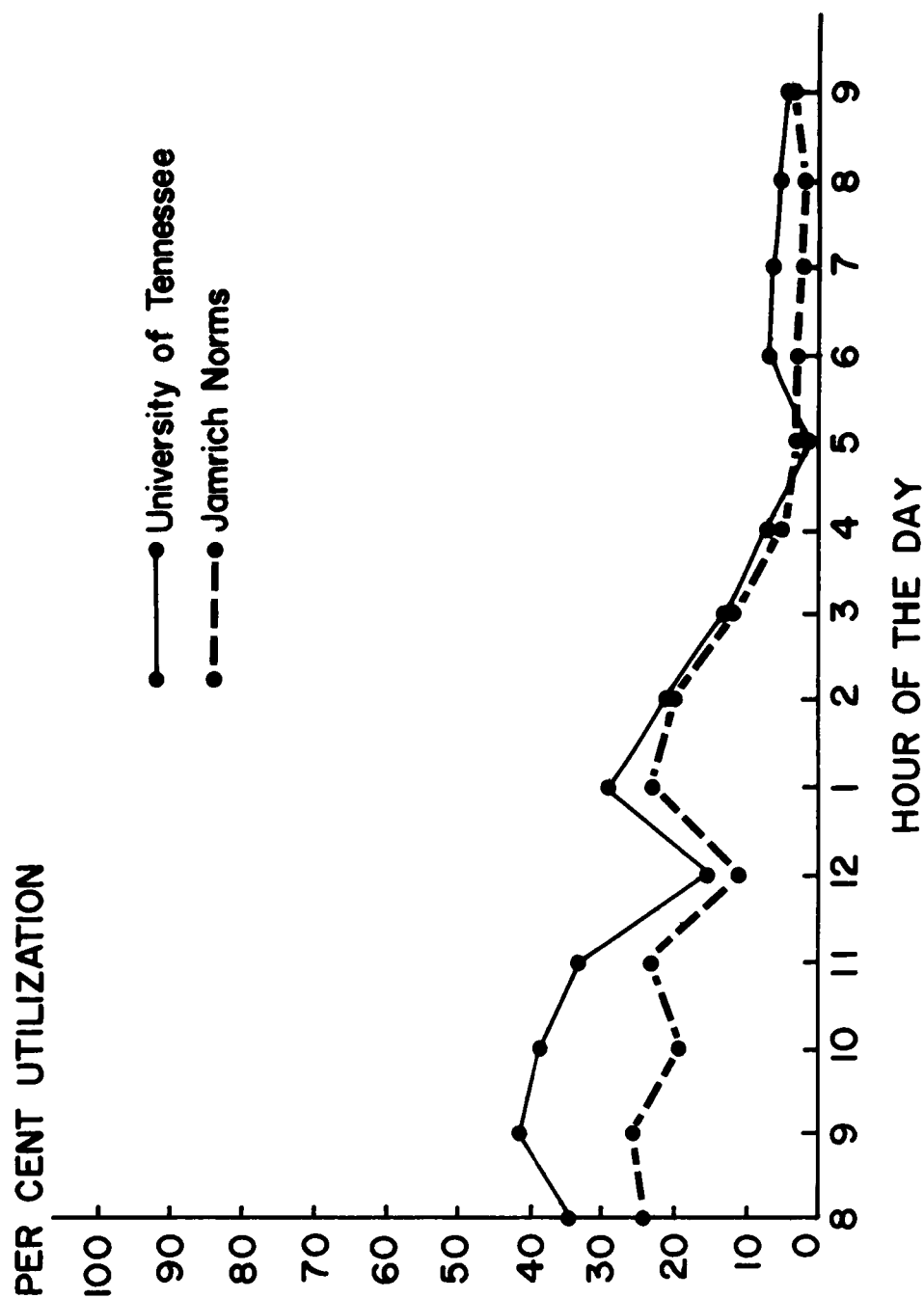


FIGURE 7

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S HOURLY
STUDENT-STATION GENERAL CLASSROOM UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

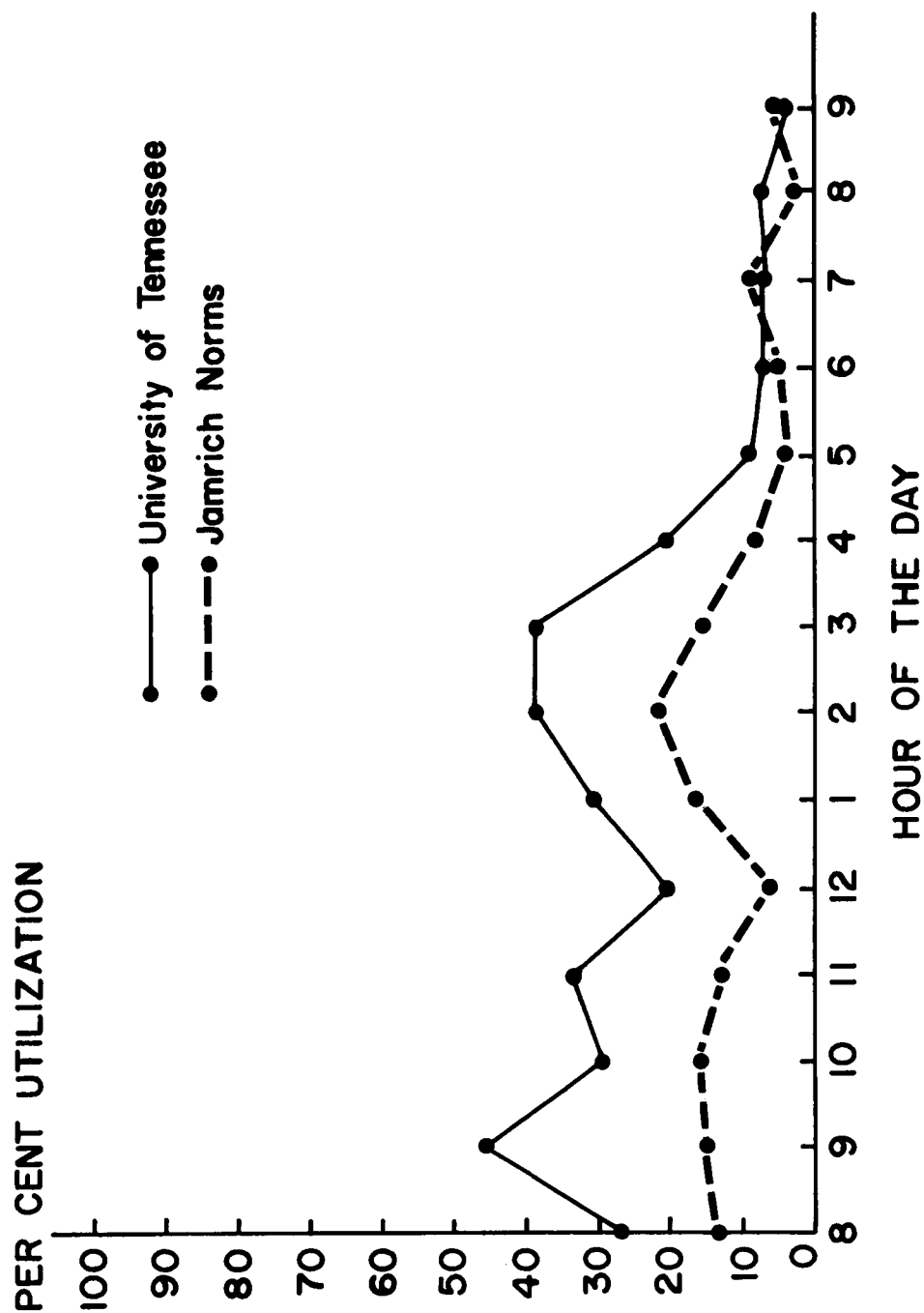


FIGURE 8

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S HOURLY
STUDENT-STATION TEACHING LABORATORY UTILIZATION
WITH NORMS ESTABLISHED BY JAMRICH

teaching laboratory utilization for the week was slightly higher than the Jamrich norms except at 11:00 a.m. and after 5:00 p.m. when the University's average hourly laboratory utilization was below the Jamrich norms. Figure 7 shows that The University of Tennessee's average hourly student-station general classroom utilization for the week was higher than the Jamrich norms except at 5:00 p.m. when the University's average hourly student-station utilization for the week was below the Jamrich norms. Figure 8 shows that The University of Tennessee's average hourly student-station teaching laboratory utilization for the week was higher than the Jamrich norms except at 7:00 p.m. and 9:00 p.m. when the University's average hourly utilization was below the Jamrich norms.

The percentages used to report Figures 1 through 8 may be found in Appendix F.

VI. EFFECT OF ENROLLMENT ON INSTRUCTIONAL UTILIZATION

Table XV compares The University of Tennessee's 1962 fall quarter utilization of instructional space with the 1961 fall quarter utilization. The University of Tennessee's Office of Institutional Research reported 1961 fall quarter instructional space utilization for the following six types of instructional space: (1) all instructional space, (2) general classrooms, (3) demonstration classrooms, (4) teaching laboratories, (5) seminar rooms, and (6) gymnasiums. To achieve a valid comparison the 1962 fall quarter utilization data, for Table XV only, were computed and reported for the six types of instructional space

TABLE XV

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S UTILIZATION OF INSTRUCTIONAL
SPACE FOR THE FALL QUARTER OF 1961 AND 1962
ALL INSTRUCTIONAL BUILDINGS

Type	Per Cent Room Utilization ^a		Per Cent Student- Station Utilization ^a	
	1961	1962 ^b	1961	1962 ^b
All instructional space	46.1	46.0	32.4	34.2
General classrooms	52.0	51.6	33.1	33.0
Demonstration classrooms	34.8	37.5	29.3	39.4
Teaching laboratories	34.4	32.4	29.5	39.6
Seminar rooms	23.8	18.2	16.9	12.8
Gymnasiums	64.4	71.9	48.0	44.2

^aPer cent possible utilization based on 44-hour week.

^bIncludes nine rooms in the New Physics Building and seven rooms acquired by alterations to the Geology and Geography Building.

established by the office of Institutional Research in 1961. The teaching laboratories utilization indexes reported in Table III, page 48, included the demonstration classrooms and the teaching laboratories utilization indexes reported in Table XV, page 79.

Table XV reveals that the utilization indexes changed relatively little from the fall quarter of 1961 to the fall quarter of 1962; however, since 1961 resident student enrollment increased, nine additional rooms in the new Physics Building became available for instructional purposes, and alterations to the Geology and Geography Building were nearing completion. For the fall quarter, 1962, gymnasiums continued to have the highest utilization index for rooms (71.9 per cent) and for student-stations (44.2 per cent), an increase of 7.5 per cent for rooms and 3.8 per cent for student-stations since the fall quarter, 1961. Seminar rooms also continued to have the lowest utilization index for rooms (18.2 per cent) and for student-stations (12.8 per cent). For the fall quarters of 1961 and 1962, general classrooms were used slightly more than half of the available time with approximately one-third of their student-stations occupied. Since the fall quarter of 1961 the student-station utilization indexes for demonstration classrooms and teaching laboratories each increased 10.1 per cent. The room utilization index for demonstration classrooms increased 2.7 per cent, while the room utilization index for teaching laboratories decreased 2.0 per cent. Room utilization for all instructional space for the fall quarter, 1962, was 46.0 per cent, a decrease of only one-tenth of 1 per cent since fall quarter, 1961. However, student-station utilization for all instructional

space increased from 32.4 per cent for the fall quarter, 1961, to 34.2 per cent for the fall quarter, 1962, an increase of 1.8 per cent.

Although no exact relationship between enrollment and the utilization indexes can be determined from the data analyzed, it was obvious from a study of Table XV that levels of room and student-station use were sensitive to changes in resident student enrollments. The University of Tennessee's fall quarter resident student enrollment for the Knoxville campus increased from 10,474 in 1961 to 11,220 in 1962,⁹ an increase of 7.1 per cent. Table XV shows that during this period room utilization for all instructional space decreased one-tenth of 1 per cent, and student-station utilization for all instructional space increased 1.8 per cent. It should be noted that during this period the number of instructional classrooms scheduled by the Room Assignment Officer increased from 294 to 307 rooms, a 4.4 per cent increase in the number of rooms available, and student-stations increased from 11,141 to 11,831, an increase of 6.2 per cent. A decrease in room utilization following new campus construction, was expected as new buildings are erected to accommodate student enrollments of future years. The increase of 1.8 per cent from 1961 to 1962 in The University of Tennessee's student-station utilization means that class sizes are increasing despite additional construction.

⁹1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

Table XVI reports the effects of changing student enrollments on the utilization indexes for all instructional space from 1961 to 1970. In computing this table, it was assumed that no additional construction would occur from 1961 to 1970, and it was also assumed that The University of Tennessee would continue to operate under the fall quarter, 1961, educational policies. To determine the effect of resident student enrollment on the utilization indexes, the 1962 fall quarter room and student station indexes were computed by omitting the room and student-station increases since the 1961 fall quarter. This meant that 12,936 rooms and 490,204 student-stations were available for instructional purposes for the forty-four-hour week, and 6,209 rooms and 178,262 student stations, reported in Table IV, page 50, were used for the forty-four-hour week. These indexes were computed and compared with the 1961 indexes and changes were noted. It was significant to note that if no new construction had occurred between the fall quarters of 1961 and 1962 and resident student enrollments increased 7.1 per cent, the room and student station indexes for all instructional space for the fall quarter, 1962, would have been 48.0 per cent and 36.4 per cent, an increase of 1.9 per cent and 4.0 per cent, respectively. Using these increases in the utilization indexes as constants, Table XVI was computed. Table XVI shows that by 1966 room utilization would increase to 60.5 per cent and would exceed the 60 per cent utilization index reported as a saturation of instructional facilities by The Commission on Goals for Higher

TABLE XVI
EFFECT OF ENROLLMENT ON THE UTILIZATION INDEXES

Year	Resident Student Enrollment	Cumulative Per Cent Increase From 1961	Utilization Index	
			Room	Student-Station
1961	10,474		46.1	32.4
1962	11,220	7.1	48.0	36.4
1963	12,211	16.6	50.5	41.6
1964	13,195	26.0	53.1	47.2
1965	14,461	38.1	56.4	54.0
1966	16,115	53.8	60.5	62.8
1967	16,832	60.7	62.3	66.4
1968	17,377	65.9	63.8	69.6
1969	17,934	71.2	65.1	72.4
1970	18,628	77.8	67.0	76.4

Actual resident student enrollment through 1962; 1963-70 resident enrollment projections from Table I, Ormond C. Corry, "Enrollment Growth Potential of The University of Tennessee to 1980," A Report Prepared by the Committee on Projections of The University of Tennessee Student Population (Knoxville: The University of Tennessee, 1961).

Education in the South.¹⁰ The table shows that if the University continued to operate under the fall quarter, 1961, educational policies and did not construct additional instructional facilities from 1961 through 1970, the increase in resident student enrollment would produce a saturation of instructional facilities by 1966. Table XVI suggests an urgent need for effective use of existing instructional facilities and an urgent need for careful and systematic planning for future instructional facilities. Because the construction of instructional buildings usually requires one or two years before occupancy, early planning of future instructional buildings must be completed to avoid a saturation of facilities by 1966.

Table XVII reports the effect of the 1962 fall quarter resident student enrollment on the assignable square feet of instructional space available on the Main campus as reported in Table I, page 40. Table XVII excludes instructional space on the Agriculture campus because the large expanse of space available in such areas as stockyards, barns, processing sheds, storage sheds, and exhibition areas would distort the data. The table also projects the assignable instructional square feet available per resident student enrolled for 1965, 1968, and 1970. These resident student enrollment projections were based on Table I of Ormond C. Corry's report on growth potential of The University of Tennessee to

¹⁰Within Our Reach, A Report Prepared by The Commission on Goals for Higher Education in the South (Atlanta: Southern Regional Education Board, 1962).

TABLE XVII

EFFECT OF ENROLLMENT ON THE AVAILABILITY AND USE
OF INSTRUCTIONAL SPACE ON THE MAIN CAMPUS

Year	Resident Student Enrollment ^a	Type of Space	Assignable Instructional Square Feet of Space ^b	Assignable		Assignable		Assignable	
				Instructional Square Feet Per Student Enrolled	Instructional Square Feet of Space Used ^b	Instructional Square Feet Used Per Student Enrolled ^b	Instructional Square Feet Used Per Student Enrolled ^b	Instructional Square Feet Used Per Student Enrolled ^b	Instructional Square Feet Used Per Student Enrolled ^b
1962	10,748	General classrooms Teaching laboratories All instructional	146,029 112,646 405,264	13.6 10.5 37.7	146,029 100,122 300,238	13.6 9.3 27.9			
1965	13,989	General classrooms Teaching laboratories All instructional	146,029 ^c 112,646 405,264	10.4 8.0 29.0					
1968	16,905	General classrooms Teaching laboratories All instructional	146,029 ^c 112,646 405,264	8.6 6.7 24.0					
1970	18,156	General classrooms Teaching laboratories All instructional	146,029 ^c 112,646 405,264	8.0 6.2 22.3					

^aActual 1962 resident student enrollment, excluding the Agriculture Campus; 1963-70 projections excluding the Agriculture Campus from Table I of Ormond C. Corry's "Enrollment Growth Potential of The University of Tennessee to 1980," A Report Prepared by the Committee on Projections of The University of Tennessee Student Population (Knoxville: The University of Tennessee, 1961).

^bFall quarter, 1962.

^cAssumes no new construction.

1980.¹¹ Corry's Table I projections were adjusted to exclude the resident student enrollment of the Agriculture campus.

Table XVII shows that for the 1962 fall quarter thirteen and six-tenths assignable instructional square feet of general classroom space were available per resident student enrolled on the Main campus and thirteen and six-tenths assignable instructional square feet were used. For the 1962 fall quarter ten and five-tenths assignable instructional square feet of teaching laboratory space were available per resident student enrolled on the Main campus and nine and three-tenths assignable instructional square feet were used. The table shows that for the 1962 fall quarter thirty-seven and seven-tenths assignable instructional square feet of all instructional space were available per resident student enrolled on the Main campus and twenty-seven and nine-tenths assignable instructional square feet were used. Table XVII projections indicate that as resident student enrollments increased, assignable instructional square feet of space available in general classrooms, teaching laboratories, and in all instructional space would decrease unless additional instructional space was constructed. The projections further reveal that by 1970 general classrooms on the Main campus would have eight assignable instructional square feet available per resident student enrolled; teaching laboratories would have six and two-tenths assignable instructional square feet available per resident enrolled;

¹¹Ormond C. Corry, "Enrollment Growth Potential of The University of Tennessee to 1980," A Report Prepared by the Committee on Projections of The University of Tennessee Student Population (Knoxville: The University of Tennessee, 1961).

and all instructional space would have twenty-two and three-tenths assignable instructional square feet available per resident student enrolled. Assignable instructional square feet per resident student enrolled would be reduced from thirty-seven and seven-tenths in 1962 to twenty-two and three-tenths in 1970. The Main campus of The University of Tennessee would need an additional fifteen and four-tenths assignable instructional square feet per resident student enrolled if the University expected to maintain its 1962 fall quarter allocation of assignable instructional square feet per resident student enrolled. This would mean that an additional 279,602 assignable instructional square feet would be needed on the Main campus of The University of Tennessee by 1970.

VII. SUMMARY

Chapter III presented an analysis and interpretation of The University of Tennessee's utilization of instructional space for the fall quarter, 1962. A survey of the availability of space revealed that general classrooms were the largest type of instructional space available for the fall quarter with 205 rooms and 9,371 student-stations available. General classrooms were scheduled for use 51.6 per cent of the forty-four-hour week, and the student-stations were scheduled for use 33.0 per cent of the forty-four-hour week. Highest hourly utilization for general classrooms was 62.8 per cent for rooms and 41.2 per cent for student-stations at 9:00 a.m.; while the lowest hourly utilization for general classrooms was 4.8 per cent and 1.5 per cent for student-stations at 5:00 p.m. Utilization of general classrooms by

hours of the day was determined by the schedule of classes, scheduling practices, number of students, and the student's choice of classes. The latter probably had more influence on utilization by hours of the day than utilization by days of the week as many classes were offered in sections at different hours of the day with the student having some choice of class periods. Some control over this could be exercised by rearrangement of classes and by limiting class size during the hours of heavy utilization. The teaching laboratories with eighty-eight rooms and 1,920 student-stations available represented the second largest allocation of space available for the fall quarter, 1962. The teaching laboratories were scheduled for use 34.4 per cent of the available hours each week, and the student-stations were scheduled for use 39.6 per cent of the forty-four-hour week. The highest hourly utilization for teaching laboratories was 36.6 per cent for rooms at 2:00 p.m., and the highest hourly student-station utilization was 45.7 per cent at 9:00 a.m. Gymnasiums, the third largest allocation of space available for the fall quarter, 1962, with eight gymnasiums and 427 student-stations available, had the highest room utilization, 71.9 per cent, and the highest student-station utilization, 44.2 per cent, for the forty-four-hour week. The highest gymnasium utilization was 77.5 per cent at 12:00 noon and 2:00 p.m.; and the highest student-station utilization was 48.3 per cent at the noon hour. Seminar rooms, the smallest allocation of space available for the fall quarter, 1962, with six rooms and 113 student-stations available, were utilized 18.2 per cent of the forty-four-hour week, and the student-stations were utilized 12.8 per cent of the forty-four-hour

week. The highest seminar room utilization was 33.3 per cent at 11:00 p.m., and the highest student-station utilization was 21.4 per cent at 2:00 p.m. A total of 307 rooms and 11,831 student-stations were available for instructional purposes for the fall quarter, 1962. Room utilization of all instructional space was 46.0 per cent and student-station utilization was 34.2 per cent for the forty-four-hour week. The highest hourly utilization for all instructional space was 53.5 per cent for rooms and 41.7 per cent for student-stations at 9:00 a.m. Utilization of all instructional space for the noon hour was poor, 19.2 per cent for rooms and 17.3 per cent for student-stations.

Ayres Hall was found to be the busiest classroom building on the campus with 78.6 per cent room utilization and 46.7 per cent student-station utilization for the forty-four-hour week. Glocker Hall which housed the Evening School had the most constant, day-long utilization with 63.7 per cent for rooms and 44.8 per cent for student-stations.

The University of Tennessee's utilization indexes on instructional space compared favorably with normative data established by Russell, Doi, and Jamrich. Based on the Russell and Doi norms The University of Tennessee ranked at the 70th percentile in utilization of all instructional rooms, at the 66th percentile in general classroom utilization and at the 55th percentile in teaching laboratory utilization. The University of Tennessee ranked at the 87th percentile in student-station utilization of all instructional space, at the 83rd percentile in student-station utilization of general classrooms, and at the 93rd percentile in student-station utilization of teaching laboratories.

The effects of changing resident student enrollments from 1961 through 1970 on the University's indexes were reported. It was estimated that for every 7.1 per cent increase in resident student enrollment, room utilization would increase 1.9 per cent and student-station utilization would increase 4.0 per cent. The effects of an increased student enrollment on the availability and use of assignable instructional space available on the Main campus for each resident student enrolled on the Main campus for the fall quarter, 1962, was also computed and reported. Projections revealed that by 1970 present general classrooms would have eight assignable instructional square feet available per resident student enrolled; and teaching laboratories would have six and two-tenths assignable instructional square feet available per resident student enrolled. Projections revealed that by 1970 assignable instructional square feet per resident student enrolled would be reduced from thirty-seven and seven-tenths, 1962, to twenty-three and three-tenths in 1970. This would mean that the Main campus of The University of Tennessee would need an additional fifteen and four-tenths assignable instructional square feet per resident student enrolled if the University expected to maintain its 1962 fall quarter allocation of assignable instructional square feet per resident student enrolled. This would mean that an additional 279,602 assignable instructional square feet would be needed on the Main campus of The University of Tennessee by 1970.

CHAPTER IV

INSTRUCTIONAL SPACE NEEDS OF THE UNIVERSITY OF TENNESSEE

I. INTRODUCTION

The purpose of this chapter is to present instructional space projections from 1962 through 1970 for each college and the Physical Education Department on the Knoxville campus of The University of Tennessee. The instructional space available for the fall quarter, 1962, in each college and the Physical Education Department is presented and compared with the instructional space projected for 1970. The total instructional space available for the fall quarter, 1962, in all seven colleges and the Physical Education Department is also presented and compared with that projected for 1970.

II. PROCEDURES

The following procedures were used in Chapter IV.

1. The college and departmental reports of The University of Tennessee's self-study of 1962 were examined, and information related to curricular developments from 1962 through 1970 were extracted.

2. Interviews were held with various university faculty and staff members to determine the assignable instructional square feet needed to accommodate the projected curricular developments.

3. The Individual Capital Improvement Project Estimates¹ submitted during August, 1962, by each dean to Vice President E. J. Boling were also used to report estimates of assignable instructional square feet of space needed to accommodate future curricular developments.

4. The University of Tennessee Capital Outlay Program, 1963 through 1970,² reporting projections and allocations of gross instructional space from 1962 through 1970 was reviewed.

5. The assignable square feet available in general classrooms, teaching laboratories, and research laboratories were extracted from the inventory of space maintained by the Physical Plant Department.

6. The available student-stations in general classrooms and teaching laboratories were also extracted from the inventory of space maintained by the Physical Plant Department. No data were available reporting the number of student-stations available in the research laboratories.

III. ASSIGNABLE INSTRUCTIONAL SQUARE FEET AND STUDENT-STATIONS AVAILABLE IN EACH COLLEGE AND THE PHYSICAL EDUCATION DEPARTMENT FOR THE FALL QUARTER, 1962

The assignable square feet of instructional space available in each college and the Physical Education Department for the fall quarter,

¹E. J. Boling, "Individual Capital Improvement Project Estimate," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

²E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

1962, are reported in Table XVIII and are expressed in terms of: (1) the assignable square feet available in general classrooms, teaching laboratories, and research laboratories, (2) the total assignable square feet available in all seven colleges and the Physical Education Department, and (3) the number of student-stations available in general classrooms and teaching laboratories.

