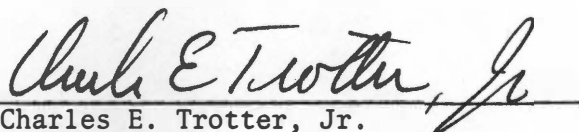


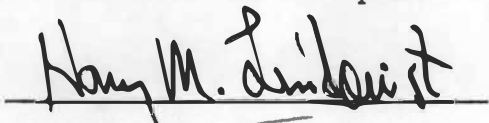
To the Graduate Council:

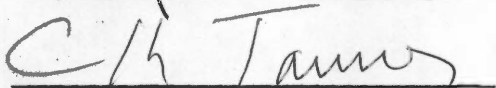
I am submitting herewith a dissertation written by Edward Ashley Streeter entitled "A Model for the Instruction and Preparation of Specialists in School Facility Planning." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Educational Administration and Supervision.

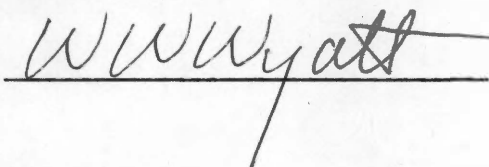


Charles E. Trotter, Jr.
Major Professor

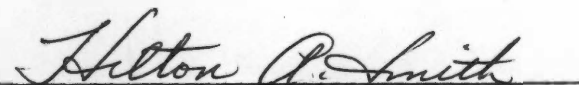
We have read this dissertation
and recommend its acceptance:







Accepted for the Council:



Vice Chancellor
Graduate Studies and Research

A MODEL FOR THE INSTRUCTION AND PREPARATION OF
SPECIALISTS IN SCHOOL FACILITY PLANNING

A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee

Donated to the
Learning Resources Collection
Anthropology Department
University of Tennessee, by
H. M. Lindquist
1975

Edward Ashley Streeter
June 1975

ACKNOWLEDGMENTS

The support and assistance of many individuals were essential to the completion of this study. Of paramount importance were the encouragement and patience of Dr. Charles E. Trotter, Jr., chairman of the writer's doctoral committee. His advice and friendship along with that of the other committee members Dr. Harry M. Lindquist, Dr. C. Kenneth Tanner, and Dr. Woodrow W. Wyatt, were invaluable throughout the course of the study and the total experience of the doctoral program. Appreciation is expressed to them.

Special thanks are due the members of the School Planning Laboratory who contributed to this study by lending the writer moral support, advice and assistance. Sincere appreciation is extended to Gary Dutton and Reginald Teague, colleagues and classmates, who were associated in many "Lab" projects and activities.

The writer is most grateful to his wife, Verna, for her constant encouragement, patience, and sacrifice in allowing the writer to indulge in this research project. She has also taken a keen interest in this study and has spent many hours typing and proofreading, as well as providing constructive criticism of this dissertation. The writer is also grateful to his children, Jennifer, Yvonne, Stephen, and Elizabeth for their patience. It was not easy for them to have their father away so much during the time involved in this study. In a spirit of humble appreciation, the study is dedicated to the writer's father who spent more than forty years in planning school facilities.

ABSTRACT

The purpose of the study was to identify basic concepts related to the instruction and preparation of specialists in school facility planning. The procedures followed in the treatment of the problem were: (1) to trace the emerging role of specialists in school facility planning; (2) to review existing instruction in school facility planning at the major universities and colleges in the United States; and (3) to develop a model for the instruction and preparation of specialists in that field.

Correspondence was undertaken with all the instructors of courses in school facility planning that were offered at the major universities and colleges in the United States relative to course titles and descriptions, course outlines and activities, and textbooks utilized. These instructors and a selected number of architects were requested to submit suggestions as to what ought to be included in the instruction and preparation of specialists. Concurrently, an extensive review of literature was undertaken to trace the emerging role of specialists in school facility planning, and programs of instruction involved in their preparation.

A descriptive analysis was made of the introductory course offered by 139 universities and colleges, and of the advanced courses taught in thirty-two of these institutions. The analysis was presented under seven major divisions: (1) introductory overview; (2) role of personnel and agencies involved in school facility planning; (3) determining

facility needs; (4) planning facility needs; (5) implementing the building program; (6) managing the school plant; and (7) planning for the future.

A model for the instruction and preparation of specialists in school facility planning was developed from an examination of topics and activities utilized by instructors of courses in school facility planning, from a review of literature, and from suggestions presented of what ought to be included in such a program. This model was submitted to a panel of experts made up of those instructors who were directing doctoral programs for specialists in school facility planning and the selected architects. The panel of experts was requested to comment on the proposed model.

The reaction of the panel of experts to the proposed model constituted the final source of information utilized in the recommended model. The model was developed upon ten preliminary conclusions that served as the rationale from which the instructional program, the service activities, and the research projects were developed. Five major divisions were presented and their relationship. These were:

(1) foundations of education and educational administration; (2) structure of a core block of content and experiences related to educational administration, to related areas in the social context, and to collateral areas in the field of curriculum development; (3) specialization in the area of school facility planning involving the determining, planning, and implementing of school facility needs; (4) service activities in school facility planning; and (5) research in school facility planning.

The findings of the study revealed that the instruction and preparation of specialists in school facility planning was not widespread, and the main purpose of most courses in school facility planning was for the benefit of superintendents and principals of schools. There was interest in the development of programs to instruct and prepare specialists. There were certain on-the-job learning experiences necessary to complement classroom instruction. An active internship appeared basic to the preparation of specialists in school facility planning.

A recommendation generated by the findings of this study was that a basic introductory course should be required for all school administrators. An advanced course should be planned to meet the needs of certification for school superintendents. In addition to the above two courses, specialists in school facility planning should have a minimum of six months of internship involved with ongoing school facility planning activities, either in private or public school systems. The development of school planning laboratories as resource centers was critical to the adequate instruction and preparation of specialists. There should be more interdisciplinary coordination and exchange of personnel in the instruction and preparation program. More institutions of higher learning should offer graduate students an opportunity to specialize in school facility planning.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	1
	General Statement	1
	The Problem	6
	Basic Assumptions	7
	Delimitations	8
	Importance of the Study	8
	Definitions	10
	Procedures	13
	Organization of the Study	16
II.	THE RELATED LITERATURE	18
	The Emerging Role of Specialists in School	
	Facility Planning	18
	The Evolution of School Facility Planning Courses	27
	The need for school facility planning courses	28
	Existing topics in school facility planning courses	30
	The Development of Centers for Instruction and	
	Preparation of Specialists in School Facility	
	Planning	37
	Summary	43
III.	PROCEDURES FOR THE STUDY	45
	Participants	45
	Identification	45

CHAPTER

PAGE

Selection of the panel of experts	46
Collection of Data	47
Tabulation and Analysis of Data	48
Development of the Model	49
IV. ANALYSIS OF THE POSITION OF SCHOOL FACILITY PLANNING	
INSTRUCTION	51
Introductory Programs in School Facility Planning	52
Catalog course titles	53
Catalog course descriptions	55
Course outlines	58
Introductory overview	65
The role of personnel and agencies	65
Determining facility needs	68
Planning facility needs	68
Implementing the building program	72
Managing the school plant	72
Planning for the future	72
Textbooks used in school facility planning courses . .	75
Activities undertaken in school facility planning	
courses	78
Advanced Programs in School Facility Planning	80
Patterns of advanced courses	80
Summary	88

CHAPTER

PAGE

V. A MODEL FOR THE INSTRUCTION AND PREPARATION OF	
SPECIALISTS IN SCHOOL FACILITY PLANNING	90
Introduction	90
Reaction of the Panel of Experts	91
The Recommended Model	94
The rationale for the model	95
Foundation	97
Structure	100
Specialization	101
General topics	102
General activities	105
Service	106
Research	108
VI. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	111
Summary	111
Conclusions	114
Recommendations	115
BIBLIOGRAPHY	117
APPENDIXES	122
Appendix A	123
Appendix B	126
Appendix C	128
Appendix D	131
Appendix E	133

APPENDIXES	PAGE
Appendix F	158
Appendix G	168
Appendix H	170
VITA	190

LIST OF TABLES

TABLE	PAGE
1. Comparison of Percentages of Institutions Listing the Following School Plant Titles	54
2. Comparison of Percentages of Institutions Listing the Major Divisions of Topics in School Plant Course Descriptions	57
3. Comparison of Percentages of Institutions Listing Topics Considered in Planning Facility Needs	59
4. Comparison of Percentages of Institutions Listing Topics Considered in Implementing the Building Program	60
5. Comparison of Percentages of Institutions Listing the Major Divisions of School Facility Planning in Their Course Outlines	62
6. Comparison of Percentages of Major Divisions of School Facility Planning Topics Listed in Course Outlines	64
7. Comparison of Percentages of Topics Considered in an Introductory Overview	66
8. Comparison of Percentages of Topics Considered in the Role of Personnel and Agencies	67
9. Comparison of Percentages of Topics Considered in Determining Facility Needs	69
10. Comparison of Percentages of Topics Considered in Planning Facility Needs	71

TABLE

PAGE

11.	Comparison of Percentages of Topics Considered in Implementing the Building Program	73
12.	Comparison of Percentages of Topics Considered in Managing the School Plant	74
13.	Comparison of Percentages of Topics Considered in Planning for the Future	76
14.	Comparison of Percentages of Textbooks Used	77
15.	Comparison of Percentages of Respondents and Composite Percentages of School Facility Planning Course Activities	79
16.	Comparison of Frequencies of Suggested Topics and Activities That Should Be Incorporated into Future School Facility Instructional Programs	85

CHAPTER I

INTRODUCTION

I. GENERAL STATEMENT

The strength of a democratic society lies in the education of its people. Providing education for all is a firmly established policy of America—a policy which can be carried out only with constant study, planning, and effort to meet the needs of rapidly changing curricular structures. Engelhardt pointed out that this was a continuous process, a civic responsibility entrusted to school board members and educational leaders who rendered the most satisfactory and enduring service to their communities and to their country when they had first carefully reviewed the entire planning process, studied the numerous operations and details in which each contributed to the final result, and were aware of the scope and implications of professional school planning services.¹

By 1975 schoolhouse construction had assumed monumental proportions. Between 1951 and 1957 more than \$15 billion was invested in school buildings.² During the ten-year period ending 1973, \$61.2 billion was expended in the construction of public elementary and secondary school

¹N. L. Engelhardt, N. L. Engelhardt, Jr., and Stanton Leggett, School Planning and Building Handbook (New York: F. W. Dodge Corporation, 1956), p. 15.

²R. L. Johns, Kern Alexander, and K. Forbis Jordan, Planning to Finance Education (Gainesville, Fla.: National Education Finance Project, 1971), p. 240.

classrooms and capital outlay. The National Center for Educational Statistics in developing its projections for the next ten-year period ending 1983 estimated an annual expenditure of \$5 billion.³

The emergence of a whole new technology of education required continual reexamination of educational facility design. Social forces of change were exerting powerful pressures of profound implications. Yet, in spite of efforts to cope effectively with time pressures and the rapidity of change, Trump observed that he had not seen a really good school building, old or new.⁴ Large expenditures have not always guaranteed desired results.

Facility planners, professional or lay, were accountable for the large expenditures that were taking place. Griggs urged care in planning school facilities in order to house adequately the expanding program of studies, to motivate good teaching practices, to allow for flexibility for educational change, to minimize maintenance costs, and to provide attractive, comfortable, and safe places in which children may study.⁵

The increased cost per pupil for individualized instruction and burgeoning inflation presented facility planners with new challenges

³Marquis Academic Media, Standard Education Almanac 1974/75 (7th ed.; Chicago: Marquis Who's Who, 1975), p. 378.

⁴J. Lloyd Trump and Martha Magill Trump, "School Buildings and Individualized Education" (Washington, D.C.: National Association of Secondary School Principals, [n.d.]), p. 1.

⁵Norman Miller Griggs, Jr., "Behavioral Goals for a Program of Instruction to Prepare Specialists in School Plant Planning" (unpublished doctoral dissertation, Ohio State University, 1968), p. 2.

of becoming authentically involved with governmental and local agencies in developing and funding new programs. MacConnell recognized these challenges. "School buildings must be planned—and planning must be long-range in character. It is necessary, as a matter of economy and good sense, to build for children who will come to school five, ten, twenty, and even thirty years from now."⁶

Resulting from these challenges, an even more important challenge had perhaps emerged: the critical need of updating the whole process of school facility planning, and the improvement of instruction and preparation of specialists in this area.⁷ In the process of devising better ways of planning school facilities, the concept of developing educational specifications had provided architects with needed information relative to the space relationships required. Roaden concluded from his research that written educational specifications were educational tools of the highest order. In their preparation, the objectives of education of a particular institution were brought into focus, the activities undertaken were identified, and the space needs were determined.⁸

The schoolhouse construction boom of the 50's and 60's had to some extent diminished. Antiquated school facilities then became the problem of the 70's. Johns, in citing the findings of the Task Force on

⁶James D. MacConnell, Planning for School Buildings (Englewood Cliffs, N.J.: Prentice-Hall, 1957), p. 13.

⁷G. Kent Stewart and others, Guide for Planning Educational Facilities (Columbus, Ohio: Council of Educational Facility Planners, 1969), p. 13.

⁸Ova Paul Roaden, "The Essential Elements of Educational Specifications for School Plant Facilities" (unpublished doctoral dissertation, The University of Tennessee, 1963), p. 121.

Public School Facilities of the United States Office of Education, noted that more than one-sixth of all public schools had been in operation for more than fifty years, and estimated a backlog of over five hundred thousand classrooms at the beginning of the decade.⁹ Graves reported similar conditions following his study of "The Great Cities Program for School Improvement."¹⁰ The nonpublic schools had an equally pressing problem of outmoded facilities. The problem of obsolete facilities was further complicated by the addition of many later structures that had been rendered obsolete by changes in educational programs and the tremendous explosion of knowledge.¹¹

The complexity of the educational program had reached the state where success in planning could be achieved only through cooperative "team-work."¹² Roth pointed out that many poor school designs resulted from a lack of close collaboration between educators and architects.¹³ Planning quality schools requires the cooperative efforts of several professional persons. "The planning team should consist, at least, of an architect, the superintendent of schools, and an educational consultant."¹⁴

⁹Johns, p. 241.

¹⁰Ben E. Graves, New Life for Old Schools (New York: Educational Facilities Laboratory, 1966), pp. 1-11.

¹¹Stewart and others, p. 17.

¹²Ibid., p. 18.

¹³Alfred Roth, The New School (New York: Frederick Praeger, 1957), p. 24.

¹⁴Basil Castaldi, Creative Planning of Educational Facilities (Chicago: Rand McNally, 1969), p. 15.

Close attention had been given to the instruction and preparation of architects and school administrators. Griggs, in developing behavioral goals for programs of instruction in school plant planning, noted:

Existing programs for instruction in the plant area are, for the most part, designed to provide an overview for general administrators. Such courses are limited in scope and cannot provide the special training which would seem to be desirable for programs designed to train specialists in the school plant field. Furthermore, such courses as are offered in our institutions of higher learning are not often a part of a planned sequence of experiences designed to accomplish well thought out goals.¹⁵

It was recognized that expertise in a particular field might be attained through self-instruction, and that the relationship between how a person functions in a particular field and what transpired to influence the shaping of that performance was debatable. Yet few could accept such assumptions in the highly technological society of the 1970's, especially in the area of medicine, law, science, and education. Prescribed periods and courses of instruction, laboratory experiences, and intensive internship were required before recognition and certification were given.

The role of the specialist in school facility planning, Herrick noted in 1956, was relatively new.¹⁶ That same year Boles predicted that facility specialists would be called upon more and more by a greater number of school systems. He based his prediction on the fact that:

¹⁵ Griggs, p. 3.

¹⁶ John H. Herrick and others, From School Program to School Plant (New York: Henry Holt, 1956), p. 15.

First, educational problems are growing more numerous, more complex, and more staggering in size. School administrators simply cannot be experts in all of the areas of their domain, nor should they feel guilty that they are not. . . . Second, many educational problems . . . are, in most school districts, only occasionally or sporadically demanding, and few school systems have or can afford to have their own full-time specialized personnel for dealing with such problems. Third, someone from outside the forest is more likely to see it clearly, without trees getting in the way. Fourth, consultants can bring the experience of dozens or hundreds of similar situations to bear on a particular situation. . . . Fifth, many educational problems . . . require communication between or among persons who speak different languages, and an interpreter is required. The alphabet and the words of the architect or the contractor may be familiar to the educator, or vice versa, but the idiom is not even understandable without an interpreter. Sixth, the consultant, as a practicing specialist, is likely to have sources and techniques unknown to local personnel.¹⁷

These observations were even more applicable at the time of this study. Whether the specialist has assumed the role of catalyst, pilot, answer man, research person, rubber stamp, or target for the pointing finger, his clients have the right to expect that he is fully informed and adequately instructed and prepared.¹⁸ This study was undertaken to investigate the degree of that instruction and preparation.

II. THE PROBLEM

The purpose of this study was to identify basic concepts related to the instruction and preparation of specialists in school facility planning. The following procedures were identified in order to accomplish an adequate treatment of the problem:

¹⁷Harold W. Boles, Step by Step to Better School Facilities (New York: Holt, Rinehart, & Winston, 1956), p. 9.

¹⁸Ibid., pp. 12-14.

1. To trace the emerging role of specialists in school facility planning and the development of their instruction and preparation.
2. To review existing instruction in school facility planning at the major universities and colleges in the United States.
3. To develop a model for the instruction and preparation of specialists in school facility planning.
4. To summarize and present findings related to these basic concepts.

III. BASIC ASSUMPTIONS

The basic assumptions of this study were:

1. Educational facilities influenced the programs contained within them.
2. Specialists in school facility planning played an increasingly important role in educational planning based on creative and progressive thought.
3. Not all universities wished to provide adequate staff and programs to instruct and prepare specialists in school facility planning.
4. Certain basic courses in school facility planning should be offered in the area of educational administration in all colleges or schools.

5. Basic concepts germane to the instruction and preparation of specialists in school facility planning could be identified by reviewing the literature and examining existing programs of instruction in this area.

IV. DELIMITATIONS

This study dealt only with those basic concepts relative to the instruction of specialists in school facility planning. No attempt was made to develop guidelines for planning school facilities or to develop educational specifications. Neither was an attempt made to delineate any type of program for the instruction of school business managers, assistant superintendents for business affairs, school plant operation or maintenance personnel, or any other type of administrative personnel. This study did not try to measure the effectiveness of educational programs in schools.

V. IMPORTANCE OF THE STUDY

The unrelenting growth in the complexity of schools and school systems had resulted in a startling array of specialists in the area of educational administration. MacConnell enumerated some of these areas of specialization:

. . . providing special services, administering individual schools, counseling students, instructing, supervising (extracurricular) activities, transporting pupils, operating and maintaining physical facilities, procuring supplies and equipment, directing special programs, evaluating programs,

coordinating community-school relations, and planning the long-range educational objectives and enduring facilities.¹⁹

"Competence in any area of specialization," Graff pointed out, was "achieved when the administrator successfully performed those tasks which made up his job."²⁰ In any efficient school organization the competence of specialists was utilized to forward the educational objectives and to plan the school's physical accommodations. Specialists in planning school facilities have been recognized as essential to the school system.

The concern about determining what should be included in instruction for common and specialized learnings precipitated this study. Increased specialization, especially in the area of school facility planning, had resulted in the need of better instruction and preparation than was being generally given. A review of university bulletins, with regard to instruction for specialists in school facility planning, revealed a decided lack of any sequential program of instruction. Only a few universities were offering a genuinely organized sequence of instruction and preparation deemed appropriate. It was felt that findings from this study could provide leaders in the field of educational administration with a viable model of instruction for universities desirous of adding such an area, or for those universities that already had a program of instruction an evaluation instrument which could be used to compare their programs in terms of evolved research and conditions.

¹⁹MacConnell, p. 80.

²⁰Orin B. Graff and Calvin M. Street, Improving Competence in Educational Administration (New York: Harper & Bros., 1956), p. 164.

VI. DEFINITIONS

Educational Objective. That which is anticipated as desirable in the early phases of an activity and serves to select, regulate, and direct later aspects of the act so that the total process is designed and integrated.²¹

Educational Program. The entire offering of the school, including the out-of-class activities, and the arrangement or sequence of subjects and activities.²²

Educational Specification. A written attempt to describe and interpret the educational program and/or other factors having a bearing on the type of school plant facility needed in order to form a base for the architectural design.²³

Educational Survey. A study made to gather data about the various schools within a district or system, including such items as enrollments, population trends, financial aspects, community opinions, cultural outlook, facilities and resources, and any other pertinent information that may aid in the planning of the school program. Recommended steps toward the realization of the desired educational plan are included.