Table XVIII shows that the total assignable square feet available in each college may be arranged from the largest allocation to the smallest allocation in this order: College of Liberal Arts, 179,569; College of Agriculture, 93,563; College of Engineering, 78,394; College of Home Economics, 35,859; College of Business Administration, 26,476; College of Education, 23,184; and the College of Law, 5,534. Table XVIII reports that the Physical Education Department had 44,479 assignable square feet available in teaching laboratories and 1,120 assignable square feet available in general classrooms. The College of Liberal Arts had the largest allocation of assignable square feet available in general classrooms, 75,468; the College of Engineering had the second largest allocation of assignable square feet available in general classrooms, 26,630. The College of Liberal Arts had the largest allocation of assignable square feet available in teaching laboratories, 46,030; the College of Engineering had the second largest allocation of assignable square feet available in teaching laboratories, 42,536. The College of Liberal Arts had the largest allocation of assignable square feet available in research laboratories, 58,071; the College of Agriculture had the second largest allocation of assignable square feet available in

TABLE XVIII

ASSIGNABLE SQUARE FEET OF INSTRUCTIONAL SPACE AVAILABLE IN EACH COLLEGE AND THE
PHYSICAL EDUCATION DEPARTMENT FOR THE FALL QUARTER, 1962

College and Building	General Classrooms		Teaching Laboratories		Research Laboratories		Total Instructional	
	Square Feet	Student-Stations	Square Feet	Student-Stations	Square Feet	Student-Stations	Square Feet	Student-Stations
College of Agriculture	22,195	887	24,323	233	47,045		93,563	1,120
Agricultural Engineering	2,528		3,908		512			
Animal Sciences	6,326		1,344		17,988			
Corn and Cotton			576		2,360			
Dairy Manufacturing	1,224		7,128					
Entomology and Plant Pathology					8,889			
Farm Machinery			3,410		1,280			
Food Technology	2,011		2,664		204			
Forestry Building	238				2,904			
Horticulture Greenhouse			529		4,080			
McCord Hall	5,520		2,400		4,042			
Morgan Hall	4,348		2,364		916			
Poultry Building					3,870			
Spinning Lab.								
College of Business Administration	21,631	1,238	2,425	120	2,420		26,476	1,358
Glocker Building	21,631		2,425		2,420			
College of Education	19,703	1,008	2,023	60	1,458		23,184	1,068
Claxton Education	19,703		2,023		1,458			

TABLE XVIII (continued)

College and Building	General Classrooms		Teaching Laboratories		Research Laboratories		Total Instructional	
	Square Feet	Student-Stations	Square Feet	Student-Stations	Square Feet	Student-Stations	Square Feet	Student-Stations
College of Engineering	26,630	1,405	42,536	792	9,228		78,394	2,197
Berry Hall								
Estabrook Hall	7,851				3,703			
Ferris Hall	3,134		22,002		420			
Nuclear Engineering Building	374		14,601		1,135			
Perkins Hall	15,271				1,880			
			5,933		2,090			
College of Home Economics	10,817	460	19,632	257	5,410		35,859	717
Craft House								
Family Life Center	1,032		1,981					
Home Economics Building	8,745		17,439		5,410			
Nursery Building	1,040		212					
College of Law	5,534	312					5,534	312
Law Building	5,534							
College of Liberal Arts	75,468	5,157	46,030	1,664	58,071		179,569	6,821
Ayres Hall	28,291		1,478					
Dabney Hall	7,964		12,881		14,139			
Geology and Geography	7,774		4,424		6,391			
Hesler Biology Building	2,844		16,383		14,535			
Hoskins Library	3,754							
McClung Museum	2,996				2,030			

TABLE XVIII (continued)

College and Building	General Classrooms		Teaching Laboratories		Research Laboratories		Total Instructional	
	Square Feet	Student-Stations	Square Feet	Student-Stations	Square Feet	Student-Stations	Square Feet	Student-Stations
Music Annex	5,145		468					
Music Building			576					
Physics Building	7,796		5,786		14,064			
Psychological Service Center		270						
Science Hall	6,411		192		4,436			
South College	2,223				2,476			
T. V. Studio			3,842					
Physical Education Dept.	1,120	90	44,479	427			45,599	517
Alumni Memorial Auditorium-Gymnasium	1,120		44,479					
Total Instructional by Type ^a	183,098	10,557	181,448	3,553	123,632			
Total All Instructional ^a					488,178		14,110	

^aExcludes assignable square feet and student-stations in the following buildings: Armory Fieldhouse, 9,268 general classroom assignable square feet and 397 general classroom student-stations; Stadium Section X, 1,381 general classroom assignable square feet and 79 general classroom student-stations.

research laboratories, 47,045. Total assignable square feet available in all seven colleges and the Physical Education Department was 488,178 with 183,098 total assignable square feet available in general classrooms, 181,448 total assignable square feet available in teaching laboratories, and 123,632 total assignable square feet available in research laboratories.

Table XVIII shows that during the fall quarter, 1962, the College of Liberal Arts had the largest number of student-stations available, 6,821; the College of Engineering had 2,197 student-stations available, the second largest number. In all seven colleges and the Physical Education Department, there were 10,557 student-stations available in general classrooms and 3,553 student-stations available in teaching laboratories.

IV. INSTRUCTIONAL SPACE NEEDS OF THE COLLEGE OF LIBERAL ARTS

For the fall quarter, 1962, the nineteen instructional departments of the College of Liberal Arts were housed in the following eleven buildings located on the Knoxville campus: Ayres Hall, Ayres Annex, Hesler Biology Building, Dabney Hall, Music Annex, Physics Building, Geology and Geography Building, Blount Hall, Music Building, Science Hall, and the South College Building. These eleven buildings had a combined room utilization of 45.0 per cent and a combined student-station utilization of 37.9 per cent. Both of these indexes reflected a high use of instructional facilities when compared with utilization indexes of other colleges located on the Knoxville campus.

From 1957 to 1962 resident student enrollment in the College of Liberal Arts increased from 1,840³ to 3,217, an increase of 74.8 per cent; this growth rate was equal to the combined growth rates of all other colleges of the University on the Knoxville campus. Resident student enrollment for the fall quarter, 1961, was 2,827,⁴ and for the fall quarter, 1962, resident student enrollment increased to 3,217,⁵ an increase of 13.8 per cent. Enrollment projections indicated that the fall quarter, 1962, resident student enrollment would double by 1970.⁶ Providing adequate facilities to house an increased student enrollment would be a critical problem for the College of Liberal Arts from 1962 through 1970.

To provide adequate instructional facilities for future enrollments and to provide for continuous and expanding programs, Dean K. L. Knickerbocker suggested instructional space needs of the College of Liberal Arts from 1962 through 1970.⁷ Table XIX reports the following

³1957 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1957).

⁴1961 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1961).

⁵1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

⁶Institutional Research Series, A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

⁷E. J. Boling, "Individual Capital Improvement Project Estimate," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

TABLE XIX

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970
FOR THE COLLEGE OF LIBERAL ARTS

Description	Student- Stations	Assignable		Assignable		Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet	Instructional Square Feet	Unassignable Square Feet	
Biology Building Addition	534	17,292	5,619	20,609		43,520
Instructional Space						
64 Teaching Laboratories	474 ^a	16,592				
2 Seminar Conference Rooms	60	700				
Library				1,575		
Faculty and Staff Offices				4,044		
Corridors, Stairways, Utilites, etc.					20,609	
Music Building	276	9,737	11,728	22,681		44,146
Instructional Space						
4 General Classrooms	122	2,400				
6 Piano Studios	6	1,842				
1 Chord Room	90	1,800				
29 Practice Rooms	29	1,015				
4 Voice Studios	4	1,140				
2 Instrument Studios	2	380				
1 Music Theory Room	21	520				
1 Listening Room	1	304				
1 Workshop	1	336				
Library				1,224		
Faculty and Staff Offices				1,504		

TABLE XIX (continued)

Description	Student- Stations	Assignable		Unassignable Square Feet	Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet		
Auditorium Corridors, Stairways, Utilities, etc.			9,000	22,681	
Humanities Building					113,000
Instructional Space					
74 General Classrooms	2,220	55,500			
3 Large General Classrooms	300	7,500			
3 Seminar-Conference Rooms	90	2,250			
Faculty and Staff Offices					
Faculty Lounge			18,060		
Corridors, Stairways, Utilities, etc.			1,500	28,190	
Social Science Building					44,000
Instructional Space					
21 General Classrooms ^b	728	18,200			
1 Seminar-Conference Room	60	1,500			
Library					
Faculty and Staff Offices			1,000		
Corridors, Stairways, Utilities, etc.			12,190		
				11,110	
Total Projected	4,208	111,979	50,097	82,590	244,666

TABLE XIX (continued)

Description	Student- Stations	Assignable		Unassignable Square Feet	Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet		
Fine Arts Building ^c	444 ^e	11,119 ^e	12,811 ^e	11,070 ^e	35,000
Dabney Hall Addition ^c	1,012 ^e	25,416 ^e	29,280 ^e	25,304 ^e	80,000
Theater Building ^c	330 ^e	8,260 ^e	9,517 ^e	8,223 ^e	26,000
Ayres Hall Addition ^d	313 ^e	7,942 ^e	9,151 ^e	7,907 ^e	25,000
Total Estimated	2,099 ^e	52,737 ^e	60,759 ^e	52,504 ^e	166,000
Total Instructional	6,307	164,716	110,856	135,094	410,666

^aBased on 35 square feet per student-station.

^bFlexible classrooms designed to house large and small student-station capacities.

^cData extracted from: E. J. Boling, "Individual Capital Improvement Project Estimate," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

^dData extracted from: E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

^eEstimated.

instructional space needs suggested by Dean Knickerbocker.

1. An addition to the Hesler Biology Building containing 17,292 assignable instructional square feet housing 534 student-stations was needed to house increased resident student enrollments and expanded research programs of the biological sciences. The Hesler Biology Building addition would contain the following classrooms and student-stations: sixty-four research laboratories housing 474 student-stations and two seminar-conference rooms housing sixty student-stations. The following non-instructional facilities would also be housed in the Hesler Biology Building addition: faculty and staff office space, 4,044 assignable square feet, and library space, 1,575 assignable square feet.

The biological sciences--bacteriology, botany, and zoology--experienced a high degree of growth during recent years making it necessary to limit enrollments in lower division courses because of a lack of space. The assignment of a house, 1650 Melrose, for a phase of botany research provided temporary relief, but brought the penalty of splitting the botany staff. For the fall quarter, 1962, space in Dabney Hall was borrowed from areas designed for undergraduate instruction in order to conduct research activities. However, Dabney Hall provided inadequate research services such as water, gas, and electricity. Construction of the Hesler Biology Building addition would provide adequate research space for the biological sciences and biochemistry and would create additional undergraduate instructional space in Dabney Hall presently used to house research activities of the biological sciences and biochemistry.

2. A Music Building containing 9,737 assignable instructional square feet housing 276 student-stations was needed to house the music curriculum. The Music Building would contain the following classrooms and student-stations: four general classrooms housing 122 student-stations; six piano studios housing six student-stations; one choral room housing ninety student-stations; twenty-nine practice rooms housing twenty-nine student-stations; four voice studios housing four student-stations; two instrument studios housing two student-stations; one music theory room housing twenty-one student-stations; one listening room housing one student-station; and one workshop housing one student-station. The following non-instructional facilities would also be housed in the Music Building: faculty and staff office space, 1,504 assignable square feet; library space, 1,224 assignable square feet; auditorium space, 9,000 assignable square feet.

During recent years a part of the music curricula was housed in an old residence adjacent to the Law College on Cumberland Avenue. However, the size, acoustics, and humidity control for instruments and equipment in this building were inadequate. Voice and choral activities, another part of the music curricula, were housed in several instructional buildings scattered about the campus and were also housed in the Music Annex, a converted World War II barracks building. Construction of the Music Building would combine the music curricula presently scattered about the campus, would provide modern facilities for proper storage of instruments, and would provide classrooms with an acoustical environment compatible with voice and choral activities.

3. A Humanities Building containing 65,250 assignable instructional square feet housing 2,690 student-stations was needed to house curricular programs in Greek and Latin, English, German and Slavic languages, Romance languages and philosophy. The Humanities Building would contain the following classrooms and student-stations: seventy-four general classrooms housing 2,220 student-stations; three large general classrooms housing 300 student-stations; and three seminar-conference rooms housing ninety student-stations. The following non-instructional facilities would be housed in the Humanities Building: faculty and staff office space, 18,060 assignable square feet; and faculty lounge space, 6,500 assignable square feet.

The English Department's instructional space needs increased rapidly during recent years especially for courses in first and second year English. Classes were held in several buildings on the campus. This brought the penalty of splitting the English faculty. The size of English classes of necessity and by choice remained small, under twenty-five students, producing a low utilization of student-stations within the classrooms. The graduate program in English also experienced growth during recent years. In 1961, the English Department, supported by fellowships from the National Defense Education Act, instituted several new advanced undergraduate and graduate courses to give proper attention to twentieth-century literature. As the University continued to grow, instructional space needs for the English Department became a more critical problem.

From 1957 to 1962 resident student enrollments in the Department

of Romance Languages increased 72 per cent, the largest departmental increase in the College of Liberal Arts. This resident student enrollment increase created an emergency problem. The language laboratory, a sine quo non of good language teaching, reached its highest utilization during the 1962 fall quarter. Enrollments would be necessarily restricted until additional facilities became available. The College of Liberal Arts anticipated continued growth through the decade 1960-1970 in the languages because of the increasing national emphasis on communication skills. A new doctoral program in the Romance languages and additional course offerings in Russian and Latin-American languages also would require additional instructional and research space. Construction of the Humanities Building would provide adequate laboratory and classroom space for the humanities and would release instructional space in Ayres Hall presently used to house the Humanities.

4. A Social-Science Building containing 19,700 assignable instructional square feet housing 788 student-stations was needed to house curricular programs in history, political science, and sociology, and to house the Bureau of Sociological Research. The Social-Science Building would contain the following classrooms and student-stations: twenty-one general classrooms housing 728 student-stations and one seminar-conference room housing sixty student-stations. The Social-Science Building would contain flexible classrooms designed to house large and small student-station capacities. The following non-instructional facilities would also be housed in the Social-Science Building: faculty and staff office space, 12,190 assignable square feet; and library space, 1,000 assignable square feet.

For the fall quarter, 1962, the History Department augmented its course offerings to include greater attention to the events of this century. Experimentation was begun with large sections which would allow for extraordinary growth in lecture classrooms. Dr. J. W. Hoffmann, Head of the History Department, reported that the large experimental classes were scheduled in Science Hall and in the Physics Building for the fall quarter, 1962, because of a lack of available instructional space in Ayres Hall. Construction of a Social-Science Building would provide large classrooms to house the large lecture classes of the History Department.

For the fall quarter, 1962, the Sociology Department was housed in three different floors in Ayres Hall, in Barbara Blount Hall, and in a classroom available in the Law College Building. Construction of a Social-Science Building would provide classroom and laboratory spaces for the Sociology Department. The Bureau of Sociological Research, presently housed in the Law College Building, would also be relocated in the Social-Science Building and housed adjacent to the Sociology Department.

The Political Science Department, presently located in Ayres Hall, would also be relocated in the Social-Science Building. Construction of the Social-Science Building would provide adequate classroom space for the Political Science Department from 1962 through 1970.

Table XIX, page 100, shows that these four buildings would contain a total of 244,666 gross square feet with 111,979 assignable instructional square feet housing 4,208 student-stations. The table also

reports a need for an additional 166,000 gross square feet to house a Fine Arts Building, an addition to Dabney Hall, an addition to Ayres Hall, and a Theater Building.

In Table XIX, page 101, these four buildings could be reported only in terms of gross square feet. Gross square feet in the Fine Arts Building, the Dabney Hall addition, and the Theater Building were extracted from the Individual Capital Improvement Estimates submitted by Dean Knickerbocker to Vice President E. J. Boling during August, 1962.⁸ Gross square feet in the Ayres Hall addition were extracted from The University of Tennessee Capital Outlay Program, 1963 through 1970.⁹ Since the assignable instructional square feet and the available student-stations in these four buildings were not available, and the data were essential, an estimate of the assignable instructional square feet and the available student-stations was made by the writer. To determine the assignable square feet and the available student-stations in each building, the following procedures were used.

1. Table I, page 40, reported a total of 498,827 assignable instructional square feet available for the fall quarter, 1962, in all instructional buildings located on the Knoxville campus of The University of Tennessee. Table XXXVII, page 235 reported a total of 1,570,081

⁸E. J. Boling, "Individual Capital Improvement Project Estimate," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

⁹E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

gross square feet available for the fall quarter, 1962, in all instructional buildings located on the Knoxville campus of The University of Tennessee. The 498,827 assignable instructional square feet available represented 31.77 per cent of the 1,570,081 total gross square feet available for the fall quarter, 1962. This percentage, 31.77 per cent, was used to estimate the assignable instructional square feet available in those buildings where only the gross square feet data were available.

2. To report the available student-stations, it was assumed that twenty-five assignable instructional square feet were needed to house one student-station. An average size classroom would contain 750 assignable instructional square feet and would house thirty student-stations.

Table XIX, page 101, reports the following additional space needs of the College of Liberal Arts from 1962 through 1970.

1. A Fine Arts Building containing 35,000 gross square feet was needed to house instructional programs of the history and practice of art in the Fine Arts Department. It was estimated that the Fine Arts Building would contain 11,119 assignable instructional square feet which would house an estimated 444 student-stations. In recent years the Art Department was housed in inadequate converted houses scattered about the campus. Centralization of the study of art and other art related activities was essential for a more successful art program.

2. An addition to Dabney Hall containing 80,000 gross square feet was needed to house instructional programs of the Chemistry Department. It was estimated that the Dabney Hall addition would contain 25,416 assignable instructional square feet which would house an

an estimated 1,012 student-stations. For the fall quarter, 1962, the Chemistry Department faced a saturation of teaching and laboratory facilities. Housing chemistry students from 1962 through 1970 would become a critical problem for the College of Liberal Arts if present student enrollment projections for the Chemistry Department prove valid. Providing adequate space for housing major equipment used in teaching and research programs was also an acute need of the Chemistry Department for the fall quarter, 1962. Modern teaching and research in chemistry cannot be done without continuous expansion of equipment holdings, but the Chemistry Department lacked additional equipment space for the fall quarter, 1962.

3. A Theater Building containing 26,000 gross square feet was needed to house a 500-seat auditorium, a full-size stage with wings, dressing rooms, costume rooms, and directors' offices. It was estimated that the Theater Building would contain 8,260 assignable instructional square feet which would house an estimated 330 student-stations. In recent years The University of Tennessee has not had access to a proscenium theater which was adequate for play production. The Theater Building would be utilized by the Speech and Drama Department and be available for community productions.

4. An addition to Ayres Hall containing 25,000 gross square feet was needed to provide additional faculty and staff office spaces and to house increased student enrollments in the departments of mathematics and psychology. It was estimated that the Ayres Hall addition would contain 7,942 assignable instructional square feet which would

house an estimated 313 student-stations. Providing adequate faculty and staff office space was a critical problem for the College of Liberal Arts. This addition to Ayres Hall should alleviate the shortage of office space in the college.

Table XIX, page 101, shows that the additional 166,000 gross square feet would provide an estimated addition of 52,737 assignable instructional square feet which would house an estimated additional 2,099 student-stations.

To accommodate the increased instructional space needs of the College of Liberal Arts from 1962 through 1970, Table XIX reports a need for a total of 164,716 assignable instructional square feet housing a total of 6,307 student-stations. An additional total of 410,666 gross square feet would also be required to adequately house the instructional space needs of the College of Liberal Arts from 1962 through 1970.

Table XX compares the College of Liberal Arts' 1962 instructional space with that projected for 1970. Table XX assumes that The University of Tennessee Capital Outlay Program, 1963 through 1970, would provide funds to construct the additional instructional space needed for the College by 1970. Table XX shows that the 179,569 assignable instructional square feet available for the fall quarter, 1962, provided fifty-five and eight-tenths assignable instructional square feet for each student enrolled and provided twenty-six and three-tenths assignable instructional square feet for each available student-station.

By 1970, the additional projected 111,979 assignable instructional square feet and the additional 52,737 estimated would provide a

TABLE XX

A COMPARISON OF THE COLLEGE OF LIBERAL ARTS 1962 INSTRUCTIONAL
SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assign- able Square Feet	Resident Student Enrollment	Assign- able Square Feet Per Student Enrolled	Student- Stations	Assign- able Square Feet Per Student- Station
Instructional	1962	179,569	3,217 ^a	55.8	6,821	26.3
Instructional Projected		111,979			4,208	
Instructional Estimated		52,737 ^c			2,099 ^c	
Total Instructional	1970	344,285	6,457 ^b	53.3	13,128	26.2

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^bResident student enrollment projection from "Institutional Research Series." A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

^cEstimated.

total of 344,285 assignable instructional square feet. By 1970, the additional projected 4,208 student-stations and the additional 2,099 estimated student-stations would provide a total of 13,128 available student-stations. Table XX shows that by 1970 the total 344,285 assignable instructional square feet available would provide fifty-three and three-tenths assignable instructional square feet per student enrolled and would provide twenty-six and two-tenths assignable instructional square feet per available student-station.

V. INSTRUCTIONAL SPACE NEEDS OF THE COLLEGE OF BUSINESS ADMINISTRATION

The eleven departments of the College of Business Administration were housed in the Glocker Business Administration Building for the fall Quarter, 1962. The Evening School, the Bureau of Business and Economic Research, the Computer Center, evening study halls of campus social fraternities, and offices of the Orange and White, the student newspaper, also shared space in the building.

For the fall quarter, 1962, the Glocker Business Administration Building room utilization was 63.7 per cent and student-station utilization was 44.8. This was a high degree of utilization considering the number of non-scheduled typing and shorthand laboratories, language laboratories, and business machine laboratories which were made available to students for additional practice. Confronted with a saturation of instructional facilities and projected increasing resident student enrollments from 1962 through 1970, the College of Business Administration needed additional instructional space to continue adequately

its program of preparing students for positions in business and industry.

To promote more effective teaching and to absorb the increasing resident student enrollments projected from 1962 through 1970,¹⁰ Dean Frank Ward suggested instructional needs of the College of Business Administration from 1962 through 1970.¹¹ These instructional space needs are reported in Table XXI. The assignable instructional square feet in Table XXI were reported in an interview with Dean Eugene Upshaw, Assistant Dean of the College of Business Administration.¹² Table XXI reports the following instructional space needs:

1. An additional 4,650 assignable instructional square feet housing ten student-stations to be used by the Bureau of Business and Economic Research.
2. Five additional general purpose classrooms, containing 3,750 assignable instructional square feet housing 150 student-stations to meet the projected increased resident student enrollments.
3. A Teaching Facilities Laboratory containing 1,000 assignable instructional square feet housing forty student-stations, and providing various teaching aids to be utilized by the entire faculty.
4. A Production Management Laboratory containing 2,500 assignable

¹⁰Institutional Research Series, A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

¹¹A Report of the College of Business Administration, submitted for "Reaching for Greatness," Central Report, The University of Tennessee, Self-Study, 1962, Knoxville, Tennessee. (Multilithed.)

¹²Eugene Upshaw, Assistant Dean of College of Business Administration, The University of Tennessee, Knoxville, Tennessee, 1962.

TABLE XXI

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970 FOR THE
COLLEGE OF BUSINESS ADMINISTRATION

Description	Student- Stations	Assignable		Non-Instructional Square Feet	Assignable Square Feet	Unassignable Square Feet	Total Gross Square Feet
		Instructional	Non-Instructional				
Glocker Building Addition	726	26,200			13,770	12,642	52,612
Instructional Space							
Bureau of Business	10	4,650					
5 Classrooms	150	3,750					
1 Teaching Facilities							
Lab.	40	1,000					
1 Production Management							
Lab.	33	2,500					
1 Executive Development							
Lab.	35	4,000					
1 Teaching Auditorium	350	7,000					
1 Shorthand Lab.	30	1,050					
1 Data Processing Lab.	30	1,050					
3 Seminar-Conference Rooms	48	1,200					
Library					1,000		
Faculty and Staff Offices					12,770		
Corridors, Stairways, Utilities, etc.						12,642	
Totals	726	26,200			13,770	12,642	52,612

instructional square feet housing thirty-three student-stations which would be of particular advantage to the Industrial and Personnel Management Department.

5. An Executive Development Laboratory containing 4,000 assignable instructional square feet housing thirty-five student-stations which would be devoted to an executive development program to be sponsored by the College with the cooperation of the Division of University Extension.

6. A teaching auditorium containing 7,000 assignable instructional square feet housing 350 persons to be used as a large classroom and for large conferences.

7. A shorthand laboratory containing 1,050 assignable instructional square feet housing thirty student-stations to be utilized for instructional and research purposes.

8. A Data Processing Laboratory containing 1,050 assignable instructional square feet housing thirty student-stations to be used for instructional and research purposes.

9. Three seminar-conference rooms, containing 1,200 assignable instructional square feet housing forty-eight student-stations to be used for conferences and for graduate examinations.

Table XXI reports a need for 26,200 assignable instructional square feet housing 726 student-stations to accommodate the increased instructional space needs of the College of Business Administration from 1962 through 1970.

Dean Upshaw also suggested the following non-instructional space

needs of the College of Business Administration.¹³

1. An additional 1,000 assignable square feet to expand present library facilities to accommodate expanded research programs and future resident student enrollment increases.

2. An additional 12,770 assignable square feet of office space to house additional faculty and staff members.

Table XXI reports that an additional 52,612 gross square feet would be required to adequately house the instructional space needs suggested by Dean Upshaw.

Table XXII compares the College of Business Administration's 1962 instructional space with that projected for 1970. Table XXII assumes that The University of Tennessee Capital Outlay Program would provide funds to construct the additional instructional space needed for the College by 1970. Table XXII shows that the 26,476 assignable instructional square feet available for the fall quarter, 1962, provided eleven and two-tenths assignable instructional square feet for each student enrolled, and provided nineteen and five-tenths assignable square feet for each available student-station. By 1970, the additional 26,200 assignable instructional square feet and the additional 726 student-stations requested by Dean Upshaw would provide a total of 52,676 assignable instructional square feet and 2,084 available student-stations for the College of Business Administration. Table XXII shows that by 1970 the 52,676 assignable instructional square feet available would provide

¹³Ibid.

TABLE XXII

A COMPARISON OF THE COLLEGE OF BUSINESS ADMINISTRATION 1962
INSTRUCTIONAL SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assignable Square Feet	Resident Student Enrollment	Assignable Square Feet Per Student Enrolled	Student- Stations	Assignable Square Feet Per Student- Station
Instructional	1962	26,476	2,359 ^a	11.2	1,358	19.5
Instructional Projected		26,200			726	
Total Instructional	1970	52,676	3,036 ^b	17.4	2,084	25.3

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^bResident student enrollment projection from "Institutional Research Series." A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

seventeen and four-tenths assignable instructional square feet per student enrolled and would provide twenty-five and three-tenths assignable instructional square feet per available student-station.

VI. INSTRUCTIONAL SPACE NEEDS OF THE COLLEGE OF HOME ECONOMICS

For the fall quarter, 1962, the College of Home Economics was housed in the following three buildings: (1) a Home Economics Building which contained well-equipped, modern laboratories for undergraduate and graduate work, (2) a Nursery School Building which served as a laboratory nursery school where large numbers of students observed, unseen by children, and (3) a Family Life Center Building which provided office and classroom space for the Department of Child Development and Family Relationships. In addition to these buildings the University Cafeteria, an Arts and Crafts Building, and three practice houses were utilized as laboratory facilities.

For the fall quarter, 1962, the College of Home Economics' room utilization was 31.2 per cent and student-station utilization was 31.3 per cent. These utilization indexes were lower than for other campus buildings of comparable size. However, there were three unique and significant factors in the instructional program of the College of Home Economics which tended to reduce the utilization indexes. These were: (1) laboratory classes with small enrollments because of specialized training, (2) laboratory classes with small enrollments which were scheduled in blocks of time throughout the week, and (3) laboratories which were not scheduled at certain times during the forty-four hour

week in order to make them available to students who desired additional study and practice.

To provide for continuing and expanding programs, Dean Lura M. Odland suggested instructional space needs of the College of Home Economics from 1962 through 1970.¹⁴ These instructional space needs are reported in Table XXIII. The assignable instructional square feet in Table XXIII were reported in The Individual Capital Improvement Project Estimates submitted during August, 1962, by Dean Odland to Vice President E. J. Boling.¹⁵ Table XXIII reports the following instructional space needs:

1. A teaching auditorium containing 5,250 assignable instructional square feet housing 750 persons to be used for large class sections and to serve as a meeting room for expanding community and recruitment activities.

2. An auditorium stage containing 400 assignable instructional square feet housing twenty student-stations to be used as an audio-visual laboratory.

3. Two large classrooms containing 2,500 assignable instructional square feet housing 200 student-stations to house large classroom lecture sections.

¹⁴A Report of the College of Home Economics, submitted for "Reaching for Greatness," Central Report, The University of Tennessee, Self-Study, 1962, Knoxville, Tennessee. (Multilithed.)

¹⁵E. J. Boling, "Individual Capital Improvement Project Estimate," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

TABLE XXIII

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970
FOR THE COLLEGE OF HOME ECONOMICS

Description	Student- Stations	Assignable Instructional Square Feet	Assignable Non-Instructional Square Feet	Unassignable Square Feet	Total Gross Square Feet
Home Economics Addition	1,330	17,062	2,499	6,187	25,748
Instructional Space					
Teaching Auditorium	750	5,250			
Auditorium Stage	20	400			
2 Classrooms	200	2,500			
1 Classroom	200	2,500			
1 Foods Laboratory	6	1,000			
1 Family Economic Lab.	17	432			
3 Research-Office Labs.	15	1,728			
1 Animal Research Lab.	29	840			
1 Public Health Lab.	12	360			
1 Nutrition Lab.	24	720			
1 Home Lighting Lab.	17	432			
2 Seminar-Conference Rooms	40	900			
Faculty and Staff Offices			699		
Storage and Service					
Facilities			1,800		
Corridors, Stairways, Utilities, etc.				6,187	
Home Management House	16	5,062		1,601	6,663
Totals	1,346	22,124	2,499	7,788	32,411

4. One large classroom containing 2,500 assignable instructional square feet housing 200 student-stations to house large classroom lecture sections and to be used as a University demonstration center.

5. A Foods Laboratory containing 1,000 assignable instructional square feet housing six student-stations to provide space for graduate research.

6. A Family Economics workroom-laboratory containing 432 assignable instructional square feet housing seventeen student-stations for family economics research.

7. Three research-office laboratories containing 1,728 assignable instructional square feet housing fifteen student-stations for expansion of public health nutrition programs.

8. An Animal Research Laboratory containing 840 assignable instructional square feet housing twenty-nine student-stations to provide additional research facilities and to relieve the present overcrowded Animal Research Laboratory.

9. A Public Health Laboratory containing 360 assignable instructional square feet housing twelve student-stations for expansion of Public Health programs.

10. An undergraduate Nutrition Laboratory containing 720 assignable instructional square feet housing twenty-four student-stations to meet anticipated enrollment increases projected in the Nutrition program.

11. A Home Lighting Laboratory containing 432 assignable instructional square feet housing seventeen student-stations to house an

experimental program in home lighting problems.

12. Two seminar-conference rooms containing 900 assignable instructional square feet housing forty student-stations for graduate seminar sessions and study groups.

13. A Home Management House containing 5,062 assignable instructional square feet housing sixteen student-stations to provide modern facilities for teaching home management and to provide for effective living.

Table XXIV reports a need for 22,124 assignable instructional square feet and 1,346 student-stations to house the increased instructional space needs of the College of Home Economics from 1962 through 1970.

Dean L. M. Odland also suggested the following non-instructional space needs of the College of Home Economics.¹⁶

1. An additional 699 assignable square feet of office space to house faculty and staff members required by curricular expansion.

2. An additional 1,800 assignable square feet to house a sick room, a janitors' room, a store room, a freezer storage room, and a faculty lounge.

Table XXIV reports that an additional 32,411 gross square feet would be required to adequately house the instructional space needs suggested by Dean L. M. Odland.

Table XXIV compares the College of Home Economics' 1962

¹⁶Ibid.

TABLE XXIV

A COMPARISON OF THE COLLEGE OF HOME ECONOMICS 1962
INSTRUCTIONAL SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assignable Square Feet	Resident Student Enrollment	Assignable Square Feet Per Student Enrolled	Student- Stations	Assignable Square Feet Per Student- Station
Instructional	1962	35,859	540 ^a	66.4	717	50.0
Instructional Projected		22,124			1,346	
Total Instructional	1970	57,983	904 ^b	64.1	2,063	28.1

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^bResident student enrollment projection from "Institutional Research Series." A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

instructional space with that projected for 1970. The table assumes that The University of Tennessee Capital Outlay Program would provide funds to construct the additional instructional space needed for the College by 1970. Table XXIV shows that the 35,859 assignable square feet available for the fall quarter, 1962, provided sixty-six and four-tenths assignable square feet for each student enrolled and provided fifty assignable square feet for each available student-station. By 1970, the additional 22,124 assignable instructional square feet and the additional 1,346 student-stations requested by Dean Odland would provide a total of 57,983 assignable instructional square feet and 2,063 available student-stations for the College of Home Economics. Table XXIV shows that by 1970 the 57,983 assignable instructional square feet available would provide sixty-four and one-tenth assignable instructional square feet per student enrolled and would provide twenty-eight and one-tenth assignable instructional square feet per available student-station.

VII. INSTRUCTIONAL SPACE NEEDS OF THE COLLEGE OF LAW

For the fall quarter, 1962, the College of Law was housed in a modern building specifically planned for law school purposes. In addition to two general classrooms, the Law Building housed a Moot Court, a Legal Aid Clinic and a Law Library; these facilities were used as teaching laboratories to correlate theory and practice. Law Building room utilization was 32.4 per cent and student-station utilization was 20.5 per cent for the fall quarter, 1962.

The Law Building was designed to accommodate a student enrollment of 300. If the enrollment should rise above this figure, the Municipal

Technical Advisory Service and the Bureau of Social Research would be relocated in other campus buildings and space presently occupied by these two departments would be converted into additional classrooms and faculty offices. However, resident student enrollments were not expected to exceed 252 resident students by 1970.¹⁷

Dean William Wicker suggested the following space needs of the College of Law from 1962 through 1970.¹⁸

1. Expansion of present library facilities was needed. The air-conditioned law library had a seating capacity of 150 student-stations and a stack capacity of 60,000 volumes which made it one of the larger libraries in the southeast. However, additional stack space was needed as the law library was expected to exceed 90,000 volumes within the next ten years.

2. Additional study and research space facilities in the library were also needed. Space was needed for carrels and study tables. A reading study lounge and a reserve book room would also be needed as student enrollments increased.

Additional library space would be provided by construction of additional space adjacent to the present library. Dean Wicker reported

¹⁷Institutional Research Series, A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

¹⁸A Report of the College of Law, submitted for "Reaching for Greatness," Central Report, The University of Tennessee, Self-Study, 1962, Knoxville, Tennessee. (Multilithed.)

that the location and size of the additional space was an architectural problem which could be resolved by careful planning.

In a letter dated August 20, 1962, to Vice President E. J. Boling, Dean Wicker stated that the College of Law would not require additional instructional space from 1962 through 1970.¹⁹ Dean Wicker believed that the relocation of the Bureau of Sociological Research and the Municipal Technical Advisory Service would provide the Law College with sufficient space to adequately house the instructional program and the anticipated small increase expected in resident student enrollment from 1962 through 1970.

VIII. INSTRUCTIONAL SPACE NEEDS OF THE COLLEGE OF EDUCATION

For the 1962 fall quarter, the Claxton Education Building housed all departments of the College of Education with three exceptions. Agricultural Education was housed in Morgan Hall, Music Education in a barracks building known as Music Annex, and Home Economics Education was housed in the Home Economics Building. Two other teacher-education programs, not administered by the College, were in the Department of Business Education housed in the College of Business and the Department of Physical Education housed in the Alumni Memorial Auditorium-Gymnasium.

Room utilization in the Claxton Education Building was 44.5 per cent, and student-station utilization was 28.2 per cent for the fall quarter, 1962.

¹⁹William Wicker, Dean of College of Law, University of Tennessee, Knoxville, Tennessee, Letter to Vice President E. J. Boling, August 20, 1962.

Table XXV gives the instructional space needs projected for the College of Education from 1962 through 1970, as reported by Dean Merrill.²⁰

1. A north wing addition to the Claxton Education Building containing 25,250 assignable instructional square feet housing 828 student-stations was needed to provide facilities for various professional preparation programs for school personnel presently offered by the College of Education.

The addition to the Claxton Education Building would contain the following classrooms and student-stations: twelve general classrooms containing 9,000 assignable instructional square feet housing 360 student-stations; three seminar rooms containing 2,250 assignable instructional square feet housing ninety student-stations; eight laboratory and demonstration rooms containing 8,000 assignable instructional square feet housing 228 student-stations; and eight workrooms containing 6,000 assignable instructional square feet housing 150 student-stations. The addition to the Claxton Education Building would also contain the following non-instructional space: thirty-five faculty and staff offices containing 5,040 assignable square feet; six reception rooms containing 2,304 assignable square feet; and storage rooms containing 1,000 assignable square feet.

For the fall quarter, 1962, the Claxton Education Building was used to near capacity. Additional instructional space would be needed

²⁰E. C. Merrill, Dean of the College of Education, The University of Tennessee, Knoxville, Tennessee, 1962.

TABLE XXV

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970 FOR THE NORTH
WING TO CLAXTON EDUCATION BUILDING AND THE CHILD STUDY CENTER

Description	Student- Stations	Assignable		Assignable		Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet	Instructional Square Feet	Unassignable Square Feet	
Claxton Education Building Addition	828	25,250		9,344	11,406	46,000
Instructional Space						
12 General Classrooms	360a	9,000				
3 Seminar Rooms	90a	2,250				
8 Laboratory and Demonstration Rooms	228b	8,000				
8 Workrooms	150c	6,000				
35 Faculty and Staff Offices					5,040	
6 Reception Rooms					2,304	
Storage Rooms					1,000	
Corridors, stairways, Utilities, etc.					11,406	

TABLE XXV (continued)

Description	Student- Stations	Assignable		Assignable Non-Instructional Square Feet	Unassignable Square Feet	Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet			
Child Study Center	54 ⁵	16,810	6,104	8,086	31,000	
Instructional Space						
8 Multipurpose						
Classrooms	240 ^a	6,000				
10 Clinic Cubicles	20	810				
10 Demonstration-						
Observation Rooms	285 ^b	10,000				
20 Offices			2,880			
6 Reception Rooms			2,304			
Storage Rooms			1,000			
Corridors, Stairway, Utilities, etc.				8,086		
Totals	1,373	42,060	15,448	19,492	77,000	

^aBased on 25 assignable instructional square feet per student-station.^bBased on 35 assignable instructional square feet per student-station.^cBased on 40 assignable instructional square feet per student-station.

from 1962 through 1970 to provide for an increased resident student enrollment and to provide for continuous and expanding teacher education programs. Construction of the addition to the Claxton Education Building would complete the Claxton Education Building to the size originally estimated as needed to provide for the present and future instructional needs of the College of Education.

2. A Child Study Center containing 16,860 assignable instructional square feet was needed to provide facilities for a reading clinic, a demonstration school for the teaching of educable retarded or brain-damaged children, and to provide facilities for educational experimentation. The Child Study Center would contain the following instructional space: eight multipurpose classrooms containing 6,000 assignable instructional square feet housing 240 student-stations; ten clinic cubicles containing 810 assignable instructional square feet housing twenty student-stations; ten demonstration-observation rooms containing 10,000 assignable instructional square feet housing 285 student-stations. The Child Study Center would also contain the following non-instructional space: twenty offices containing 2,880 assignable square feet; six reception rooms containing 2,304 assignable square feet; and storage rooms containing 1,000 assignable square feet. The Child Study Center would serve purposes important to the Psychology Department in the College of Liberal Arts, the College of Education, and the College of Home Economics. It would enable children to be brought to the campus where they could be observed, where they could serve as subjects for research and study, and where they could receive both psychological and

educational services. This building would bring persons who were interested in studying and educating children into frequent contact with children who needed professional care. The Child Study Center would also house a reading clinic.

Table XXV reports a need for a total of 42,060 assignable instructional square feet housing 1,373 student-stations to accommodate the instructional space needs of the College of Education from 1962 through 1970. The table reports that an additional 77,000 gross square feet would be required to adequately house the instructional space needs suggested by Dean Merrill.

Table XXVI compares the College of Education's 1962 instructional space with that projected for 1970. Table XXVI assumes that The University of Tennessee Capital Outlay Program would provide funds to construct the additional instructional space needed for the College by 1970. Table XXVI shows that the 23,184 assignable instructional square feet available for the fall quarter, 1962, provided fourteen and four-tenths assignable instructional square feet for each student enrolled and provided twenty-one and seven-tenths assignable instructional square feet for each available student-station. By 1970, the additional 42,060 assignable instructional square feet and the additional 1,373 student-stations requested by Dean Merrill would provide a total of 65,244 assignable instructional square feet and 2,441 available student-stations for the College of Education. Table XXVI shows that by 1970 the 65,244 assignable instructional square feet would provide twenty-six and six-tenths assignable instructional square feet per student enrolled and

TABLE XXVI

A COMPARISON OF THE COLLEGE OF EDUCATION 1962 INSTRUCTIONAL
SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assignable Square Feet	Resident Student Enrollment	Assignable Square Feet Per Student Enrolled	Student- Stations	Assignable Square Feet Per Student- Station
Instructional	1962	23,184	1,604 ^a	14.4	1,068	21.7
Instructional Projected		42,060			1,373	
Total Instructional	1970	65,244	2,450 ^b	26.6	2,441	26.7

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^bResident student enrollment projection from "Institutional Research Series." A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

would provide twenty-six and seven-tenths assignable instructional square feet per available student-station.

IX. INSTRUCTIONAL SPACE NEEDS OF THE COLLEGE OF ENGINEERING

For the fall quarter, 1962, the seven instructional departments of the College of Engineering and the Engineering Extension Station were housed in the following buildings: Berry Hall, Estabrook Hall, Ferris Hall, Perkins Hall and the Nuclear Engineering Building. These buildings had a combined room utilization of 42.9 per cent and a combined student-station utilization of 22.3 per cent for the fall quarter, 1962. A building for chemical, mechanical and nuclear engineering (the N. W. Dougherty Building) was under construction with completion expected by fall quarter, 1963.

Resident student enrollment for the fall quarter, 1961, was 2,362,²¹ and for the fall quarter, 1962, resident student enrollment increased to 2,387,²² an increase of 1 per cent. If present enrollment projections prove valid 3,295 students would be enrolled in the College of Engineering by 1970.²³

²¹1961 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1961).

²²1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

²³Institutional Research Series, A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

Dean A. T. Granger suggested to Vice President Boling in August, 1962, instructional space needs of the College of Engineering from 1962 through 1970.²⁴ The assignable instructional square feet reported in Table XXVII were abstracted from The Individual Capital Improvement Project Estimates reported by Vice President E. J. Boling.²⁵ Table XXVII reports the following instructional space needs:

1. The N. W. Dougherty Building containing 52,316 assignable instructional square feet housing 1,594 student-stations was needed to house classrooms, laboratories, and office space for the Departments of Chemical and Metallurgical Engineering, Mechanical Engineering and Nuclear Engineering. This building would contain the following classrooms and student-stations: ten general classrooms containing 8,769 assignable instructional square feet housing 350 student-stations; and forty-two teaching and research laboratories containing 43,547 assignable instructional square feet housing 1,244 student-stations. The N. W. Dougherty Building would also provide the following non-instructional space: laboratory auxiliary equipment rooms, 11,439 assignable square feet; faculty and staff offices, 9,708 square feet; and Engineering Shops, 8,400 assignable square feet.

For the fall quarter, 1962, the Departments of Chemical and Metallurgical Engineering, Mechanical Engineering, and Nuclear

²⁴E. J. Boling, "Individual Capital Improvement Project Estimate," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

²⁵Ibid.

TABLE XXVII

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970
FOR THE COLLEGE OF ENGINEERING

Description	Student- Stations	Assignable		Assignable		Unassignable Square Feet	Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet	Instructional Square Feet	Non-Instructional Square Feet		
Dougherty Engineering Building	1,594	52,316		29,547		33,757	115,620
Instructional Space							
10 General Classrooms	350 ^a	8,769					
42 Teaching and Research Labs.	1,244 ^b	43,547					
Laboratory Auxiliary Equipment Rooms ^c					11,439		
Faculty and Staff Offices					9,708		
Engineering Shops					8,400		
Corridors, Stairway, Utilities, etc.						33,757	
Total Projected	1,594	52,316		29,547		33,757	115,620

TABLE XXVII (continued)

Description	Student- Stations	Assignable		Unassignable Square Feet	Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet		
Dougherty Engineering Building Addition ^c	546 ^a	13,661 ^d	13,330 ^d	16,009 ^d	43,000
Ferris Hall Addition ^c	228 ^a	5,713 ^d	5,580 ^d	6,702 ^d	18,000
Engineering Class- room and Office Building ^c	635 ^a	15,885 ^d	15,500 ^d	18,615 ^d	50,000
Engineering Experi- ment Station Building ^c	381 ^a	2,531 ^d	2,300 ^d	11,169 ^d	30,000
Total Estimated	1,790 ^d	44,795 ^d	43,710 ^d	52,495 ^d	141,000
Total Instructional	3,384	97,111	73,257	86,252	256,620

^aBased on 25 assignable instructional square feet per student-station.

^bBased on 35 assignable instructional square feet per student-station.

^cData Extracted From: E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

^dEstimated.

Engineering were housed in Estabrook Hall which provided inadequate space and services necessary for modern research in engineering. Construction of the N. W. Dougherty Engineering Building would provide a part of the necessary teaching and laboratory space needed by the College of Engineering from 1962 through 1970.

Table XXVII reports a need for 115,620 gross square feet with 52,316 assignable instructional square feet housing 1,594 student-stations to provide a part of the teaching and laboratory space needed for the Departments of Chemical and Metallurgical Engineering, Mechanical Engineering, and Nuclear Engineering from 1962 through 1970.

Table XXVII also reports a need for an additional 141,000 gross square feet to house an addition to the Engineering Building, an addition to Ferris Hall, an Engineering Classroom and Office Building, and an Engineering Experiment Station Building. In Table XXVII these four buildings could be reported only in terms of gross square feet. Data reporting gross square feet available in the Engineering Building Addition, the Ferris Hall Addition, Engineering Classroom and Office Building, and an Engineering Experiment Station Building were extracted from The University of Tennessee Capital Outlay Program, 1963 through 1970.²⁶

Since the assignable instructional square feet and the available student-stations in these four buildings were not available, and

²⁶E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

the data were essential, an estimate of the assignable instructional square feet and the available student-stations was made by the writer. The procedures discussed on pages 107 and 108 to estimate the assignable instructional square feet and the student-stations available in the College of Liberal Arts were used to estimate the assignable instructional square feet and the student-stations available in the College of Engineering. Table XXVII reports the following additional instructional space needs of the College of Engineering from 1962 through 1970.

2. A north and south wing addition to the N. W. Dougherty Engineering Building containing 43,000 gross square feet was needed to provide classrooms, teaching and laboratory space, and office space for the Departments of Mechanical Engineering, Chemical and Metallurgical Engineering, and Nuclear Engineering. It was estimated that the addition to the Engineering Building would contain 13,661 assignable instructional square feet which would house an estimated 546 student-stations. Construction of these two wings would complete the N. W. Dougherty Engineering Building to the size originally estimated as needed to provide for the present needs of the departments and would provide a reasonable allowance of space for anticipated increased resident student enrollments and expanded programs of graduate work and research.

3. An addition of two wings to Ferris Hall containing 18,000 gross square feet was needed to provide classrooms, offices, and laboratory space for the Electrical Engineering Department. It was estimated that the Ferris Hall addition would contain 5,718 assignable

instructional square feet which would house an estimated 228 student-stations. For the fall quarter, 1962, the Electrical Engineering Department had the largest resident student enrollment of all the engineering departments in the College of Engineering; it was anticipated that this enrollment relationship would continue from 1962 through 1970. Available instructional space for the fall quarter, 1962, was inadequate and additional space was needed for an anticipated increased resident student enrollment and for expanded programs of graduate work and research in electrical engineering.

4. An Engineering Classroom and Office Building containing 50,000 gross square feet was needed to house anticipated increased resident student enrollments in Civil Engineering, Industrial Engineering and Basic Engineering and Graphics. It was estimated that the Engineering Classroom and Office Building would contain 15,885 assignable instructional square feet which would house an estimated 635 student-stations. For the fall quarter, 1962, these departments were housed in Perkins Hall. Although Perkins Hall adequately provided space for these departments for the fall quarter, 1962, anticipated increased resident student enrollments from 1962 through 1970 would require more space than was available in Perkins Hall for the fall quarter, 1962. Construction of this building would provide adequate space for these departments.

5. An Engineering Experiment Station Building containing 30,000 gross square feet was needed to provide offices and laboratories for all of the operations of the Engineering Experiment Station and for all the operations of the Highway Research Program. It was estimated that the

Engineering Experiment Station Building would contain 9,531 assignable instructional square feet which would house an estimated 381 student-stations. For the fall quarter, 1962, operations of the Engineering Experiment Station and the Highway Research Program were housed in Perkins Hall and Berry Hall. This separation was inconvenient, and the space available was inadequate for present operations. Space in Perkins Hall presently occupied by the Engineering Experiment Station for the fall quarter, 1962, was needed by the Civil Engineering, Industrial Engineering, and Basic Engineering and Graphics Departments which shared Perkins Hall with the Engineering Experiment Station. The Engineering Experiment Station and the Highway Research Program should be removed from Perkins Hall to provide needed space for other departments in the building.

Table XXVII shows that the additional 141,000 gross square feet would provide an additional 44,795 estimated assignable instructional square feet which would house an additional 1,790 estimated student-stations.

To accommodate the increased instructional space needs of the College of Engineering from 1962 through 1970, Table XXVII reports a need for a total of 97,111 assignable instructional square feet housing a total of 3,384 student-stations. An additional total of 256,620 gross square feet would also be required to adequately house the instructional space needs of the College of Engineering from 1962 through 1970.

Table XXVIII compares the College of Engineering's 1962 instructional space with that projected for 1970. Table XXVIII assumes that

TABLE XXVIII

A COMPARISON OF THE COLLEGE OF ENGINEERING 1962 INSTRUCTIONAL SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assignable Square Feet	Resident Student Enrollment	Assignable Square Feet Per Student Enrolled	Student- Stations	Assignable Square Feet Per Student- Station
Instructional	1962	78,394	2,387 ^a	32.8	2,197	35.7
Instructional Projected		52,316			1,594	
Instructional Estimated		44,795 ^c			1,790 ^c	
Total Instructional	1970	175,505	3,295 ^b	53.2	5,581	31.4

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^bResident student enrollment projection from "Institutional Research Series." A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

^cEstimated.

The University of Tennessee Capital Outlay Program would provide funds to construct the additional instructional space needed for the College by 1970. Table XXVIII shows that the 78,394 assignable instructional square feet available for the fall quarter, 1962, provided thirty-two and eight-tenths assignable instructional square feet for each student enrolled and provided thirty-five and seven-tenths assignable instructional square feet for each available student-station.

By 1970, the additional projected 52,316 assignable instructional square feet and the additional 44,795 estimated would provide a total of 175,505 assignable instructional square feet. By 1970, the additional projected 1,594 student-stations and the additional 1,790 estimated would provide a total of 5,581 student-stations. Table XXVIII shows that by 1970 the total 175,505 assignable instructional square feet available would provide fifty-three and two-tenths assignable instructional square feet per student enrolled and thirty-one and four-tenths assignable instructional square feet per available student-station.

X. INSTRUCTIONAL SPACE NEEDS OF THE COLLEGE OF AGRICULTURE

For the fall quarter, 1962, the College of Agriculture was housed on a separate campus adjacent to the Main campus of The University of Tennessee in Knoxville. The college was composed of three main divisions: (1) Resident Instruction in Agriculture, (2) the Agricultural Experiment Station, and (3) Agricultural Extension Service. The resident instructional program was housed in the following buildings: Food

Technology Building, Dairy Products Building, McCord Hall, Morgan Hall, the Animal Science Building, and the Agricultural Engineering Building. These instructional buildings had a combined room utilization of 22.1 per cent and a combined student-station utilization of 11.5 per cent. Two farms located near the Agriculture campus were also used for instructional and experimental purposes.

During recent years the College of Agriculture experienced a lack of growth in resident student enrollment. For the 1961 fall quarter 426 resident students²⁷ were enrolled, and for the 1962 fall quarter resident student enrollment increased to 472 students.²⁸ However, resident student enrollment was expected to increase if present enrollment projections proved valid.²⁹

An interview with Dean Webster Pendergrass revealed instructional needs of the College of Agriculture from 1962 through 1970.³⁰ These space needs are reported in Table XXIX.

1. A Plant Science Building containing 32,250 assignable instructional square feet housing 932 student-stations was needed to provide additional space for the Departments of Agronomy and Horticulture, and to

²⁷1961 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1961).

²⁸1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

²⁹Institutional Research Series, A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

³⁰Webster Pendergrass, Dean of the College of Agriculture, The University of Tennessee, Knoxville, Tennessee, 1962.

TABLE XXIX

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970
FOR THE COLLEGE OF AGRICULTURE

Description	Student- Stations	Assignable Instructional Square Feet	Assignable Non-Instructional Square Feet	Unassignable Square Feet	Total Gross Square Feet
Plant Science Building	932	32,250	20,000	27,750	80,000
Instructional Space					
3 General Classrooms	75 ^a	2,250			
30 Teaching and Research Laboratories	85 ^b	30,000			
Auditorium			10,000		
Faculty and Staff Offices			10,000		
Corridors, Stairways, Utilization, etc.				27,750	
Agricultural Engineering Building					
Addition	360	12,250	2,000	5,750	20,000
Instructional Space					
3 General Classrooms	75 ^a	2,250			
10 Teaching and Research Laboratories	285 ^b	10,000			
Faculty and Staff Offices			2,000		
Corridors, Stairways, Utilization, etc.				5,750	
Total Projected	1,292	44,500	22,000	33,500	100,000

TABLE XXIX (continued)

Description	Student- Stations	Assignable		Unassignable Square Feet	Total Gross Square Feet
		Instructional Square Feet	Non-Instructional Square Feet		
Farm Machinery Addition	254 ^a	6,354 ^c	6,200 ^c	7,446 ^c	20,000
Institute Center Building	1,525 ^a	38,124 ^c	37,200 ^c	44,676 ^c	120,000
Total Estimated	1,779 ^c	44,478 ^c	43,400 ^c	52,122 ^c	140,000
Total Instructional	3,071	88,978	65,400	85,622	240,000

^aBased on 25 assignable instructional square feet per student-station.