Flexibility. Characteristics which provide for alteration and reallocation of instructional and supporting spaces to meet changing

²¹Carter V. Good, ed., Dictionary of Education (2nd ed.; New York: McGraw-Hill, 1969), p. 392.

²²Ibid., p. 419.

²³Roaden, p. 10.

curricular needs while retaining the architectural effect of the basic structure.²⁴

Internship. Service preparation for a position, usually under the supervision of a university or a practitioner in the field; consists of a wide variety of experiences in one or more schools or school districts.²⁵

Maintenance. The continuous processes of restoration of any piece of property, whether grounds, buildings, or equipment, as nearly as possible to the original condition of completeness or efficiency, either through repairs or by replacement with property of equal value and efficiency.²⁶

Modernization. A process whereby an existing school building is brought up to date structurally and educationally. In the process spaces within a school building may be reshaped, certain parts of the structure or service equipment may be restored to their original state or improved, interior or exterior surfaces may be replaced or recovered, and modern service equipment may be installed.²⁷

Operation of Buildings. The work connected with the heating, ventilating, lighting, cleaning, policing, and general care of buildings; janitorial, engineering, and custodial work connected with the use of buildings.²⁸

²⁴Donald P. Yates, "Flexibility in School Plant Development and Utilization" (unpublished doctoral dissertation, The University of Tennessee, 1968), p. 5.

²⁵Griggs, p. 15.

²⁶Good, p. 347.

²⁷Castaldi, p. 309.

²⁸Good, p. 399.

Planning Process. The planning process involves evaluating the educational opportunities available and determining changes to be made; formulating plans by which the identified and analyzed educational and facility needs can be adopted and implemented; and the completion and evaluation of the improvement program.²⁹

School Plant. The land, buildings, and improvements of grounds, athletic fields, and other plots used for the activities of a school; includes buildings for instruction and administration, libraries, gymnasiums, dormitories, power plants, and other buildings, and the equipment and furniture of such buildings.³⁰

Simulated Experience. Training device in which a student undergoes experiences and is presented with data which, while not real, closely approximate reality.³¹

Specialist in School Facility Planning. An individual trained as an expert in collecting data concerning factors which affect school plants, in interpreting these facts in light of their implications concerning school facilities, in transplanting school programs into educational specifications, in working with architects, and in performing such other tasks as are identified in the school plant planning field. He is thought to stand in a staff relationship, reporting directly to the superintendent of schools. He is not responsible for plant operation and maintenance, although he may have expertise in these areas. He is

²⁹J. L. Pierce, Educational Planning (Raleigh, N.C.: North Carolina Department of Public Instruction, Division of School Planning, 1964), pp. 6-7.

³⁰Good, p. 422.

³¹Griggs, p. 18.

a member of a team which includes experts for business affairs and for curriculum planning.³²

Technical Course. Those aspects of a program of educational administration which stress the use of special methods and techniques.³³

VII. PROCEDURES

The purpose of this study was to identify basic concepts related to the instruction and preparation of specialists in school facility planning. In order to accomplish an adequate treatment of the problem, a model for the instruction and preparation of specialists was to be developed. It was assumed that through a review of literature and an examination of existing programs of instruction this model could be developed.

In order to review existing programs of instruction in school facility planning at the major universities and colleges in the United States, an identification of instructors and all courses being taught was necessary. This was accomplished by reviewing all graduate catalogs of universities and colleges in the United States which were on microfiche (produced by Micrologue, Denver, Colorado) on file in the library of the University of Tennessee.

Correspondence was undertaken with all the instructors teaching these courses in school facility planning. Their identification was obtained through correspondence with deans, chairmen, or area

³²Ibid., p. 12.

³³Ibid., p. 18.

coordinators of departments of education, educational leadership, or educational administration and supervision of the universities and colleges identified.

In order to determine the appropriateness of the model, a panel of experts was identified and asked to evaluate the guidelines of the model for the instruction and preparation of specialists in school facility planning. The panel was drawn from the professors who were directing doctoral studies in school facility planning and a selected number of architects who were members of the Council of Educational Facility Planners, International. It was determined that there should be a comparable balance in numbers between instructors and architects on the panel of experts.

The Director of the School Planning Laboratory at the University of Tennessee (Dr. Charles E. Trotter, Jr.) was requested to select thirty nationally known architects from the 1973 Membership Directory of the Council of Educational Facility Planners, International, who had considerable experience in school facility designing.

The collection of data concerning course outlines, textbooks used, classroom activities, and programs for the instruction and preparation of specialists in school facility planning leading to a doctoral degree in educational administration was obtained through correspondence with the identified instructors teaching courses in school facility planning. Each instructor was asked to respond to four open-ended questions as to whether (1) their institution operated any type of program in school facility planning designed to prepare specialists

in this area that would ultimately lead to a doctoral degree in educational administration; (2) their institution had an organized service or laboratory in which their students could work or whether their students had to work on an individualized basis; (3) there was any historical information about school facility planning as it related to their institution; and (4) they had any suggestions regarding desirable activities or topics of study that should be included in the instruction and preparation of specialists if funds, personnel, or opportunity were not restricted, yet keeping the time element for the completion of the doctoral program somewhat the same.

The selected architects were also requested to suggest activities that they felt should be included in the instruction and preparation of specialists in school facility planning, and what they anticipated the future would dictate in relation to school facility planning.

The data relative to course titles and course descriptions were listed alphabetically by state and institution for both introductory and advanced courses. The course titles and descriptions were tabulated according to frequency, clustering titles and topics that were of the same intent. They were compared with a similar study conducted in 1959 to identify any trend or shift in emphasis. Where variances were seen in major divisions, a detailed analysis by percentages was made of their subdivisions by topics.

The data received from the responding instructors were similarly tabulated and analyzed according to course outlines, textbooks used, and activities undertaken in the introductory programs in school facility

planning. The percentages of responses were converted into a composite percentage for each area analyzed. The composite percentage was obtained by totaling the percentages of responses for an area and dividing the sum into each response. This enabled the composite percentage columns to total one hundred. An analysis of the amount of time or emphasis given to particular topics in a major division was thus obtained. Individualized descriptions and analyses were made of data where tabulations were not possible. Patterns or designs of course offerings were studied and described.

An extensive review of literature was undertaken in an attempt to trace the emerging role of specialists in school facility planning, and the development of centers for instruction and preparation of specialists in school facility planning.

The model for the instruction and preparation of specialists was developed from a review of the literature, the analysis of existing programs of instruction in school facility planning, suggestions received from instructors in this area, and the selected architects. The features that they deemed appropriate were incorporated into the model. It was then submitted to the panel of experts for their validation. Their comments and opinions were noted and utilized in the recommended model.

VIII. ORGANIZATION OF THE STUDY

Chapter I presents the introduction of the study, the statement of the problem, the basic assumptions, the delimitations, and the importance of the study. The chapter also includes definitions of terms used in

the study, the procedures to be followed, and the organization of the study.

Chapter II contains a review of related literature. Emphasis was placed on those concepts relative to the instruction and preparation of specialists in school facility planning.

Chapter III gives a detailed description of the design of the study and the procedures employed for the collection of the data. Chapter IV reviews existing programs of instruction in school facility planning and the criteria for developing guidelines for the instruction and preparation of specialists in school facility planning. Chapter V presents guidelines for a model of instruction and preparation of specialists in school facility planning. Chapter VI contains the summary, conclusions, and recommendations relative to this study.

CHAPTER II

THE RELATED LITERATURE

The purpose of this chapter was to trace the emerging role of the specialist in school facility planning. The chapter is divided into three sections utilizing the following pattern: (1) a section dealing with literature pertaining to the emerging role of the specialist in school facility planning; (2) a section dealing with literature pertaining to school plant courses and their evolution; and (3) a section dealing with the development of centers for the instruction and preparation of specialists in school facility planning. The nature and scope of the problem of this study will be more clearly seen from this background.

I. THE EMERGING ROLE OF SPECIALISTS IN SCHOOL FACILITY PLANNING

At the time of this writing, the role of specialists in school facility planning was relatively new and many school superintendents, boards of education, and architects had failed to consider the use of their services. These services were essentially different from those of architects and had proved of great value both to school superintendents and architects, and in the planning and development of better school plants.¹

¹John H. Herrick and others, From School Program to School Plant (New York: Henry Holt, 1956), p. 15.

The complexity of the educational program and the increasing demands of accountability of school administrators, the mounting pressure on their time, their lack of school planning experience or training, and their desire to utilize all possible expertise facilitated the expanding role of specialists in school facility planning.²

The emergence of the profession of specialists in school facility planning was somewhat of a late bloomer. Griggs in his research attributed several factors for the increased need for plant planning specialists:

The pressure on the time of the administrator involved, the lack of school planning experience or training on the part of many administrators, and the desire to gain the expertise of specialists who are specially prepared by experience and education to plan schools.³

For many years this area was left to architects to plan and design. Roaden in his survey in 1963 pointed out that school facility planning had just begun to be recognized as an endeavor which required the attention of many people with a variety of specialized knowledge and experience. Both educators and architects had come to realize that certain types of information relative to the purposes of school facilities must be developed by educators. Roaden further pointed out that little improvement in school facility planning took place during the first two hundred years of public education. In his research he

²Harold W. Boles, Step by Step to Better School Facilities (New York: Holt, Rinehart & Winston, 1965), pp. 9, 10.

³Norman Miller Griggs, Jr., "Behavioral Goals for a Program of Instruction to Prepare Specialists in School Plant Planning" (unpublished doctoral dissertation, Ohio State University, 1968), p. 51.

found a remarkable similarity between the modern educator and architect and the architect and builder of one hundred years ago. In summarizing Henry Barnard's book, School Architecture, published in 1848, Roaden reported that the architect could specify on one page all that was thought necessary to guide the builder in the construction of a school building.⁴ Engelhardt also pointed out that many of the responsibilities which later became designated as the architect's responsibility had been assigned to the builder, whether or not he was qualified to undertake them. School boards simply told the builder to erect a building something like the plans in the book, and hoped for the best.⁵ Roaden observed that at the time of his writing a similar situation existed in many situations:

The architect is more likely than not advised by the educator that a school building is needed with so many classrooms, so many auxiliary and service facilities, and that a sum of money, usually inadequate, is available to build the building. With that small amount of information the architect must try to see the problem as an educator would and attempt to design suitable facilities.⁶

Perkins in his study observed that by 1940 with the construction of the Crow Island School in Winnetka, Illinois, facility planning entered a new era. He noted that months of study on the part of teachers, architects, and school administrators resulted in a school plant that

⁴Ova Paul Roaden, "The Essential Elements of Educational Specifications for School Plant Facilities" (unpublished doctoral dissertation, The University of Tennessee, 1963), pp. 24-27, 33.

⁵N. L. Engelhardt, N. L. Engelhardt, Jr., and Stanton Leggett, School Planning and Building Handbook (New York: F. W. Dodge Corporation, 1956), p. 71.

⁶Roaden, p. 34.

was related to a school program. "From the drab three-story school with its asphalt or gravel yard and wire fence, new forms have sprung."⁷

The superintendent of schools as professional leader and executive officer of the board of education was responsible for school plant development. Campbell and his associates, in tracing the development of the role of the superintendent of schools, noted that the duties of the principal were initially clerical in nature, such as the compilation of enrollment and attendance figures. Later, however, he was relieved of teaching so that he could give his full attention to organization and management.⁸ With the increased complexity of educational programs better administrative organization was required. In 1837, the city of Buffalo's common council appointed a superintendent of its common schools. That same year the first agent of the public schools of Louisville, Kentucky, was elected by the mayor of the city and the aldermen. By 1860, twenty-seven city school districts had established the office of superintendent of schools.⁹ Campbell, as he continued to trace the role of the superintendent, noted that according to the American Association of School Administrators the superintendent of schools spent approximately 29 percent of his time in school plant

⁷Lawrence B. Perkins and Walter D. Cocking, Schools: Progressive Architecture Library (New York: Reinholt, 1949), p. 246.

⁸Ronald F. Campbell and others, The Organization and Control of American Schools (2nd ed.; Columbus, Ohio: Charles E. Merrill, 1970), pp. 9-10.

⁹Theodore L. Reller, The Development of the City Superintendency of Schools in the United States (Philadelphia: published by the author, 1935), p. 82.

management.¹⁰ MacConnell, in discussing the role of the superintendent, also pointed out that he had a major function in planning and determining school facility needs.¹¹

Roaden analyzed with some care the development of techniques employed in planning school facilities. A search of literature, conversations with educational administrators and architects, and observations revealed the general lack of agreement as to exactly what school planning should entail. Existing practice ran the gamut from leaving the entire planning process up to architects to developing detailed educational specifications by educators and facility specialists, thereby leaving architects only the responsibility of translating the specifications into architectural design.¹²

The role of the superintendent increasingly assumed the nature of a generalist. Campbell pointed out that by the very nature of their assignments, superintendents and principals were generalists. The main business of the school, the process of teaching and learning, required many activities to implement the function. These activities included goal determination, curriculum planning, provision of physical facilities, selection and supervision of personnel, financial management, and accountability to the general public. The fitting of these functions into place fell to the superintendent along with the well-being of the entire school.¹³

¹⁰Campbell and others, p. 232.

¹¹James D. MacConnell, Planning for School Buildings (Englewood Cliffs, N.J.: Prentice-Hall, 1957), p. 79.

¹²Roaden, p. 32.

¹³Campbell and others, pp. 240, 241.

Culbertson concluded that a school system should number among its administration both generalists and specialists. As school systems became more complex and positions more specialized, the need, Culbertson observed, for the insightful generalist increased. Conversely, each generalist needed the insight which only a specialist could supply. This aspect of school systems both at the district level and the local school level needed to be taken into account. This was even more critical at the instruction and preparation stages. Colleges and universities increasingly began to recognize this problem.¹⁴

The issue of general and specialized training received considerable attention. Chandler, Baldwin and Frederich urged that administrators should aim for broad liberal education. Chandler stressed preparation for social and educational leadership.¹⁵ Baldwin feared that specialization and technical course work would tend to inhibit basic research and free inquiry.¹⁶ Frederich pointed out that to load the school administrator's graduate program with a smattering of architecture, accounting, heating, engineering, public relations, curriculum construction, supervision, and law on an operational level would appear to sacrifice depth of understanding and to betray a low opinion of human

¹⁴ Jack A. Culbertson, "New Perspectives: Implications for Program Change," Preparing Administrators: New Perspectives (Columbus: University Council for Educational Administration, 1962), Ch. X.

¹⁵ B. J. Chandler and E. T. McSwain, "Professional Programs for School Administration," Phi Delta Kappan, XLI, No. 2 (November, 1959), 62.

¹⁶ Robert Baldwin, Continuing Professional Development of School Administrators (New York: Teacher's College, Columbia University, 1953), pp. 28-29.

imagination and resourcefulness.¹⁷ Riso, Fisk, and Leu, on the other hand, stressed the need of specialized courses. Riso concluded following research of literature in administration over a period of twenty years that specialized courses were infrequently and inadequately treated in preparation programs in spite of the fact that studies have indicated that administrators consistently rank courses of this type as most valuable.¹⁸ Fisk contended that as many as nine out of ten school administrators were not adequately prepared for the specialized functions of their positions.¹⁹ It had been suggested that approximately one-half of the technical content in a two-year program should be common for all school administrators. The remaining portion should enable those preparing for different administrative positions in education to gain specialized content for handling technical functions in a particular position. Leu suggested criteria for differentiation of common and specialized content when (1) the organization by an administrator performs a unique function; (2) the context where the knowledge is to be applied differs markedly; and (3) the characteristics of personnel immediately served by an organization differ.²⁰

¹⁷Robert W. Frederich, "The Seven R's for Educating Administrators," The School Executive, LXXVI, No. 2 (October, 1956), 53.

¹⁸Sister Mary Karen Riso, "The Professional Education of School Administrators" (unpublished doctoral dissertation, Fordham University, 1950), p. 58.

¹⁹Robert S. Fisk, "The Preparation of Administrator," The School Executive, LXXIII (January, 1954), 65.

²⁰Donald J. Leu and Herbert C. Rudman, Preparation Programs for School Administrators (East Lansing, Mich.: Seventh University Council for Educational Administration Career Development Seminar, College of Education, Michigan State University, 1963), p. 51.

Van Miller presented the following five possible causes for this concern over common and specialized learning:

1. As school systems become larger and more complex, educational administration increasingly becomes the task of multiple administrators.
2. Increased complexity calls for more specialization and segmentation of administrative work; however, this requires more attention to common learning as a basis for fitting specialists together.
3. Progress in the development of educational administration will be more fruitful if it is approached with concern for total administrative performance systems.
4. The variety of career posts in educational administration and the movement from one kind of post to another calls both for a common base and for appropriate specialization.
5. Efficiency in organization of training and of work requires that the common elements be taught or shared in common rather than position by position.²¹

Griggs noted the increased incidence of boards of education employing specialists in school facility planning as members of their planning teams, and the need to reevaluate the role they would be playing. The selection of proper content of general and specialized courses began to assume new importance relative to the preparation of such personnel.²²

Bottomly pointed out that following World War II a host of consultants entered the scene, some of whom rendered inexpert advice.

Caught in the construction boom, superintendents and school boards, without training and experience in educational plant planning, along with others who simply lacked the time to do

²¹Van Miller, Common and Specialized Learnings for Educational Administration (Columbus: The University Council for Educational Administration, 1964), pp. 2-4.

²²Norman Miller Griggs, Jr., "Behavioral Goals for a Program of Instruction to Prepare Specialists in School Plant Planning" (unpublished doctoral dissertation, Ohio State University, 1968), p. 51.

do a comprehensive job sought expert help. Qualified educational planners of buildings were few and far between, but rushing to fill the void came a number of persons who labeled themselves as school plant experts.²³

Because of the pressure on time of school administrators and their lack of school planning experience or training, the need for professional advice in school facility planning was recognized. Most committees of lay people that were involved in school problems needed guidance and help either by someone from within the system or by specialists retained for that purpose. Effectiveness of function and direction were greatly stimulated by the assistance of competent specialists.²⁴

The efficaciousness of specialists in school facility planning is determined to a large degree by the quality of their training and preparation. The American Association of School Administrators in their 27th Yearbook suggested that a coordinated program should be developed to prepare specialists in school facility planning in the areas of education, architecture, and engineering.²⁵

Specialists in school facility planning played major roles in undertaking educational and school building surveys, and similar roles in the development of educational specifications.²⁶ They also acted as

²³Forbes Bottomly, "A Study of Methods for Identifying Adequate Professional Standards for Possible Application to School Plant Consulting Services" (unpublished doctoral dissertation, State College of Washington, 1958), p. 5.

²⁴Boles, p. 15.

²⁵American Association of School Administrators, American School Buildings (Washington, D.C.: The Association, 1949), p. 319.

²⁶Herrick and others, pp. 14-15.

consultants and advisors to school administrators on planning teams; and in larger school systems and state departments of education they assumed major responsibilities in the overall administration and planning of educational facilities.²⁷

II. THE EVOLUTION OF SCHOOL FACILITY PLANNING COURSES

At the turn of the twentieth century, only twelve institutions of higher learning were offering courses in school administration. Six of these twelve universities included in their courses in school administration topics on school facility planning. These topics were chiefly limited to the areas of heating, lighting, sanitation, construction, and equipment.²⁸

Murphy, in his analysis of university bulletins from 1900 to 1930, noted that ten years later the first course devoted exclusively to school facility planning was listed in the Bulletin of the University of Washington. Other universities began offering separate courses in school facility planning with such topics as sanitation and hygiene.²⁹ Riso, in researching the professional education of school administrators, noted the proliferation of school facility courses during the 1920's.

²⁷J. Clark Davis, The Principal's Guide to Educational Facilities (Columbus, Ohio: Charles E. Merrill, 1973), pp. 3-8.

²⁸A. B. Murphy, "Basic Training Program for City School Superintendents" (unpublished doctoral dissertation, University of California at Berkeley, 1931), pp. 18-19.

²⁹Ibid., p. 21.

By 1950, thirty-nine graduate schools were offering courses in this area.³⁰

In 1959, the United States Office of Education conducted a comprehensive survey to determine the number and nature of school facility planning courses offered by colleges and universities in the United States during the period from 1956 to 1959. It was found that 105 institutions included in their catalogs a total of 126 courses in school facility planning. Survey courses were not included unless the catalog description indicated that school facility planning was a major consideration.³¹

The Need for School Facility Planning Courses

The need for school facility planning courses was frequently referred to in literature. Murphy, in 1931, after his exhaustive survey, concluded that courses in this area should be a major part of the unit core of essential topics included in a superintendent's training.³² Another survey conducted in 1960 by the American Association of School Administrators revealed that superintendents rated courses in this area as highly important.³³ The National Council for Schoolhouse Construction

³⁰Riso, p. 185.