^bBased on 35 assignable instructional square feet per student-station.

^cEstimated.

provide space for new instructional and research and extension programs in Plant Sciences, a School of Forestry, and a program in Wildlife Management. The Plant Science Building would contain the following classrooms and student-stations: three general classrooms containing 2,250 assignable instructional square feet housing seventy-five student-stations; and thirty teaching and research laboratories containing 30,000 assignable instructional square feet housing 857 student-stations. The Plant Science Building would also contain the following non-instructional space: an auditorium containing 10,000 assignable square feet; and faculty and staff offices containing 10,000 assignable square feet. Construction of a Plant Science Building and removal of Agronomy and Horticulture from Morgan Hall would provide for much needed expansion of facilities in Morgan Hall for Agricultural Extension, Agricultural Economics, and the Agriculture Library and Editorial Departments.

2. An addition to the Agricultural Engineering Building containing 12,250 assignable instructional square feet housing 360 student-stations was needed to replace present antiquated and inadequate instructional space. The Agricultural Engineering Building addition would contain the following classrooms and student-stations: three general classrooms containing 2,250 assignable instructional square feet housing seventy-five student-stations, and ten teaching and research laboratories containing 10,000 assignable instructional square feet housing 285 student-stations. The Agricultural Engineering Building addition would also contain the following non-instructional space: faculty and staff offices, 2,000 assignable square feet. Some of the instructional space

used by the Agricultural Engineering Department for the fall quarter, 1962, was converted from a wooden dairy barn into classrooms and laboratories. These converted classrooms and laboratories were a fire hazard to other buildings in close proximity. Construction of this addition would replace the wooden structure and provide additional space for research laboratories, machinery display and storage, and office space.

Table XXIX, page 144, shows that the Plant Science Building and the Agricultural Engineering Building addition would contain a total of 100,000 gross square feet with 44,500 assignable instructional square feet housing 1,292 student-stations. Table XXIX also reports a need for an additional 140,000 gross square feet to house an addition to the Farm Machinery Building and an Institute Center Building.

In Table XXIX the addition to the Farm Machinery Building and the Institute Center Building could be reported only in terms of gross square feet.³¹ Since the assignable instructional square feet and the available student-stations in these two buildings were not available, and the data were essential, an estimate of the assignable instructional square feet and the available student-stations was made by the writer. The procedures discussed on pages 107 and 108 to estimate the assignable instructional square feet and the student-stations available in the College of Liberal Arts were used to estimate the assignable instructional square feet and the student-stations available in the Farm Machinery Building addition and the Institute Center Building.

³¹E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

Table XXIX reports the following additional instructional space needs of the College of Agriculture from 1962 through 1970.

1. A Farm Machinery Building addition containing 20,000 gross square feet was needed to house instructional and research programs of farm machinery. It was estimated that the Farm Machinery Building addition would contain 6,354 assignable instructional square feet which would house an estimated 254 student-stations.

2. An Institute Center Building containing 120,000 gross square feet was needed to exhibit and display farm machinery and other agricultural equipment. It was estimated that the Institute Center Building would contain 38,124 assignable instructional square feet which would house an estimated 1,525 student-stations. Table XXIX shows that the additional 140,000 gross square feet would provide an estimated additional 44,478 assignable instructional square feet which would house an estimated additional 1,779 student-stations.

Table XXIX reports a need for a total of 88,978 assignable instructional square feet housing 3,071 student-stations to meet the increased instructional space needs of the College of Agriculture from 1962 through 1970. Table XXIX also reports that an additional total of 240,000 gross square feet would be required to adequately house the instructional space needs of the College of Agriculture.

Table XXX compares the College of Agriculture's 1962 instructional space with that projected for 1970. Table XXX assumes that The University of Tennessee Capital Outlay Program would provide funds to construct the additional instructional space needed for the College by

TABLE XXX

A COMPARISON OF THE COLLEGE OF AGRICULTURE 1962 INSTRUCTIONAL
SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assignable Square Feet	Resident Student Enrollment	Assignable Square Feet Per Student Enrolled	Student- Stations	Assignable Square Feet Per Student- Station
Instructional	1962	93,563	472 ^a	198.2	1,120	83.5
Instructional Projected		44,500			1,292	
Instructional Estimated		44,478 ^c			1,525 ^c	
Total Instructional	1970	182,541	526 ^b	347.0	3,937	46.4

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^bResident student enrollment projection from "Institutional Research Series." A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

^cEstimated.

1970. Table XXX shows that the 93,563 assignable instructional square feet available for the fall quarter, 1962, provided 198.2 assignable instructional square feet per student enrolled and provided eighty-three and five-tenths assignable instructional square feet per available student-station. By 1970, the additional projected 44,500 assignable instructional square feet and the additional 44,478 estimated assignable instructional square feet would provide a total of 182,541 assignable instructional square feet. By 1970, the additional projected 1,292 student-stations and the additional 1,525 estimated student stations would provide a total of 3,037 student-stations. Table XXX shows that by 1970 the total 182,541 assignable instructional square feet available would provide 347.0 assignable instructional square feet per student enrolled and would provide forty-six and four-tenths assignable instructional square feet per available student-station.

XI. INSTRUCTIONAL SPACE NEEDS OF THE PHYSICAL EDUCATION DEPARTMENT

For the fall quarter, 1962, the Alumni Memorial Auditorium-Gymnasium provided space for instruction in health and physical education. Room utilization was 64.3 per cent and student-station utilization was 39.5 per cent. In addition to the high utilization for the forty-four-hour week, the late afternoon and evening hours not used for gym instruction were utilized by the intramural program and by some intercollegiate activities.

The Alumni Memorial Auditorium-Gymnasium was constructed in 1932

when the student enrollment of The University of Tennessee numbered approximately 2,249 students.³² The inadequacies of the building were apparent for the fall quarter, 1962, when the facility provided a program for 11,220 students.³³ For the fall quarter, 1962, adequate space was so critical that rooms previously used for storage were converted into office space, locker room space, and classroom space. For the quarter approximately 2,000 men were using a dressing room of approximately 3,500 assignable square feet. Women were also using converted storage rooms as locker and shower rooms.

Dr. G. F. Brady, Head of the Physical Education Department, suggested the construction of a Physical Education Building containing approximately 170,000 gross square feet to provide adequate space for the present physical education activities and to provide adequate space to accommodate future resident student enrollments. Table XXXI reports the following instructional spaces to be provided in the Physical Education Building suggested by Dr. G. F. Brady.³⁴

1. Six gymnasias containing 42,000 assignable instructional square feet housing 360 student-stations to be used for physical education instruction and intramural activities.

³²University of Tennessee Register, 1932-33, XXXVI, No. 3, (Knoxville: The University of Tennessee, 1932).

³³1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1961).

³⁴E. J. Boling, "Individual Capital Improvement Project Estimate," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

TABLE XXXI

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970
FOR THE PHYSICAL EDUCATION DEPARTMENT

Description	Student- Stations	Assignable		Assignable		Total Gross
		Instructional	Square Feet	Non-Instructional	Unassignable	
				Square Feet	Square Feet	Square Feet
Physical Education Building	640	58,250		72,000	39,750	170,000
Instructional Space						
6 Gymnasias	360	42,000				
6 General Classrooms	180	5,000				
1 Swimming Pool	100	11,250				
Faculty and Staff Offices				5,000		
Locker Rooms and						
Shower Rooms				20,000		
Auxiliary Gymnasias				30,000		
Storage				5,000		
Swimming Pool Auditorium				12,000		
Totals	640	58,250		72,000	39,750	170,000

2. One swimming pool containing 11,250 assignable square feet with a capacity of approximately 100 persons to be used for swimming and life-saving courses of the Physical Education Department and to provide recreational facilities for faculty and students.

3. Six general classrooms containing 5,000 assignable instructional square feet housing 180 student-stations to be used as lecture classrooms in health and physical education.

Table XXXI reports a need for 58,250 assignable instructional square feet housing 640 student-stations to provide adequate space for present physical education activities and to provide adequate space for future increased resident student enrollments.

Dr. G. F. Brady also suggested the following non-instructional space needs to be housed in the Physical Education Building.³⁵

1. Five thousand assignable square feet to house faculty and staff offices.

2. Twenty thousand assignable square feet to provide adequate locker room and shower room space.

3. Thirty thousand assignable square feet to provide space for auxiliary gymnasium apparatus and equipment.

4. Five thousand assignable square feet to provide adequate storage space.

5. Twelve thousand assignable square feet to provide an auditorium for swimming and diving activities.

³⁵Ibid.

Table XXXI reports that an additional 170,000 gross square feet would be required to adequately house the instructional space needs suggested by Dr. G. F. Brady.

Table XXXII compares the Physical Education Department's 1962 instructional space with that projected for 1970. Table XXXII assumes that The University of Tennessee Capital Outlay Program would provide funds to construct the additional instructional space needed for the College by 1970. Table XXXII shows that the 38,719 assignable instructional square feet and the 367 available student-stations in seven gymnasias available for the fall quarter, 1962, provided 105.5 assignable instructional square feet per available student-station. By 1970, the additional projected 42,000 assignable instructional square feet and the additional projected 360 student-stations would provide a total of 80,719 assignable instructional square feet and a total of 729 student-stations. The 80,719 assignable instructional square feet would provide 111.0 assignable instructional square feet per available student-station. Table XXXII shows that the 5,760 assignable instructional square feet and the 60 available student-stations in the swimming pool provided 96.0 assignable instructional square feet per available student-station for the fall quarter, 1962. By 1970, the additional projected 11,250 assignable instructional square feet and the additional projected 100 student-stations would provide a total of 17,010 assignable instructional square feet and a total of 160 student-stations. The 17,010 assignable instructional square feet would provide 106.3 assignable instructional square feet per available student-station. By 1970, a total

TABLE XXXII

A COMPARISON OF THE PHYSICAL EDUCATION DEPARTMENT 1962
INSTRUCTIONAL SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assignable Square Feet	Student-Stations	Assignable Square Feet Per Student-Station
Teaching Laboratories				
7 Gymnasia	1962	38,719	367	105.5
6 Gymnasia Projected		42,000	360	
Total	1970	80,719	727	111.0
Swimming Pool				
1 Swimming Pool	1962	5,760	60	96.0
1 Swimming Pool Projected		11,250	100	
Total	1970	17,010	160	106.3
Total Teaching Laboratories				
	1970	97,729 ^a	887	110.2
General Classrooms				
2 General Classrooms	1962	1,120	90	12.4
6 General Classrooms Projected		5,000	180	
Total General Classrooms	1970	6,120	270	22.7
Total All Instructional	1970	103,849 ^b	1,157	89.8

^aCombined gymnasias and swimming pool assignable instructional square feet.^bCombined teaching laboratories and general classroom assignable instructional square feet.

of 97,729 assignable instructional square feet and a total of 887 student-stations would be available in teaching laboratories which would provide 110.2 assignable instructional square feet per available student-station. Table XXXII shows that the 1,120 assignable instructional square feet and the ninety student-stations available in two general classrooms for the fall quarter, 1962, provided twelve and four-tenths assignable instructional square feet per available student-station. By 1970, the additional projected 5,000 assignable instructional square feet and the additional projected 180 student-stations would provide a total of 6,120 assignable instructional square feet. The 6,120 assignable instructional square feet would provide twenty-two and seven-tenths assignable instructional square feet per available student-station. By 1970, all instructional space in the Physical Education Department would total 103,849 assignable instructional square feet and 1,157 student-stations. The 103,849 assignable instructional square feet would provide eighty-nine and eight-tenths assignable instructional square feet per available student-station.

XII. INSTRUCTIONAL SPACE NEEDS OF THE KNOXVILLE CAMPUS OF THE UNIVERSITY OF TENNESSEE

Table XXXIII reports a summary of instructional space projections from 1962 through 1970 of the seven colleges and the Physical Education Department housed on the Knoxville campus of The University of Tennessee. Table XXXIII assumes that the University of Tennessee Capital Outlay

TABLE XXXIII

INSTRUCTIONAL SPACE PROJECTIONS FROM 1962 THROUGH 1970
FOR THE KNOXVILLE CAMPUS OF THE UNIVERSITY OF TENNESSEE

Description	Student- Stations	Assignable		Assignable		Unassignable	Total Gross
		Instructional	Square Feet	Non-Instructional	Square Feet	Square Feet	Square Feet
Biology Building Addition	534	17,292		5,619		20,609	43,520
Music Building	276	9,737		11,728		22,681	44,146
Humanities Building	2,610	65,250		19,560		28,190	113,000
Social Science Building	788	19,700		13,190		11,110	44,000
Fine Arts Building ^a	444 ^b	11,119 ^b		12,811 ^b	11,070 ^b		35,000
Dabney Hall Addition ^a	1,012 ^b	25,416 ^b		29,280 ^b	25,304 ^b		80,000
Theater Building ^a	330 ^b	8,260 ^b		9,517 ^b	8,223 ^b		26,000
Ayres Hall Addition ^a	313 ^b	7,942 ^b		9,151 ^b	7,907 ^b		25,000
Glocker Building Addition	726	26,200		13,770		12,642	52,612
Home Economics Addition	1,330	17,062		2,499		6,187	25,748
Home Management House	16	5,062				1,601	6,663
Claxton Education Building							
Addition	828	25,250		9,344		11,406	46,000
Child Study Center	545	16,810		6,104		8,086	31,000
Dougherty Engineering							
Building	1,594	52,316		29,547		33,757	115,620
Dougherty Engineering							
Addition ^a	546 ^b	13,661 ^b		13,330 ^b	16,009 ^b		43,000
Ferris Hall Addition ^a	228 ^b	5,718 ^b		5,580 ^b	6,702 ^b		18,000

TABLE XXXIII (continued)

Description	Student- Stations	Assignable Instructional Square Feet	Assignable Non-Instructional Square Feet	Unassignable Square Feet	Total Gross Square Feet
Engineering Classroom and Office Buildings ^a	635 ^b	15,885 ^b	15,500 ^b	18,615 ^b	50,000
Engineering Experiment Station Buildings ^a	381 ^b	9,531 ^b	9,300 ^b	11,169 ^b	30,000
Plant Science Building	932	32,250	20,000	27,750	80,000
Agriculture Engineering Building	360	12,250	2,000	5,750	20,000
Farm Machinery Addition ^a	254 ^b	6,354 ^b	6,200 ^b	7,446 ^b	20,000
Institute Center ^a	1,525 ^b	38,124 ^b	37,200 ^b	44,676 ^b	120,000
Physical Education Building	640	58,250	72,000	39,750	170,000
Classroom Buildings ^a	1,588 ^b	39,712 ^b	38,750 ^b	46,538 ^b	125,000
Classroom Buildings ^a	1,588 ^b	39,712 ^b	38,750 ^b	46,538 ^b	125,000
Total Projected	11,179	357,429	205,361	229,519	
Total Estimated	8,844	221,434	225,369	250,197	
Total Instructions ¹	20,023	578,863	430,730	479,716	1,489,309

^aGross square feet extracted from: E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

^bEstimated.

Program, 1963 through 1970³⁶ would provide funds to construct the additional space needed by the seven colleges and the Physical Education Department by 1970. Table XXXVIII reports that by 1970 a projected total of 357,429 assignable instructional square feet housing 11,179 student-stations would be available for the instructional program of The University of Tennessee.

In Table XXXVIII the assignable instructional square feet available in twelve buildings were estimated. These twelve buildings were projected for construction by The University of Tennessee Capital Outlay Program, 1963 through 1970,³⁷ and their areas in gross square feet were given. The writer, using procedures discussed on pages 107 and 108, estimated the assignable instructional square feet and the available student-stations in these twelve buildings. Table XXXVIII reports an estimated additional 221,434 assignable instructional square feet and an estimated additional 8,844 student-stations would be available in the twelve buildings by 1970.

To accommodate the increased instructional space needs of The University of Tennessee from 1962 through 1970, Table XXXVIII reports a need for a total of 578,863 assignable instructional square feet housing a total of 20,023 student-stations. Construction of the instructional buildings reported in Table XXXVIII would require a total of 1,489,309 gross square feet.

³⁶E. J. Boling, "Capital Outlay Program," The University of Tennessee, Knoxville, Tennessee, August, 1962. (Mimeographed.)

³⁷Ibid.

Table XXXIV compares The University of Tennessee's 1962 instructional space with that projected for 1970. Table XXXIV shows that the 488,178 assignable instructional square feet available for the fall quarter, 1962, provided forty-three and five-tenths assignable instructional square feet per resident student enrolled and provided thirty-four and six-tenths assignable instructional square feet per available student-station. By 1970, the additional projected 357,429 assignable instructional square feet and the additional estimated 221,434 assignable instructional square feet would provide a total of 1,067,041 assignable instructional square feet. By 1970, the additional projected 11,179 student-stations and the additional estimated 8,844 student-stations would provide a total of 34,133 student-stations. Table XXXIV shows that by 1970 the 1,067,041 assignable instructional square feet available would provide fifty-seven and three-tenths assignable instructional square feet per resident student enrolled and would provide thirty-one and three-tenths assignable instructional square feet per available student-station. Table XXXIV indicates that the assignable instructional square feet per resident student enrolled would increase from forty-three and five-tenths assignable instructional square feet in 1962 to fifty-seven and three-tenths assignable instructional square feet in 1970, an increase of thirteen and eight-tenths assignable instructional square feet. Table XXXIV also indicates that assignable instructional square feet per student-station would decrease from thirty-four and six tenths assignable instructional square feet in 1962 to thirty-one and three-tenths assignable instructional square feet in 1970, a decrease of

TABLE XXXIV

A COMPARISON OF THE UNIVERSITY OF TENNESSEE 1962 INSTRUCTIONAL
SPACE WITH THAT PROJECTED FOR 1970

Space	Year	Assignable Square Feet	Resident Student Enrollment	Assignable Square Feet Per Student Enrolled	Student- Stations	Assignable Square Feet Per Student- Station
Instructional	1962	488,178	11,220 ^a	43.5	14,110	34.6
Instructional Projected		357,429			11,179	
Instructional Estimated		221,434			8,844	
Total Instructional	1970	1,067,041	18,628 ^b	57.3	34,133	31.3

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by the Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^b1970 resident student enrollment projection from Table I of Ormond C. Corry's "Enrollment Growth Potential of The University of Tennessee to 1980," A Report Prepared by the Committee on Projections of The University of Tennessee Student Population (Knoxville: The University of Tennessee, 1961).

three and three-tenths assignable instructional square feet.

Table XXXIV indicates that the increase in the assignable instructional square feet from 1962 through 1970 would provide adequate space per resident student enrolled in 1970. The decrease of three and three-tenths assignable instructional square feet per student-station indicates that too many student-stations were allocated from 1962 through 1970 if the University desired to maintain the 1962 fall quarter allocation of thirty-four and six-tenths assignable instructional square feet per student-station.

XIII. COMPARISON OF INSTRUCTIONAL SPACE NEEDS

This section of Chapter IV compares 1962 instructional space with that projected for 1970 for all colleges and the Physical Education Department on the Knoxville campus of The University of Tennessee and examined the justification of each college and the Physical Education Department for additional instructional space from 1962 through 1970.

Table XXXV reports a comparison of 1962 instructional space with that projected for 1970 for all colleges and the Physical Education Department on the Knoxville campus of The University of Tennessee. Justification for additional instructional space was based on the following factors:

1. Room and student-station utilization for the fall quarter, 1962. The utilization indexes report the degree of use of rooms and student-stations. Before requesting any additional instructional space, the college should be making optimum use of present instructional

TABLE XXXV

A COMPARISON OF 1962 INSTRUCTIONAL SPACE WITH THAT PROJECTED FOR 1970 FOR
ALL COLLEGES AND THE PHYSICAL EDUCATION DEPARTMENT ON THE KNOXVILLE
CAMPUS OF THE UNIVERSITY OF TENNESSEE

	Enroll- ment	Assignable Instruc- tional Square Feet	Assignable Instruc- tional Square Feet Per Student	Available Student- Stations	Assignable Instructional Square Feet Per Student- Station
College of Liberal Arts					
1962 ^a	3,217	179,569	55.8	6,821	26.3
1970 ^b	6,457	344,285	53.3	13,128	26.2
College of Business Administration					
1962 ^a	2,359	26,476	11.2	1,358	19.5
1970 ^b	3,036	52,676	17.4	2,084	25.3
College of Home Economics					
1962 ^a	540	35,859	66.4	717	50.0
1970 ^b	904	57,983	64.1	2,063	28.1
College of Education					
1962 ^a	1,604	23,184	14.4	1,068	21.7
1970 ^b	2,450	65,244	26.6	2,441	26.7
College of Law					
1962 ^a	230	5,534	24.1	312	17.7
1970 ^b	252	5,534	22.0	312	17.7
College of Engineering					
1962 ^a	2,387	78,394	32.8	2,197	35.7
1970 ^b	3,295	175,505	53.2	5,581	31.4
College of Agriculture					
1962 ^a	472	93,563	198.2	1,120	83.5
1970 ^b	526	182,541	347.0	3,937	46.4

TABLE XXXV (continued)

Physical Education Department	Enroll- ment	Assignable Instruc- tional Square Feet	Assignable Instruc- tional Square Feet Per Student	Available Student- Stations	Assignable Instructional Square Feet Per Student- Station
1962 ^a		45,599		517	88.2
1970 ^b		103,849		1,157	89.8

^aResident student enrollment from 1962 Fall Quarter Enrollment Summary, A Report Prepared by Dean of Admissions Office (Knoxville: The University of Tennessee, 1962).

^bResident student enrollment projection from "Institutional Research Series," A Report Prepared by the Office of Institutional Research (Knoxville: The University of Tennessee, 1962).

facilities, and the utilization indexes should reflect an adequate degree of use of instructional space.

2. Projected increased resident student enrollment. Additional assignable instructional square feet must be provided for an increased resident student enrollment or the assignable instructional square feet per student would be reduced. Therefore, colleges with high utilization indexes and projections for an increased resident student enrollment should project plans for expansion of instructional facilities to adequately accommodate an increased enrollment.

3. Expansion of present instructional programs and creation of new instructional programs. The available instructional space in a college may not be adequate to house proposed expansion of present instructional programs or new programs. Expansion of present graduate programs or creation of new graduate programs also requires more instructional space than undergraduate programs. Increasing emphasis on public service programs and research programs in a college would also require additional instructional space.

Table XXXV shows that the College of Liberal Arts was the largest college on the Knoxville campus for the 1962 fall quarter with a resident student enrollment of 3,217 and 179,569 assignable instructional square feet available for instructional purposes. The projected resident student enrollment increased from 3,217 in 1962 to 6,457 in 1970, an increase of 100.7 per cent, and the projected assignable instructional square feet increased from 179,569 in 1962 to 344,285 in 1970, an increase of 91.7 per cent. These projections indicated that the College of Liberal

Arts would continue to be the largest college on the Knoxville campus. The 1970 projected 344,285 assignable instructional square feet represented 34.9 per cent of the total 987,617 assignable instructional square feet available in all colleges and the Physical Education Department.

For the fall quarter, 1962, the College of Liberal Arts' room utilization was 45.0 per cent, and student-station utilization was 37.9 per cent, the second highest room and student-station utilization of all the colleges on the Knoxville campus. The projected increased resident student enrollment indicated that the room and student-station indexes would increase from 1962 through 1970 as the resident student enrollment increased.

In Table XXXV the decrease in assignable instructional square feet per student from fifty-five and eight-tenths in 1962 to fifty-three and three-tenths in 1970 indicates that the increased assignable instructional square feet from 179,569 in 1962 to 344,285 in 1970 was not sufficient to accommodate the increase in resident student enrollment from 3,217 in 1962 to 6,457 in 1970 if the college expected to maintain its 1962 allocation per student. Whether the allocation of instructional space per student and per student-station for the fall quarter, 1962, was sufficient for the instructional program of the College of Liberal Arts was not under consideration in this study. However, the increase in student-stations from 6,821 in 1962 to 13,128 in 1970 decreased assignable instructional square feet per student-station from twenty-six and three-tenths in 1962 to twenty-six and two-tenths in 1970. An increase in the projected 344,285 assignable instructional square feet

would be needed to increase the assignable instructional square feet per student and per student station.

From 1962 through 1970 the College of Liberal Arts would also need instructional space for expansion of present and new undergraduate and graduate programs. An increasing national emphasis on technology and communication skills during the decade 1960-1970 would create new and expanded undergraduate and graduate instructional and research programs in the sciences and the languages which would require additional instructional space in the College of Liberal Arts. An increasing emphasis on expanding present and new research and public service programs would also create demands for additional space in the College of Liberal Arts.

The College of Liberal Arts' high utilization indexes for the 1962 fall quarter, the projected increased resident student enrollment, and the expansion of present and new instructional programs justified the increase of assignable instructional square feet from 179,569 to 344,285 in 1970. The college may not have projected enough space as the assignable instructional square feet per student and per student-station would remain relatively unchanged from 1962 through 1970. Increasing emphasis on graduate instructional and research programs and public service programs from 1962 through 1970 would also require more space than that projected for 1970.

Table XXXV shows that the College of Business Administration's resident student enrollment would increase from 2,359 in 1962 to 3,036 in 1970, an increase of 28.7 per cent in resident student enrollment;

and assignable instructional square feet would increase from 26,476 in 1962 to 52,676 in 1970, an increase of 99.0 per cent. The 1970 projected 52,676 assignable instructional square feet represented 5.3 per cent. of the total 987,617 assignable instructional square feet available in all colleges and the Physical Education Department.

For the fall quarter, 1962, the College of Business Administration's room utilization was 63.7 per cent, and student-station utilization was 44.8 per cent, the highest room and student-station utilization of all colleges on the Knoxville campus. The 1962 allocation of eleven and two-tenths assignable instructional square feet per student was the smallest allocation per student of all the colleges. These two factors, high utilization and small allocation of assignable instructional square feet per student, indicated a crowded condition and a need for increased assignable instructional square feet in the College of Business Administration. The 1970 projection of 52,676 assignable instructional square feet may not have been sufficient as the 1970 allocation per student increased to only seventeen and four-tenths assignable instructional square feet per student, the smallest 1970 allocation per student of all colleges.

Table XXXV shows that the assignable instructional square feet per student-station increased from nineteen and five-tenths in 1962 to twenty-five and three-tenths in 1970, approximately the same allocation per student-station as several other colleges. The increase in available student-stations from 1,358 in 1962 to 2,084 in 1970, an increase of 52.4 per cent, would provide sufficient student-stations to accommodate the

increased resident student enrollment from 1962 through 1970.

The College of Business Administration would also need instructional space for expansion of present and new undergraduate and graduate instructional programs. Expanding undergraduate and graduate instructional and research programs in industrial and personnel management and in shorthand would require additional space. A new executive development program would require additional space. A teaching facilities laboratory which would provide various teaching aids to be utilized by the faculty and staff would require additional space. The Data Processing Laboratory would require additional space for instructional and research programs.

The College of Business Administration's high utilization indexes for the 1962 fall quarter, the small allocation of assignable instructional square feet per student enrolled for the fall quarter of 1962, and the expanding present and new undergraduate and graduate instructional and research programs justified the increase in assignable instructional square feet from 26,476 in 1962 to 52,676 in 1970. However, this projection may be short because increasing emphasis on graduate instructional and research programs and public service programs from 1962 through 1970 would require more space than that projected for 1970 by the College of Business Administration.

Table XXXV shows that the College of Home Economics' resident student enrollment would increase from 540 in 1962 to 904 in 1970, an increase of 67.4 per cent, and assignable instructional square feet would increase from 35,859 in 1962 to 57,983 in 1970, an increase of

61.7 per cent. The 1970 projected 57,983 assignable instructional square feet represented 5.9 per cent of the total 987,617 for all colleges and the Physical Education Department.

For the fall quarter, 1962, the College of Home Economics' room utilization was 31.2 per cent, and student-station utilization was 31.3 per cent. These utilization indexes were lower than all colleges except the College of Agriculture.

In Table XXXV the decrease of sixty-six and four-tenths assignable instructional square feet per student in 1962 to sixty-four and one-tenth assignable instructional square feet in 1970 indicates that the increase of assignable instructional square feet from 35,859 in 1962 to 57,983 in 1970, an increase of 61.7 per cent, was not sufficient to accommodate the increase in resident student enrollment from 1962 to 1970 if the college expected to maintain its 1962 allocation per student. However, this decrease in assignable instructional square feet should produce a slight increase in the utilization indexes from 1962 through 1970 as the resident student enrollment increases.

Table XXXV shows that the assignable instructional square feet per student-station would decrease from fifty in 1962 to twenty-eight and one-tenth in 1970, approximately the same allocation per student-station as several other colleges. This decrease in assignable instructional square feet per student-station was the result of a projected Home Management Building containing 5,062 assignable instructional square feet housing only sixteen student-stations.

From 1962 through 1970 the College of Home Economics would also

need additional instructional space for expansion of present and new undergraduate and graduate programs. Expansion of present doctoral programs in Foods and Nutrition, Foods and Institutional Management, and Home Economics Education would require additional instructional and research space. New doctoral programs in the Departments of Child Development and Family Relationships, Home Management, and Textiles and Clothing would require additional instructional and research space. Additional research space and exhibit space would be needed for the Related Arts and Crafts Department. A new adult education program in Home Economics would require additional instructional space.

The number of expanding present and new instructional programs projected by the College of Home Economics from 1962 through 1970 was the largest projection of any college on the Knoxville campus. These expanding and new programs alone justified the increase in assignable instructional square feet from 1962 through 1970.

Table XXXV shows that the College of Education's resident student enrollment would increase from 1,604 in 1962 to 2,450 in 1970, an increase of 52.7 per cent, and assignable instructional square feet would increase from 23,184 in 1962 to 65,244 in 1970, an increase of 181.4 per cent. The 1970 projected 65,244 assignable instructional square feet represented 6.6 per cent of the total 987,617 assignable instructional square feet available in all colleges and the Physical Education Department.

For the fall quarter, 1962, the College of Education's room utilization was 44.5 per cent, and student-station utilization was 28.2 per cent. These utilization indexes indicated an adequate use of facilities

when compared with the utilization indexes of other colleges located on the Knoxville campus.

Table XXXV shows that the increase in assignable instructional square feet from 23,184 in 1962 to 65,244 in 1970, an increase of 181.4 per cent, and the increase in resident student enrollment from 1,604 in 1962 to 2,450 in 1970, an increase of 52.7 per cent, increased the assignable instructional square feet per student from fourteen and four-tenths in 1962 to twenty-six and six-tenths in 1970, an increase of twelve and two-tenths assignable instructional square feet per student. Assignable instructional square feet per student-station also increased from twenty-one and seven-tenths in 1962 to twenty-six and seven-tenths in 1970, an increase of five assignable instructional square feet per student-station. The 1970 allocation of twenty-six and seven-tenths assignable instructional square feet per student-station was approximately the same allocation per student-station as several other colleges.

Additional instructional space in the College of Education would be needed from 1962 through 1970 to provide for an increased resident student enrollment as well as to provide for continuous and expanding teacher education programs. A Child Study Center was needed to provide a demonstration school for the teaching of educable retarded or brain-damaged children, and to provide facilities for a reading clinic and for educational research.

In discussing instructional space needs of the College of Education, consideration must be given to the summer program. During recent years the summer quarter resident student enrollment was the largest

enrollment of any quarter; indications are that this trend would continue from 1962 through 1970. During the summer months, the undergraduate instructional programs continue, special graduate programs, not offered during other quarters, are scheduled, and special institutes are held. In addition to these instructional programs, seminars are conducted for short periods of time and attract school administrators, school board officials, and members of the community. Providing adequate space for present and expanding summer programs would be a critical problem for the College of Education from 1962 through 1970.

The College of Education's 1962 fall quarter utilization indexes, projected increased resident student enrollment, expanding teacher education programs, plus the instructional demands of summer quarter programs justified the increase in assignable instructional square feet from 23,184 in 1962 to 65,244 in 1970.

Table XXXV shows that the College of Law's resident student enrollment would increase from 230 in 1962 to 252 in 1970, an increase of 9.6 per cent in resident student enrollment. Because the College of Law projected no increase in the 5,534 assignable instructional square feet available from 1962 through 1970, the increase in resident student enrollment from 230 in 1962 to 252 in 1970, an increase of 9.6 per cent, would decrease the assignable instructional square feet per student from twenty-four and one-tenth in 1962 to twenty-two in 1970, a decrease of two and one-tenth assignable instructional square feet per student. The 312 available student-stations would provide seventeen and seven-tenths assignable instructional square feet per student-station in 1962 and in 1970.

Table XXXV shows that the College of Engineering's resident student enrollment would increase from 2,387 in 1962 to 3,295 in 1970, an increase of 38.0 per cent, and assignable instructional square feet would increase from 78,394 in 1962 to 175,505 in 1970, an increase of 123.9 per cent. The 1970 projected 175,505 assignable instructional square feet represented 17.8 per cent of the total 987,617 assignable instructional square feet available in all colleges and the Physical Education Department.

Table XXXV shows that the increase in assignable instructional square feet from 78,394 in 1962 to 175,505 in 1970, an increase of 123.9 per cent, and the increase in resident student enrollment from 2,387 in 1962 to 3,295 in 1970, an increase of 38.0 per cent, increased the assignable instructional square feet per student from thirty-two and eight-tenths in 1962 to fifty-three and two-tenths in 1970, an increase of twenty and four-tenths assignable instructional square feet per student. This increase in assignable instructional square feet per student was quite large in relation to the increase in resident student enrollment. The decrease in assignable instructional square feet per student-station from thirty-five and seven-tenths in 1962 to thirty-one and four-tenths in 1970, a decrease of four and three-tenths assignable instructional square feet per student-station, also indicated a poor allocation of student-stations in relation to the large increase in assignable instructional square feet.

For the fall quarter, 1962, the College of Engineering's room utilization was 42.9 per cent, and student-station utilization was

22.3 per cent. These utilization indexes indicated an adequate use of facilities when compared with the utilization indexes of other colleges located on the Knoxville campus.

The College of Engineering would also need additional instructional space from 1962 through 1970 for expansion of present and new instructional programs. The establishment of a separate Department of Theoretical and Applied Mechanics would require additional instructional and research space. New graduate and undergraduate programs in the Departments of Chemical and Metallurgical Engineering, Mechanical Engineering, and Nuclear Engineering would also require additional instructional research space.

From 1962 through 1970 the expanding present and new instructional programs of the College of Engineering would require some additional space. However, Table XXXV data indicates that the 1970 projection of assignable instructional square feet should either be reduced or further justification should be provided for the large increase in instructional space projected from 1962 through 1970. The projected increased resident student enrollment and the expanding present and new instructional programs did not justify the total projected increase in assignable instructional square feet for the College of Engineering from 1962 through 1970.

Table XXXV shows that the College of Agriculture's resident student enrollment would increase from 472 in 1962 to 526 in 1970, an increase of 11.4 per cent in resident student enrollment; and assignable instructional square feet would increase from 93,563 in 1962 to 182,541 in 1970, an

increase of 95.1 per cent. The 1970 projected 182,541 assignable instructional square feet represented 18.5 per cent of the total 987,617 assignable instructional square feet available in all colleges and the Physical Education Department.

For the fall quarter, 1962, the College of Agriculture's room utilization was 22.1 per cent, and student-station utilization was 11.5 per cent. These utilization indexes were the lowest of all colleges and indicated a poor use of instructional facilities for the quarter.

Table XXXV shows that the increase of assignable instructional square feet from 93,563 in 1962 to 182,541 in 1970, an increase of 95.1 per cent, and the increase in resident student enrollment from 472 in 1962 to 526 in 1970, an increase of only 11.4 per cent, increased the assignable instructional square feet per student from 198.2 in 1962 to 347.0 in 1970, an increase of 148.8 assignable instructional square feet per student. This increase was quite large in relation to the small increase in resident student enrollment projected from 1962 through 1970. The table also shows that the increase in assignable instructional square feet from 93,563 in 1962 to 182,541 in 1970, an increase of 95.1 per cent, and the increase in available student-stations from 1,120 in 1962 to 3,937 in 1970, an increase of 251.5 per cent, decreased the assignable instructional square feet from eighty-three and five-tenths in 1962 to forty-six and four-tenths in 1970. This meant that the increase in available student-stations was too high in relation to the increase in resident student enrollment, and in relation to the increase in assignable instructional square feet.

The College of Agriculture would also need additional instructional

space from 1962 through 1970 for expansion of present and new instructional programs. The Departments of Agronomy, Horticulture, and Forestry would need additional research space. A new doctoral program in Agriculture Economics and Rural Sociology would require additional instructional and research space. A new program for training personnel for the State Department of Wildlife Management would require additional space.

Using the three factors established as criteria for justification for additional instructional space, the College of Agriculture's large projection of 182,541 assignable instructional square feet from 1962 through 1970 was not clearly justified. The 1962 fall quarter utilization indexes indicated a poor use of instructional facilities; additional instructional space would further reduce the utilization indexes. The projected increased resident student enrollment, an increase of only 11.4 per cent, was not sufficient to justify the projected increase of 95.1 per cent in assignable instructional square feet. The projected expansion of present and new instructional programs did not seem to justify all the additional space projected. Housing the expanding present and new instructional programs in present physical plant facilities of the college would increase the utilization indexes. Table XXXV further shows that the 1970 projected allocation of assignable instructional square feet would result in allocations of assignable instructional square feet per student and per student-station unlike those of any college on the Knoxville campus.

Table XXXV shows that the Physical Education Department's assignable instructional square feet would increase from 45,599 in 1962 to

103,849 in 1970, an increase of 127.7 per cent, and the available student-stations would increase from 517 in 1962 to 1,157 in 1970, an increase of 123.8 per cent. The 1970 projected 103,849 assignable instructional square feet represented 10.5 per cent of the total 987,617 assignable instructional square feet available in all colleges and the Physical Education Department. The increase in assignable instructional square feet from 45,599 in 1962 to 103,849 in 1970, an increase of 127.7 per cent, and the increase in available student-stations from 517 in 1962 to 1,157 in 1970, an increase of 123.8 per cent, would increase the assignable instructional square feet per student-station from eighty-eight and two-tenths in 1962 to eighty-nine and eight-tenths in 1970, an increase of only one and six-tenths assignable instructional square feet per student-station. Whether the allocation of assignable instructional square feet per student-station for the 1962 fall quarter was sufficient for the instructional program of the Physical Education Department was not under consideration in this study. However, Table XXXV indicates that the Physical Education Department would be confronted with this question again in 1970. An increase in the projected 103,849 assignable instructional square feet would be justifiable and would be needed to increase the assignable instructional square feet per student-station.

The present physical education facilities were constructed in 1932 when the student enrollment was approximately 2,249 students. The inadequacies of these facilities were apparent for the fall quarter of 1962 when the resident student enrollment reached 11,220 students. Under these conditions room utilization was 71.9 per cent, and student-station utilization was 44.2 per cent for the fall quarter.

Providing an instructional program in health and physical education, an intramural program, and recreational activities for present resident student enrollment and for a projected increased resident student enrollment for the Knoxville campus of The University of Tennessee from 1962 through 1970 justified additional instructional space for the Physical Education Department.

A review of the 1970 allocations and projections for instructional space for the seven colleges revealed pertinent contrasts between the colleges and suggested questions about the projections which should be considered by University administrators.

The College of Liberal Arts had the largest projected allocation of assignable instructional square feet of any college, 34.9 per cent of the total space projected for all colleges and the Physical Education Department, had the largest projected resident student enrollment of any college (6,457), and had the second highest fall quarter utilization, 45.0 per cent for rooms and 37.9 per cent for student-stations; while the College of Agriculture in contrast with other colleges had the second largest allocation of assignable instructional square feet, 18.5 per cent of the total projected for all colleges and the Physical Education Department, but had the second smallest projected resident student enrollment (526), and had the lowest fall quarter utilization of any college, 22.1 per cent for rooms and 11.5 per cent for student-stations. By 1970 the College of Agriculture with the second largest allocation of instructional space and a resident student enrollment of only 526 students would probably continue to have the lowest utilization indexes of any college.

Although the College of Agriculture projected the second largest allocation of assignable instructional square feet of any college, its allocation of 347.0 assignable instructional square feet per student was the largest of any college and was approximately five times larger than the sixty-four and one-tenth assignable instructional square feet per student projected for the College of Home Economics which had the second largest allocation of instructional space per student, the third smallest projected resident student enrollment (904), and the second lowest fall quarter utilization indexes, 31.2 per cent for rooms and 31.3 per cent for student-stations. By 1970, the Colleges of Agriculture and Home Economics each would have larger allocations of instructional space per student than any other college or the Physical Education Department, and would also have the smallest resident student enrollments, excluding the College of Law, and would probably continue to have the lowest utilization indexes.

The College of Engineering had the third largest projected allocation of assignable instructional square feet, had 17.8 per cent of the total space projected for all colleges and the Physical Education Department, had the second largest projected resident student enrollment (3,295), and had the third highest fall quarter utilization indexes, 42.9 per cent for rooms and 22.3 per cent for student-stations.

The College of Business Administration in comparison with other colleges had the smallest projected allocation of assignable instructional square feet of any college, 5.3 per cent of the total space projected for all colleges and the Physical Education Department, had the

third largest projected resident student enrollment, (3,036), but had the highest fall quarter utilization indexes of any college, 63.7 per cent for rooms and 44.8 per cent for student-stations. By 1970, the College of Business Administration with the smallest allocation of instructional space of any college would have the third largest resident student enrollment and would probably continue to have the highest utilization indexes.

These deficiencies in projections for assignable instructional square feet for 1970 should be adjusted to avoid a waste of instructional space from 1962 through 1970. Those colleges with utilization indexes above 40 per cent and projected large increases in resident student enrollments should project sufficient space to accommodate the student enrollment and the changing instructional program. To avoid a waste of space the following questions should be considered by the administrators of The University of Tennessee.

1. Did the College of Liberal Arts project sufficient instructional space? The 1970 allocation of assignable instructional square feet per student and per student-station remained approximately the same as the 1962 allocation per student and per student-station. Under these conditions, if the resident student enrollment should exceed the projections for the college, the utilization indexes would increase producing a crowded condition. Increasing emphasis on graduate instructional and research programs and public service programs from 1962 through 1970 would also require more space than that projected for 1970.

2. Did the College of Business Administration project sufficient

instructional space? The 1970 allocation of assignable instructional square feet per student was the smallest allocation per student of any college on the Knoxville campus. If the resident student enrollment should exceed the projection for the college, the assignable instructional square feet per student would be reduced and the utilization indexes would increase producing a crowded condition. Increasing emphasis on graduate instructional and research programs and public service programs from 1962 through 1970 would also require more space than that projected for 1970.

3. Did the College of Home Economics project too much additional space? The College of Home Economics' utilization indexes for the 1962 fall quarter were the second lowest of any college on the campus. Present physical plant facilities could house a part of the expanding present and new instructional programs which would increase the utilization of the college.

4. Did the College of Engineering project too much additional instructional space? The 1970 projected increase in assignable instructional square feet per student was too large in relation to the projected resident student enrollment. The 1970 projected decrease in assignable instructional square feet per student-station also indicated a poor allocation of student-stations in relation to the large increase in assignable instructional square feet. The projected resident student enrollment and the expanding present and new instructional programs did not justify the total 1970 projection of instructional space.

5. Did the College of Agriculture project too much additional instructional space? The 1970 projected increase in assignable

instructional square feet per student was too large in relation to the projected resident student enrollment. The 1970 projected decrease in assignable instructional square feet per student-station also indicated a poor allocation of student-stations in relation to the large increase in assignable instructional square feet. The projected increased resident student enrollment and the expanding present and new instructional programs did not justify the total 1970 projection of instructional space.

6. Did the various colleges project sufficient instructional and research space for graduate study? During recent years the graduate programs of The University of Tennessee has experienced tremendous growth. Increasing emphasis on graduate study and research from 1962 through 1970 would require more space than that needed to house comparable undergraduate instructional programs.

Providing adequate instructional and research space to house an increased resident student enrollment and to house expanding present and new instructional and research programs in the seven colleges and the Department of Physical Education will be a critical problem of The University of Tennessee from 1962 through 1970. Table XXXV, pages 163 and 164, reported the increase in assignable instructional square feet needed from 1962 through 1970 to adequately house the instructional and research programs of the seven colleges and the Physical Education Department and also reported the effects of resident student enrollment on the available assignable instructional square feet from 1962 through 1970.

It was not the purpose of Chapter IV to judge the degree to which any or all of the instructional and research programs of the various colleges and departments should have precedence in expansion of facilities. Many value judgments would certainly be made before construction of any additional instructional space. However, it was the purpose of Chapter IV to make persons charged with the responsibility of providing for the future of The University of Tennessee aware of the future instructional needs of the colleges and departments located on the Knoxville campus of The University of Tennessee.

XIV. CHAPTER SUMMARY

Chapter IV examined instructional space needs of The University of Tennessee from 1962 through 1970. The University of Tennessee's self-study of 1962, the Individual Capital Improvement Project Estimates, and The University of Tennessee Capital Outlay Program, 1963 through 1970, were used as source materials to report instructional space needs of the seven colleges and the Physical Education Department from 1962 through 1970. Interviews were also held with various University faculty and staff members to determine the assignable square feet needed to house the projected instructional space needs. The assignable instructional square feet and the available student-stations in each college and the Physical Education Department were also reported in Chapter IV.

A total of 488,178 assignable instructional square feet and a total of 14,110 student-stations were available in all seven colleges and the Physical Education Department for the fall quarter, 1962.

General classrooms had 183,098 assignable instructional square feet and 10,557 student-stations available, and teaching laboratory rooms had 181,448 assignable instructional square feet and 3,553 student-stations available. There were 123,632 assignable instructional square feet available in research laboratories for the fall quarter, 1962. No data were available reporting the available student-stations in the research laboratories. Of the total 488,178 assignable instructional square feet available in all seven colleges and the Physical Education Department, the College of Liberal Arts had the largest allocation of assignable instructional square feet available in general classrooms, 75,468; the largest allocation available in teaching laboratories, 46,030; and the largest allocation available in research laboratories, 58,071.

Of the 14,110 student-stations available in all seven colleges and the Physical Education Department, the College of Liberal Arts had the largest number available in general classrooms, 5,157, and the largest number available in teaching laboratories, 1,664.

For the fall quarter, 1962, there were 179,569 assignable instructional square feet housing 6,821 student-stations available for the College of Liberal Arts' instructional program. The 179,569 assignable instructional square feet provided fifty-five and eight-tenths assignable instructional square feet per student enrolled for the quarter and provided twenty-six and three-tenths assignable instructional square feet per available student-station. By 1970, the College of Liberal Arts would need an additional projected 111,979 assignable instructional square feet housing 4,208 student-stations and

an estimated 52,737 assignable instructional square feet housing an estimated 2,099 student-stations to adequately meet the increased instructional space needs of the College. By 1970, the additional projected 111,979 assignable instructional square feet housing an additional projected 4,208 student-stations and an estimated 52,737 assignable instructional square feet housing an estimated 2,099 student-stations would provide a total of 344,285 assignable instructional square feet and a total of 13,128 student-stations for the College of Liberal Arts. By 1970, the 344,285 assignable instructional square feet available would provide fifty-three and three-tenths assignable instructional square feet per student enrolled and would provide twenty-six and two-tenths assignable instructional square feet per available student-station.

For the fall quarter, 1962, there were 26,476 assignable instructional square feet housing 1,358 student-stations available for the College of Business Administration's instructional program. The 26,476 assignable instructional square feet provided eleven and two-tenths assignable instructional square feet per student enrolled for the quarter and provided nineteen and five-tenths assignable instructional square feet per available student-station. By 1970, the College of Business Administration would need an additional 26,200 assignable instructional square feet housing 726 student-stations to adequately meet the increased instructional space needs of the College. By 1970, the additional 26,200 assignable instructional square feet housing an additional 726 student-stations would provide a total of 52,676 assignable instructional square feet and 2,084 available student-stations for the College

of Business Administration. By 1970, the 52,676 assignable instructional square feet would provide seventeen and four-tenths assignable instructional square feet per student enrolled and would provide twenty-five and three-tenths assignable instructional square feet per available student-station.

For the fall quarter, 1962, there were 35,859 assignable instructional square feet housing 717 student-stations available for the College of Home Economics' instructional program. The 35,859 assignable instructional square feet provided sixty-six and four-tenths assignable instructional square feet per student enrolled for the quarter and provided fifty assignable instructional square feet per available student-station. By 1970, the College of Home Economics would need an additional 22,124 assignable instructional square feet housing 1,346 student-stations to adequately meet the increased instructional space needs of the College. By 1970, the additional 22,124 assignable instructional square feet housing an additional 1,346 student-stations would provide a total of 57,983 assignable instructional square feet and 2,063 available student-stations for the College of Home Economics. By 1970, the 57,983 assignable instructional square feet would provide sixty-four and one-tenth assignable instructional square feet per student enrolled and would provide twenty-eight and one-tenth assignable instructional square feet per available student-station.

For the fall quarter, 1962, there were 23,184 assignable instructional square feet housing 1,068 student-stations available for the College of Education's instructional program. The 23,184 assignable

instructional square feet provided fourteen and four-tenths assignable instructional square feet per student enrolled for the quarter and provided twenty-one and seven-tenths assignable instructional square feet per available student-station. By 1970, the college of Education would need an additional 42,060 assignable instructional square feet housing an additional 1,373 student-stations to adequately meet the increased instructional space needs of the College. By 1970, the additional 42,060 assignable instructional square feet and the additional 1,373 student-stations would provide a total of 65,244 assignable instructional square feet and 2,441 available student-stations for the College of Education. By 1970 the 65,244 assignable instructional square feet would provide twenty-six and six-tenths assignable square feet per student enrolled and would provide twenty-six and seven-tenths assignable instructional square feet per available student-station.

The College of Law anticipated no additional instructional space needs from 1962 through 1970. The relocation of the Bureau of Sociological Research and the relocation of the Municipal Technical Advisory Service would provide the Law College with sufficient space to house the College of Law instructional program from 1962 through 1970.

For the fall quarter, 1962, there were 78,394 assignable instructional square feet housing 2,197 student-stations available for the College of Engineering's instructional program. The 78,394 assignable instructional square feet provided thirty-two and eight-tenths assignable instructional square feet per student enrolled for the quarter and provided thirty-five and seven-tenths assignable instructional square

feet per available student-station. By 1970, the College of Engineering would need an additional projected 52,316 assignable instructional square feet housing an additional 1,594 student-stations and an estimated 44,795 assignable instructional square feet housing an estimated 1,790 student-stations to adequately meet the increased instructional space needs of the College. By 1970, the additional projected 52,316 assignable instructional square feet housing an additional projected 1,594 student-stations and an estimated 44,795 assignable instructional square feet housing an estimated 1,790 student-stations would provide a total of 175,505 assignable instructional square feet and a total of 5,581 available student-stations for the College of Engineering. By 1970, the 175,505 assignable instructional square feet would provide fifty-three and two-tenths assignable instructional square feet per student enrolled and would provide thirty-one and four-tenths assignable instructional square feet per available student-station.

For the fall quarter, 1962, there were 93,563 assignable instructional square feet housing 1,120 student-stations available for the College of Agriculture's instructional program. The 93,563 assignable instructional square feet provided 198.2 assignable instructional square feet per student enrolled for the quarter and provided eighty-three and five-tenths assignable instructional square feet for each available student-station. By 1970, the College of Agriculture would need an additional projected 44,500 assignable instructional square feet housing an additional projected 1,292 student-stations and an estimated 44,478 assignable instructional square feet housing an estimated 1,525

student-stations to adequately meet the increased instructional space needs of the College. By 1970, the additional 44,500 projected assignable square feet housing an additional projected 1,292 student-stations and an estimated 44,178 assignable instructional square feet housing an estimated 1,525 student-stations would provide a total of 182,541 assignable instructional square feet and a total of 3,937 available student-stations for the College of Agriculture. By 1970, the 182,541 assignable instructional square feet would provide 347.0 assignable instructional square feet per student enrolled and would provide forty-six and four-tenths assignable instructional square feet per available student-station.

For the fall quarter, 1962, there were 38,719 assignable instructional square feet and 367 student-stations available in seven gymnasias in the Physical Education Department. By 1970, the Physical Education Department would need an additional 42,000 assignable instructional square feet and an additional 360 student-stations in six gymnasias to adequately house the instructional space needs of the Physical Education Department. The additional 42,000 assignable instructional square feet and the 360 additional student-stations would provide a total of 80,719 assignable instructional square feet and a total of 727 student-stations. By 1970, the 80,719 assignable instructional square feet would provide 111.0 assignable instructional square feet per available student-station. For the fall quarter, 1962, there were 5,760 assignable instructional square feet and sixty student-stations available in the swimming pool. By 1970, the Physical Education Department would need an

additional 11,250 assignable instructional square feet and an additional 100 student-stations to adequately house the swimming programs of the Physical Education Department. The additional 11,250 assignable instructional square feet and the additional 100 student-stations would provide a total of 17,010 assignable instructional square feet and a total of 160 student-stations. By 1970, the 17,010 assignable instructional square feet would provide 106.3 assignable instructional square feet per available student-station. For the fall quarter, 1962, there were 1,120 assignable instructional square feet and ninety student-stations available in two general classrooms in the Physical Education Department. By 1970, the Physical Education Department would need an additional 5,000 assignable instructional square feet and an additional 180 student-stations to adequately meet the instructional needs of the department. The additional 5,000 assignable instructional square feet and the additional 180 student-stations would provide a total of 6,120 assignable instructional square feet and a total of 270 student-stations. By 1970, the 6,120 assignable instructional square feet would provide twenty-two and seven-tenths assignable instructional square feet per available student-station. By 1970, a total of 103,849 assignable instructional square feet and a total of 1,157 student-stations would be available for the instructional program of the Physical Education Department. The 103,849 assignable instructional square feet would provide eighty-nine and eight-tenths assignable instructional square feet per available student-station.