³¹Ray L. Hamon, School Plant Courses Offered by College and Universities in the United States 1956-1959 (Washington, D.C.: Government Printing Office, 1959), pp. 1-3.

³²Murphy, p. 101.

³³American Association of School Administrators, Professional Administration for America's Schools (Washington, D.C.: The Association, 1960), p. 47.

in 1955, through its Professional Training Committee, was highly critical of colleges and universities not offering courses in school facility planning. They asked:

Why do colleges and universities neglect this pressing problem? First, there seems to be no general realization of the basic importance of school buildings as a dynamic curricular force. The colleges and universities themselves have little competence in the field. There are capable people in the field of school planning, but in many cases they are not "acceptable" because they do not have the necessary academic standing to teach in the colleges and universities. A third reason is the fallacious belief that architects should plan school buildings, ignoring the fact that the educator must give the architect all the information necessary to draw up a complete set of educational specifications before the beginning of any actual drawings.³⁴

Cherry, English, Evans, and others strongly urged greater emphasis in school facility planning training for superintendents. They were concerned with the post World War II period and the tremendous boom in schoolhouse construction. But it was felt that the training required for specialists in school facility planning should go beyond that recommended for school administrators or superintendents. The National Council for Schoolhouse Construction drew the attention of its members to this fact at its 1962 annual convention. They asked:

Should training programs differ for superintendents, assistant superintendents, or professional school planners? The answer was, it would seem so. An administrator needs to know how to obtain and use competent planning services; on the other hand, the professionally trained school planner needs depth in technical know-how.³⁵

³⁴ Report of the Professional Training Committee, Proceedings of the National Council for Schoolhouse Construction, 33rd Annual Meeting (Washington, D.C.: The Council, 1956), pp. 19-20.

³⁵ Report of the Professional Training Committee, Proceedings of the National Council for Schoolhouse Construction, 39th Annual Meeting (Denver, Col.: The Council, 1962), p. 124.

Griggs, in developing behavioral objectives for a program of instruction for the training of specialists in school facility planning, urged a more comprehensive program than what was then being offered:

Existing programs for instruction in the plant area are, for the most part, designed to provide an overview for general administrators. Such courses are limited in scope and cannot provide the special training which would seem to be desirable for programs designed to train specialists in the school plant field. Furthermore, such courses as are offered in our institutions of higher learning are not often a part of a planned sequence of experiences designed to accomplish well thought out goals.³⁶

The Professional Training Committee of the Council of Educational Facility Planners was involved in the development of programs of instruction for educational administrators and specialists in school facility planning. Conrad, a member of this Committee, expressed the concern of the Council:

We are interested in developing an optimum outline of course content and activities for an introductory (consumer education course) in not only facility planning but also plant management and comprehensive educational planning. We are also interested in total program content and activities for each of these areas.³⁷

Existing Topics in School Facility Planning Courses

Early school facility planning courses stressed the technical aspects of school plant planning and management. Emphasis was placed upon proper heating, lighting, ventilation, and sanitation standards.

³⁶Griggs, p. 3.

³⁷Letter from M. J. Conrad, Professor Emeritus, The Ohio State University, October 28, 1974.

Murphy pointed out that by the 1930's this was shifting to more school site selection, construction of buildings, providing adequate and proper equipment, and writing of specifications.³⁸ Technical aspects were still dominant. Carpenter more specifically commented:

We consider the problems of lighting, heating, ventilation, seating, school population, insurance, fire prevention, utilization, floor plans, alterations, and additions, flexibility and expansibility, educational equipment, operation and maintenance, the architect, the necessity for long-time planning and the place of the state in schoolhouse construction and maintenance. We visit recently constructed buildings with different methods of heating and ventilation, different provisions for special activities, and different methods of cleaning.³⁹

By the 1950's, Riso found that planning and maintenance were the most frequently listed topics. Little attention was given to the responsibility of administrators, integration of curriculum, analysis of techniques, determination of objectives, or planning a program of education.⁴⁰

Evans, English, and Bottomly attempted to bring about a better balance between technical and more general aspects of school facility planning. These aspects included the nature of the community, population projections, financial means, and the ultimate school plant.

³⁸Murphy, pp. 21-22, 32.

³⁹W. W. Carpenter, Training the Superintendent of Schools in School House Construction, Operation, and Maintenance. Proceedings of the National Council for Schoolhouse Construction, 14th Annual Meeting (Austin, Texas: The Council, 1936), p. 26.

⁴⁰Riso, p. 185.

Conrad advocated a fourfold approach: (1) the district-wide building survey; (2) educational planning; (3) architectural planning and construction; and (4) moving in and settling down.⁴¹

Boles, on the other hand, considered Conrad's Four Steps to New Schools an excellent but dangerously oversimplified approach. Vital steps, he felt, had been omitted. His suggested approach involved twelve steps. They were as follows: (1) getting organized; (2) studying curriculum; (3) surveying school plant needs; (4) planning a building; (5) planning financing; (6) acquiring sites; (7) architectural planning; (8) contracting for construction; (9) constructing a building; (10) equipping and furnishing a building; (11) occupying a building; and (12) orienting people.⁴²

Herrick, in elucidating the professional competence of specialists in school facility planning, outlined five principal facets that should be evident: (1) general understanding of education; (2) knowledge of instructional practices and procedures; (3) understanding of public administration; (4) knowledge of school buildings; and (5) command of specialized techniques. More specifically, Herrick explained that, in order to develop these facets fully, the specialist must:

1. Acquire an understanding of the role of education in society.

⁴¹M. J. Conrad, Four Steps to New Schools (Columbus, Ohio: Bureau of Educational Research and Service, The Ohio State University and the Ohio School Boards Association, 1964).

⁴²Boles, pp. vi, ix-x.

2. Be familiar with the local factors affecting the role of the school.
3. Be alert to the possible changes which will affect school plant needs.
4. Be informed regarding educational developments as related to school plant problems.
5. Be familiar with current thinking in the general field of city and regional planning.
6. Be cognizant of local activities.
7. Have an understanding of the general problems and issues of public finance and administration.
8. Be informed about practices and trends in content and organization of the curriculum, of the organization of pupils into classes, and of general teaching procedures.
9. Have extensive knowledge of the kinds of facilities most applicable to the enhancement of the elements of the curricular program.
10. Be able to suggest means of altering existing buildings to meet changing program needs.
11. Be familiar with health and safety standards.
12. Be familiar with construction methods and materials.
13. Be able to analyze the educational program to determine its implications for school plant.
14. Be able to estimate future enrollments.

15. Know how to calculate the operating capacity of school buildings and to determine the percentages of utilization.⁴³

Dibs concluded from his research that the consensus of his respondents was that the following topics deserved heavy emphasis:

1. Determining the need for a building program. This included curriculum and educational programs, planning for the future, enrollment projections, surveying existing facilities, modernizing and rehabilitating school facilities.

2. The role of personnel and agencies involved in school plant planning—boards of education, administrative staff, teachers, the community, architects, engineers, contractors, and governmental personnel.

3. Financing the plant program.

4. School sites.

5. Planning the school building. This included developing and writing educational specifications, economy, design, flexibility, health and safety features, construction techniques and materials, and community use of school facilities.

6. Implementing the building program plans.

7. Managing the school plant, involving maintenance, custodial care, and general administration of the school plant.⁴⁴

⁴³Herrick and others, pp. 134-137.

⁴⁴George A. Dibs, "School Plant Courses for School Administrators" (unpublished doctoral dissertation, University of Southern California, 1963), pp. 236-329.

Dibs further recommended that many of these topics should be included in advanced courses in school facility planning for those interested in this area, and especially for the instruction and preparation of specialists in school facility planning.⁴⁵

The Council of Educational Facility Planners, formerly the National Council for Schoolhouse Construction, over the years had the opportunity to discuss, examine, and debate vital issues and new trends in the area of facility planning. At the time of this study, the Guide for Planning Educational Facilities published in 1969, with an edition in 1971, was the latest product of the Guide Rewrite Committee of the Council. Earlier Guides were mostly concerned with design standards, with emphasis on elementary and secondary school facilities. Later editions (in 1953, 1958, and 1964, under the title Guide for Planning School Plants) became more comprehensive in scope, stressing guiding principles and planning goals rather than standards. The latest edition was used by many universities as the basic textbook for students enrolled in graduate level facility planning courses of instruction. It achieved the status that its recommendations helped determine the content of many school plant courses. The Committee suggested fifteen topics in the area of facility planning: (1) the challenge; (2) resources; (3) educational needs; (4) the architect; (5) program requirements; (6) the site; (7) learning spaces; (8) auxiliary spaces; (9) the environment; (10) furniture and equipment; (11) stretching dollars;

⁴⁵Ibid.

(12) renovation and alteration; (13) budget and finance; (14) the building program; and (15) use and evaluation.⁴⁶

After an extensive review of the literature and interviewing a panel of school facility authorities, Griggs suggested the following topics:

1. Developing total long-range educational facility plans. This would include organizing the study, surveying school plant needs, ascertaining resources, and making recommendations.
2. Developing educational specifications. The achievement of this would involve planning the building program, finances, acquiring the site, and planning site layout.
3. Working with architects and construction of the building.
4. Occupying, equipping, and utilization of the facility.⁴⁷

Engelhardt simply saw the topics as (1) organizing the program; (2) educational requirements; (3) meeting the needs of the school; (4) special facilities; (5) determining the selection of future school sites; (6) operating auxiliary services; and (7) administration and development systems.⁴⁸

⁴⁶G. Kent Stewart and others, Guide for Planning Educational Facilities (Columbus, Ohio: Council of Educational Facility Planners, 1971), p. 7.

⁴⁷Griggs, pp. 75-116.

⁴⁸Nickolaus L. Engelhardt, Complete Guide for Planning New Schools (West Nyack, N.Y.: Parker, 1970), pp. xiii-xvii.

III. THE DEVELOPMENT OF CENTERS FOR INSTRUCTION AND PREPARATION OF SPECIALISTS IN SCHOOL FACILITY PLANNING

The increasing concern and interest in school facility planning was apparent from the vast array of literature in this field. As school systems grew in size and complexity, and the need to be attuned to rapidly changing curricular structures increased, there was also growing concern and doubt that adequate planning could be done by school administrator and architect alone. McClurkin pointed this out when he stressed the need for each school system "to develop an adequate plan of its own; and in this process lies one of the occasions where group participation, the sharing of ideas, and the democratic approach can make genuine contributions to school building planning."⁴⁹

As noted earlier in this review of literature, for many years the planning and designing of school facilities was left to architects. With the development of the position of the superintendent of schools, attention was given to his instruction and preparation. The need for someone to give his full time to the management of the school was recognized as early as 1828. Reller related some of these conditions.

The responsibilities of the office of school committee members in general were heavy. Northend pronounced the duties, "important and arduous; its rewards—pecuniary or honorary—quite inconsiderable." The Worcester school committee similarly reported that "their office has been no sinecure" and that the "first, second and last requisitions of their office have been labor, labor, labor and that continually." The members of the Springfield school

⁴⁹R. D. McClurkin, School Building Planning (New York: Macmillan, 1964), p. 13.

committee stated that "they believe that no committee ever has or ever will perform the duties of this town." Their report further pointed out that the visitorial duties alone would require two days of each week of each committeeman "for the mere pittance of a dollar a day. . . . too little for compensation, and no stimulant for philanthropy."⁵⁰

Dexter noted this in his record of the history of education in the United States of those times.

School committees in many towns, recognizing that one man could accomplish more by giving his whole time to the work than could several whose interests and time were divided, delegated to a single member, supervisory duties, and had him delegated as superintendent of schools. A little later men from without the board, who were skilled in school matters, were selected for these positions, and we have the origin of the modern city superintendent.⁵¹

Regarding the tendency of superintendents to assume the responsibilities of planning school buildings and maintaining them, Reller again noted:

When the superintendency was established, schoolhouse agents no longer served, and the superintendents assumed their duties, although it was the duties classed as strictly educational, were "higher and more responsible grade" and constituted "more appropriately the superintendent's sphere of effort." . . .

The superintendent in Providence spent a great deal in the study of plans for buildings. . . .

In Buffalo, the school buildings were under the direction of the superintendent. . . .

In Indianapolis, in 1869, the superintendent was ordered to contract with a plasterer to do repair work in the school-houses.⁵²

The versatility required of a small school superintendent can be more easily understood from the Commission's discussion of the

⁵⁰Reller, p. 10.

⁵¹Edwin Grant Dexter, A History of Education in the United States (New York: Macmillan, 1922), p. 185.

⁵²Reller, pp. 261-267.

duties of the small school superintendency in the American School Superintendent.

The superintendent then serves as a personnel officer, director of instruction, business manager, and director of information, as well as general administrator.⁵³

Research in the field to improve the many technical areas that had fallen under the direction of the superintendent was another important step in the development of the American School Superintendent.⁵⁴

Specialized training in school management on the undergraduate level did not appear on the educational scene until 1879. At the University of Michigan, Ann Arbor, several teacher-training courses were offered, one of which, "School Management," offered administrative principles as part of the course.⁵⁵

Another institution that played an important role in the history of the training of teachers and administrators was New York College, later Teachers College, which received its charter in 1889. Their credits were accepted at Columbia by mutual agreement, counting towards a Columbia University degree.⁵⁶ The founders of Teachers College were

⁵³American Association of School Administrators, The American School Superintendent, Thirtieth Yearbook (Washington, D.C.: The Association, 1952), p. 66.

⁵⁴Milton D. Evans, "A Study of Professional Training Needed by Small School Superintendents in the Field of School Buildings and Maintenance" (unpublished doctoral dissertation, The University of Nebraska, 1954), p. 86.

⁵⁵A. B. Bramwell and H. M. Hughes, Training of Teachers in the United States (London: Macmillan, 1894), p. 79.

⁵⁶*Ibid.*, p. 86.

anxious to differentiate between a normal school and a professional school for administrators of university standards.

Teachers College is not a normal school, neither is it merely a University department of pedagogy. It ranks as a professional school for teachers, and in order to maintain this rank it must maintain University standards.⁵⁷

Graduate courses were offered particularly for principals, supervisors, and superintendents of schools. These courses were to lead to a "Higher Diploma" and were offered only to graduates of approved institutions of learning. The general course in School Administration, "Education 6," included twenty-one subtopics: Political Control, the Functions of the School Board, The Delegation of Executive Powers, Business Administration, Sanitation and Hygiene, Types of Architecture, The Equipment of the School, Current Business, The School System, The Superintendent of Schools, Functions of the Superintendent, School Supervision, Improvement of Training, Examination and Tests, School Discipline, The Daily Program, Educational Resources of the Community and Their Use in Supervision, Community Organization for Educational Endeavor, Reports, and Manuals.⁵⁸ This was in 1900.

Evans in his study noted that Columbia University was the first university to offer a specialized degree in education, the Doctor of Education. Harvard University, also one of the earliest colleges to offer the professional degree of Doctor of Education, listed eighty-nine

⁵⁷ Teachers College Record, Volume I (New York: Macmillan, 1900), p. 41.

⁵⁸ *Ibid.*, pp. 225-236.

courses in school administration. Other universities followed, offering graduate work in school administration.⁵⁹

Concern for the professional execution of the superintendent's duties was noted in the middle nineteenth century. Lack of professional training opportunities resulted in the organization of professional groups to serve as exchange centers of information. In 1865 the National Association of School Superintendents was organized.⁶⁰ Certification requirements began to find their way into the educational arena. In 1959 Milwaukee, by an act of legislature, required the superintendent to be a graduate of a college or normal school or the holder of a certificate granted by the state superintendent of public instruction.⁶¹

On March 2, 1921, in Atlantic City, New Jersey, several prominent educators—Samuel A. Challman of Minnesota, Charles McDermott of New Jersey, and Frank H. Wood of New York—met to discuss the formation of an organization to deal with the problems of school plant planning and construction. The National Council on Schoolhouse Construction was organized. Its primary purpose was:

To promote the establishment of reasonable standards for school buildings and equipment with due regard for economy of expenditure, dignity of design, utility of space, healthful conditions and safety of human life.⁶²

⁵⁹Evans, p. 92.

⁶⁰F. E. Henzlik, School Administration and Education for Administrative Leadership in Towns and Villages (Lincoln, Neb.: University of Nebraska Press, 1943), p. 17.

⁶¹Reller, p. 95.

⁶²Stewart and others, p. 3.

By 1930, the Council was publishing the results of its research and findings in keeping with its intent of providing authoritative information to guide those working the field of educational planning and construction.⁶³

Throughout its more than fifty years of existence, the Council, reorganized as the Council of Educational Facility Planners, exerted considerable influence through the activities of its membership. Numerous publications in the area of planning educational facilities emphasized its fundamental concern for the relationship of educational facility planning and educational programming. The 1971 publication, Guide for Planning Educational Facilities, was used by many institutions as a text for their courses in school facility planning. The Guide Rewrite Committee of the council, through its publications, reflected

. . . those new and important concepts and practices relevant to educational facility planners as a result of contemporary innovations in education. Changes in education, technology and materials have made a significant contribution to, and impact on, the facilities to be planned for tomorrow's students.⁶⁴

Educational Facilities Laboratories, Inc., through its influence and assistance, had far reaching effects on the development of school planning laboratories and on the instruction and preparation of specialists in school facility planning. In the September 1958 issue of Higher Education the following notice appeared:

The Ford Foundation has established Educational Facilities Laboratories, Inc., an independent, nonprofit organization concerned with research and experimentation leading to

⁶³Ibid.

⁶⁴Ibid.

improvements in school and college buildings and facilities. To finance the organization for the next five years \$4-1/2 million has been appropriated. A substantial portion of the organization's grants will be for experimentation in school and college construction and equipment through grants to educational institutions, associations, and societies. . . . In order to be useful in the training of teachers and school administrators, experimental centers cooperating with the organization will be related in most cases to universities or other types of teacher-training institutions.⁶⁵

Stanford University and the University of Tennessee were selected for the establishment of school planning laboratories with the ultimate function, from the student's perspective, of being prepared as a specialist in school facility planning. Numerous publications emerged as a result of the activities of these two school planning laboratories. Close collaboration was maintained between Educational Facilities Laboratories, Inc., and the school planning laboratories. Numerous projects, conferences, and instructional programs were funded by Educational Facilities Laboratories.⁶⁶

IV. SUMMARY

The purpose of this chapter was to review the related literature as it referred to the emerging role of the specialist in school facility planning. The role of the school administrator in facility planning was

⁶⁵Harold B. Gores, "Educational Facilities Laboratories, Inc.," Higher Education, XV, No. 1 (September, 1958), 12.

⁶⁶Harold B. Gores, "New Lab to Study Plant Problems," The Educational Digest, XXIV, No. 7 (March, 1959), 18-20; letter from Harold B. Gores, President of Educational Facilities Laboratories, December 13, 1974.

noted and the need of assistance in specialized areas, resulting in the vital role of the educational consultant, was seen.

The development of school facility planning courses was reviewed. Topics were analyzed according to the interpretation of leading instructors and authors.

The final section in the review of related literature deals with the increased influence of centers for the instruction and preparation of both school administrators and specialists in school facility planning. This chapter provides the setting for the study. Chapter III presents the procedures utilized in this study.

CHAPTER III

PROCEDURES FOR THE STUDY

As stated in Chapter I, the purpose of this study was to identify basic concepts related to the instruction and preparation of specialists in school facility planning. In order to accomplish an adequate treatment of the problem, a model for the instruction and preparation of specialists was to be developed.

It was assumed that through a review of literature and an examination of existing programs of instruction such a model could be developed. This chapter describes the procedures used to (1) identify and select the participants involved in the study; (2) collect the necessary data; (3) tabulate and analyze the data; and (4) develop the model.

I. PARTICIPANTS

Identification

In order to review existing programs of instruction in school facility planning at the major universities and colleges in the United States, an identification of instructors and all courses being taught was necessary. This was accomplished by reviewing all graduate catalogs of universities and colleges in the United States which were on microfiche (produced by Micrologue, Denver, Colorado) on file in the library of the University of Tennessee. This procedure revealed that

there were 139 universities and colleges offering an introductory course in school facility planning, thirty-two of which were also offering advanced courses for the instruction and preparation of specialists in school facility planning.

Correspondence was undertaken with all the professors teaching these courses in school facility planning. Their identification was obtained through correspondence with deans, chairmen, or area coordinators of departments of education, educational leadership, or educational administration and supervision of the universities and colleges identified (Appendix A).