For the fall quarter, 1962, a total of 488,178 assignable

instructional square feet housing 11,220 student-stations provided forty-three and five-tenths assignable instructional square feet per student enrolled and thirty-four and six-tenths assignable instructional square feet per student-station in all seven colleges and the Physical Education Department. By 1970, an additional projected 357,429 assignable instructional square feet housing an additional projected 11,179 student-stations and an estimated 221,434 assignable instructional square feet housing an estimated 8,844 student-stations would be needed to adequately meet the increased instructional space needs of the seven colleges and the Physical Education Department. By 1970, the additional projected 357,429 assignable instructional square feet housing an additional 11,179 student-stations and the additional estimated 221,434 assignable instructional square feet housing an estimated 8,844 student-stations would provide a total of 1,067,041 assignable instructional square feet and a total of 34,133 student-stations. By 1970, the 1,067,041 assignable instructional square feet would provide fifty-seven and three-tenths assignable instructional square feet per student enrolled and thirty-one and three-tenths assignable instructional square feet per available student-station.

Chapter IV revealed a need for construction of additional instructional space if the University expected to maintain the fall quarter, 1962, allocation of assignable instructional square feet per student enrolled and per student-station.

CHAPTER V

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

I. INTRODUCTION

The preceding chapters presented an analysis of room and student-station utilization of instructional facilities at The University of Tennessee for the fall quarter, 1962. The effect of an increased resident student enrollment from 1961 through 1970 on the utilization indexes was computed and reported. Projected instructional space needs of each college and the Physical Education Department from 1962 through 1970 were also reported and the 1962 available instructional space was compared with that projected for 1970.

Chapter V presents a summary of the findings of this study, conclusions pertaining to the optimum utilization of instructional facilities at The University of Tennessee, and recommendations for further study in the area of utilization of instructional and other physical plant facilities.

II. SUMMARY OF FINDINGS

The data revealed the following findings:

Instructional Space, Fall Quarter, 1962

1. For the fall quarter, 1962, a total of 498,827 assignable instructional square feet were available on the Knoxville campus of The

University of Tennessee. Of this total space available, a total of 405,264 assignable instructional square feet were available on the Main campus, and a total of 93,563 assignable instructional square feet were available on the Agriculture campus.

2. Of the total 405,264 assignable instructional square feet available on the Main campus, 146,029 assignable instructional square feet were available in 181 general classrooms; 9,486 assignable instructional square feet were available in three auditoriums; 5,613 assignable instructional square feet were available in two reading rooms; 2,975 assignable instructional square feet were available in five conference rooms; 5,292 assignable instructional square feet were available in four study rooms; 2,157 assignable instructional square feet were available in six seminar rooms; 44,479 assignable instructional square feet were available in eight gymnasias; 112,646 assignable instructional square feet were available in 105 teaching laboratories; and 76,587 assignable instructional square feet were available in research laboratories.

3. Of the total 93,563 assignable instructional square feet available on the Agriculture campus, 47,045 assignable instructional square feet were available in the research laboratories; 24,323 assignable instructional square feet were available in twenty-one teaching laboratories; 19,839 assignable instructional square feet were available in twenty-four general classrooms; 381 assignable instructional square feet were available in one reading room; and 1,975 assignable instructional square feet were available in five conference rooms.

4. For the fall quarter, 1962, The University of Tennessee's

instructional program used 336,949 assignable instructional square feet of the total 498,827 assignable instructional square feet available; this was 68.3 per cent of the available assignable instructional space.

5. Of the total 336,949 assignable instructional square feet used on the Knoxville campus of the University of Tennessee, 165,868 assignable instructional square feet were in general classrooms; 124,445 assignable instructional square feet were in teaching laboratories; 2,157 assignable instructional square feet were in seminar rooms; and 44,479 assignable instructional square feet were in gymnasia.

6. The total 405,264 assignable instructional square feet available each day on the Main campus meant that thirty-seven and seven-tenths assignable instructional square feet were available for each of the 10,748 students enrolled on the Main campus for the fall quarter, 1962. The average student use was twenty-seven and nine-tenths assignable instructional square feet of the thirty-seven and seven-tenths assignable instructional square feet available.

7. The 146,029 assignable instructional square feet available each day in the general classrooms on the Main campus meant that thirteen and six-tenths assignable instructional square feet were available for each of the 10,748 students enrolled for the fall quarter, 1962, and each student enrolled used thirteen and six-tenths assignable instructional square feet.

8. The 112,646 assignable instructional square feet available each day in the teaching laboratories on the Main campus meant that ten and five-tenths assignable instructional square feet were available for

each of the 10,748 students enrolled for the fall quarter, 1962. The average student use was nine and three-tenths assignable instructional square feet of the ten and five-tenths assignable instructional square feet.

9. For the fall quarter, 1962, a total of 14,586 student-stations were available on the Knoxville campus of The University of Tennessee. Of this total, 13,311 student-stations were available on the Main campus, and 1,275 student-stations were available on the Agriculture campus.

10. Of the total 13,311 student-stations available on the Main campus, 8,484 were in the general classrooms; 629 student-stations were in the auditoriums; 250 student-stations were in the reading rooms; 188 student-stations were in the conference rooms; 327 student-stations were in the study rooms; 113 student-stations were in the seminar rooms; 427 student-stations were in the gymnasias; and 2,893 student-stations were in the teaching laboratories.

11. Of the total 1,275 student-stations available on the Agriculture campus, 887 student-stations were in the general classrooms; twenty-five student-stations were in the reading rooms; 130 student-stations were in the conference rooms; and 233 student-stations were in the teaching laboratories.

12. A total of 488,178 assignable instructional square feet and a total of 14,110 student-stations were available in all seven colleges and the Physical Education Department for the fall quarter, 1962. The 9,268 assignable instructional square feet housing 397 general classroom student-stations in the Armory Fieldhouse and the 1,381 assignable

instructional square feet housing seventy-nine general classroom student-stations in Stadium Section X were excluded from the total 488,178 assignable instructional square feet and the total of 14,110 student-stations available in all seven colleges and the Physical Education Department. Of the total 488,178 assignable instructional square feet and the total 14,110 student-stations, general classrooms had 183,098 assignable instructional square feet and 10,557 student-stations available, and teaching laboratories had 181,448 assignable instructional square feet and 3,553 student-stations available. There were 123,632 assignable instructional square feet available in research laboratories.

13. The College of Liberal Arts had the largest allocation of assignable instructional square feet available in general classrooms, 75,468; the largest allocation available in teaching laboratories, 46,030; and the largest allocation available in research laboratories, 58,071.

14. Of the total 14,110 student-stations available in all seven colleges and the Physical Education Department, the College of Liberal Arts had the largest number available in general classrooms, 5,157; and the largest number of student-stations available in teaching laboratories, 1,664.

15. For the 1962 fall quarter, a total of 179,569 instructional square feet housing 6,821 student-stations were available for the College of Liberal Arts' instructional program; a total of 26,476 assignable instructional square feet housing 1,358 student-stations were available for the College of Business Administration's instructional program; a

total of 38,859 assignable instructional square feet housing 717 student-stations were available for the College of Home Economics' instructional program; a total of 5,534 assignable instructional square feet housing 312 student-stations were available for the College of Law's instructional program; a total of 23,184 assignable instructional square feet housing 1,068 student-stations were available for the College of Education's instructional program; a total of 78,394 assignable instructional square feet housing 2,197 student-stations were available for the College of Engineering's instructional program; a total of 93,563 assignable instructional square feet housing 1,120 student-stations were available for the College of Agriculture's instructional program; and a total of 45,599 assignable instructional square feet housing 517 student-stations were available for the Physical Education Department's instructional program.

Instructional Space Utilization, Fall Quarter, 1962

16. For the 1962 fall quarter, a total of 307 instructional classrooms in all buildings were utilized 46.0 per cent of the forty-four-hour week, and a total of 11,831 student-stations were utilized 34.2 per cent of the forty-four-hour week.

17. Of the total 307 available classrooms in all buildings, 205 general classrooms were utilized 51.6 per cent of the forty-four-hour week, and 9,371 student-stations were utilized 33.0 per cent of the forty-four-hour week.

18. Eighty-eight teaching laboratories were utilized 32.4 per cent of the forty-four-hour week, and 1,920 student-stations were

utilized 39.6 per cent of the forty-four-hour week.

19. Eight gymnasias had the highest room utilization, 71.9 per cent of the forty-four-hour week, and the highest student-station utilization, 44.2 per cent of the forty-four-hour week.

20. Room and student-station utilization of all instructional classrooms was low for the noon hour, 19.2 per cent and 17.3 per cent, respectively. Room and student-station utilization of all instructional space for each hour after 5:00 p.m. was below 8 per cent.

21. Rooms and student-stations of all instructional space were used less on Tuesday, Thursday, and Saturday than on Monday, Wednesday, and Friday. Lowest utilization of all instructional space occurred on Saturday, 34.0 per cent for rooms and 23.4 per cent for student-stations.

22. Rooms and student-stations of all instructional space were utilized more during the morning hours than the afternoon hours. At 9:00 a.m. room utilization was 53.5 per cent and student-station utilization was 41.7 per cent, a peak load.

23. General classroom utilization was low during the noon hour, 21.5 per cent for rooms and 15.5 per cent for student-stations, respectively. Room and student-station utilization for general classrooms for each hour after 5:00 p.m. was below 10 per cent.

24. General classrooms and their student-stations were used less on Tuesday, Thursday, and Saturday than on Monday, Wednesday, and Friday. Lowest room and student-station utilization of general classrooms occurred on Saturday, 40.6 per cent and 22.9 per cent, respectively.

25. General classrooms and their student-stations were utilized

more during the morning hours than the afternoon hours. At 9:00 a.m. room utilization was 62.8 per cent and student-station utilization was 41.2 per cent, a peak load.

26. Room and student-station utilization of teaching laboratories was low during the noon hour, 10.2 per cent and 20.1 per cent respectively. Room and student-station utilization of teaching laboratories for each hour after 5:00 p.m. was below 10 per cent.

27. Teaching laboratories and their student-stations were used less on Tuesday, Thursday, Friday, and Saturday than on Monday and Wednesday. Lowest utilization of teaching laboratories occurred on Saturday, 20.7 per cent for rooms and 26.0 per cent for student-stations.

28. Reasonable balance was achieved in utilizing teaching laboratories from 8:00 a.m. to 5:00 p.m. At 3:00 p.m. utilization was 34.1 per cent for rooms and 38.5 per cent for student-stations, a peak load.

29. Gymnasias were heavily utilized throughout the week except on Saturday. Highest gymnasium room utilization was on Wednesday, 85.9 per cent; highest student-station utilization of gymnasias was on Tuesday (56.2 per cent), Wednesday (50.9 per cent), and Thursday (52.9 per cent).

30. Gymnasias were heavily utilized throughout the day except at 8:00 a.m. Highest room utilization was 77.5 per cent at 12 noon and at 2:00 p.m. Highest student-station utilization was 48.3 per cent at 12 noon.

31. Seminar rooms were utilized most on Monday and Thursday. Lowest utilization of seminar rooms and student-stations occurred on Saturday, 8.3 per cent for rooms and 5.8 per cent for student-stations.

32. Seminar rooms were utilized more in the afternoon than in the morning. Highest room utilization was 33.3 per cent at 11:00 a.m. Highest student-station utilization was 21.4 per cent at 2:00 p.m.

33. When instructional space utilization in all buildings on the Knoxville campus of The University of Tennessee was computed, the utilization of rooms ranged from 78.6 per cent for Ayres Hall to 14.1 per cent for the Agricultural Engineering Building.

34. Student-station utilization in all buildings ranged from 63.3 per cent for the Geology and Geography Building to 5.9 per cent for the Animal Science Building.

35. The average number of periods the instructional rooms were utilized per week ranged from 34.6 in Ayres Hall to 6.2 in the Agricultural Engineering Building.

36. The average number of periods per week the student-stations were utilized ranged from 28.7 for the Geology and Geography Building to 2.6 for the Animal Science Building.

37. Ayres Hall was the busiest classroom building on the Knoxville campus with a room utilization of 78.6 per cent and a student-station utilization of 46.7 per cent for the forty-four-hour week.

38. Science Hall, one of the older campus buildings, had a high degree of utilization for the 1962 fall quarter, 37.1 per cent for rooms and 48.0 per cent for student-stations for the forty-four-hour week.

39. Glocker Hall, which housed the College of Business Administration and the Evening School, had the most constant, day-long utilization of any building on the campus, 63.7 per cent for rooms and 44.8

per cent for student-stations.

40. Glocker Hall, during the Evening School hours from 5:00 p.m. to 9:00 p.m., had a room utilization of 20.1 per cent and a student-station utilization of 38.3 per cent for the fall quarter, 1962.

41. According to the Russell and Doi room utilization norms (see page 67), The University of Tennessee ranked at the seventieth percentile in the utilization of all instructional rooms in all buildings, at the sixty-sixth percentile in the utilization of general classrooms in all buildings, and at the fifty-fifth percentile in the utilization of teaching laboratories in all buildings.

42. According to the Russell and Doi student-station norms (see page 68), The University of Tennessee ranked at the eighty-seventh percentile in student-station utilization of all instructional space in all buildings, at the eighty-third percentile in student-station utilization of general classrooms in all buildings, and at the ninety-third percentile in student-station utilization of teaching laboratories in all buildings.

43. The University of Tennessee's room and student-station utilization indexes were higher than the norms reported by John X. Jamrich (see pages 69 through 78).

44. Although other factors may have been operative, the 7.1 per cent increase in resident student enrollment from the fall quarter of 1961 to the fall quarter of 1962 seemed to affect student-station utilization more than room utilization; room utilization increase 1.9 per cent and student-station utilization increase 4.0 per cent.

45. Based on a 1.9 per cent increase in room utilization and a 4.0 per cent increase in student-stations, The University of Tennessee's instructional facilities would reach saturation by 1966 if the University continued to operate under the fall quarter, 1961, educational policies and if the University did not construct additional instructional facilities (see page 82).

46. The utilization indexes of the seven colleges of The University of Tennessee appeared to be related to size of resident student enrollment. Colleges with student enrollments above 2,000 students, Liberal Arts, Business Administration and Engineering, had the highest utilization indexes. The College of Agriculture and the College of Home Economics with enrollments below 550 students for the fall quarter, 1962, had the lowest utilization indexes.

Instructional Space Projections, Fall Quarter, 1962-1970

47. By 1970, the College of Liberal Arts would need an additional projected 11,979 assignable instructional square feet housing 4,208 student-stations and an estimated 52,737 assignable instructional square feet housing an estimated 2,099 student-stations to accommodate the increase enrollment and new program needs of the College. By 1970, an additional projected 111,979 assignable instructional square feet and an additional estimated 52,737 assignable instructional square feet would provide a total of 344,285 assignable instructional square feet. By 1970, the additional projected 4,208 student-stations and the additional estimated 2,099 student-stations would provide a total of 13,128 available student-stations. By 1970, the 344,285 assignable instructional

square feet would provide fifty-three and three-tenths assignable instructional square feet per student enrolled and twenty-six and two-tenths assignable instructional square feet per available student-station.

48. The College of Liberal Arts' 1970 projection of 344,285 assignable instructional square feet decreased the assignable instructional square feet per student from fifty-five and eight-tenths in 1962 to fifty-three and three-tenths in 1970. Assignable instructional square feet per student-station decreased from twenty-six and three-tenths in 1962 to twenty-six and two-tenths in 1970. An increase in the 1970 projected assignable instructional square feet would be needed to increase the assignable instructional square feet per student and per student-station.

49. The College of Liberal Arts' fall quarter, 1962, utilization indexes, projected increased resident student enrollment, and expansion of present instructional programs and new programs justified the increase of assignable instructional square feet from 179,569 in 1962 to 344,285 in 1970. The college may not have projected enough space as the assignable instructional square feet per student and per student-station would remain relatively unchanged from 1962 through 1970. Increasing emphasis on graduate instructional and research programs, and on public service programs from 1962 through 1970 would also require additional space.

50. By 1970, the College of Business Administration would need an additional 26,200 assignable instructional square feet housing 726

student-stations to adequately meet the increased enrollment and new program needs of the College. By 1970, the additional 26,200 assignable instructional square feet and the additional 726 student-stations would provide a total of 52,676 assignable instructional square feet and a total of 2,084 student-stations. By 1970, the 52,676 assignable instructional square feet would provide seventeen and four-tenths assignable instructional square feet per student enrolled and would provide twenty-five and three-tenths assignable instructional square feet per student-station.

51. The College of Business Administration's 1970 Projection of 52,676 assignable instructional square feet increased the assignable instructional square feet per student from eleven and two-tenths in 1962 to only seventeen and four-tenths in 1970, the smallest 1970 allocation per student in any college. Assignable instructional square feet per student-station increased from nineteen and five-tenths in 1962 to twenty-five and three-tenths in 1970 which was approximately the same allocation per student-station as several other colleges.

52. The College of Business Administration's high utilization indexes for the 1962 fall quarter, the small allocation of assignable instructional square feet per student enrolled for the 1962 fall quarter, and the expanding present and new undergraduate and graduate instructional programs justified the increase in assignable instructional square feet from 26,476 in 1962 to 52,676 in 1970. Increasing emphasis on graduate instructional and research programs and public service programs from 1962 through 1970 would also require additional space.

53. By 1970, the College of Home Economics would need an additional 22,124 assignable instructional square feet housing 1,346 student-stations to adequately meet the increased enrollment and new program needs of the College. By 1970, the additional 22,124 assignable instructional square feet and the additional 1,346 student-stations would provide a total of 57,983 assignable instructional square feet and a total of 2,063 available student-stations. By 1970, the 57,983 assignable instructional square feet would provide sixty-four and one-tenth assignable instructional square feet per student enrolled and would provide twenty-eight and one-tenth assignable instructional square feet per student-station.

54. The College of Home Economics' 1970 projection of 57,983 assignable instructional square feet decreased the assignable instructional square feet per student from sixty-six and four-tenths in 1962 to sixty-four and one-tenth in 1970. Assignable instructional square feet per student-station also decreased from fifty in 1962 to twenty-eight and one-tenth in 1970 which was approximately the same allocation per student-station as several other colleges.

55. The number of expanding present and new instructional programs projected by the College of Home Economics from 1962 through 1970 was the largest projection of any college on the Knoxville campus. These expanding and new programs alone justified the increase in assignable instructional square feet from 1962 through 1970.

56. By 1970, the College of Education would need an additional 42,060 assignable instructional square feet and an additional 1,373

student-stations to adequately meet the increased enrollment and new program needs of the College. By 1970, the additional 42,060 assignable instructional square feet and the additional 1,373 student-stations would provide a total of 65,244 assignable instructional square feet and a total of 2,441 student-stations. By 1970, a total of 65,244 assignable instructional square feet would provide twenty-six and six-tenths assignable instructional square feet per student enrolled and would provide twenty-six and seven-tenths assignable instructional square feet per student-station.

57. The College of Education's 1970 projection of 65,244 assignable instructional square feet increased the assignable instructional square feet per student from fourteen and four-tenths in 1962 to twenty-six and six-tenths in 1970. Assignable instructional square feet per student-station also increased from twenty-one and seven-tenths in 1962 to twenty-six and seven-tenths in 1970 which was approximately the same allocation per student-station as several other colleges.

58. The College of Education's 1962 fall quarter utilization indexes, projected increased resident student enrollment, and expanding teacher education programs plus the instructional demands of summer quarter programs justified the increase in assignable instructional square feet from 23,184 in 1962 to 65,244 in 1970.

59. Because the College of Law projected no increase in the available 5,534 assignable instructional square feet from 1962 through 1970, the increase in resident student enrollment from 230 in 1962 to 252 in 1970 would decrease the assignable instructional square feet per

student from twenty-four and one-tenth in 1962 to twenty-two in 1970, a decrease of two and one-tenth assignable instructional square feet per student. The 312 student-stations would provide seventeen and seven-tenths assignable instructional square feet per student-station in 1962 and in 1970.

60. By 1970, the College of Engineering would need an additional projected 52,316 assignable instructional square feet housing 1,594 student-stations and an estimated 44,795 assignable instructional square feet housing an estimated 1,790 student-stations to adequately meet the increased enrollment and new program needs of the College. By 1970, the additional projected 52,316 assignable instructional square feet housing an additional 1,594 student-stations and an estimated 44,795 assignable instructional square feet housing an estimated 1,790 student-stations would provide a total of 175,505 assignable instructional square feet and a total of 5,581 student-stations. By 1970, the 175,505 assignable instructional square feet would provide fifty-three and two-tenths assignable instructional square feet per student enrolled and provide thirty-one and four-tenths assignable instructional square feet per student-station.

61. The College of Engineering's 1970 allocation of 175,505 assignable instructional square feet increased the assignable instructional square feet per student from thirty-two and eight-tenths in 1962 to fifty-three and two-tenths in 1970. Assignable instructional square feet per student-station decreased from thirty-five and seven-tenths in 1962 to thirty-one and four-tenths in 1970, a decrease of four

and three-tenths assignable instructional square feet per student-station.

62. The increased resident student enrollment and the expanding present and new instructional programs of the College of Engineering would require some additional space from 1962 through 1970. However, Table XXXV data indicated that the 1970 projection of assignable instructional square feet should either be reduced or further justification should be provided for the large increase in instructional space projected by the College of Engineering from 1962 through 1970. The projected increased resident student enrollment and the expanding present and new instructional programs did not justify the total 175,505 assignable instructional square feet projected for the college.

63. By 1970, the College of Agriculture would need an additional projected 44,500 assignable instructional square feet housing an additional projected 1,292 student-stations and an estimated 44,478 assignable instructional square feet housing an estimated additional 1,525 student-stations to meet the increased enrollment and new program needs of the College of Agriculture. By 1970, the additional 44,500 projected assignable instructional square feet housing an additional projected 1,292 student-stations and an estimated 44,478 assignable instructional square feet housing an estimated 1,525 student-stations would provide a total of 182,541 assignable instructional square feet and a total of 3,937 available student-stations. By 1970, the 182,541 assignable instructional square feet would provide 347.0 assignable instructional square feet per student enrolled and provide forty-six and four-tenths assignable instructional square feet per student-station.

64. The College of Agriculture's 1970 allocation of 182,541 assignable instructional square feet increased the assignable instructional square feet per student from 198.2 in 1962 to 347.0 in 1970, an increase of 148.8 assignable instructional square feet per student. Assignable instructional square feet per student-station decreased from eighty-three and five-tenths in 1962 to forty-six and four-tenths in 1970, a decrease of thirty-seven and one-tenth assignable instructional square feet per student-station.

65. The College of Agriculture's large projection of 182,541 assignable instructional square feet from 1962 through 1970 did not seem justified. The 1962 fall quarter utilization indexes indicated a poor use of instructional facilities; additional instructional space would further reduce the utilization indexes. The projected increased resident student enrollment, an increase of only 11.4 per cent, was not sufficient to justify the projected increase in assignable instructional square feet. The projected expansion of present and new instructional programs was not sufficient to require all the additional space projected. Table XXXV data indicated that the 1970 projected allocation of assignable instructional square feet would result in allocations of assignable instructional square feet per student and per student-station unlike those of any other college on the Knoxville campus.

66. By 1970, the Physical Education Department would need an additional 42,000 assignable instructional square feet and an additional 360 student-stations in six gymnasias to adequately house the instructional space needs of the Physical Education Department. The additional 42,000

assignable instructional square feet and the additional 360 student-stations would provide a total of 80,719 assignable instructional square feet and a total of 727 student-stations. By 1970, the 80,719 assignable instructional square feet would provide 111.0 assignable instructional square feet per student-station. By 1970, the Physical Education Department would need an additional 11,250 assignable instructional square feet and an additional 100 student-stations to adequately house the swimming programs of the Physical Education Department. The additional 11,250 assignable instructional square feet and the additional 100 student-stations would provide a total of 17,010 assignable instructional square feet and a total of 160 student-stations. By 1970, the 17,010 assignable instructional square feet would provide 106.3 assignable instructional square feet per available student-station. For the fall quarter, 1962, there were 1,120 assignable instructional square feet and ninety student-stations available in two general classrooms in the Physical Education Department. By 1970, the Physical Education Department would need an additional 5,000 assignable instructional square feet and an additional 180 student-stations to adequately meet the instructional needs of the department. The additional 5,000 assignable instructional square feet and the additional 180 student-stations would provide a total of 6,120 assignable instructional square feet and a total of 270 student stations. By 1970, the 6,120 assignable instructional square feet would provide twenty-two and seven-tenths assignable instructional square feet per available student-station. By 1970, a total of 103,849 assignable instructional square feet and a total of 1,157

student stations would be available for the instructional program of the Physical Education Department. The 103,849 assignable instructional square feet would provide eighty-nine and eight-tenths assignable instructional square feet per available student-station.

67. The Physical Education Department's 1970 projection of 103,849 assignable instructional square feet increased the assignable instructional square feet per student-station from eighty-eight and two-tenths in 1962 to eighty-nine and eight-tenths in 1970, an increase of only one and six-tenths assignable instructional square feet per student-station.

68. Providing an instructional program in health and physical education, an intramural program, and recreational activities for present resident student enrollment and for a projected increased resident student enrollment for the Knoxville campus of The University of Tennessee from 1962 through 1970 justified additional instructional space for the Physical Education Department.

69. By 1970, an additional projected 357,429 assignable instructional square feet housing an additional projected 11,179 student-stations and an estimated 221,434 assignable instructional square feet housing an estimated 8,844 student-stations would be needed to adequately house the increased instructional space needs and the increased resident student enrollment in the seven colleges and the Physical Education Department. By 1970, the additional projected 357,429 assignable instructional square feet and the additional projected 11,179 student-stations and an additional estimated 221,434 assignable instructional square feet housing an

estimated 8,884 student-stations would provide a total of 1,067,041 assignable instructional square feet and a total of 34,133 student-stations. By 1970, the 1,067,041 assignable instructional square feet would provide fifty-seven and three-tenths assignable instructional square feet per student enrolled and thirty-one and three-tenths assignable instructional square feet per student-station.

III. CONCLUSIONS

Analysis of the findings of this study suggested the following conclusions.

1. The University of Tennessee does much better than the average university in instructional space utilization. Instructional facilities at The University of Tennessee, however, can be more efficiently utilized. Better utilization of instructional facilities could be accomplished by adopting the following:

a. More courses should be scheduled on Tuesday, Thursday, and Saturday. This would distribute the utilization indexes more evenly throughout the week.

b. More classes should be scheduled at the noon hour, especially on Tuesday, Thursday, and Saturday.

c. More classes should be scheduled after the 2:50 p.m. class hour, Monday through Friday.

d. More classes should be scheduled in those buildings with room and student-station utilization indexes below 35 per cent. Faculty and students want to be identified with the buildings that represent their

own field of work; however, this attitude often produces an unbalanced distribution of utilization in campus buildings such as those at The University of Tennessee. Whether such attitudes should be fostered, tolerated or discouraged is a value judgment which the administration must decide for itself.

e. Classes scheduled as "to be announced" in the Class Schedule Handbook should be assigned to a classroom which is compatible in size with the student enrollment. If the College of Education had scheduled their 1962 fall quarter TBA's in classrooms of compatible size, the room utilization index in the Claxton Education Building would have been increased by 5 per cent.

f. Accommodation of class size to room capacity would increase the utilization of student-stations.