An inspection of the 1973 Membership Directory of the Council of Educational Facility Planners, International, revealed that there were 326 architects registered as members of the Council. The 139 professors and 326 architects constituted the total population for the study.

Selection of the Panel of Experts

In order to determine the appropriateness of the model, a panel of experts was identified and asked to evaluate the guidelines of the model for the instruction and preparation of specialists in school facility planning. The panel was drawn from the professors who were directing doctoral studies in school facility planning and a selected number of leading architects who were members of the Council of Educational Facility Planners, International. It was determined that there should be a comparable balance in numbers between professors and architects on the panel of experts.

The Director of the School Planning Laboratory at the University of Tennessee was requested to select thirty nationally known architects from the 1973 Membership Directory of the Council of Educational Facility Planners, International, who had considerable experience in school facility designing. This amounted to a little less than 10 percent of members of the Council who were architects.

II. COLLECTION OF DATA

The collection of data concerning course outlines, textbooks used, classroom activities, and programs for the instruction and preparation of specialists in school facility planning leading up to a doctoral degree in educational administration was obtained through correspondence with the identified professors teaching courses in school facility planning. On November 30, 1974, a letter (Appendix B) and a survey form (Appendix C) were sent to each professor, requesting the above data. In addition, each professor was asked to respond to four open-ended questions as to whether (1) their institution operated any type of program in school facility planning designed to prepare specialists in this area that would ultimately lead to a doctoral degree in educational administration; (2) their institution had an organized service or laboratory in which their students could work or whether their students had to work on an individualized basis; (3) there was any historical information about school facility planning as it related to their institution; and (4) they had any suggestions regarding desirable activities or topics of study that should be included in the instruction

and preparation of specialists if funds, personnel, or opportunity were not restricted, yet keeping the time element for the completion of the doctoral program somewhat the same.

On December 5, 1974, a letter was sent to the selected architects (Appendix D) requesting suggestions as to what should be included in the instruction and preparation of specialists in school facility planning, and what they anticipated the future would dictate in relation to school facility planning.

III. TABULATION AND ANALYSIS OF DATA

The data relative to course titles and course descriptions obtained from a review of university and college catalogs and from the deans, chairmen, or area coordinators of departments of education, educational leadership, or educational administration and supervision, were listed alphabetically by state and institution for both introductory and advanced courses (Appendix E).

The course titles were tabulated according to the frequency, clustering titles that were of the same intent—"Planning Educational Facilities," "Planning School Plants," "Educational Facility Planning," or "School Plant," "Educational Plant," "School Buildings," and so forth. This study was compared with a similar study conducted in 1959 in which similar frequencies and percentages were calculated. An analysis was made by comparison to identify any trend or shift in emphasis.

A similar procedure was followed in tabulating and analyzing the course descriptions. The contents of individual course descriptions

were grouped into major divisions, which were further subdivided into topics. The resultant percentages were also compared with a similar survey conducted in 1959. Where variances were seen in major divisions, a detailed analysis by percentages was made of their subdivisions by topics.

The data received from the responding professors were similarly tabulated and analyzed according to course outlines, textbooks used, and activities undertaken in the introductory programs in school facility planning. These data were not compared with any previous survey as similar data were unattainable. The percentages of responses were converted into a composite percentage for each area analyzed. This composite percentage was obtained by totaling the percentages of responses for an area and dividing the sum into each response. This enabled the composite percentage columns to total one hundred. An analysis of the amount of time or emphasis given to particular topics in a major division was thus obtained.

Where data were received that did not lend themselves to tabulation, an individualized description and analysis were made. Patterns or designs of course offerings were studied and described.

IV. DEVELOPMENT OF THE MODEL

The model for the instruction and preparation of specialists in school facility planning was developed from a review of the literature, the analysis of existing programs of instructions in school facility planning, suggestions received from instructors in this area, and the

selected architects. The features that they deemed appropriate were incorporated into the model.

The model was then submitted to the panel of experts for validation. Their comments and opinions were noted and utilized in the recommended model.

The presentation and analysis of data are reported in Chapter IV.

CHAPTER IV

ANALYSIS OF THE POSITION OF SCHOOL FACILITY

PLANNING INSTRUCTION

The purpose of this chapter was to analyze the position of school facility planning instruction relative to course descriptions, course topics, course activities, and textbooks used; and to identify those course topics and activities instructors would like to undertake if opportunity or means were available. No attempt was made to evaluate programs of instruction, the merits of topics presented, the value of course activities undertaken, or the efficiency of the methods utilized in attaining the desired objectives.

This chapter is divided into two major sections. The first section deals with the basic or introductory courses in school facility planning offered by universities and colleges in the United States, which were primarily intended for principals and superintendents of schools. Where only one course in school facility planning was offered, even though the university could provide an individualized program for the preparation of specialists in school facility planning, it was included in the first section. The second section reviews the position of school facility planning programs of those universities and colleges that offered more than one course in this area and were also undertaking doctoral programs for specialists in school facility planning. Again, no attempt was made to evaluate the programs offered or the sequence of experiences followed.

The following procedures were employed in structuring this chapter:

1. An identification of all courses in school facility planning was made by reviewing all graduate catalogs of universities and colleges in the United States which were on microfiche (produced by Micrologue, Denver, Colorado) on file in the library of the University of Tennessee.
2. Correspondence was undertaken with all the professors teaching courses in school facility planning. Their identification was obtained through correspondence with deans, chairmen or area coordinators of departments of education, educational leadership, or educational administration and supervision of the universities and colleges identified.
3. The data relative to course descriptions, course topics, course activities, and textbooks used were obtained from the identified instructors teaching in the area of school facility planning.
4. Course descriptions in the area of school facility planning were listed alphabetically according to state and institution (see Appendixes E and F).
5. Course topics, course activities, and textbooks utilized were analyzed, tabulated and listed according to the frequency of their occurrence. Where comparisons could be made with earlier surveys, this was attempted.

I. INTRODUCTORY PROGRAMS IN SCHOOL FACILITY PLANNING

A careful review of all graduate programs in educational administration or educational leadership in schools or colleges of education in the United States, listed in the catalogs on microfiche,

revealed that 139 universities and colleges were offering an introductory course in school facility planning. These are listed in Appendix E by course numbers, titles, and catalog descriptions, and are arranged alphabetically by state and institution.

Catalog Course Titles

An analysis of the catalog titles of school facility planning courses revealed that 35 percent carried titles involving planning, such as "Planning Educational Facilities," "Planning School Plants," "Educational Facility Planning," and so forth; 25 percent carried simple titles of "School Plant," "Educational Plant," "School Buildings," "Educational Facilities," and so forth; 11 percent emphasized management of the plant; 9 percent included site, equipment, or grounds with school buildings. Construction and maintenance of the school plant accounted for 6 percent each, while 4 percent involved environmental factors. There were 2 percent entitled "School Plant Program," and only 1 percent included design or surveys in their titles (see Table 1).

In 1959 the U.S. Department of Health, Education, and Welfare through the Office of Education conducted a survey of school plant courses offered by colleges and universities in the United States during the years 1956-1959.¹ This survey reported that there were 105 institutions in forty-two states and the District of Columbia offering 120 courses in school facility planning. A careful examination of the

¹Ray L. Hamon, School Plant Courses Offered by Colleges and Universities in the United States 1956-1959 (Washington, D.C.: Government Printing Office, 1959), pp. 1-3.

TABLE 1
COMPARISON OF PERCENTAGES OF INSTITUTIONS
LISTING THE FOLLOWING SCHOOL PLANT TITLES

Titles	1959 Survey*	1975 Survey**
Planning Educational Facilities, Planning School Plants, and nine similar titles involving planning	16%	35%
School Plant, Educational Plant, Educational Facilities, School Buildings	49	25
School Plant Management	9	11
School Buildings and Sites, Equipment and Grounds	—	9
School Plant and Maintenance	7	6
School Plant Construction	5	6
The Environment and School Plants	—	4
School Plant Program	6	2
School Plant Surveys	2	1
School Plant Design	1	1
School Plant and Finance	2	—
School Plant and Community	2	—
School Plant and Transportation	1	—
	100%	100%

*1959 Survey by the U.S. Department of Health, Education, and Welfare.

**1975 Survey conducted for this study.

institutions listed in the 1959 survey and this study revealed that fourteen institutions had dropped their school plant courses. Notable was the closing of the School Planning Laboratory at Stanford University and the discontinuing of their school plant courses. However, this revealed an increase of forty-eight new institutions which had, since 1959, added school plant courses. Of interest was the setting up of the School Planning Laboratory at the University of Tennessee in 1961.

Table 1 illustrates the comparison between the 1959 survey and the 1975 survey conducted by this investigator. There was a significant change in the terminology regarding planning. Only 16 percent of the titles of the 1959 survey listed planning, as compared with 35 percent of the 1975 survey; 49 percent had simple titles of "School Plant," "School Buildings," and so forth, in the 1959 survey as against 25 percent in the 1975 survey.

Catalog Course Descriptions

In analyzing the school plant course descriptions, it was found that only 3 percent of the colleges and universities listed any type of introductory overview; 10 percent listed the roles of personnel or agencies involved in school facility planning; 16 percent listed evaluating or determining existing facility needs; 18 percent listed managing the school plant; 20 percent listed implementing the building program; none mentioned the area of planning for the future; 33 percent, the largest percentage for any area, was for planning facility needs. It was recognized that often course descriptions were highly abbreviated and did not always reflect the true description of a particular course;

nevertheless, they were helpful in determining school facility planning trends (see Table 2).

In comparing this analysis with the 1959 survey conducted by the U.S. Department of Health, Education, and Welfare, there was a noted similarity in the percentages between the main general divisions of school facility planning topics.² The main differences were between planning facility needs and implementing the building program. A closer inspection of these two areas revealed a move from a more technical approach to a greater emphasis on developing educational specifications and an environment that was not only more functional, but also safer and more comfortable. More emphasis was given to planning the instructional areas. In the 1959 survey, greater emphasis was given to standards, site selection, and specifications for furniture and equipment. More specifically, in comparing the major topics in planning facility needs, it was found that there was a significant change in the percentage emphases for the following between the 1959 survey and the 1975 survey conducted for this investigation: equipment and furniture decreased from 23 percent to 10 percent; site selection from 22 percent to 12 percent; standards from 12 percent to 5 percent; and design from 9 percent to 7 percent; whereas, developing educational specifications increased from 6 percent to 12 percent; function increased from 3 percent to 7 percent; and health/safety/comfort from 4 percent to 7 percent. There was a significant change of approach to the question

²Hamon, pp. 1-3.

TABLE 2
COMPARISON OF PERCENTAGES OF INSTITUTIONS
LISTING THE MAJOR DIVISIONS OF TOPICS
IN SCHOOL PLANT COURSE DESCRIPTIONS

Major Divisions	1959 Survey*	1975 Survey**
Introductory Overivew	0%	3%
Role of Personnel and Agencies Involved in School Facility Planning	10	10
Determining Facility Needs	16	16
Planning Facility Needs	30	33
Implementing the Building Program	24	20
Managing the School Plant	19	18
Planning for the Future	1	—
	100%	100%

*1959 Survey by the U.S. Department of Health, Education, and Welfare.

**1975 Survey conducted for this study.

of economy, moving from zero to 9 percent; environmental control from zero to 4 percent; and instructional areas from 2 percent to 7 percent (see Table 3).

In the area of implementing the building program, more emphasis was given to finance and construction and less emphasis to legal implications and orienting the staff in the use of new facilities, when comparing the 1959 and 1975 surveys. Finance/bonding/bidding/contracting decreased from 45 percent to 38 percent and construction from 38 percent to 27 percent; whereas, orientation of the staff to the new facilities increased from 3 percent to 14 percent; legal implications increased from 4 percent to 10 percent; and architectural implications from 10 percent to 11 percent (see Table 4).

Course Outlines

In examining and analyzing the course outlines received from ninety-two instructors of school facility planning courses, it was necessary to cluster topics into some form of organization or outline. Forty-five topics emerged as a result of tallying the contents of the various course outlines. These topics were grouped into seven major clusters or divisions. The following format was developed:

1. Introductory Overview
2. Role of Personnel and Agencies
3. Determining Facility Needs
4. Planning Facility Needs
5. Implementing the Building Program

TABLE 3
COMPARISON OF PERCENTAGES OF INSTITUTIONS
LISTING TOPICS CONSIDERED IN
IN PLANNING FACILITY NEEDS

Topics	1959 Survey*	1975 Survey**
Developing Educational Specifications	6%	12%
Standards/Minimums	12	5
Design	9	7
Function	3	7
Economy	—	9
Health/Safety/Comfort	4	7
Environmental Control	—	4
Aesthetics/Color	1	—
Instructional Areas	2	7
Special Areas	5	6
Site Selection	22	12
Master Planning/Long Range	1	2
Equipment/Furniture	23	10
Modernization/Rehabilitation	8	7
Evaluation	4	5
	100%	100%

*1959 Survey by the U.S. Department of Health, Education, and Welfare.

**1975 Survey conducted for this study.

TABLE 4
COMPARISON OF PERCENTAGES OF INSTITUTIONS
LISTING TOPICS CONSIDERED IN IMPLEMENTING
THE BUILDING PROGRAM

Topics	1959 Survey*	1975 Survey**
Architectural Implications	10%	11%
Finance/Bonding/Bids/Contracting	45	38
Construction	38	27
Legal Implications	4	10
Orientation of the Staff	3	14
	100%	100%

*1959 Survey by the U.S. Department of Health, Education, and Welfare.

**1975 Survey conducted for this study.

6. Managing the School Plant

7. Planning for the Future

This outline followed five of the major divisions recommended by Dibs following his research on school plant courses for school administrators.³ Two additional divisions—Introductory Overview and Planning for the Future—were added. No indication was given as to the emphasis the individual instructor recommended or utilized for the various topics. It was assumed that the frequency of topics represented some form of consensus of the instructors in a composite setting.

Table 5 presents a comparison of the percentages of the respondent instructors who had the following major divisions of school facility planning topics in their course outlines. Fifty-six percent of the respondents mentioned some type of introductory overview to school facility planning in their course outline; 88 percent included the roles of the various personnel and agencies involved in school facility planning (the persons concerned are discussed and illustrated later); 90 percent of the respondent instructors listed the facet of determining facility needs; whereas 100 percent of the respondents undertook a discussion of planning facility needs; 86 percent mentioned the aspect of implementing the building program; 48 percent listed management of the school plant; and 30 percent of the respondents mentioned planning for the future.

³George A. Dibs, "School Plant Courses for School Administrators" (unpublished doctoral dissertation, University of Southern California, 1963), p. 168.

TABLE 5 .

COMPARISON OF PERCENTAGES OF INSTITUTIONS LISTING
THE MAJOR DIVISIONS OF SCHOOL FACILITY PLANNING
IN THEIR COURSE OUTLINES

Divisions	Percentages
Introductory Overview	56
Role of Personnel and Agencies	88
Determining Facility Needs	90
Planning Facility Needs	100
Implementing the Building Program	86
Managing the School Plant	48
Planning for the Future	30

Table 6 presents the above percentages in a composite form, illustrating the amount of emphasis each division received in the overall study of school facility planning. This composite form was obtained by adding the percentages of respondents of the major divisions and dividing the sum into these percentages, thus resulting in composite percentages of the respondent percentages. The sum of the percentages of Table 5 amount to 498. This sum was divided into the Introductory Overview percentage of 56, resulting in a percentage of 11. This process was utilized for each major division. The resultant percentages as found in Table 6 total one hundred.

In reviewing Table 6, 11 percent of the course in school facility planning was devoted to an introductory overview of school facility planning; 18 percent to the role of personnel and agencies involved in school facility planning and to determining facility needs; 20 percent to planning facility needs; 17 percent to implementing the building program; 10 percent to managing the school plant; and 6 percent to planning for the future.

The percentages of Table 6 are of considerable importance as they represent a composite picture of the distribution of the major divisions in the general study of school facility planning. In a composite form this represents the amount of time, emphasis, or content that the responding instructors were devoting to the major areas of school facility planning. A detailed analysis of these major divisions is now undertaken.

TABLE 6
COMPARISON OF PERCENTAGES OF MAJOR DIVISIONS OF
SCHOOL FACILITY PLANNING TOPICS
LISTED IN COURSE OUTLINES

Divisions	Composite Percentages
Introductory Overview	11
Role of Personnel and Agencies	18
Determining Facility Needs	18
Planning Facility Needs	20
Implementing the Building Program	17
Managing the School Plant	10
Planning for the Future	6
Total	100

Introductory overview. As presented in Table 5, page 62, 56 percent of the respondents mentioned some type of introductory overview to school facility planning in their course outline. Of this number, 50 percent presented some type of historical review of school plant development. In some instances, this was limited to an historical background of school plant development in the United States; and in other cases the review was more comprehensive, going back to the early Persian, Greek, and Roman periods. Educational trends relative to conditions at the time of this writing accounted for 25 percent of the introductory overview; 18 percent included a philosophical approach or some type of perspective to school facility planning; 39 percent dwelt on the environmental factors as they relate to school facility planning; 4 percent introduced some form of statistical data about school facilities in their introductory overview (see Table 7).

In composite form, the major portion of the introductory overview was given to historical background (37 percent); environmental factors accounted for 29 percent; whereas educational trends and philosophical perspectives were 18 percent and 13 percent respectively. It was recognized that each instructor presented his introductory overview in light of his specialty and the needs or issues envisioned at that time.

The role of personnel and agencies. In planning their course outlines, 88 percent of the respondent instructors included the role of personnel and agencies involved in school facility planning. Table 8 depicts the percentages of this group as they relate to the various topics in this area. The greatest emphasis was given to the role of the

TABLE 7
COMPARISON OF PERCENTAGES OF TOPICS CONSIDERED
IN AN INTRODUCTORY OVERVIEW

Topics	Percentages of Respondents*	Composite Percentages
Historical Background	50	37
Educational Trends	25	18
Philosophy/Perspective	18	13
Environmental Factors	39	29
Statistical Data about Facilities	4	3
		100

*Introductory overview was mentioned by 56 percent of the respondent instructors. See Table 5, page 62.

TABLE 8
COMPARISON OF PERCENTAGES OF TOPICS CONSIDERED
IN THE ROLE OF PERSONNEL AND AGENCIES

Topics	Percentages of Respondents*	Composite Percentages
School Board and School Administrators	55	21
Facility Specialists	45	17
Architects/Engineers	88	33
Contractors	4	1
Governmental Personnel	25	9
Community	52	19
		100

*Role of personnel and agencies was mentioned by 88 percent of the respondent instructors. See Table 5, page 62.

architect (88 percent) followed by the roles of the school board and the administrators involved (55 percent). The role of the community was next in emphasis (52 percent) followed by the role of the specialist in school facility planning (45 percent). Other roles are listed as follows: governmental personnel (25 percent), and contractors (4 percent).

Converting these percentages into a composite form, one-third of this major division was utilized in a study of the role of the architect. This was closely followed by three other sectors: school boards and school administrators, the community, and the facility specialist. This comparison gives some indication of the emphasis the respondent instructors gave to the various personnel involved in school facility planning.

Determining facility needs. Of the respondents, 90 percent mentioned the major division of determining facility needs in their course outlines. In analyzing this major division, 89 percent listed surveying school systems; 42 percent, curriculum needs and design; and 44 percent, enrollment projections and their relationship to determining facility needs (see Table 9).

Considering this in its composite form, 51 percent of the time or course content in this major division was given to surveying school systems; 24 percent to curriculum needs and design; and 25 percent to enrollment projections. It was difficult to determine from the course outlines what was considered in surveying school systems or the major components involved.

Planning facility needs. All respondents included planning facility needs in their course outlines. This major division was subdivided into

TABLE 9
COMPARISON OF PERCENTAGES OF TOPICS CONSIDERED
IN DETERMINING FACILITY NEEDS

Topics	Percentages of Respondents*	Composite Percentages
Surveying School Systems	89	51
Curriculum Needs and Design	42	24
Enrollment Projections	44	25
		100

*Determining facility needs was mentioned by 90 percent of the respondent instructors. See Table 5, page 62.

more components than any other major division, with 68 percent of the respondents including the development of educational specifications; 30 percent, standards; 40 percent, design; 12 percent, function; 50 percent, economy; 40 percent, health/safety/comfort; 22 percent, environmental control; 2 percent, aesthetics/color; 40 percent, instructional areas; 38 percent, special areas; 72 percent, site selection; 10 percent, master planning; 56 percent, equipment/furniture; 44 percent, modernization/rehabilitation; and 30 percent, evaluation of the planned facility (see Table 10).