2. Additional instructional facilities would be needed from 1962 through 1970. Increasing resident student enrollments from 1962 through 1970 would require additional instructional space. If no additional instructional facilities are constructed by 1966, increases in resident student enrollments would increase The University of Tennessee's room utilization to 60.5 per cent. The Southern Regional Education Board has established 60 per cent as an index of saturation of instructional facilities. Expanding curricular programs anticipated in each college and the Physical Education Department would also require additional instructional space. The increasing emphasis on graduate study and research programs of the University would produce an even greater demand for instructional space from 1962 through 1970. The projected

space needs of each college and the Physical Education Department reported in this study would provide adequate space needed to house the instructional program from 1962 through 1970.

3. Additional gymnasium space was needed. The Alumni Memorial Auditorium-Gymnasium provided space for instruction in health and physical education. This structure was constructed in 1932 when the student body at The University of Tennessee numbered approximately 2,249 students. The inadequacies of space in the Alumni Memorial Auditorium-Gymnasium were apparent under fall quarter, 1962, conditions of enrollment where a facility constructed for use by 2,249 students accommodated a program for 11,220 students. The high utilization indexes reported for the 1962 fall quarter also confirmed the need for additional space. In addition to the high utilization during the day, the late afternoon and evening hours not used for gym instruction were used for the intramural program and for some intercollegiate sports. Some addition to the physical plant is necessary in this instructional area if the present program was to serve a greater number of students. An analysis in this area indicates two alternatives to provide the additional space needed. The additional plant could take the form of (1) a second gymnasium, thus providing separate structures for men and women, or (2) an addition or alteration to the present building which would be designed to serve the purposes of a second gymnasium.

4. A space utilization committee composed of administrative staff, faculty, and students was needed to assist in determining policies on space utilization, scheduling policies, and class size

limitations. Since the pattern of space utilization that will prevail at an institution of higher learning is part of a system of attitudes and habits of the staff and students, significant changes in policies on space utilization should be discussed and be approved by a representative body of all concerned. One of the early tasks of this committee would be the establishment of definite policies and standards of room and student-station utilization for the various instructional areas within the colleges. A central office, and/or officer, should direct the administration of all instructional space. An annual utilization study should be conducted, preferably for the fall quarter, and all data should be recorded and preserved. An effective system of communication pertaining to instructional space data should be established.

5. In terms of the factors considered, there was adequate justification by the College of Liberal Arts for the projected 344,285 assignable instructional square feet from 1962 through 1970. The College of Liberal Arts' high utilization indexes for the 1962 fall quarter, the projected increased resident student enrollment, and the expansion of present and new instructional programs justified the increase of assignable instructional square feet from 179,569 in 1962 to 344,285 in 1970. The college may not have projected enough space to accommodate expanding present and new graduate instructional and research programs or expanding present and new public service programs. If the resident student enrollment exceeded the projections for the college from 1962 through 1970, the assignable instructional square feet per student would be reduced and the utilization indexes would increase producing a crowded condition.

6. In terms of the factors considered, there was adequate justification by the College of Business Administration for the projected 52,676 assignable instructional square feet from 1962 through 1970.

The College of Business Administration's high utilization indexes for the fall quarter, the small allocation of assignable instructional square feet per student enrolled for the 1962 fall quarter, and the expanding present and new undergraduate and graduate instructional programs justified the increase in assignable instructional square feet from 26,476 in 1962 to 52,676 in 1970. The college may not have projected sufficient space to accommodate expanding present and new graduate instructional and research programs or expanding present and new public service programs. If the resident student enrollment exceeded the projections for the college, the assignable instructional square feet per student would be reduced and the utilization indexes would increase producing a crowded condition.

7. In terms of the factors considered, there was adequate justification by the College of Home Economics for the projected 57,983 assignable instructional square feet from 1962 through 1970. The number of expanding present and new instructional programs projected by the College of Home Economics from 1962 through 1970 was the largest projection of any college on the Knoxville campus. These expanding and new programs alone justified the increase in assignable instructional square feet from 35,859 in 1962 to 57,983 in 1970. However, since the College of Home Economics' utilization indexes were one of the lowest of any college, some of the expanding present and new instructional programs

should be housed in the present physical plant of the college. This would increase the utilization indexes of the College of Home Economics.

8. In terms of the factors considered, there was adequate justification by the College of Education for the projected 65,244 assignable instructional square feet from 1962 through 1970. The College of Education's 1962 utilization indexes, projected increased resident student enrollment, expanding teacher education programs plus the instructional demands of summer quarter programs justified the increase in assignable instructional square feet from 23,184 in 1962 to 65,244 in 1970.

9. In terms of the factors considered, there was inadequate justification by the College of Engineering for the projected 175,505 assignable instructional square feet from 1962 through 1970. The projected increased resident student enrollment and the expanding present and new instructional programs did not justify the total projected increase in assignable instructional square feet for the College of Engineering. Some additional space would be needed; however, the 1970 total projection of assignable instructional square feet should either be reduced or further justification should be provided by the College of Engineering for the large increase in instructional space projected from 1962 through 1970.

10. In terms of the factors considered, there was inadequate justification by the College of Agriculture for the projected 182,541 assignable instructional square feet from 1962 through 1970. The 1962 fall quarter utilization indexes of the College of Agriculture indicated a poor use of instructional facilities; additional

instructional space would further reduce the utilization indexes. The projected increased resident student enrollment, an increase of only 11.4 per cent, was not sufficient to justify the projected increase in assignable instructional square feet. The projected expansion of present and new instructional programs also was not sufficient to require additional space. Housing the expanding and new instructional programs in present physical plant facilities of the college would increase the utilization indexes. The 1970 projected allocation of 182,541 assignable instructional square feet would result in allocations of assignable instructional square feet per student and per student-station unlike those of any college on the Knoxville campus.

IV. RECOMMENDATIONS FOR FURTHER STUDY

Further studies in space utilization might be made:

1. A study of the type and extent of research activities on the Knoxville campus of The University of Tennessee should be undertaken.
2. A study of the use and future need for residential and service facilities on the Knoxville campus of The University of Tennessee was needed. These facilities constitute a large portion of the capital outlay program, and a method for determining and appraising their use should be developed.
3. A study was needed of the location of different types of instructional rooms on the campus, and the effect of location on the room and student-station indexes. As new instructional buildings are planned and constructed under the Urban Renewal Program, a study of location and

the effect of location on the utilization indexes will be needed. It is hoped that a utilization study of instructional space such as presented in this study will become an annual project of the University administrative staff.

4. A study of the utilization of office space was needed. A study of the extent and type of office space available to the instructional staff, the administrative staff, and the clerical staff was needed. Projection of future needs in each of these areas was also needed.

5. A study of the relationship of class size to room capacity was needed. Adjusting the room size to the class size is a difficult space problem. It is generally believed that it is impossible to establish standard lists of room requirements to fit the needs of any college or university in any particular locality. No study of class size to room capacity has been made of instructional facilities at The University of Tennessee.

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APPENDICES

APPENDIX A

APPENDIX B

CLASSROOM ASSIGNMENT FORM

No. of Chairs _____ Room _____ Type _____

	M	Tu	W	Th	F	S
8-9						
9-10						
10-11						
11-12						
12-1						
1-2						
2-3						
3-4						
4-5						
5-6						
6-7						
7-8						
8-9						
9-10						

APPENDIX C

TABLE XXXVI
CLASS SIZE FOR THE FALL QUARTER, 1962

Department	Course	Section	Total Enrolled
66	211 A	40	3
	211 A	41	5
	211 A	42	1
	211 A	43	3
	211 A	44	2
			78
	212	1	26
	212	2	20
	212	40	11
			57
	213	40	6

APPENDIX D

TABLE XXXVII

ASSIGNABLE SQUARE FEET OF SPACE AVAILABLE IN EACH
BUILDING FOR THE FALL QUARTER, 1962

Building	General							Unassign- able Space ^d	Total Gross
	Class- Rooms	Teaching Labs	Research Labs	Teaching Service ^a	Library	Faculty Office ^b	Staff Office ^c		
Agricultural Engineering	2,528	3,908	512	1,540		1,396	402	5,620	15,906
Alumni Memorial Auditorium-									
Gymnasium	1,120	44,479		27,946		2,127	218	20,320	96,210
Animal Sciences	6,326	1,344	17,988	32,433		2,874	4,220	21,953	87,138
Armory Field- house	9,268			61,243 ^e		5,819	1,065	41,420	118,815
Art Education		2,023		1,432		270		1,349	5,074
Ayres Annex				100		3,405	338	1,858	5,701
Ayres Hall	28,291	1,478		681		12,787	4,915	29,594	77,746
Berry Hall			3,703			435		1,622	5,760
Claxton Education	19,703		1,458	6,590	4,630	6,293	2,666	23,518	64,858
Corn and Cotton		576	2,360				1,460	1,801	6,197
Craft House		1,981				357	412	461	3,211
Dabney Hall	7,964	12,881	14,139	13,526	2,700	4,482	1,180	23,716	80,588
Dairy Manu- factoring	1,224	7,128		6,873		282	336	4,269	20,112
Entomology and Plant									
Pathology			8,889			132	1,023	4,625	14,669
Estabrook Hall	7,851	22,002	420	2,657		3,276	1,035	14,065	51,306
Extension Annex				1,754			2,538	1,660	5,952
Extension Building				3,927			3,608	3,268	10,803

TABLE XXXVII (continued)

Building	General		Teaching Labs	Research Labs	Teaching Services ^a	Library	Faculty Office ^b	Staff Office ^c	Unassign- able Spaced	Total Gross
	Class- Rooms									
Family Life Center	1,032				506		573	208	1,496	3,815
Farm Machinery		3,410							685	4,095
Ferris Hall	3,134	14,601		1,135	8,463	2,305	2,688	552	12,977	45,855
Food Technology	2,011	2,664		1,280	14,625		1,698	500	5,518	28,296
Forestry Building	238			204	1,116		295	397	1,107	3,357
Geology and										
Geography	7,774	4,424		6,391	1,862		5,683	467	8,746	35,347
Glocker Building	21,631	2,425		2,420	6,706	2,748	9,713	6,248	22,054	73,945
Hesler Building	2,844	16,383		14,535	3,616	1,100	9,465	1,073	21,972	70,988
Home Economics	8,745	17,439		5,410	6,428		3,414	3,919	22,371	67,726
Horticulture										
Greenhouse		529		2,904	336				989	4,758
Hoskins Library	3,754				6,967		1,686	1,480	57,137	129,698
Law Building	5,534				6,831	58,674	1,447	1,612	13,028	39,961
McClung Museum	2,996				17,319	11,509	92	1,233	9,564	33,234
McCord Hall	5,520	2,400		2,030	5,505	552	2,682	1,888	5,881	28,508
Morgan Hall	4,348	2,364		4,080	3,542	3,110	3,581	20,545	24,279	65,811
Music Annex	5,145	468		4,042	3,383	440	1,635	696	4,505	16,272
Music Building		576			574		1,795	147	1,849	4,941
Nuclear Engi- neering	374									
Nursery School	1,040	212		1,880	571		187		1,203	4,215
Perkins Hall	15,271	5,733			3,692		304	300	2,262	7,810
Physics Building	7,796	5,786		2,090	11,839		6,613	1,590	23,017	66,353
Poultry Building				14,064	13,469		2,885	3,171	23,188	70,359
Practice House				916					563	1,479
812 Temple										
Practice House				4,701					1,165	5,866
925 Temple										
					3,099				1,771	4,870

TABLE XXXVII (continued)

Building	General				Teaching Labs	Research Labs	Teaching Service ^a	Library	Faculty Office ^b	Staff Office ^c	Unassign- able Space ^d	Total Gross
	Class- Rooms	Teaching Labs	Research Labs	Teaching Service ^a								
Practice House												
1628 W. Cumberland				3,918							2,171	6,084
Psychological												
Service Center	270			663					1,535	801	1,719	4,988
Science Hall	6,411	192	4,436	2,855					2,807		11,004	27,705
South College	2,223		2,476	1,215					1,000	1,596	4,977	13,487
Spinning Lab			3,870							515	1,365	5,750
Stadium												
Section X	1,381			10,012						2,240	5,388	19,021
T.V. Studio		3,842									1,594	5,436
Total	193,747	181,448	123,632	304,515	87,768	105,713	76,594	496,664	1,570,081			

^a Auxiliary space devoted to teaching function of the classroom.

^b Space occupied by instructional personnel of the faculty and their staff employees.

^c Space occupied by administrators and their staff employees.

^d Unassignable space includes the following: Corridors, stairways, elevators, structural elements such as walls and columns, restrooms and maintenance areas.

^e Includes 45,637 square feet of gym floor space and auditorium seating space.

APPENDIX E

TABLE XXXVIII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE AGRICULTURAL ENGINEERING BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b
	Room		Room		Room		Room		Room		Room		Room	
8 - 9							20.0	4.4			40.0	13.9	3.3	.7
9 - 10			40.0	13.9			40.0	13.9					20.0	7.0
10 - 11			20.0	9.5			20.0	9.5					6.7	3.2
11 - 12N														
12N - 1PM					40.0	64.6			20.0	10.8			12.0	15.1
1 - 2	40.0	64.6			40.0	64.6			40.0	64.6			24.0	38.7
2 - 3	20.0	53.8							20.0	53.8			8.0	21.5
3 - 4	40.0	10.1							40.0	10.1			16.0	4.1
4 - 5	40.0	10.1			20.0	5.7			60.0	22.2			24.0	7.6
5 - 6									20.0	12.0			4.0	2.4
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily	Utilization	17.5	17.3	7.5	2.9	12.5	16.9	10.0	3.5	25.0	21.7	10.0	3.5	
Average Weekly	Utilization												14.1	11.6

^aBuilding includes 5 rooms and 158 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XXXIX

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE ALUMNI MEMORIAL AUDITORIUM-GYMNASIUM^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	40.0	27.1	50.0	30.2	50.0	34.4	50.0	30.2	40.0	26.5	20.0	6.0	41.7	25.7
9 - 10	70.0	38.9	60.0	45.8	90.0	51.6	60.0	45.8	70.0	39.8	30.0	13.9	63.3	39.3
10 - 11	60.0	32.3	70.0	48.7	80.0	45.3	70.0	48.7	70.0	36.5	30.0	16.0	63.3	37.9
11 - 12N	60.0	38.5	50.0	32.1	70.0	46.6	70.0	44.5	50.0	34.2	10.0	6.2	51.7	33.7
12N - 1PM	60.0	34.6	70.0	51.2	60.0	34.6	70.0	51.2	40.0	20.1	10.0	7.5	51.7	33.2
1 - 2	60.0	37.1	50.0	35.0	70.0	42.7	30.0	22.6	70.0	39.8			56.0	35.5
2 - 3	90.0	41.6	70.0	41.4	90.0	41.6	30.0	21.8	90.0	38.1			74.0	36.9
3 - 4	60.0	35.6	70.0	48.7	60.0	35.6	70.0	46.4	30.0	6.4			58.0	34.5
4 - 5	50.0	36.0	70.0	49.9	50.0	36.0	70.0	50.0	20.0	13.5			52.0	37.0
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	68.7	40.2	70.0	47.9	77.5	46.0	65.0	45.2	60.0	31.9	25.0	12.4		
Average Weekly Utilization													64.3	39.5

^aBuilding includes 10 rooms and 517 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XL

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE ANIMAL SCIENCE BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9			16.7	1.9	16.7	7.2	16.7	1.9	16.7	7.2			5.6	.6
9 - 10	16.7	7.2	16.7	1.9	16.7	7.8	16.7	1.9	16.7	7.8	16.7	2.5	13.9	4.3
10 - 11	16.7	4.7	16.7	.3	33.3	7.8	33.3	7.8	33.3	7.8	16.7	5.0	19.4	3.8
11 - 12N	33.3	7.8	33.3	7.8	33.3	7.8	33.3	7.8	33.3	7.8	16.7		30.6	7.3
12N - 1PM	50.0	21.7	33.3	7.8	50.0	21.7	16.7	2.8	50.0	21.7			40.0	15.1
1 - 2	66.7	26.1			50.0	21.7	16.7	2.8	33.3	5.8			33.3	11.3
2 - 3	33.3	7.8			33.3	7.8			33.3	7.8			20.0	4.7
3 - 4	16.7	1.7							16.7	5.8			6.7	1.5
4 - 5	16.7	1.7											3.3	.3
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average														
Daily Utilization	31.3	9.8	14.6	2.5	27.1	9.2	12.5	2.2	27.1	8.0	8.3	1.9		
Average														
Weekly Utilization													21.2	5.9

^aBuilding includes 6 rooms and 360 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE ARMORY FIELDHOUSE^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	88.9	71.3	44.4	33.3	88.9	72.1	44.4	33.6	66.7	50.3			55.6	43.4
9 - 10	44.4	31.9	22.2	19.5	33.3	30.5	22.2	20.1	11.1	11.2			22.2	18.9
10 - 11	55.6	50.6	22.2	23.6	55.6	49.1	33.3	31.3	33.3	27.9			33.3	30.4
11 - 12N	88.9	64.7	44.4	31.6	88.9	62.9	44.4	33.0	66.7	43.7			55.6	39.3
12N-1PM	11.1	7.2			11.1	7.2							4.4	2.9
1 - 2	11.1	4.9			11.1	4.9							4.4	2.0
2 - 3														
3 - 4														
4 - 5														
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	37.5	28.8	16.7	13.5	36.1	28.3	18.1	14.8	22.2	16.6				
Average Weekly Utilization													23.7	18.6

^aBuilding includes 9 rooms and 348 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR AYRES HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	85.0	57.3	82.5	50.8	87.5	59.0	82.5	51.0	85.0	57.3	55.0	26.6	79.6	50.3
9 - 10	97.5	67.8	95.0	59.0	95.0	66.3	95.0	59.0	95.0	66.3	80.0	43.8	92.9	60.3
10 - 11	95.0	68.2	90.0	47.8	95.0	68.1	92.5	48.8	92.5	66.4	75.0	37.7	90.0	56.2
11 - 12N	95.0	62.0	80.0	43.1	92.5	60.7	80.0	42.2	92.5	60.7	60.0	29.9	83.3	49.8
12N- 1PM	90.0	50.8	25.0	16.6	90.0	53.2	22.5	14.7	90.0	50.8			63.5	37.2
1 - 2	92.5	52.7	35.0	19.9	92.5	51.9	32.5	18.4	95.0	54.2	17.5	8.8	73.0	41.2
2 - 3	95.0	50.4	12.5	5.4	92.5	50.0	12.5	4.0	90.0	48.7			60.5	31.7
3 - 4	62.5	31.5	17.5	3.6	62.5	31.5	17.5	3.6	60.0	31.2			44.0	20.2
4 - 5	27.5	9.6	5.0	.6	30.0	10.4	5.0	.6	27.5	10.2			19.0	6.3
5 - 6	2.5	1.1			2.5	1.1			2.5	1.1			1.5	.7
6 - 7	7.5	6.4			2.5	3.9	7.5	6.4	2.5	1.1			4.0	3.7
7 - 8	7.5	6.4			5.0	5.4	7.5	6.4	2.5	2.0			4.5	4.0
8 - 9	5.0	4.1			5.0	5.4	5.0	4.1	2.5	2.0			3.5	3.1
9 - 10	5.0	4.1			5.0	5.4	5.0	4.1	2.5	2.0			3.5	3.1
Average Daily Utilization	95.9	59.0	55.3	30.8	94.7	59.0	58.1	32.9	92.5	56.9	71.9	36.7		
Average Weekly Utilization													78.6	46.7

^aBuilding includes 40 rooms and 1,858 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLIII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE CLAXTON EDUCATION BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9	17.4	14.0	8.7	3.1	17.4	14.0	8.7	3.1	13.0	11.3	21.7	23.8	10.9	7.6
9 - 10	69.6	58.6	17.4	3.0	56.5	58.6	60.9	12.1	69.6	58.6	49.3	31.5	49.3	31.5
10 - 11	52.2	32.4	26.1	12.1	69.6	37.1	26.1	28.3	52.2	30.4	26.1	10.2	42.0	22.6
11 - 12N	69.2	56.2	39.1	27.2	69.6	57.0	43.5	16.1	60.9	58.6	30.4	23.8	52.2	41.6
12N - 1PM			26.1	26.0	4.3	3.1	60.9	31.8					8.0	5.4
1 - 2	43.5	27.2	47.8	31.8	43.5	27.2	47.8	28.7	34.8	22.2	43.5	28.1	43.5	28.1
2 - 3	39.1	22.5	43.5	36.7	43.5	23.6	52.2	18.7	34.8	20.6	42.6	26.4	42.6	26.4
3 - 4	17.4	6.0	21.7	20.5	21.7	7.1	30.4	13.2	4.3	7.9	21.7	12.0	21.7	12.0
4 - 5	21.7	8.7	21.7	13.2	21.7	8.7	26.1	2.8	4.3	6.8	21.7	10.1	21.7	10.1
5 - 6	4.3	1.9	4.3	4.9	4.3	1.9	4.3	10.9			4.3	2.3	4.3	2.3
6 - 7	13.0	7.4	21.7	22.8	21.7	12.7	21.7	10.9			15.6	10.8	15.6	10.8
7 - 8	13.0	7.4	21.7	15.0	21.7	12.7	21.7	10.9			15.6	9.2	15.6	9.2
8 - 9	13.0	7.4	21.7	15.0	21.7	12.7	21.7	10.9			15.6	9.2	15.6	9.2
9 - 10	13.0	7.4	21.7	15.0	4.7	12.7	21.7	10.9			15.6	9.2	15.6	9.2
Average Daily Utilization	48.4	32.1	42.9	29.1	54.9	36.2	45.6	25.2	37.5	27.2	19.6	10.3		
Average Weekly Utilization													44.5	28.2

^aBuilding includes 23 rooms and 635 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLIV

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR DABNEY HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/s ^b	Per Cent Room	S/s ^b	Per Cent Room	S/s ^b	Per Cent Room	S/s ^b	Per Cent Room	S/s ^b	Per Cent Room	S/s ^b	Per Cent Room	S/s ^b
8 - 9	21.4	15.6	69.2	84.0	23.1	15.6	61.5	53.7	69.2	74.1	30.8	39.0	46.4	48.5
9 - 10	69.2	73.0	35.7	25.4	69.2	74.4	46.2	21.0	61.5	43.6	30.8	30.3	51.2	46.0
10 - 11	46.2	26.0	23.1	15.7	46.2	26.0	23.1	14.7	61.5	42.1	46.2	36.5	41.7	26.0
11 - 12N	30.8	18.8	23.1	14.3	38.5	30.8	30.8	21.1	53.8	43.5	30.8	27.2	33.3	24.7
12N - 1PM	7.7	12.7	15.4	10.9	53.8	69.1	42.8	33.9	15.4	10.9	7.7	6.8	29.1	29.6
1 - 2	23.1	21.8	28.6	22.0	23.1	26.5			61.5	55.0	7.7	8.5	28.6	26.1
2 - 3	38.5	31.2	23.1	21.5	30.8	28.1			53.8	58.9	7.7		30.0	29.5
3 - 4	92.3	82.2	46.2	44.5	46.2	29.5	30.8	20.4	15.4	11.9			44.3	37.0
4 - 5	38.5	34.6	30.8	33.2	23.1	21.4	69.2	90.8	7.7	11.5			32.8	36.2
5 - 6	15.4	18.4	15.4	19.6	15.4	20.4	15.4	16.2					11.4	14.0
6 - 7	7.7	8.1					7.7	8.1					2.8	3.1
7 - 8	7.7	8.1					7.7	8.1					2.8	3.1
8 - 9	7.7	8.1					7.7	8.1					2.8	3.1
9 - 10	7.7	8.1					7.7	8.1					2.8	3.1
Average Daily Utilization	50.8	45.8	37.5	35.8	45.6	43.3	41.9	37.6	48.2	41.7	34.8	40.3		
Average Weekly Utilization													44.8	40.8

^aBuilding includes 144 rooms and 958 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLV

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR ESTABROOK HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/Sb	Room	S/Sb	Room	S/Sb	Room	S/Sb	Room	S/Sb	Room	S/Sb	Room	S/Sb
8 - 9	41.7	18.9	25.0	8.9	41.7	18.9	33.3	11.8	41.7	18.9	25.0	8.2	34.7	14.3
9 - 10	66.7	46.1	41.7	26.1	66.7	46.1	41.7	26.1	66.7	46.1	41.7	23.2	54.2	35.6
10 - 11	50.0	27.6	50.0	27.4	50.0	27.6	58.3	31.3	41.7	24.7	50.0	21.8	50.0	26.8
11 - 12N	33.3	18.4	41.7	21.3	33.3	31.1	41.7	21.3	33.3	20.8	33.3	15.0	36.1	21.3
12N-1PM														
1 - 2	25.0	12.1	50.0	19.7	33.3	19.7	25.0	11.1	25.0	12.4			31.7	15.0
2 - 3	25.0	12.1	50.0	19.7	25.0	9.5	25.0	11.1	25.0	12.4			30.0	12.9
3 - 4	25.0	10.5	58.3	20.3	25.0	7.9	25.0	11.1	25.0	10.8			31.7	12.1
4 - 5	16.7	8.4	41.7	14.3	16.7	5.8	16.7	4.7	16.7	7.6			21.7	8.2
5 - 6	8.3	1.8	25.0	5.3	8.3	1.8	16.7	3.7					11.7	2.5
6 - 7	8.3	1.8	8.3	2.1	8.3	1.8	8.3	2.1					6.7	1.6
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	37.5	19.7	49.0	20.6	38.5	21.3	36.5	16.8	34.4	19.2	37.5	17.0		
Average Weekly Utilization													39.0	19.3

^aBuilding includes 12 rooms and 380 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLVI

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR FERRIS HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Hourly	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	50.0	18.6	58.3	44.6	66.7	52.9	58.3	19.1	41.7	21.8	58.3	18.4	55.6	29.2
9 - 10	50.0	22.7	41.7	14.8	58.3	23.1	50.0	17.0	41.7	20.8	50.0	16.2	48.6	19.1
10 - 11	41.7	16.1	41.7	14.3	50.0	17.7	50.0	16.2	41.7	15.7	41.7	15.0	44.4	15.8
11 - 12N	41.7	16.1	41.7	14.8	50.0	20.2	50.0	19.7	41.7	18.2	41.7	18.4	44.4	17.9
12N- 1PM	8.3	2.2			8.3	2.2			8.3	2.2			5.0	1.3
1 - 2	50.0	20.6	50.0	16.2	58.3	60.2	25.0	4.3	25.0	13.9			41.7	23.1
2 - 3	41.7	17.5	50.0	25.3	41.7	16.6	16.7	2.5	16.7	10.6			33.3	14.5
3 - 4	50.0	19.9	50.0	12.5	33.3	8.8	33.3	9.7	16.7	5.2			36.7	11.2
4 - 5	41.7	16.4	41.7	13.7	25.0	5.8	33.3	9.7	8.3	2.2			30.0	9.6
5 - 6														
6 - 7														
7 - 8	8.3	5.2	16.7	6.3			8.3	1.6	8.3	3.4			8.3	3.3
8 - 9	8.3	5.2	16.7	6.3			8.3	1.6	8.3	3.4			8.3	3.3
9 - 10	8.3	5.2	16.7	6.3			8.3	1.6	8.3	3.4			8.3	3.3
Average														
Daily														
Utilization	50.0	20.7	53.1	21.9	49.0	26.0	42.7	12.9	33.3	15.1	47.9	17.0		
Average														
Weekly														
Utilization													45.8	19.1

^aBuilding includes 12 rooms and 554 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLVII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE GEOLOGY AND GEOGRAPHY BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Hourly	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	30.8	40.2	23.1	27.0	30.8	40.2	23.1	29.3	46.2	83.5	7.7	11.4	26.9	31.3
9 - 10	53.8	91.6	38.5	55.3	53.8	96.6	46.2	64.0	61.5	96.6	15.4	11.2	44.9	63.7
10 - 11	30.8	24.4	46.2	47.7	30.8	24.4	46.2	47.7	38.5	25.6	38.5	63.0	38.5	31.5
11 - 12N	53.8	96.5	15.4	34.2	53.8	96.5	15.4	14.4	53.8	91.5	7.7	11.6	33.3	54.2
12N - 1PM	38.5	94.4	7.7	21.2	38.5	94.9	30.8	85.1	30.8	68.4			29.2	59.0
1 - 2	30.8	37.4	30.8	9.8	30.8	37.4	23.1	5.8	38.5	81.2			30.8	27.8
2 - 3	61.5	95.0	30.8	9.8	61.5	95.0	23.1	5.8	46.2	57.7			44.6	48.3
3 - 4	46.2	95.0	23.1	27.9	46.2	95.0	15.4	24.0	46.2	95.0			35.4	57.1
4 - 5	15.4	19.3			7.7	13.5	7.7	7.0					6.2	6.4
5 - 6	15.4	19.3			7.7	13.5	7.7	7.0					6.2	6.4
6 - 7	15.4	28.1	15.4	18.8	15.4	28.1							9.2	1.2
7 - 8	15.4	28.1	15.4	18.8	15.4	28.1							9.2	1.2
8 - 9	15.4	28.1	15.4	18.8	15.4	28.1							9.2	1.2
9 - 10	15.4	28.1	15.4	18.8	15.4	28.1							9.2	1.2
Average														
Daily														
Utilization	54.8	79.7	34.6	31.2	52.9	78.6	29.8	29.4	45.2	65.4	17.3	19.7		
Average														
Weekly														
Utilization													41.1	63.3

^aBuilding includes 13 rooms and 438 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLVIII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE GLOCKER BUSINESS ADMINISTRATION BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	65.6	42.3	34.4	23.5	65.6	42.3	31.3	22.0	62.5	40.3	28.1	20.3	47.9	31.8
9 - 10	68.8	58.0	81.3	46.1	68.8	50.9	81.3	46.1	68.8	58.0	65.6	38.3	72.4	49.5
10 - 11	71.9	52.9	59.4	37.6	71.9	52.9	59.4	37.6	71.9	52.9	50.0	34.0	64.1	44.7
11 - 12N	71.9	53.1	43.8	33.0	71.9	53.1	43.8	33.0	65.6	52.8	34.4	21.7	55.2	41.1
12N- 1PM	6.3	11.3	12.5	5.4	6.3	11.3	12.5	5.4	9.4	15.0	3.1	.7	10.0	9.8
1 - 2	75.0	50.7	43.8	26.4	75.0	50.4	46.9	29.4	65.6	44.4	12.5	9.2	63.8	42.1
2 - 3	50.0	29.8	21.9	9.7	50.0	29.8	21.9	11.3	43.8	27.2			37.5	21.6
3 - 4	21.9	9.5	12.5	3.7	21.9	8.1	12.5	7.1	15.6	7.7			16.9	7.2
4 - 5	15.6	8.5	3.1	1.9	12.5	4.7	6.3	5.8	9.4	7.0			9.4	5.6
5 - 6	6.3	4.9	3.1	1.9	6.3	2.3	3.1	1.9	6.3	5.4			5.0	3.3
6 - 7	37.5	38.8	37.5	22.7	31.3	33.0	37.5	35.1	15.6	9.4			31.9	27.8
7 - 8	37.5	23.7	40.6	25.2	34.4	35.2	37.5	35.1	15.6	9.4			33.1	25.7
8 - 9	37.5	23.6	40.6	25.2	34.4	35.2	37.5	35.1	15.6	9.4			33.1	25.7
9 - 10	34.4	20.2	40.6	25.2	34.4	35.2	37.5	35.1	15.6	9.4			32.5	25.0
Average Daily Utilization	75.0	53.4	59.4	35.9	73.0	55.6	58.6	42.5	60.2	43.5	48.4	31.0		
Average Weekly Utilization													63.7	44.8

^aBuilding includes 32 rooms and 1,287 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE XLIX

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE HESLER BIOLOGY BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	45.8	57.9	29.2	23.8	45.8	42.2	37.5	43.0	37.5	51.5	12.5	23.0	34.7	40.2
9 - 10	50.0	61.8	33.3	42.5	54.2	65.7	33.3	42.7	37.5	51.8	12.5	23.3	36.8	48.0
10 - 11	41.7	49.0	37.5	32.6	45.8	52.8	37.5	39.5	29.2	40.6	12.5	15.9	34.0	38.4
11 - 12N	41.7	45.1	25.0	22.3	37.5	41.6	29.2	31.8	33.3	38.4	8.3	13.6	29.2	32.1
12N - 1PM	16.7	16.2	16.7	14.0	20.8	21.5	12.5	11.4	16.7	16.2	4.2	3.9	17.5	16.6
1 - 2	37.5	50.2	37.5	50.6	29.2	25.4	41.7	54.3	25.0	38.8	4.2	3.9	35.0	44.6
2 - 3	29.2	23.6	33.3	40.8	37.5	38.8	41.7	50.7	29.2	44.3	4.2	3.9	35.0	40.4
3 - 4	37.5	43.3	29.2	38.2	37.5	46.1	37.5	47.5	41.7	55.5	4.2	4.0	37.5	46.9
4 - 5	16.7	26.6	12.5	8.8	16.7	14.6	12.5	10.4	16.7	26.6	4.2	3.4	15.8	18.1
5 - 6	4.2	6.4			4.2	6.4							1.7	2.6
6 - 7	4.2	6.4			4.2	6.4							1.7	2.6
7 - 8	4.2	6.4			4.2	6.4							1.7	2.6
8 - 9	4.2	6.4			4.2	6.4							1.7	2.6
9 - 10														
Average Daily Utilization	41.7	49.9	31.8	34.2	42.7	46.8	35.4	41.4	33.3	45.5	16.7	23.7		
Average Weekly Utilization													35.1	41.8

^aBuilding includes 24 rooms and 623 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE 1

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE HOME ECONOMICS BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9	46.4	34.6	46.4	34.1	57.1	59.3	53.6	47.5	42.8	29.4	28.6	22.1	45.8	37.8
9 - 10	64.3	59.8	25.0	28.7	46.4	43.1	39.3	41.6	35.7	35.8	32.1	36.2	40.5	40.9
10 - 11	39.3	40.2	42.8	44.3	42.8	43.3	42.8	39.3	35.7	35.1	53.6	55.3	42.8	42.9
11 - 12N	21.4	22.9	25.0	24.2	31.1	33.0	25.0	23.6	21.4	23.3	25.0	22.6	25.0	24.9
12N - 1PM			3.6	3.6					3.6	3.6	3.6	3.6	10.7	1.8
1 - 2	42.8	35.6	25.0	32.0	42.8	37.0	21.0	31.5	39.3	34.6	3.6	3.6	35.0	34.9
2 - 3	46.4	37.0	17.8	20.9	39.3	32.0	14.3	15.1	46.4	37.9	3.6		32.8	28.6
3 - 4	28.6	20.3			28.6	22.1	3.6	.9	31.1	18.6			18.6	11.9
4 - 5									7.1	4.2			1.4	.8
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	36.2	31.3	23.2	23.5	36.2	33.4	25.0	24.9	33.0	27.8	36.6	35.9		
Average Weekly Utilization													31.2	31.3

^aBuilding includes 28 rooms and 575 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LI

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE LAW BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9	50.0	21.6	50.0	40.6	50.0	21.6	50.0	40.6	50.0	21.6	50.0	43.1	50.0	31.5
9 - 10	50.0	26.9	50.0	26.6	50.0	19.7	50.0	40.9	50.0	26.9	50.0	26.9	45.8	49.2
10 - 11	50.0	50.9	25.0	10.9	50.0	42.2	50.0	42.1	50.0	42.1	50.0	26.6	45.8	35.8
11 - 12N			50.0	40.9	50.0	40.9	25.0	7.5	50.0	40.6	50.0	40.6	45.8	28.5
12N - 1PM					25.0	10.0	25.0	19.7					10.0	5.9
1 - 2	50.0	8.7	50.0	24.4	50.0	24.4	50.0	24.4	50.0	24.4			50.0	21.5
2 - 3	25.0	3.1	25.0	19.7									10.0	4.6
3 - 4														
4 - 5														
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	28.2	13.9	31.3	20.4	31.3	19.8	28.2	21.9	31.3	17.2	50.0	34.3		
Average Weekly Utilization													32.4	20.5

^aBuilding includes 4 rooms and 320 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR MCCORD HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9			16.7	17.3			33.3	46.8	16.7	69.2	16.7	17.3	2.8	2.9
9 - 10			33.3	46.8			16.7	18.6	50.0	79.5	16.7	18.6	16.7	30.0
10 - 11	50.0	13.5	16.7	18.6	50.0	13.5	16.7	18.6	16.7	18.6	16.7	18.6	33.3	27.0
11 - 12N	16.7	3.2	16.7	18.6	33.3	10.3	16.7	18.6	33.3	10.3	16.7	18.6	19.4	10.1
12N- 1PM	16.7	11.5	16.7	11.5	16.7	11.5	16.7	11.5	16.7	11.5	16.7	11.5	10.0	6.9
1 - 2	16.7	4.5			33.3	16.0			33.3	17.9			16.7	7.7
2 - 3	16.7	4.5	16.7	28.8	16.7	4.5							10.0	7.6
3 - 4	16.7	7.1	16.7	10.9	33.3	13.5			33.3	13.5			20.0	9.0
4 - 5	50.0	27.6			50.0	27.6	16.7	10.9	50.0	27.6			33.3	18.7
5 - 6	16.7	14.1			16.7	14.1							6.7	5.6
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	25.0	10.7	14.6	17.6	31.3	13.9	10.4	11.9	29.2	28.7	8.3	9.0		
Average Weekly Utilization													20.8	15.9

^aBuilding includes 6 rooms and 156 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LIII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR MISCELLANEOUS BUILDINGS^a

Hour of the Day	Monday			Tuesday			Wednesday			Thursday			Friday			Saturday			Average Hourly Utilization		
	Per Cent		S/Sb	Per Cent		S/Sb	Per Cent		S/Sb	Per Cent		S/Sb	Per Cent		S/Sb	Per Cent		S/Sb	Per Cent	Room	S/Sb
	Room	Room		Room	Room		Room	Room		Room	Room		Room	Room		Room	Room				
8 - 9				18.2	9.6					18.2	23.9								6.1	5.6	
9 - 10	45.5	31.4		27.3	25.5					18.2	22.3								36.4	7.1	
10 - 11	63.6	36.2		27.3	24.5					18.2	21.3								45.4	29.3	
11 - 12N	27.3	13.8		18.2	21.3					18.2	21.3								18.2	13.5	
12N- 1PM				9.1	1.6					9.1	1.6								36.4	.6	
1 - 2	45.5	42.0		45.5	27.1					45.5	30.3								40.0	31.5	
2 - 3	36.4	28.2		54.5	44.7					45.5	32.4								40.0	29.9	
3 - 4	36.4	29.3		45.5	33.0					27.3	20.7								36.4	27.8	
4 - 5	9.1	7.4		29.3	18.6					18.2	10.1								16.4	12.4	
5 - 6	9.1	7.4		9.1	9.0					9.1	7.4								7.3	6.6	
6 - 7				9.1	6.4														1.8	1.3	
7 - 8				9.1	6.4														1.8	1.3	
8 - 9				9.1	6.4														1.8	1.3	
9 - 10																					
Average Daily Utiliza.	34.1	24.5		38.6	29.3					31.8	23.9								27.2	18.7	1.6
Average Weekly Utilization																			31.2	23.3	

^aBuildings with less than 4 rooms: Craft House, two rooms and twenty-three student-stations; Dairy Products Building, one room and thirty-six student-stations; Family Life Center, two rooms and thirty student-stations; Food Technology Building, one room and eighteen student-stations; Music Building, three rooms and twenty-nine student-stations; Nursery Building, one room and twenty-eight student-stations; and Hoskins Library, one room and twenty-four student-stations.

^bStudent-station.

TABLE LIV

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR MORGAN HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9	20.0	9.4			20.0	9.4	20.0	9.9	20.0	9.4	40.0	12.9	20.0	8.5
9 - 10	60.0	47.4	20.0	3.5	60.0	47.4	20.0	3.5	80.0	56.7	40.0	6.4	46.7	27.5
10 - 11	40.0	17.0	40.0	9.9	40.0	17.0	40.0	9.9	40.0	17.0	40.0	9.9	40.0	13.5
11 - 12N	40.0	7.6			40.0	7.6			40.0	7.6			20.0	3.8
12N - 1PM					20.0	1.2			20.0	1.2			8.0	.5
1 - 2	60.0	34.5	20.0	5.3	60.0	34.5	20.0	5.3	60.0	34.5			44.0	22.8
2 - 3			20.0	5.3			20.0	5.3					8.0	2.1
3 - 4	40.0	21.6	60.0	26.3	20.0	18.7	80.0	38.6	20.0	18.7			44.0	24.8
4 - 5	20.0	2.9	40.0	16.4	20.0	18.7	60.0	28.7					28.0	13.3
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average														
Daily														
Utilization	35.0	17.5	25.0	8.3	35.0	19.5	32.5	12.6	35.0	18.1	40.0	7.3		
Average														
Weekly														
Utilization													32.3	14.5

^aBuilding includes 5 rooms and 171 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LV

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE MUSIC ANNEX BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9	28.6	11.8	28.6	14.9	28.6	11.8	28.6	14.9	14.3	7.7	14.3	5.8	23.8	11.2
9 - 10	100.0	43.8	71.4	33.9	100.0	44.6	71.4	33.9	100.0	43.3	28.6	14.0	78.6	35.5
10 - 11	85.7	38.8	42.9	14.6	85.7	36.1	42.9	14.6	85.7	38.8	28.6	8.3	61.9	25.5
11 - 12N	71.4	28.7	28.6	13.8	57.1	20.9	28.6	13.8	28.6	13.8	14.3	1.9	38.1	15.5
12N - 1PM	14.3	3.9			28.6	10.2			14.3	6.3			11.4	4.1
1 - 2	71.4	35.8	28.6	22.9	71.4	35.8	28.6	22.9	57.1	30.0			51.4	29.5
2 - 3	57.1	25.3	42.9	29.2	42.9	20.7	28.6	22.9	42.9	21.5			42.9	23.9
3 - 4	28.6	12.7			14.3	7.2			14.3	7.2			11.4	5.4
4 - 5	28.6	5.2			14.3	4.1							11.4	2.4
5 - 6	28.6	5.2	14.3	1.9	28.6	9.9	14.3	2.5					17.1	3.9
6 - 7	14.3	8.0											2.9	1.6
7 - 8	14.3	8.0			14.3	2.5							5.7	2.1
8 - 9	14.3	8.0			14.3	2.5							5.7	2.1
9 - 10	14.3	8.0			14.3	2.5							5.7	2.1
Average Daily Utilization	71.4	30.3	32.1	16.4	58.9	25.2	37.5	16.9	44.6	21.1	21.4	7.5		
Average Weekly Utilization													46.4	20.7

^aBuilding includes 7 rooms and 363 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LVI

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR PERKINS HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	58.3	33.5	25.0	21.2	62.5	33.5	29.2	23.9	62.5	32.7	37.5	24.4	45.8	28.2
9 - 10	66.7	47.7	41.7	30.7	70.8	46.1	41.7	27.1	70.8	45.3	37.5	20.2	54.9	36.2
10 - 11	50.0	39.0	37.5	28.9	58.3	43.7	45.8	40.6	45.8	35.3	25.0	12.4	43.8	33.3
11 - 12N	41.7	21.4	29.2	26.9	50.0	33.6	29.2	32.9	50.0	33.2	12.5	9.2	35.4	26.2
12N - 1PM			4.2	3.0			4.2	3.0					1.7	1.2
1 - 2	41.7	24.3	37.5	17.1	41.7	28.7	29.2	10.2	37.5	25.5	37.5		37.5	21.1
2 - 3	37.5	31.1	29.2	12.1	41.7	24.9	25.0	8.3	29.2	26.4	32.5		32.5	20.6
3 - 4	33.3	14.5	37.5	19.8	33.3	17.7	25.0	13.0	16.7	10.6	29.2		29.2	15.1
4 - 5	20.8	6.1	37.5	19.4	20.8	14.1	20.8	11.9	16.7	10.6	23.3		23.3	12.4
5 - 6	12.5	5.8	25.0	14.6	4.2	2.5	20.8	10.9			12.5		12.5	6.7
6 - 7	16.7	7.9	12.5	11.2	16.7	9.4	12.5	11.8			11.7		11.7	8.1
7 - 8	8.3	3.2	4.2	8.1	16.7	9.4	8.3	9.6			7.5		7.5	6.1
8 - 9	8.3	3.2	4.2	8.1	16.7	9.4	8.3	9.6			7.5		7.5	6.1
9 - 10	4.2	1.8	4.2	8.1	12.5	8.0	8.3	9.6			5.8		5.8	5.5
Average														
Daily Utilization	50.0	29.9	41.1	28.7	55.7	35.1	38.5	27.8	41.1	27.4	28.1	16.5		
Average Weekly Utilization													40.5	26.8

^aBuilding includes 24 rooms and 774 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LVII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE PHYSICS BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b	Per Cent	S/S ^b
8 - 9	66.7	30.1	55.6	28.9	66.7	30.5	55.6	28.9	66.7	30.5	33.3	17.2	57.4	27.7
9 - 10	77.8	37.9	44.4	21.4	77.8	32.6	44.4	18.6	66.7	37.7	22.2	12.7	55.6	26.8
10 - 11	55.6	35.3	66.7	36.1	55.6	32.5	55.6	33.2	55.6	35.3	44.4	29.3	55.6	33.6
11 - 12N	66.7	43.6	44.4	25.4	66.7	51.5	33.3	16.0	55.6	46.4	22.2	15.7	48.1	33.1
12N - 1PM	22.2	19.2	22.2	4.6	22.2	8.4	22.2	4.9	22.2	19.2			22.2	11.3
1 - 2	44.4	25.0			55.6	26.8			33.3	21.1			26.7	14.6
2 - 3	55.6	25.7	22.2	7.8	44.4	21.7			33.3	19.6			31.1	15.0
3 - 4	33.3	11.4	22.2	7.9	33.3	10.2	11.1	4.0	11.1	4.0			22.2	7.5
4 - 5	22.2	3.7	11.1	2.2	22.2	3.4	22.2	3.7	22.2	3.4			20.0	3.3
5 - 6	11.1	1.8			11.1	2.4	11.1	1.8	11.1	2.4			8.9	1.7
6 - 7			11.1	17.8			11.1	17.8					4.4	7.1
7 - 8			11.1	17.8			11.1	17.8					4.4	7.1
8 - 9			11.1	17.8			11.1	17.8					4.4	7.1
9 - 10														
Average Daily Utilization	56.9	29.2	40.3	23.5	56.9	27.5	36.1	20.6	47.2	27.5	30.6	18.8		
Average Weekly Utilization													46.0	25.0

^aBuilding includes 9 rooms and 668 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LVIII

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR SCIENCE HALL^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent		Per Cent	
	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b	Room	S/S ^b
8 - 9	33.3	67.5	55.6	72.8	22.2	58.0	55.6	72.8	33.3	80.0	33.3	60.3	38.9	68.6
9 - 10	77.8	100.0	77.8	100.0	66.7	100.0	77.8	100.0	44.4	30.7	33.3	18.8	63.0	88.1
10 - 11	66.7	100.0	44.4	49.6	66.7	100.0	44.4	49.8	66.7	100.0	44.4	49.6	55.6	75.2
11 - 12N	44.4	58.3	22.2	26.1	44.4	58.3	22.2	26.1	44.4	58.3			29.6	37.8
12N - 1PM	11.1	9.0			11.1	9.0			11.1	9.0			6.7	5.4
1 - 2	44.4	26.4	11.1	64.9	44.4	49.3			33.3	20.6			26.7	32.2
2 - 3	66.7	44.9	22.2	76.5	66.7	62.0	11.1	9.6	44.4	22.9			40.0	41.3
3 - 4	33.3	23.2	22.2	21.2	33.3	17.4	11.1	9.6	22.2	7.0			24.4	15.7
4 - 5			11.1	9.6									4.4	3.8
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	47.2	60.7	33.3	52.7	44.4	59.5	27.8	33.6	37.5	41.2	27.8	32.2		
Average Weekly Utilization													37.1	48.0

^aBuilding includes 9 rooms and 345 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

TABLE LIX

ROOM AND STUDENT-STATION UTILIZATION BY THE HOUR AND BY THE DAY
FOR THE SOUTH COLLEGE BUILDING^a

Hour of the Day	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Average Hourly Utilization	
	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b	Per Cent Room	S/S ^b
8 - 9			25.0	21.3					50.0	32.9	25.0	9.0	4.2	3.5
9 - 10	50.0	32.9	25.0	9.0	50.0	32.9	25.0	9.0	50.0	21.9			37.5	21.0
10 - 11	50.0	21.9	25.0	9.7	50.0	21.9	25.0	9.7	75.0	41.9			33.3	14.2
11 - 12N	75.0	41.9	50.0	16.8	75.0	41.9	50.0	16.8	25.0	15.5			54.2	26.6
12N- 1PM	25.0	15.5	25.0	7.1	25.0	15.5	25.0	7.1	50.0	33.5			25.0	12.1
1 - 2	50.0	33.3	50.0	20.6	25.0	27.7	25.0	6.5	75.0	28.4			40.0	24.4
2 - 3	75.0	31.6	75.0	21.3	25.0	18.7	75.0	14.2	25.0	3.9			65.0	22.8
3 - 4	25.0	7.1	50.0	14.8			50.0	7.7	25.0	3.9			30.0	6.7
4 - 5	25.0	7.1	25.0	12.3			25.0	5.2					20.0	5.7
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
Average Daily Utilization	46.9	24.0	43.8	16.6	31.3	19.8	37.5	9.5	46.9	22.7	6.3	2.3		
Average Weekly Utilization													38.1	17.1

^aBuilding includes 4 rooms and 155 student-stations. Room and student-station utilization is based on a 44-hour week.

^bStudent-station

APPENDIX F

TABLE LX
COMPARISON OF THE UNIVERSITY OF TENNESSEE'S ROOM
UTILIZATION BY DAY OF THE WEEK WITH NORMS
ESTABLISHED BY JAMRICH

Day of the Week	Per Cent Room Utilization in General Classrooms*		Per Cent Room Utilization in Teaching Laboratories*	
	University of Tennessee	Jamrich's Study	University of Tennessee	Jamrich's Study
Monday	61.9	47.2	38.2	26.1
Tuesday	43.6	35.9	34.2	30.8
Wednesday	62.0	45.4	35.9	25.5
Thursday	41.8	36.6	31.2	29.5
Friday	54.0	44.0	28.3	19.4
Saturday	40.6	11.4	20.7	2.3

*Based on a 44-hour week, eight hours each day, Monday through Friday, and four hours on Saturday.

TABLE LXI

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S STUDENT-STATION
UTILIZATION BY DAY OF THE WEEK WITH NORMS
ESTABLISHED BY JAMRICH

Day of the Week	Per Cent Student-Station Utilization in General Classrooms		Per Cent Student-Station Utilization in Teaching Laboratories	
	University of Tennessee	Jamrich's Study	University of Tennessee	Jamrich's Study
Monday	39.6	37.8	50.4	15.5
Tuesday	27.1	26.8	32.3	20.1
Wednesday	40.7	36.5	47.5	14.7
Thursday	26.8	27.9	31.6	20.2
Friday	35.6	36.2	42.8	11.8
Saturday	22.9	6.3	26.0	1.2

TABLE LXII

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S STUDENT-STATION
UTILIZATION BY HOUR OF THE DAY FOR THE WEEK WITH
NORMS ESTABLISHED BY JAMRICH

Hour of the Day	Per Cent Utilization in General Classrooms		Per Cent Utilization in Teaching Laboratories	
	University of Tennessee	Jamrich's Study	University of Tennessee	Jamrich's Study
8 - 9	34.1	24.4	26.8	13.1
9 - 10	41.2	25.6	45.7	14.6
10 - 11	38.1	18.4	29.9	15.8
11 - 12N	33.6	23.7	33.6	12.7
12N - 1 PM	15.5	11.8	20.1	6.4
1 - 2	29.3	23.7	30.6	17.1
2 - 3	21.9	20.6	38.5	21.6
3 - 4	13.9	12.3	38.5	15.6
4 - 5	7.4	4.5	21.1	8.7
5 - 6	1.8	3.5	9.6	4.2
6 - 7	6.3	3.5	7.3	5.9
7 - 8	6.0	3.0	7.3	8.5
8 - 9	5.9	2.6	7.3	3.1
9 - 10	5.5	3.7	4.6	5.2

TABLE LXIII

COMPARISON OF THE UNIVERSITY OF TENNESSEE'S ROOM UTILIZATION
BY HOUR OF THE DAY FOR THE WEEK WITH NORMS
ESTABLISHED BY JAMRICH

Hour of the Day	Per Cent Utilization in General Classrooms		Per Cent Utilization in Teaching Laboratories	
	University of Tennessee	Jamrich's Study	University of Tennessee	Jamrich's Study
8 - 9	48.1	41.8	27.5	19.4
9 - 10	62.8	45.4	32.0	23.2
10 - 11	60.6	34.4	27.6	21.4
11 - 12N	51.4	42.6	24.0	28.4
12N - 1PM	21.5	20.6	10.2	10.2
1 - 2	47.0	43.4	32.3	28.0
2 - 3	37.6	39.5	36.6	35.7
3 - 4	24.9	24.4	34.1	26.5
4 - 5	13.5	9.2	20.0	14.0
5 - 6	4.8	7.1	4.1	7.7
6 - 7	9.6	7.9	3.9	8.3
7 - 8	9.6	6.0	3.9	5.4
8 - 9	9.4	5.6	3.9	4.9
9 - 10	8.7	6.8	3.0	7.8