In analyzing planning facility needs in its composite form, 12 percent of the time or course content of this major division was given to the development of educational specifications; 5.5 percent to standards; 7 percent to design; 2 percent to function; 9 percent to economy; 7 percent to health/safety/comfort; 4 percent to environmental control; 1 percent to aesthetics/color; 7 percent to the instructional areas; 7 percent to special areas; 13 percent to site selection; 2 percent to master planning; 10 percent to equipment/furniture; 8 percent to modernization/rehabilitation; and 5.5 percent to evaluation.

In reviewing these topics, the major portion of time and course content was given to site selection, developing educational specifications and equipment/furniture. These categories were followed by economy, modernization/rehabilitation, design, instructional areas, special areas, health/safety/comfort. Less time was given to evaluation, standards, environmental control, master planning, function and aesthetics/color.

TABLE 10
COMPARISON OF PERCENTAGES OF TOPICS CONSIDERED
IN PLANNING FACILITY NEEDS

Topics	Percentages of Respondents*	Composite Percentages
Development of Educational Specifications	68	12
Standards/Minimums	30	5.5
Design	40	7
Function	12	2
Economy	50	9
Health/Safety/Comfort	40	7
Environmental Control	22	4
Aesthetics/Color	2	1
Instructional Areas	40	7
Special Areas	38	7
Site Selection	72	13
Master Planning	10	2
Equipment and Furniture	56	10
Modernization and Rehabilitation	44	8
Evaluation	30	5.5
		100

*Planning facility needs was mentioned by 100 percent of the respondent instructors. See Table 5, page 62.

Implementing the building program. Of the respondents, 86 percent included the major division of implementing the building program. In constructing their course outlines, 26 percent of the respondents who included implementing the building program as a major division mentioned architectural implications; 84 percent, finance/bonding/bidding/contracting; 60 percent, construction; 21 percent, legal implications; and 28 percent, orientation of the staff (see Table 11).

In analyzing this division in its composite form, 12 percent of the time or course content was devoted to architectural implications; 38 percent to finance/bonding/bidding/contracting; 27 percent to construction; 10 percent to legal implications; and 13 percent to orientation of the staff in the use of the new facility.

In considering this major division, more time or course content was given to finance/bonding/bidding/contracting, with a little less on construction. Orientation of the staff in the use of the new facility, architectural implications, and legal implications followed in close succession.

Managing the school plant. Of the respondents, 48 percent included managing the school plant as a major division in school facility planning. This was evenly divided between custodial care and maintenance (see Table 12). In a few institutions, "Managing the School Plant" was a separate course in the area of school facility planning.

Planning for the future. Of the respondents, 30 percent included the major division of planning for the future. In their course outlines,

TABLE 11
COMPARISON OF PERCENTAGES OF TOPICS CONSIDERED
IN IMPLEMENTING THE BUILDING PROGRAM

Topics	Percentages of Respondents*	Composite Percentages
Architectural Implications	26	12
Finance/Bonding/Bids/Contracting	84	38
Construction	60	27
Legal Implications	21	10
Orientation of the Staff	28	13
		100

*Implementing the building program was mentioned by 86 percent of the respondent instructors. See Table 5, page 62.

TABLE 12
COMPARISON OF PERCENTAGES OF TOPICS CONSIDERED
IN MANAGING THE SCHOOL PLANT

Topics	Percentages of Respondents*	Composite Percentages
Custodial Care of the School Plant	100	50
Maintenance of the School Plant	100	50
		100

*Managing the school plant was mentioned by 48 percent of the respondent instructors. See Table 5, page 62.

88 percent of these considered futuristic outlook; 6 percent, systems approach; and 12 percent, change. The futuristic outlook was the largest segment of this division, followed by change and systems approach. Again it must be pointed out that it was difficult to obtain a complete picture of the existing position of the topic of planning for the future from a course outline. Reference is made here because of its inclusion in some course outlines (see Table 13).

Textbooks Used in School Facility Planning Courses

The problem of textbooks appeared to be quite critical. Of the respondents, the 41 percent not using a text, the 5 percent using their own notes, and another 13 percent listing a textbook that was out of print, were indications that instructors had not found a satisfactory textbook that adequately served their needs (see Table 14).

One-third of the respondents were using the Council of Educational Facility Planners' Guide for Planning Educational Facilities. This was an excellent text, but it did not cover all the areas necessary for both an introductory and an advanced course in school facility planning. The other textbooks listed covered certain aspects of major areas of school facility planning in depth, but were limited in covering the whole range of topics necessary for an introductory overview.

Several instructors indicated that they had not found a comprehensive text that was up to date or that could stay up to date in the field of school facility planning. In certain areas, with so many new products appearing on the market, only general principles of selection and function remained constant.

TABLE 13
COMPARISON OF PERCENTAGES OF TOPICS CONSIDERED
IN PLANNING FOR THE FUTURE

Topics	Percentages of Respondents*	Composite Percentages
Futuristic Outlook	88	83
Systems Approach	6	6
Change	12	11
		100

*Planning for the future was mentioned by 30 percent of the respondent instructors. See Table 5, page 62.

TABLE 14
COMPARISON OF PERCENTAGES
OF TEXTBOOKS USED

Textbooks	Percentages
<u>Guide for Planning Educational Facilities</u> (Council of Educational Facility Planners)	33
<u>*Step by Step to Better School Facilities</u> (Harold W. Boles)	6
<u>*Creative Planning of Educational Facilities</u> (Basil Castaldi)	6
<u>Complete Guide for Planning New Schools</u> (Nickolaus L. Engelhardt)	3
<u>American School Buildings</u> (American Association of School Administrators)	3
<u>School Building Planning</u> (W. D. McClurkin)	1
<u>Principal's Guide to Educational Facilities</u> (J. Clark Davis)	1
<u>A Guide for School Plant Planning and Management</u> (Donald A. Wahl, Fred K. Noggle, Glen V. Cochran)	1
<u>*Administration of the School Building Program</u> (Wallace H. Strevell and Arvid J. Burke)	1
Use of own notes	5
No textbook used	41
	100

*Textbook out of print.

Activities Undertaken in School Facility Planning Courses

In reviewing the responses, it was found that 70 percent of the respondents listed the various activities undertaken in their classes in school facility planning. Of this 70 percent, all mentioned lecturing by the instructor and reading by the students; 71 percent listed field trips; 63 percent, papers/term projects/written reports; 46 percent mentioned some form of evaluation, either examinations or tests; 17 percent, critiques; 51 percent, class presentation by students; 26 percent, study topics; 14 percent, independent study; 29 percent, the use of resource personnel or guest speakers; 20 percent, surveys; 3 percent, annotated bibliographies; and 3 percent, internships (see Table 15).

In considering the various class activities in their composite form, lecturing by the instructor and reading by students were the two most used forms of activities. Field trips accounted for 13 percent of class activities, with papers/term projects/written reports following closely with 12 percent; 9 percent utilized class presentation by students; 8 percent, evaluation; 5 percent for both study topics and use of resource personnel/guest speakers; 4 percent surveys; 3 percent, critiques and independent study; and 1 percent for both annotated bibliographies and internships.

From these percentages, lecturing by instructors and reading by students, the two traditional activities were still the two most commonly used forms of instruction. Field trips, papers, and evaluations were frequently utilized. Other activities undertaken were dependent upon the style of the instructor and the opportunities available.

TABLE 15
COMPARISON OF PERCENTAGES OF RESPONDENTS AND COMPOSITE
PERCENTAGES OF SCHOOL FACILITY PLANNING
COURSE ACTIVITIES

Course Activities	Percentages of Respondents*	Composite Percentages
Lectures by Instructor	100	18
Reading/Reading Reports	100	18
Field Trips	71	13
Papers/Term Projects/Written Reports	63	12
Class Presentations by Students	51	9
Evaluation/Examinations/Tests	46	8
Use of Resource Personnel/Guest Speakers	29	5
Study Topics	26	5
Surveys	20	4
Critiques	17	3
Independent Study	14	3
Annotated Bibliographies	3	1
Internships	3	1
		100

*Various activities undertaken in their classes in school facility planning were mentioned by 70 percent of the respondent instructors.

II. ADVANCED PROGRAMS IN SCHOOL FACILITY PLANNING

A review of the titles (see Appendix F) of advanced courses in school facility planning revealed that there were thirty-two universities offering fifty-three such courses, eighteen of which were entitled "Advanced School Facility Planning"; eight referred to the courses as seminars or advanced seminars in school facility planning; twelve covered the area of maintenance of the school plant; five dealt with educational surveys and facility planning; four were of a comprehensive nature in educational planning with emphasis on school facilities; two covered the area of implementation of development plans; two were concerned with design and educational facilities. There were three separate courses dealing with educational equipment and buildings, housing and transportation, and a systems analysis and facility planning. Two courses were simply entitled "Problems in School Facility Planning." Two courses were field trip types, and another two were involved with internships. One course was a practicum in school facility planning. Many of these courses did not have course descriptions; hence it was felt that a comparison of course outlines would not be appropriate, but rather a study of the pattern or design of course offerings would be more feasible.

Patterns of Advanced Courses

The most typical pattern was a three-course approach. The first was an introductory course in school facility planning. This was followed by an advanced course, and then a course in educational plant maintenance.

One university followed a format of master planning in school facilities in the form of a community profile system, the development of educational specifications, and the utilization of interior space. This was a five-course sequence, the first course of which dealt with environmental planning; the second with the administration of educational facility environments; the third with an analysis of the physical facility needs and program development; the fourth with the implementation of educational developmental plans; and the fifth with management operations.

Another university followed a four-course pattern, the first dealing with problems in educational facility planning; the second concerned with the methodology of comprehensive facility planning; the third with the development of educational specifications and educational programming; the fourth focused on architectural considerations in facility planning and the construction program involving the functional design of educational furniture and technological equipment.

A third university followed a five-course sequence, the first concerned with environmental variables in educational facility planning; the second focused on the administration of the educational facility environment; the third an analysis of school facility needs and a program of determination; the fourth the implementation of development plans; and the final course undertook a field work approach to educational facility orientation.

Perhaps the most comprehensive design was followed by a fourth university which, to begin with, followed the usual three-course

pattern—an introduction to school facility planning, an advanced study of school facility planning, and the operation and maintenance of the school plant. These were followed by a special seminar in some topic of school facility planning. The students could take several problems courses for an in-depth individualized study in some specialized area in school facility planning. The second year was introduced by an advanced seminar designed to provide field experience in facility planning. This was followed by two courses in internship in school facility planning. All these courses were taken through a team approach in a school planning laboratory specially designed to facilitate the study of school facility planning.

A number of courses seemed to follow the specialty of the instructor concerned and his interpretation of school facility planning. These approaches ranged from practicums in school site selection and planning for environmental education, utilizing an interdisciplinary program with instructors from several schools—education, natural resources, landscape design, and architecture—to a systems analysis and research in facility planning. One approach was from a planning environmental design and human performance. A three-course approach was followed: human factors in the design and utilization of visual media, the design and equipment of mediated presentation systems in school facility planning, and the learning environment with its physical characteristics and their effect on human comfort and performance. Another instructor approached his school facility program by a closer and broader community participation in school activities. This involved a survey technique to establish

what the citizenry thought and knew. This approach was utilized primarily to enable the passing of increased taxation and implementation of the desired educational program.

Ten universities did not have any formal, organized approach to the instruction and preparation programs for specialists in school facility planning. They did provide opportunity for interested students to pursue a course of action in keeping with their individualized interests and needs. The entire program was organized around the student and his doctoral committee. The universities were: University of Southern California, University of Illinois, Illinois State University, Michigan State University, Western Michigan University, University of Florida, University of Nebraska, New York University, Ohio State University, and George Peabody College of Teachers.

The pattern of topics that emerged from a review of the courses offered in advanced programs followed a fairly uniform approach:

1. Introductory overview
2. Determining facility needs
3. Planning educational needs
4. Implementing the desired educational program

This included the personnel involved, the conducting of comprehensive educational surveys, the development of educational specifications, and the operation and maintenance of the educational facilities. This description of educational facility planning was found to be in operation in most universities.

Another very important segment in the preparation of specialists is what ought to be. Very often the limitations of personnel, finance and opportunities hinder the development of desired programs of instruction. Each respondent was asked to present suggestions that could be a part of the specialist's program of instruction and preparation in school facility planning, keeping in mind the time element of a doctoral program. Unlimited time, funds and opportunities were not practical or feasible. A selected number of leading architects in the field of school construction were asked for their suggestions. The combined suggestions of instructors and architects provided valuable guidelines in the development of a model program for the instruction and preparation of specialists in school facility planning.

Table 16 presents the frequency of suggested topics and activities that should be incorporated into future school planning laboratory programs for the instruction and preparation of specialists in school facility planning. It was assumed that the suggestions indicated that they were not in operation in the institution from which they came. It was recognized that some of these suggestions might be in operation in more advanced school facility planning programs in other universities.

Internships and field services were the activities recommended as being most helpful in the preparation of specialists. Four of the respondents suggested that 50 percent of the time involved in preparing specialists should be spent in these activities. It was felt that real, on-the-job experiences were of great value and would provide greater results than a multiplication of theoretical course offerings.

TABLE 16

COMPARISON OF FREQUENCIES OF SUGGESTED TOPICS AND ACTIVITIES
 THAT SHOULD BE INCORPORATED INTO FUTURE SCHOOL
 FACILITY INSTRUCTIONAL PROGRAMS

Topics and Activities	Frequencies
Internships	12
Educational Planning	10
Curriculum Design	10
Field Studies	9
Construction Activities	8
Educational Specification	7
Design and Architecture	7
Business Management	6
Working with Architects	6
Practicum in Facility Planning	5
Educational Surveys	4
Demography	4
Computer Application	3
Planning Education for the Future	3
Urban Planning	3
Community Involvement	3
Modernization	3
Environmental Factors	3
Public Relations	2
Facility Maintenance	2
Needs Assessment	2
Equipment and Furniture	2
Systems Approach	1
PERT Approach	1
Change	1
Political Structure	1
School Law	1
Sociology	1
Site	1

According to Table 16, educational planning, curriculum design, construction activities, educational specifications and design and architecture were next in frequency of suggestions. These topics and activities were considered as vital to a thorough understanding of the planning process. Business management, working with architects, practicum in facility planning, educational surveys and demography were the next cluster of suggestions as being desirable in the preparation program.

A further group of suggestions involved the application of computers, planning for the future, urban planning, community involvement, modernization and rehabilitation of existing facilities, and environmental factors. Other suggestions were to a large extent covered in many of the courses already offered. It was recognized that it was not possible to cover all these suggestions in a single student's program. A program of seminars dealing with a selection of these topics or activities could enable a student to become acquainted with a number of these areas. They could be the basis of a program of instruction and preparation that would add depth to the regular course offerings.

To further illustrate the types of activities suggested that should be incorporated into a program for the instruction and preparation of specialists in school facility planning, the following excerpts were taken from the responses of both instructors and architects:

Probably we could develop competency-based modules for basic instruction. These would involve more laboratory experiences. We think that 50 percent of the basic instruction should be laboratory. The advanced studies would be geared to (a) public service, and (b) research. Thus, if funds were available to attract more full-time graduate fellows and employ more faculty, a larger volume of field projects and research, both off- and on-campus could be undertaken.

The most important element of a specialist's program is field related. The institution would need to have a large volume of work with school districts. These consultant activities and surveys would provide experiences with real problems and an opportunity to work with university and school solutions. A student should be paid for his work as a graduate assistant. These activities would not unduly lengthen his study program if his financial situation was such that he could undertake these activities. Travel to various parts of the country to study the newest and most creative buildings would be highly desirable.

I have found it impossible to separate building and curriculum. I'm not sure which dictates which. A specialist candidate should have as much or more knowledge in curriculum design as building design.

Aside from such courses as are offered here, I would like to see a school plant specialist internship in which the student was immersed in a number of facets of the educational designing of school buildings as well as in following through on the educational administration of the school building construction program. The internship implies for me the cooperative involvement of the school planning section of a sizable school district and the appropriate professor(s) in the field of education; e.g., administration and educational program.

One experimental component which is essential is an extended experience as an accountable member of a planning team. The "learning by doing" which results from direct involvement may substitute in some instances for formal courses in planning, evaluation, statistics, curriculum, demographic analysis, finance, administration, etc. Experience would not, in my opinion, totally supplant the need for courses of this sort. The current technological level of the craft also suggests the desirability of having skill and knowledge in the use of computers, knowledge of energy efficiency, research on the effects of the physical environment—sonic, visual, and thermal—particularly as it relates to human performance and productivity.

Planning—needs assessment, goal validation, objective specifications, program evaluation, time frame analysis—computer applications to measurement of utilization and adequacy, normative instructional programs and space requirements, learning theories and applicability, about 50 percent of time spent in the field with superintendents of schools and architectural service personnel.

I would attempt to build competence in dealing with the facilities for the several social service delivery systems rather than just school facilities. My observation is that the single-purpose schoolhouse is rapidly giving way to the community center/school from which will be delivered not only schooling for the young, but education for persons of all ages and the companion services and civic programs. Provisions will be made increasingly for social services for the elderly. As the delivery of social services tends to be consolidated, those students who have a working knowledge of the education-related social services will be the most employable in the future.

Two areas that need more emphasis than has been given to them in the past are finances and fiscal responsibility and public relations as they relate to keeping the taxpayer advised of future needs for education.

School planning is much more than the planning design and construction of school plants. School planning requires the management of complex information planning systems. This requires a working knowledge of available data processing techniques and their applicability to the planning problems posed for solution. Emphasis should be placed on the practical as well as the theoretical areas. At least 50 percent of the program should be dedicated to clinical experience. Good communication is essential to efficient planning. Management strategies and research are essential.

III. SUMMARY

The purpose of this chapter was to review the existing position of school facility planning programs as they related to the instruction of those interested in school facility planning and for those seeking to become specialists in this area. The courses and activities undertaken

in the introductory programs were reviewed. The topics considered were grouped and tabulated according to frequency and composite percentages.

The advanced programs for the instruction and preparation of specialists were reviewed. No common pattern was discovered. Many courses were designed in keeping with the interests and specialties of instructors. Seven major divisions emerged: (1) introductory overview; (2) role of personnel and agencies; (3) determining facility needs; (4) planning facility needs; (5) implementing the building program; (6) managing the school plant; and (7) planning for the future. In considering desired programs and activities beyond what was then being undertaken in most school facility planning programs, it was recommended that more time be spent in internship on-the-spot practical experience. More emphasis was urged in planning for the future in keeping with changes that were taking place in community-related trends.

Guidelines for the development of a model for the instruction and preparation of specialists in school facility planning are outlined in Chapter V.

CHAPTER V

A MODEL FOR THE INSTRUCTION AND PREPARATION OF SPECIALISTS IN SCHOOL FACILITY PLANNING

I. INTRODUCTION

The purpose of this chapter was to present the recommended model for the instruction and preparation of specialists in school facility planning. The reaction of the panel of experts to the preliminary model constituted the final source of information utilized in the recommended model.

It was felt that two concepts pertaining to model development should be reviewed—the meaning of the term "model" and limitations inherently involved. The "model for the instruction and preparation of specialists in school facility planning" was not intended to be an instrument to be copied by all college or university instructors in school facility planning, but rather was intended to provide guidelines that might be adapted to circumstances and needs. Inherent limitations dictated that the model be general and theoretical. In order for the model to have maximum application to the various colleges and universities and their unique situation, it would have to function as a set of general guidelines.

II. REACTION OF THE PANEL OF EXPERTS

The panel of experts, as described in Chapter III, was drawn from those professors who were directing doctoral studies in the field of school facility planning and from the selected architects who were members of the Council of Educational Facility Planners. Six professors and four architects (see Appendix G) responded indicating their willingness to react to the preliminary model (see Appendix H).

An examination of the reactions revealed that the panel agreed with the basic concepts presented in the model. In no instance was the panel in disagreement with the rationale of the model which consisted of ten preliminary conclusions or the five major functional divisions. The range of narrative comments consisted of statements of general support, statements of agreement to specific facets, statements reacting to the validity of specific suggestions within the model, and statements offering alternative phraseology, editing or refining of terms to those presented in the model.

The narrative responses, intended to support or improve the proposed model, were important to the development of the final model suggested by this investigation. They are quoted in the following paragraphs: the respondents were not identified in order to maintain the privacy for the selected panel of experts.

I read your model and it looks so good I kept it. I think you are right on target. This is a topic of keen interest to me.

Your approach is excellent. A broad basis is indeed essential for sound judgment. It generates alternatives. I think you should, today, connect up more technology—e.g., data processing of the system and its environment.

I would say that you have done a complete job and might add that I was flattered to see how many of your areas are currently included in our program here. I have only one small suggestion. Assumption 1 (Educational facilities do influence the programs contained within them) bothers me slightly. The balance of your paper places the emphasis, where I feel it belongs, on program. Assumption 1 is stated so that the reader could get the impression that it is alright to alter program to fit facilities. I do not believe that is your intent.

I find myself largely concurring with you. I particularly agree that preparation for career specialists in school plant planning might best be reserved to a relatively few strategically located universities who gain recognition for such a program and that others include only such courses as are provided for the generalists in school administration at the various administrative levels. A major concern of mine is the manner in which plausible ideas with implications for program and thus for school plant have been promoted to result in school plant without the intermediate experimental steps to test, improve, and retest until either the basis for deciding to innovate or to abandon could be arrived at. I fear that it is a matter of haste making waste as promising ideas are catapulted into program and plant and then fall far short of expectation because the necessary research and development were not engaged in.

(Educational facilities do influence the programs contained within them) Good. (Orientation of the staff to the new facility) Good. Other suggested activities: case studies, simulations, work/study, use of computers, linkage to other school systems, universities, etc.

Although I do not have intimate knowledge of the curriculum in school facility courses around the country, it is my feeling that the model you have described represents an advance over what is being offered in most institutions in the field. If I were to fault the model in any way, it would be that there should be more emphasis on research skills. The imparting of technical information, history, and provision for in-service training are, of course, central to the whole enterprise. But what we lack these days is some kind of early warning system to enable quicker response to abrupt changes—e.g., the energy crisis, new state laws affecting the education of the

handicapped, vandalism, integration, the expansion of community services, how to deal with enrollment decline, and all the other new forces that seem forever to be catching us by surprise. Certainly there is a new and important place in the education of any school facility planner for the rudiments of demography, urbanology, and the delivery of social services generally now that the single-purpose school is gradually coming to be replaced by the Community/School—a place for people, not just for pupils.

On the whole, I approve and commend this set of "guidelines." O.K. I'll buy this!

Thank you for sharing with me your model for "The Instruction and Preparation of Specialists in School Facility Planning." I have reviewed it and find the content in general to be excellent. My only suggestion is that the various major items of concern in such a course be given special focus with other items being subordinated to these major ones in order of their importance.

(In analyzing the field of school facility planning, both common and unique specialized learnings emerge.) I am not wild about stressing "specialization." How about a different term? Probably using the word planning.

Needs more graphics since facility planning demands graphics.

(Research Activities) Suggest gathering relevant research being conducted elsewhere in similar settings and in disciplines and setting quite separate but relevant.

Congratulation on a fine piece of work.

It appears to me that you have a good approach. (Specialists in school facility planning are playing an increasingly important role in education based on creative and progressive thought.) The need is rampant but few systems recognize or will pay for services. (Models for instruction and preparation should provide follow-up and evaluation services.) Important point. (Orientation of the staff to the new facility.) This is usually one of the most neglected and substandard areas of the system. Substantial savings could be affected by basic training.

III. THE RECOMMENDED MODEL

The model was developed upon preliminary conclusions that served as the rationale from which the instructional program, the service activities, and the research projects were developed. These preliminary conclusions were built upon the basic assumptions of this study and indeed extended beyond them. Because of their relationship, those basic assumptions are repeated:

1. Educational facilities influenced the programs contained within them.
2. Specialists in school facility planning played an increasingly important role in educational planning based on creative and progressive thought.
3. Not all universities wished to provide adequate staff and programs to instruct and prepare specialists in school facility planning.
4. Certain basic courses in school facility planning should be offered in the area of educational administration in all colleges or schools.
5. Basic concepts germane to the instruction and preparation of specialists in school facility planning could be identified by reviewing the literature and examining existing programs of instruction in this area.

The Rationale for the Model

The ten preliminary conclusions that provided the rationale for the remainder of the model were as follows:

1. Colleges or universities are educational forces that should assure instructionally functional educational programs within their jurisdiction. Colleges and universities are the recognized agencies, both by tradition and charter, for the instruction and preparation of educational personnel—teachers and administrators. Because of this responsibility, schools or colleges of education must ensure that any such program is instructionally functional.
2. Minimal regulations are essential to the development of an adequate instructional program. To assure recognition to the participants in the desired program of instruction and preparation, certain academic regulatory controls must be exerted. These controls are intended to provide a student with a program that is balanced, is compatible with other recognized activities, and attains to minimum standards. These controls should be as few in number as possible so that individual variances may be capitalized upon and developed.
3. A general assessment of the instructional areas should be identified to which priorities may be assigned to suggest direction to the instructional program a department may provide. Such an assessment would function as an organizer within which the actual services might be developed.
4. A program of instruction and preparation should relate to, and center around, the planning process. Educational planning for the

present and the future requires continuous appraisal of existing program resources and facilities. It is an ongoing spiral process that requires constant revision of information which may be used in decision making. The instructional program, the service activities, and the research projects must be related to, and centered around, the process of determining existing educational facility resources, planning educational facility needs, and implementing the desired educational program.

5. Any planning that deals with instruction and preparation programs must be executed within the context of the total academic purview. It is unrealistic for all educational instruction and preparation to take place in isolation from the community and its interests. Other professional organizations and interests should be utilized in a coordinated effort, but the accrediting responsibility should remain an educational function.

6. Basic concepts related to instruction and preparation must be curriculum oriented. Interpreting curriculum needs into physical spaces is the primary goal of facility planning. This is a basic assumption on which educational specifications are developed and should be the heart of the planning process and the most consuming activity related to the instruction and preparation in facility planning.

7. Individual instructors must function in a coordinated, interdisciplinary capacity. The vastness and scope of the facility planning field necessitates cognizance and coordinated interdisciplinary use of personnel, public and private, whose expertise and resources may contribute immeasurably to the planning process.

8. Instructional and service activities should be closely related to, and extensively planned with, ongoing school programs. This is to ensure that instructional and service activities are relevant and in keeping with existing conditions and needs.

9. Models for instruction and preparation should provide follow-up and evaluation services. The process of instruction and preparation should be regularly and carefully examined and reviewed. Processes with revealed weaknesses or unattained expectations should be revised or eliminated. This is in keeping with the planning process.

10. Models for the instruction and preparation of specialists in school facility planning should avoid involvement in activities that are not directly related to the functional planning process.

Figure 1 depicts the organization of the model. It illustrates the functional division of the five units and their relationship to one another.

Foundation

Before the evolution of complex organizations, administration was recognized as one of the practical arts. However, due to growing pressures and demands of changing social organization, and with the modern faith in formal study as a means for the improvement of practice, earnest efforts have been made to transform this instinctive and common sense activity into a science or a learned art. Educational administration, which has much in common with administration, in general, requires a thorough familiarity with the field in question, and an awareness of its unique features.

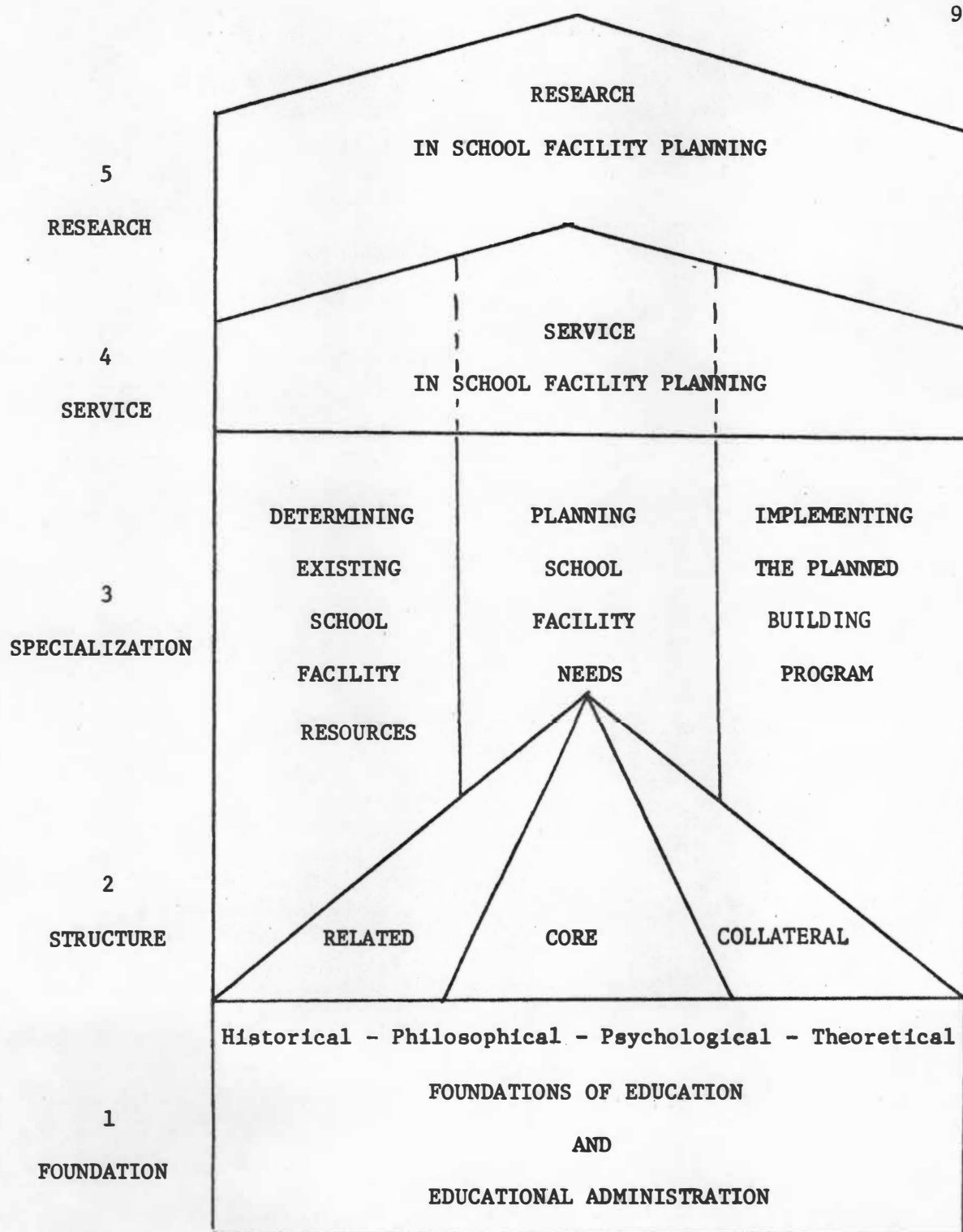


Figure 1. A recommended model for the instruction and preparation of specialists in school facility planning.

The role of the specialist in school facility planning is closely allied to that of the educational administrator. The specialist should be one who is "at home" in more societies than his own; who sees the educational problems of his own society more clearly because of his knowledge of others; who is capable of creative leadership rather than mere manipulation; who sees education as a most important instrument in determining the kind of world which men will build; and who knows men, their needs, and organization sufficiently to aid them in utilizing their potential power.

Specifically, the specialist will need a broad understanding of people and community needs, as well as knowledge and skill in the specific problems and tasks of educational administration. He will need a high level of competence (knowledge, technical skills, conceptual ability, human leadership skills) in the various foundations of education and educational administration—historical, philosophical, psychological, theoretical, or behavioral. These goals may be achieved through an understanding of:

1. The changing world and the forces at work in it.
2. Culture and education in societies other than his own.
3. Historical and philosophical background and sociological conditions of his own society.
4. The local community, its composition, and the forces at work in it; community organization, how various institutions may cooperate in their efforts.
5. Human growth and development.

6. The processes of education.
7. The organization and functioning of formal education and its relation to informal education.
8. Large-scale organization, theory and practice of administrative organization, structure, functioning in general (that is, in other selected areas) and in education in particular.
9. The behavioral sciences and their contribution to an understanding both of the individual and of groups (large and small), of leadership, power, authority, motivation, and change.
10. The character and potentialities of research; research design, administration, and utilization as applied to a wide variety of issues in education and related areas.

Structure

The specialist in school facility planning is in essence entering a career in educational administration. The intent of this unit is to present some minimal guidelines for the determination of content of learning experiences to which all administrators might be deliberately exposed. An oft-repeated generalization at all levels of education is that learning is evident when there are changes in behavior. In terms of structure, a large block of content and experience should be designed to change the behaviors of potential administrators so that they will decide more widely, communicate more effectively, cope with change more constructively, and handle morale problems more skillfully.

The first step in changing behavior through preparatory learning experiences is to provide opportunities for administrators to become more perceptive about the dynamics of processes in organizations. A core block of content and experience should include the administration of local school systems, state-federal relations, legal and financial implications, personnel and public relations, supervision and leadership, and other general administrative concerns.

Studies in other areas of education should be included in this structure unit. Curriculum development at the various levels is crucial in school facility planning, and should be an important collateral area in the specialist's instruction and preparation. For him, curriculum design should be as important as building design.

Students in educational administration are urged to do work in related disciplines, such as sociology, anthropology, psychology, political science, business and public administration, or philosophy. The specialist in school facility planning is intimately involved in social processes and any planning of instruction and preparation should include related studies in the social context.

Specialization

In analyzing the field of school facility planning, both common and unique specialized learnings emerge. The specific function of the role determines the scope and depth of learning required. For the general school administrator—superintendent or principal—school facility planning should be more of a common core learning, whereas for the specialist in school facility planning, it is a specialized field.

In all schools preparing educational administrators, certain basic concepts of an introductory overview nature should be provided in the area of school facility planning. This would familiarize educators with the general processes and techniques of school facility planning. This is in harmony with the concept that a portion of the content of all technical areas should be common for all school administrators—decision making, communication, change, morale, and so forth.

Because of the need to provide adequately trained staff and special activities for the instruction and preparation of specialists in school facility planning, not all universities or colleges are able to nor should specialize in this area. Circumstances and needs should guide in the selection and planning of such offerings.

General topics. The following seven general divisions were proposed to facilitate the instruction and preparation of specialists in school facility planning. No attempt was made to group or organize these general divisions into course sequences or the content to a particular course.

1. An Introductory Overview. The introductory overview should include a historical review of school plant development in the United States, and elsewhere as needs suggest. Environmental factors, with emphasis on energy conservation and the state of the economy, are vital factors in the consideration of school facility planning and should be a part of the introductory overview. Educational trends and philosophical perspectives give direction to the study of school facility planning, and the extent of study given to this area should be governed by the needs of the students. Statistical data about school

facilities are an important part in any introductory overview and should be planned accordingly.

2. The Role of Personnel and Agencies in School Facility Planning.

A team approach is an essential element of any successful planning process, and the outcome is limited only by the competence of the participants. The roles of school board members, school administrators and staff, facility specialists, architects, engineers, contractors, community personnel, and local or state personnel, and a multitude of agencies are unique, and have varied contributions to make. Consideration should be given to the function of each. Urban planning and community involvement, and the importance of public relations, are recommended topics that should be included in a review of the role of personnel and agencies involved in school facility planning.

3. Determining Facility Needs. Three major topics should be considered in determining facility needs—curriculum needs and design, enrollment projections, and the undertaking of comprehensive educational surveys. It was the conclusion of this investigation that functional facilities may be the result of good planning. It was recommended that close attention be given to the planning process as it relates to these three topics. An accurate evaluation of the existing facilities and resources and the scope of the educational program to be undertaken determine the continued planning and implementing of the desired educational goal.

4. Planning Facility Needs. This major division constituted the largest clustering of topics and should be given emphasis accordingly.

The following topics were recommended for consideration:

- a. Development of Educational Specifications
- b. Standards and Minimum Requirements
- c. Design as It Relates to Facility Planning
- d. Function
- e. Economy
- f. Health/Safety/Comfort
- g. Environmental Control
- h. Aesthetics/Color
- i. Instructional Areas
- j. Special Areas
- k. Site Selection
- l. Master Planning
- m. Equipment and Furniture
- n. Modernization and Rehabilitation
- o. Evaluation

5. Implementing the Building Program. The planning process culminates in curriculum planning translated into facilities requirements. It was recommended that the following topics be included in implementing the desired building program:

- a. Architectural Implications
- b. Finance/Bonding/Bids/Contracting
- c. Construction/Supervision

d. Legal Implications

e. Orientation of the Staff to the New Facility

6. Managing the School Plant. The maintenance and custodial care of the school plant were topics judged to be within the province of school facility planning as they are a planning consideration, in both design and materials. Finance and economy necessitate the care and upkeep of facilities designed. The specialist in school facility planning should be knowledgeable in this area.

7. Planning for the Future. To ensure the relevance of current planning to current and future conditions, serious thought must be given to the outlook of the future and elements of change. These topics will vary according to the location and the personnel involved.

General activities. The success of the instruction and preparation of specialists in school facility planning is dependent on the activities planned. These activities will vary considering the style of the instructor or the opportunities available. The following were suggested activities:

1. Lectures by Instructors
2. Reading and Reading Reports
3. Field Trips
4. Papers/Term Projects/Written Reports
5. Class Presentations by Students
6. Evaluation/Examinations/Tests
7. Use of Resource Personnel/Guest Speakers

8. Study Topics
9. Surveys
10. Critiques
11. Independent Study
12. Interdisciplinary Team Teaching
13. Internships
14. Case Studies
15. Simulations
16. Work/Study
17. Computer Use

Internship and field services were activities recommended as being most helpful in the preparation of specialists. It was further recommended that 50 percent of the time involved in the preparing of specialists should be spent in these activities. It was felt that real, on-the-job experiences were of great value and would provide greater results than a multiplication of theoretical course offerings.

Service

An objective of the program for the instruction and preparation of specialists in school facility planning of providing assistance to private and public schools, colleges, and universities in solving problems that may arise in planning new facilities or rehabilitating older ones, should afford students valuable on-the-job learning experiences. Service activities may take many forms, but the following should be incorporated into a viable program for the instruction and preparation of specialists:

1. Consultations on Specific School Facility Problems
2. Comprehensive Educational Studies
3. Educational Surveys
4. Educational Specifications
5. Curriculum Studies
6. Clinics
7. Conferences
8. Seminars
9. Workshops
10. In-Service Education
11. Correspondence
12. Guided Tours of Educational Facilities
13. Location of Information about Educational Facilities
14. Evaluations and Recommendations of Specific Educational Needs
15. Aid to School Systems in Selection of Professional Services
16. Charrettes
17. Information

In planning service activities, the utilization of human resources is critical. A staff of competent consultants should be the means of developing a sense of confidence both in the instructional personnel and in the clientele served.

Students should be inducted into service activities as soon as possible, first in observing, and then in assuming greater responsibilities. Opportunity should be provided for students to associate with as many consultants as feasible, both as assistants and associates. Each

student should have some responsibility of leadership in the various segments of a particular service project, and eventually assume the full responsibility of coordinating a project. It should be recognized that the instructor has the overall responsibility of directing all service projects undertaken. A major function of the instructor should be to help and guide the students in their various service project activities. This segment of their instruction and preparation as specialists in school facility planning is vital and should not be overlooked. A major portion of their professional practicum should be in the area of public service, working with the instructional personnel and public and private agencies.

Another function of service experience should be the promotion of workshops and conferences in the area of school facility planning. Each student should take part in planning and coordinating these activities. One-day clinics for school personnel in the various areas of school plant operation, that is, custodial services, should provide students valuable experience in research, presentation, and association with the public at large.

Research

Research in educational administration has, over the years, been encouraged in its many facets. Since the early 1900's, school authorities have sought the assistance of experts to survey their systems and to suggest ways for improvements. The formulation of administrative theories, the study of administrative roles and behavior, and the development of guidelines and models have commanded the attention

of many research workers. In the program for the instruction and preparation of specialists in school facility planning, research should be undertaken not only through doctoral dissertations or spare-time projects by instructional faculty, but also in deliberate devotion of energies to investigation and experimentation.

The role of school facility planners has become vitally important in future planning because of the growing interest in educational innovations that will upgrade the educational product and decrease pupil alienation.

Research skills should be directed toward the problem of abrupt changes—the energy crisis, new state laws affecting the education of the handicapped, vandalism, integration, the expansion of community services, how to deal with enrollment decline, and all the other new forces that seem forever to be catching the educator by surprise.

Plausible ideas with implications for educational program and school facility planning should be experimentally researched through test, improve, and retest until either the basis for deciding to innovate or to abandon could be arrived at.

The difficulty of keeping up with evolving educational problems and their solution has left most educators with little or no time to focus on the future. It must be recognized that today's educational practices have a great bearing on the direction of tomorrow's course.

It was anticipated that in the late 1970's and 1980's more people would be served by schools for a wider range of grade levels and ages, for a longer time period—day, night, or year—and with a vaster array

of technology hardware and software. Implications for facilities of the future would dictate that tremendous effort in the way of research for flexibility and functionality would have to be put forth. The many social, cultural, and technological changes that literally pushed education into another era, challenged facility planners to update their whole planning process, to enter into better coordinated "team planning" ventures, and to conduct research with greater dedication and deliberation.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The purpose of this study was to identify basic concepts related to the instruction and preparation of specialists in school facility planning. The procedures followed to accomplish an adequate treatment of the problem were: (1) to trace the emerging role of specialists in school facility planning and the development of their instruction and preparation; (2) to review existing instruction in school facility planning at the major universities and colleges in the United States; and (3) to develop a model for the instruction and preparation of these specialists.

In the review of literature, the emerging role of the specialists in school facility planning was traced, and how their specialization grew out of the expanding responsibilities of superintendents of schools. The problems of general and specialized learnings were discussed, and how they were related to superintendents and specialists. The evolution of school facility planning courses was examined. Course topics were reviewed in the context of pertinent literature. The development of centers for instruction and preparation of specialists in school facility planning was traced.

An analysis of the existing position of school facility planning instruction was undertaken. Course outlines, course activities, and

textbooks used were requested from instructors in all the colleges and universities offering courses in school facility planning. The analysis of course topics was pursued through two avenues. Introductory programs were carefully reviewed. Forty-five topics emerged as a result of tallying the contents of the course outlines received. These topics were grouped into seven major clusters or divisions. These were:

1. Introductory Overview
2. Role of Personnel and Agencies
3. Determining Facility Needs
4. Planning Facility Needs
5. Implementing the Building Program
6. Managing the School Plant
7. Planning for the Future

The following topics were listed by more than 50 percent of the responding instructors after an examination of their course outlines.

These were:

1. Historical Background to School Facility Planning
2. The Role of Architects
3. The Role of School Boards and School Administrators
4. Community Involvement in School Facility Planning
5. Surveying School Systems
6. Development of Educational Specifications
7. Site Selection
8. Equipment and Furniture
9. Economy in School Facility Planning

10. Finance/Bonding/Bids/Contracting as Related to School Facility Planning
11. Construction of School Facilities
12. Custodial Care of the School Plant
13. Maintenance of the School Plant
14. Planning for the Future

The question of textbook selection was examined. The Guide for Planning Educational Facilities published by the Council of Educational Facility Planners was found to be the text used by more instructors than any other reference.

Course activities were reviewed. Lecturing by instructors, readings by students, field trips, and written reports were found to be the activities that more than 70 percent of the respondent instructors followed.

A critical examination of advanced programs for specialists in school facility planning was undertaken. It was found that thirty-two universities were offering advanced courses. The various patterns for the instruction and preparation of specialists were reviewed. In the development of the model for the instruction and preparation of specialists the question of what ought to be was discussed. Internships and field services were the activities recommended as being most helpful in the preparation of specialists. The model was developed from a review of literature, data received from instructors, and suggestions from the panel of experts.

The model was developed around five elements—foundation, structure, specialization, service, and research. Foundations of education and educational administration as they relate to historical, philosophical, psychological, and theoretical concepts were found to be broad fields that the specialist in school facility planning required knowledge of as an educational leader. In the structure of the specialist's training both specialized and related disciplines were recognized. Curriculum development at the various levels was found to be crucial in school facility planning. Research, service, and specialization in the area of school facility planning were proposed to constitute 50 percent of the specialist's instruction and preparation. On-the-job learning experiences were discussed.

II. CONCLUSIONS

The major conclusions drawn as a result of information and experience gained from the course of the study are summarized below:

1. The instruction and preparation of specialists in school facility planning was not widespread.
2. The main purpose of most courses in school facility planning was for the benefit of school superintendents and principals.
3. The instruction and preparation of specialists in school facility planning might be adequately undertaken on the basis of the guidelines developed during the course of this investigation. Those guidelines were presented in the model in Chapter V.

4. There was interest in the development of programs to instruct and prepare specialists in school facility planning.

5. There were seven specialized areas which were essential to the instruction and preparation of specialists.

6. There were certain on-the-job learning experiences necessary to complement classroom instruction. An active internship appeared basic to the preparation of specialists in school facility planning.

III. RECOMMENDATIONS

Based upon the findings and conclusions of this study the following recommendations are presented. A basic introductory course in school facility planning should be required for all school administrators. An advanced course should be planned to meet the requirements of certification for school superintendents.

The instruction and preparation of specialists should include both the basic and advanced courses recommended above. There should be a minimum of three additional courses or seminars planned to include the following specializations: (1) determining existing school facility resources—this should be in the form of a comprehensive educational survey; (2) planning school facility needs, which would include a critical examination of the development of educational specifications; and (3) implementing the planned school building program and its operation and maintenance. There should also be a minimum of six months of internship involved with ongoing school facility planning activities, either in private or public school systems.

The development of school planning laboratories as resource centers was critical to the adequate instruction and preparation of specialists in school facility planning. There should be more interdisciplinary coordination and exchange of personnel in the instruction and preparation program.

A wide variety of effective teaching methods and activities should be utilized in all courses and seminars in school facility planning. These should include field trips, utilization of school planning laboratory facilities, guest speakers, and lectures. Where possible field experience should be coordinated with course presentations. Heavy emphasis should be given to current issues and problems. In developing the content of school facility planning courses, innovations in student scheduling, teaching methods, learning technology, flexible use of spaces, economy of resources, efficient use of existing facilities, and adaptability to future change and needs should be considered.

Only a few institutions of higher learning strategically located should offer graduate students an opportunity to specialize in school facility planning.

BIBLIOGRAPHY

BIBLIOGRAPHY

- American Association of School Administrators. American School Buildings. Washington, D.C.: The Association, 1949.
- _____. The American School Superintendent. Washington, D.C.: The Association, 1952.
- _____. Professional Administration for America's Schools. Washington, D.C.: The Association, 1960.
- Baldwin, Robert. Continuing Professional Development of School Administrators. New York: Teacher's College, Columbia University, 1953.
- Boles, Harold W. Step by Step to Better School Facilities. New York: Holt, Rinehart, & Winston, 1956.
- Bottomly, Forbes. "A Study of Methods for Identifying Adequate Professional Standards for Possible Application to School Plant Consulting Services." Unpublished doctoral dissertation, State College of Washington, 1958.
- Bramwell, A. B., and H. M. Hughes. Training of Teachers in the United States. London: Macmillan, 1894.
- Campbell, Ronald F., and others. The Organization and Control of American Schools. 2nd ed. Columbus, Ohio: Charles E. Merrill, 1970.
- Carpenter, W. W. Training the Superintendent of Schools in School House Construction, Operation, and Maintenance. Proceedings of the National Council for Schoolhouse Construction, 14th Annual Meeting. Austin, Texas: The Council, 1936.
- Castaldi, Basil. Creative Planning of Educational Facilities. Chicago: Rand McNally, 1969.
- Chandler, B. J., and E. T. McSwain. "Professional Programs for School Administration," Phi Delta Kappan, XLI, No. 2 (November, 1959), 61-63.
- Conrad, M. J. Four Steps to New Schools. Columbus, Ohio: Bureau of Educational Research and Service, The Ohio State University and the Ohio School Boards Association, 1964.
- Culbertson, Jack A. "New Perspectives: Implications for Program Change," Preparing Administrators: New Perspectives. Columbus: University Council for Educational Administration, 1962.

Davis, J. Clark. The Principal's Guide to Educational Facilities. Columbus, Ohio. Charles E. Merrill, 1973.

Dexter, Edwin Grant. A History of Education in the United States. New York: Macmillan, 1922.

Dibs, George A. "School Plant Courses for School Administrators." Unpublished doctoral dissertation, University of Southern California, 1963.

Engelhardt, Nickolaus L. Complete Guide for Planning New Schools. West Nyack, N.Y.: Parker, 1970.

_____, N. L. Engelhardt, Jr., and Stanton Leggett. School Planning and Building Handbook. New York: F. W. Dodge Corporation, 1956.

Evans, Milton D. "A Study of Professional Training Needed by Small School Superintendents in the Field of School Buildings and Maintenance." Unpublished doctoral dissertation, The University of Nebraska, 1954.

Fisk, Robert S. "The Preparation of Administrator," The School Executive, LXXIII (January, 1954), 65-67.

Frederich, Robert W. "The Seven R's for Educating Administrators," The School Executive, LXXVI, No. 2 (October, 1956), 50-53.

Good, Carter V., ed. Dictionary of Education. 2nd ed. New York: McGraw-Hill, 1969.

Gores, Harold B. "Educational Facilities Laboratories, Inc," Higher Education, XV, No. 1 (September, 1958), 12.

_____. "New Lab to Study Plant Problems," The Educational Digest, XXIV, No. 7 (March, 1959), 18-20.

Graff, Orin B., and Calvin M. Street. Improving Competence in Educational Administration. New York: Harper & Bros., 1956.

Graves, Ben E. New Life for Old Schools. New York: Educational Facilities Laboratories, Inc., 1966.

Griggs, Norman Miller, Jr. "Behavioral Goals for a Program of Instruction to Prepare Specialists in School Plant Planning." Unpublished doctoral dissertation, Ohio State University, 1968.

Hamon, Ray L. School Plant Courses Offered by Colleges and Universities in the United States 1956-1959. Washington, D.C.: Government Printing Office, 1959.

- Henzlik, F. E. School Administration and Education for Administrative Leadership in Towns and Villages. Lincoln, Neb.: University of Nebraska Press, 1943.
- Herrick, John H., and others. From School Program to School Plant. New York: Henry Holt, 1956.
- Johns, R. L., Kern Alexander, and K. Forbis Jordan. Planning to Finance Education. Gainesville, Fla.: National Education Finance Project, 1971.
- Leu, Donald J., and Herbert C. Rudman. Preparation Programs for School Administrators. East Lansing, Mich.: Seventh University Council for Educational Administration Career Development Seminar, College of Education, Michigan State University, 1963.
- MacConnell, James D. Planning for School Buildings. Englewood Cliffs, N.J.: Prentice-Hall, 1957.
- Marquis Academic Media. Standard Education Almanac 1974/75. 7th ed. Chicago: Marquis Who's Who, 1975.
- McClurkin, W. D. School Building Planning. New York: Macmillan, 1964.
- Miller, Van. Common and Specialized Learnings for Educational Administration. Columbus: The University Council for Educational Administration, 1964.
- Murphy, A. B. "Basic Training Program for City School Superintendents." Unpublished doctoral dissertation, University of California at Berkeley, 1931.
- Perkins, Lawrence B., and Walter D. Cocking. Schools: Progressive Architecture Library. New York: Reinholt, 1949.
- Pierce, J. L. Educational Planning. Raleigh, N.C.: North Carolina Department of Public Instruction, Division of School Planning, 1964.
- Reller, Theodore L. The Development of the City Superintendency of Schools in the United States. Philadelphia: published by the author, 1935.
- Report of the Professional Training Committee. Proceedings of the National Council for Schoolhouse Construction, 33rd Annual Meeting. Washington, D.C.: The Council, 1956.
- _____. Proceedings of the National Council for Schoolhouse Construction, 39th Annual Meeting. Denver, Col.: The Council, 1962.

- Riso, Sister Mary Karen. "The Professional Education of School Administrators." Unpublished doctoral dissertation, Fordham University, 1950.
- Roaden, Ova Paul. "The Essential Elements of Educational Specifications for School Plant Facilities." Unpublished doctoral dissertation, The University of Tennessee, 1963.
- Roth, Alfred. The New School. New York: Frederick Praeger, 1957.
- Stewart, G. Kent, and others. Guide for Planning Educational Facilities. Columbus, Ohio: Council of Educational Facility Planners, 1969.
- Teachers College Record, Volume I. New York: Macmillan, 1900.
- Trump, J. Lloyd, and Martha Magill Trump. "School Buildings and Individualized Education." Washington, D.C.: National Association of Secondary School Principals, (n.d.).
- Yates, Donald P. "Flexibility in School Plant Development and Utilization." Unpublished doctoral dissertation, The University of Tennessee, 1968.

APPENDIXES

APPENDIX A

LETTER TO
DEANS OF COLLEGES OF EDUCATION
CHAIRMEN OF DEPARTMENTS OF EDUCATION
HEADS OF EDUCATIONAL ADMINISTRATION

November 20, 1974

As you may be aware, the School Planning Laboratory at the University of Tennessee has been in operation for just over thirteen years, and nearly sixty graduate students have benefited from the program and have received their doctoral degree. The coming decade is going to be an even greater challenge to school facility planners, especially in relation to the economy and the energy crisis. We are vitally interested in programs for preparing specialists in school facility planning. I am working on the development of such a program as part of my doctoral work in the laboratory.

It is believed that expert opinion regarding this study is desirable. We would like to contact your professor or professors who are instructing in this area. It would be appreciated if you would furnish their names and the courses for which they are responsible. This information would enable us to coordinate their expertise as we look to the future.

Thank you for your help.

Sincerely yours,

Charles E. Trotter, Director
School Planning Laboratory

Edward A. Streeter, Research Associate
School Planning Laboratory

Edward A. Streeter
School Planning Laboratory
College of Education
The University of Tennessee
Knoxville, Tenn. 37916

SURVEY OF GRADUATE COURSES IN SCHOOL FACILITY PLANNING

Institution _____

Number and Title of Course _____

Instructor _____

Catalog Description of Course(s)

Information supplied by _____

Title

APPENDIX B

**LETTER TO INSTRUCTORS OF
SCHOOL FACILITY PLANNING COURSES**

November 30, 1974

As you may be aware, the School Planning Laboratory at the University of Tennessee has been in operation for just over thirteen years, and nearly sixty graduate students have benefited from the program and have received their doctoral degree. The coming decade is going to be an even greater challenge to school facility planners, especially in relation to the economy and the energy crisis. We are vitally interested in the instruction and preparation of specialists in school facility planning. I am working on the development of a model for such a program as part of my doctoral work in the laboratory.

It is believed that expert opinion regarding this study is desirable. Because of your interest and expertise in this area, I should like to invite you to help in providing the following information:

1. Name of course(s) offered in school facility planning
2. Course outline(s) used
3. Textbook(s) utilized
4. Bibliographies used
5. Laboratory experiences required

It would be very helpful to know if you are operating any type of school planning laboratory or service and if students can pursue a doctoral program in school facility planning in your institution. Any historical information would be helpful as to when classes were first organized, or any major publications produced.

I recognize that you are very busy with your program, especially at this time of the year; however, this information, I believe, will help immensely in this study. Thank you for your cooperation. I will be happy to supply you with findings of this study.

Sincerely yours,

Charles E. Trotter, Director
School Planning Laboratory

Edward A. Streeter, Research Associate
School Planning Laboratory

APPENDIX C

SURVEY FORM TO INSTRUCTORS OF SCHOOL FACILITY PLANNING COURSES

Edward A. Streeter
School Planning Laboratory
College of Education
The University of Tennessee
Knoxville, Tennessee, 37916

SURVEY OF GRADUATE PROGRAMS IN SCHOOL FACILITY PLANNING

1. Institution _____
2. Instructor _____
3. Number and Title of Course _____

4. Course Outline. Please attach for each course taught.
5. Textbook used. _____

6. Course Bibliography. Please attach for each course taught.
7. Laboratory Experiences Required. Please attach if not part of course outline.
8. It is assumed that one purpose of the introductory course in school facility planning is to provide principals and superintendents with a general overall view of school facility planning. I would like to know if a student in your institution after taking this course can pursue a program in school facility planning that would prepare him to become a specialist in this area and would ultimately lead to a doctoral degree in educational administration.

Please turn over

9. Do you have an organized service or laboratory for such a program or does a student work on an individual basis? If there is an organized program of instruction and laboratory experience, please outline.

10. Kindly sketch any historical information about school facility planning as related to your institution. For example, when was the first course in school facility planning taught?

11. If funds, personnel, and opportunity were no problem, what areas would you suggest should be a part of a specialist's program of instruction and preparation in school facility planning, and yet keep the time element for the completion of a doctoral program somewhat the same? Please keep the future in mind.

Your help is greatly appreciated.

APPENDIX D

LETTER TO SELECTED ARCHITECTS

December 5, 1974

As you may be aware, the School Planning Laboratory at the University of Tennessee has been in operation for just over thirteen years, and nearly sixty graduate students have benefited from the program and have received their doctoral degree. The coming decade is going to be an even greater challenge to school facility planners, especially in relation to the economy and the energy crisis. We are vitally interested in programs for preparing specialists in school facility planning. I am working on the development of such a program as part of my doctoral work in the laboratory.

It is believed that expert opinion regarding this study is desirable. I am contacting all professors teaching courses in school facility planning to identify current programs in operation. In this regard, I would like to seek your opinion as to what should be included in such a program, and what you anticipate the future will dictate. I am developing a model for the instruction and preparation of specialists in school facility planning, and will be using the opinions of both professors and architects. I would appreciate your help and suggestions.

I recognize that you are very busy with your program; however, the information, I believe, will add a new dimension to this area. Thank you for your help.

Sincerely yours,

Charles E. Trotter, Director
School Planning Laboratory

Edward A. Streeter, Research Associate
School Planning Laboratory

APPENDIX E

ALPHABETIC LIST OF INTRODUCTORY COURSES
IN SCHOOL FACILITY PLANNING
BY STATE AND INSTITUTION

ALABAMA

Auburn University, Auburn.

691, Educational Plant Planning. Development of educational plants; relationships between curriculum and plant; trends in plant design; analysis of physical conditions; relationships of professional and lay personnel in educational plant planning.

Troy State University, Troy.

635, Development and Operation of Educational Plant Facilities. Designed to present to the students procedures and issues related to the design, development and operation of educational plant facilities.

University of Alabama, Tuscaloosa.

397, School Plant Planning. The problems involved in the planning of long-range school building programs for county and city school systems. Includes such topics as: how buildings can be planned to fit the community's educational policies and educational program; how many children will be served; where will new schools be located; to what extent can the old buildings be used; how the building program will be financed.

University of North Alabama, Florence.

664, The School Plant. Planning of building programs and planning of schools buildings in relation to the instructional needs; maintaining, operating, and utilizing of school plants.

ARIZONA

Arizona State University, Tempe.

555, School Plant Planning and Maintenance. School building needs, educational planning for facilities, responsibilities of architects, duties of contractors, equipping and furnishing of school buildings.

Northern Arizona University, Flagstaff.

738, School Building Problems. The leadership role of the school administrator in planning, financing, construction and maintenance of school facilities.

University of Arizona, Tucson.

373, Planning and Maintenance of School Facilities.

ARKANSAS

University of Arkansas, Fayetteville.

5073, School Building and Custodial Services. General approach to school building problems pertaining to location, curriculum, administrative organization, costs, operation and maintenance of the school plant.

CALIFORNIA

California State University, San Diego.

286A, Seminar in School Building Construction and Utilization.

Loma Linda University, Riverside.

3-682, School Plant Planning.

University of San Francisco, San Francisco.

250, Environmental Planning of Educational Facilities. Examines the processes and effects of planning and changing for improved educational programming. Deals with local, intermediate, state and federal action, program implication, innovative projects and research reports. Emphasis upon the educational environment, planning and evaluation. For administrators, teachers, and others concerned with facility changes.

University of Southern California, Los Angeles.

611, Schoolhousing Programs and Plans. Schoolhousing surveys: location and capacity of schools; instructional needs as a basis for planning; standards for equipment; checking plans and specifications.

COLORADO

University of Colorado, Boulder.

684, School Plant Planning. Determination of school plant needs; relation of educational and architectural services; criteria of adequate school plants; site development; building operation and management; financial problems.

University of Northern Colorado, Greeley.

242, School Administration, School Plant Management. Materials and methods in the operation and maintenance of the school plant and the purchasing and handling of supplies are studied. Includes custodial service, supplies and equipment best suited to the operation and maintenance of the school building, equipment and grounds.

CONNECTICUT

University of Bridgeport, Bridgeport.

617, Planning School Buildings. A comprehensive study of site selection, curriculum consideration, planning of school buildings in connection with professional architects and professional staff; public relations aspects; legal aspects; financing construction, equipping, programming, operation and maintenance of functional school plants.

University of Connecticut, Storrs.

388, Planning Educational Facilities. Analysis of the process of planning educational facilities; (1) the planning necessary to develop a long-range plan for educational facilities for a community; and (2) the planning of a specific educational facility to include the development of educational specifications. Educational facilities will be visited.

DELAWARE

University of Delaware, Newark.

806, School Plant Planning. Public school designs and trends, with emphasis on the drafting of educational specifications for use by architects in planning school facilities and by educators in program development.

DISTRICT OF COLUMBIA

George Washington University, Washington.

291, Planning School Plants. Selection of sites; evaluation of existing buildings; utilization of present facilities; adaptation to curricular needs; building, operation, and maintenance problems.

FLORIDA

Florida State University, Tallahassee.

505, Planning Educational Facilities. A study of criteria and techniques used in school building programs; technical aids helpful in solving problems of planning and maintaining school buildings.

University of Florida, Gainesville.

702, The School Plant. Planning of building programs and planning of school buildings in relation to the instructional needs are studied. Special attention is given to the maintenance, operation, and utilization of school plants.

University of Miami, Coral Gables.

673, School Plant Planning and Management. Development of educational specifications, building, planning and construction, and school plant maintenance.

GEORGIA

University of Georgia, Athens.

907, School Plant. An overview of the relationship of the school's physical environment to the curriculum and its impact on pupil learning.

West Georgia College, Carrollton.

665, Educational Facilities.

ILLINOIS

Bradley University, Peoria.

679, School Buildings and Facilities. Special emphasis is placed upon the steps necessary in securing and maintaining optimum school facilities; selection of site, employment of architect, designing and maintaining of facilities.

Illinois State University, Normal.

A480, Educational Facilities Planning. School sites, buildings, and equipment with emphasis on planning of building programs. Includes visitation to buildings.

Northern Illinois University, Dekalb.

654, School Buildings. School Plant planning, the school plant survey, population and utilization studies, and evaluation of existing plant. Laboratory and field work.

Southern Illinois University, Carbondale.

533-4, School Buildings. Various phases of physical plant design and maintenance of concern to the school administrator.

University of Illinois at Urbana, Champaign.

470, Educational Facility Planning. Study of concepts and techniques for determining physical needs within the larger environmental context and for translating educational requirements into design criteria; emphasis on the planning process in relation to (1) community and social considerations, (2) pupil population forecasting; (3) program analysis and performance specification development; and (4) the creation of environments conducive to learning.

Western Illinois University, Macomb.

532, School Plant Planning. Consideration of the purposes and processes of school building planning. Emphasis is placed on long and short range planning of both comprehensive school plant programs and individual school buildings, procedures for evaluating existing plants. Major factors affecting planning decisions and the architectural consequences and architectural and educational change.

INDIANA

Ball State University, Muncie.

588, School Buildings, Grounds, and Equipment. Such aspects of the school building program as standards, flexibility, site selection, steps in launching a building program, planning, financing, and equipment specifications.

Butler University, Indianapolis.

652, School Plant Planning and Management. A study of problems and recent research in schoolhouse building; site, community survey, financing, adaptation to curriculum, renovation, equipment and maintenance.

Indiana State University, Terre Haute.

757, School Plant Planning. Planning of school buildings along with the types of school plants, site selection and development, instructional equipment, and general methods of financing school construction.

Indiana University, Bloomington.

640, Planning Educational Facilities. Study of the basic concepts in planning educational facilities as they relate to educational needs, educational specifications, forms and shapes, flexibility, learning environment, and renovation and modernization.

Purdue University, Lafayette.

547, Educational Facility Planning. Adapted to the needs of principals and superintendents; architectural practice in building programs, school building layout, maintenance, operation and sanitation.

IOWA

Drake University, Des Moines.

272, School Buildings and Building Management. Building maintenance, planning, construction and finance; relationship of buildings to educational programs; special problems in administering school plants.

University of Iowa, Iowa City.

292, School Buildings and Sites. Planning of design, construction, finance, rehabilitation and maintenance of school buildings and sites, and development of standards for evaluation.

KANSAS

Fort Hays Kansas State College, Hays.

955, The School Plant. A study of the problems and duties identified with the administration of a school system.

Kansas State College, Manhattan.

830, Planning Educational Facilities. Determination of local educational facility needs including planning, financing, construction and utilization.

University of Kansas, Lawrence.

803, Educational Facilities. A study of the principles and processes of developing functional educational facilities. Special emphasis placed on the educational planning which precedes utilization, enrollment projections, site and equipment needs, fiscal and legal constraints, environmental factors, and the development of educational specifications. Designed for both building and central office level educational practitioners.

Wichita State University, Wichita.

824, The School Plant. Planning new school buildings based on educational programs. Evaluation of existing schools, remodeling operations and maintenance of present school plants are included.

KENTUCKY

Eastern Kentucky University, Richmond.

602, School Buildings and Grounds. Emphasis on the cooperative planning of school buildings which fit the school program as identified by educational specifications. Equipping, furnishing, maintaining buildings are studied.

Murray State University, Murray

666, Administration: Buildings and Grounds. A basic course designed to develop on the part of the student an understanding and appreciation of the multiplicity of the problems involved in appraising, utilizing, planning, constructing, and maintaining school buildings.

University of Kentucky, Lexington.

604, School Building and Equipment. Measurement and evaluation of existing school building facilities, planning new buildings, determining suitable equipment, and financing the building program.

LOUISIANA

Louisiana State University, New Orleans.

232, Educational Facility Planning. Designed to provide educational administrators with opportunities to study problems in planning and construction of educational facilities.

MARYLAND

University of Maryland, College Park.

614, School Plant Planning. An orientation course in which the planning of school buildings is developed as educational designing and reference to problems of site, buildings, facilities and equipment.

MASSACHUSETTS

Boston University, Boston.

722, Designing Facilities for Learning Resources. Includes equipment and supplies, operation, maintenance, building planning, and school finance.

Bridgewater State College, Bridgewater.

506, School Plant Planning and Administration. For the specialist in school administration who may ultimately go on to school district administration or as a superintendent, business manager, director of buildings and grounds. In depth coordination of the many factors involved in planning construction, maintaining and administration of the modern school plant.

MICHIGAN

Andrews University, Berrien Springs.

528, Educational Facilities Planning. The planning of educational facilities including buildings, equipment, and site, as influenced by educational philosophy, need, and financial resources available; features of good school plants and their management.

Central Michigan University, Mt. Pleasant.

565, School Plant; Planning, Management and Operation. Planning, management and utilization of educational facilities, property and equipment.

Eastern Michigan University, Ypsilanti.

655, Problems in Planning School Facilities. Problems and procedures revealed through a plant-planning chronology which includes hiring the architect, the attorney's role, site acquisition, involving citizens, utilizing staff, the bond issue, designing and constructing the building.

Michigan State University, East Lansing.

954, Planning Facility Learning Environments. A multidiscipline approach to the learning environment of the individual through life-long educational experiences. Role of the educator and specialists in facilitating the educational program. Sites, buildings, and equipment.

University of Michigan, Ann Arbor.

758, School Plant Planning. Studies procedures in school plant planning; estimating population growth, selecting a site, determining educational specifications, selecting and working with an architect. Also examines legal and financial problems associated with capital outlay, design, materials, and construction.

Wayne State University, Detroit.

8808, School Plant Planning. Designed to assist school personnel and lay citizens in developing a long range school plant program. Functional planning of school plant in relation to the desired educational program.

Western Michigan University, Kalamazoo.

660, Administration and Supervision: Planning Educational Facilities. A combination of reading, discussion, lecture, and field trips is used to acquaint students with the steps that are necessary both in planning (1) a long range survey of program and facility needs, and (2) a specific project called for by such a survey. The building process is considered from the educational planning stage through equipping and occupying the building. Applies at all educational levels and to all types of educational agencies. Recommended for teachers, administrators, and other interested persons.

MINNESOTA

Bemidji State College, Bemidji.

672, School Plant Planning. Preliminary studies, on surveys, on population, population projections, and location of school sites. A thorough study of the approaches and procedures in relating the instructional program to proposed buildings, development of educational specifications, is a major task of this course.

Mankato State College, Mankato.

6663, School Plant Planning and Management. Design and administration of efficient and economic plant management.

St. Cloud State College, St. Cloud.

640, School Plant Planning and Management. Plant planning and financing; bond elections, operation and maintenance of school buildings.

University of Minnesota, Minneapolis.

226, Educational Facilities Planning. Planning educational facilities for public and private school systems and institutions of higher education.

Winona State College, Winona.

552, Planning of School Facilities. This course is planned to provide the student with a background of information related to educational programs and community needs and resources for the building program. It is also planned that the student will acquire practice in the procedures involved in the planning, financing, and building of a school. Consideration will also be given to the maintenance and rehabilitation of existing facilities.

MISSISSIPPI

Delta State College, Cleveland.

536, School Plant. Problems of building, maintenance and daily operation of a school.

Mississippi State University, State College.

8233, School Survey and Plant.

University of Mississippi, University.

631, School Plant Planning. Determination of community needs, factors in site selection, planning buildings, design, construction, architectural and construction services.

MISSOURI

Central Missouri State University, Wareensburg.

6725, School Plant Planning and Construction. A study of school building construction and site selection.

Northeast Missouri State University, Kirksville.

668, School Buildings. Primarily for prospective superintendents of school; acquaints administrators with problems existing in planning, construction and maintenance of school buildings.

St. Louis University, St. Louis.

260, Planning School Sites, Buildings and Original Equipment. Problems concerning prediction of enrollment, projection of educational programs, educational specifications of building site, location, size, and acquisition of architectural and construction contracts, lay and professional staff committees; constructing, staffing, and equipping buildings.

University of Missouri, Columbia.

C414, Development of School Facilities.

University of Missouri, Kansas City.

558, School Facility Planning. Analysis of educational specifications; cooperative planning processes; analysis of trends in school facilities; financial considerations and construction research. Visitation of selected facilities included.

University of Missouri, St. Louis.

416, School Building and Site. Course is designed to acquaint the administrator with methods and procedures for projecting future building and facility needs of a public school district and for supervising actual planning of facility construction.

MONTANA

Montana State University, Bozeman.

545, Problems involved in planning and constructing school buildings. An opportunity to visit and evaluate several outstanding school plants in the area.

University of Montana, Missoula.

577, School Facilities Planning. Procedures in determining school facility needs and preparation of educational specifications.

NEBRASKA

University of Nebraska, Lincoln.

958, Educational Plants and Equipment. Techniques for planning educational plants through the use of surveys, educational specifications, and standards. The function of the educational administrator in school plant planning and construction.

University of Nebraska, Omaha.

860, School Plant Planning and Operation.

NEVADA

University of Nevada, Las Vegas.

360, The Educational Plant. A study of all facets of school plant planning and maintenance.

University of Nevada, Reno.

931, The Educational Plant. Specialized treatment given to the theoretical and practical procedures in developing written educational specifications for the school plant.

NEW HAMPSHIRE

Keene State College, Keene.

504, Educational Facilities and Organizational Patterns. A study of the planning and operating of educational facilities with special emphasis on the relationship between educational facilities and various philosophies of education and organizational patterns for instruction and learning.

NEW JERSEY

Montclair State College, Upper Montclair.

523, School Plant Planning. School plant planning which treats the relationships between educational facilities and educational program. School site selection, development of educational specifications, the school's physical environment, selection of equipment, programming of various facilities based on curricula and community needs. Group visits to exemplary educational facilities are an integral part of the instructional process.

Newark State College, Union.

5138, School Building Planning. The responsibility of school administrators in the development of a school building program. Special emphasis on determination of need, educational specifications, building specifications, unit cost and financing, furniture and equipment and public relations.

Seton Hall University, South Orange.

316, School Building Planning. Methods of determining school plant needs, the school plant survey, educational specifications; site selection and development, architectural design of new buildings.

NEW MEXICO

New Mexico State University, University Park.

573, Educational Facilities Planning. Planning a program, determining objectives, evaluating existing facilities, blueprint reading, financing and the ultimate plant.

University of New Mexico, Albuquerque.

526, Educational Planning and the School Plant.

Western New Mexico University, Silver City.

588, School Buildings.

NEW YORK

Columbia University, New York,

3050, Environmental Variables in Educational Facilities. Detailed study of the quantitative and qualitative characteristics of spatial, thermal, visual, acoustical, and aesthetic variables in educational environments; mechanical support systems, conversions, revitalization, and adaptation of existing facilities to differentiated learning/teaching styles; clinical applications to environmental problems.

Fordham University at Lincoln Center, Bronx.

389, School Plant.

New York University, New York.

65.2205, School Plant Planning, Operation and Maintenance. Designed to assist teachers, administrators, and architects in understanding the organizational and creative processes involved in planning and maintaining appropriate environment for teaching and learning.

St. Bonaventure University, St. Bonaventure.

529, School Plant Planning and Construction. Detailed planning of the functional and environmental aspects of educational facilities, such as classrooms, laboratories, libraries, administrative spaces, resource areas, specialized instruction units. Also building standards, site selection, architectural services, contractual services.

St. John's University, Jamaica.

5681, School Plant Planning, Construction and Administration. Principles relating to the planning, construction, and administration of functional school buildings; analysis of physical plant needs; development of educational specifications to provide for newer concepts relating to various types of learning centers and for the accompanying instructional media and equipment. Due attention also will be paid to programs of rehabilitation and remodeling of existing buildings as well as to the management aspects of maintenance and custodial organization and operation. This course does not attempt to prepare architects. It does, however, provide basic insights to how to work with others in the school community to obtain the plant facilities needed to implement desired educational goals.

State University of New York, Buffalo.

509, Educational Environmental Design. The opportunity and responsibility of an educational administrator for the functioning of the educational program in a community will be emphasized by the means of field work, personal conferences, study and analysis of sketches, plans, and blueprints and specifications.

NORTH CAROLINA

Appalachian State University, Boone.

549, School Building Planning. Emphasis upon educational planning of teaching space and facility planning; building for newer instructional equipment; power requirements; efficient use of existing facilities; economical bookkeeping and maintenance programs.

Drake University, Durham.

322, Planning and Management of Educational Facilities. A study of planning and management of educational facilities and equipment. This course is intended for teacher administration and supervision.

East Carolina University, Greenville.

461, Planning School Buildings. Designed to give school administrators the background needed to plan modern school buildings. Includes developing educational specifications, selection of an architect, site selection, architectural design, planning for low cost maintenance.

University of North Carolina, Chapel Hill.

210, Management of School Plant and Equipment. Includes surveys, planning for educational programs through construction and plant maintenance.

Western Carolina University, Cullowhee.

6324, School Plant Management. Principles, methods and trends in planning, maintenance and operation of school plants, site, buildings, facilities, financing building programs and evaluating of plants.

NORTH DAKOTA

North Dakota State University, Fargo.

586, School Plant Planning and Maintenance. Principles in planning, construction, and maintenance of school buildings, visitation and appraisal of sites.

University of North Dakota, Grand Forks.

557, The Educational Plant. Planning, construction and maintenance of school buildings.

OHIO

Bowling Green State University, Bowling Green.

604, School Plant Planning. Federal, state and local relationships to planning for school buildings; criteria for the selection and development of school sites; educational program and architectural character of school buildings; evolution of school plant, and a study of modernization vs. replacement.

Kent State University, Kent.

66530, School Building, Grounds and Equipment. Problems of building sites, floor plans, lighting, ventilating, heating, equipping and care of school buildings. To gain experience in scoring buildings, sites, and equipment. For superintendents, principals, teachers.

Miami University, Oxford.

705, School Plant Administration. Standard survey of administrative techniques in school plant administration.

Ohio State University, Columbus.

958, Educational Facility Planning. Problems and techniques in determining educational facility needs, evaluating facilities, planning for new construction and remodeling, utilizing specialized personnel; related legal and financial aspects.

Ohio University, Athens.

742, Planning Educational Facilities. Specific planning techniques and problems, special organization and conditioning; study of innovations in facility planning; examining facilities and discussion sessions with architects, engineers and superintendents.

University of Cincinnati, Cincinnati.

18-210-715, School Plant. School program and plant needs; community factors affecting planning, utilization and appraisal of facilities. Developing educational specifications, financing the building program; preserving and protecting the investment in plant.

University of Dayton, Dayton.

516, School Plant. The course will cover types of school facilities, considerations in working with architects, remodeling and new construction, site selection, government financing, space utilization, and other aspects dealing with the overall educational plant.

University of Toledo, Toledo.

352-624, School Plant Planning and Construction. This course is designed to develop a basic philosophy of school plant planning from a functional point of view; to develop the ability to interpret the needs of the instructional and administrative programs of the school in terms of plant requirements; and to develop skills in methods of functional planning.

OKLAHOMA

Oklahoma State University, Stillwater.

6572, School Housing. Analysis of established standards and research in school housing, with emphasis upon validity of old standards and upon the deviation of new standards.

University of Oklahoma, Norman.

6222, School Facility Planning and Development. Skills used in identifying and describing the educational needs to be met by means of the school plant; planning, financing, and acquiring suitable school plant properties, and utilizing, and maintaining school properties; actual situations supplemented by field trips and special lectures; primarily for administrators, school-plant management personnel, and teachers in public schools.

OREGON

Portland State University, Portland.

576, School Plant Planning and Maintenance. To prepare a set of educational specifications usable to architects; to prepare equipment lists for school buildings; and to prepare maintenance schedules.

University of Oregon, Eugene.

576, School Buildings. Critical survey and study of current trends in school building field; systems building, fast-tracking, open space design; alternatives to building; renovation and modernization, relocatables, year-round schools; the learning environment; legal and financial consideration; bond elections; maintenance, furniture and equipment, security.

PENNSYLVANIA

Duquesne University, Pittsburgh.

683, School Plant. Educational plans for, and administration of, the grounds, building and equipment, site selection, architectural services, financial practice, and community use of the plant.

Pennsylvania State University, University Park.

571, The Educational Plant. School plant needs in terms of a school population; the building survey, developing of a plant program, the building site, plant utilization, operation, maintenance, heating and ventilation, equipment, school buildings, cost and finance.

Temple University, Philadelphia.

651, School Plant. A study of problems involved in the planning, construction, operation and maintenance of the school plant.

University of Pennsylvania, Philadelphia.

654, Planning Construction, and Equipping of School Buildings. Planning building programs; preliminary surveys; selection of architects; building contracts; financing; building and equipment specifications.

University of Pittsburgh, Pittsburgh.

258, School Plant Design and Planning. The educational program is used as a focal point in the study of building types, kinds of spaces, the size, shape, arrangement and equipment of special site areas; and other school plant features. School plant planning processes are discussed beginning with the recognition of need and proceeding through the operation of the survey, school board and community action to the development of educational specifications, architectural planning, construction, and dedication of the school building.

SOUTH CAROLINA

University of South Carolina, Columbia.

752, School Building Planning. A study of the problems involved and the procedures utilized in a comprehensive approach to planning and constructing school plants, the personnel involved and the roles they play, and the problems related to the long-term financing of such facilities.

SOUTH DAKOTA

Northern State College, Aberdeen.

732, The School Plant. Principles and procedures in the consideration of school sites, building plans, specifications, construction and financing. Technical problems in the purchase and care of supplies and equipment, and the maintenance and operation of the elementary and secondary school plants.

South Dakota State University, Brookings.

732, Management, Care and Operation of School Plant. Needs and evaluation of existing facilities, new building and remodeling. Not a technical course in design and materials.

University of South Dakota, Vermillion.

832, The School Plant. Deals with the question and maintenance of the school plant, and gives special emphasis to the school facilities survey and educational planning of new buildings.

TENNESSEE

East Tennessee State University, Johnson City.

6830, Administration: School Plant Planning. A course dealing with all facets of planning a school plant that implements the curriculum. Consideration is given to the forms and surfaces, flexibility, maintenance, furniture and equipment.

George Peabody College for Teachers, Nashville.

328, School Plant Administration. Emphasis is upon educational planning of teaching space, efficient use of existing facilities, and economical housekeeping and maintenance programs.

Memphis State University, Memphis.

7140, School Plant. A consideration of the school plant, grounds, and major equipment in relation to the educational needs of the community, factors in site selection, procedures in planning school buildings, principles of design and construction, architectural and constructional services and maintenance.

Middle Tennessee State University, Murfreesboro.

632, Educational Facilities. This course is designed to develop competencies in the area of site selection, school plant planning, maintenance and utilization.

University of Tennessee, Knoxville.

5470, Introduction to School Facility Planning. Historical review of the facility planning process; its relationship to individuals; determining needs, selection and improvement of sites; the educational program and housing needs; and educational facilities and total community planning.

TEXAS

Baylor University, Waco.

469, School Buildings and Equipment. Determining the educational needs of the plant through school and community surveys. Standards for the building and equipment with special attention to plants in the smaller districts; suggestions for remodeling, renovating, and repairing the plant.

Lamar University, Beaumont.

5343, Administration of School Plant. Operation, maintenance, and utilization of physical plant to include administration of records, standards and control of plant, and developing of school building programs.

North Texas State University, Denton.

653, The School Plant. The designing of the school plant in terms of educational needs; principles of plant construction, creation, maintenance, and insurance; proficiency in planning, developing and evaluating school plants.

Sam Houston State University, Huntsville.

690, The School Plant. The course is designed for school superintendents, business managers, and other school personnel whose responsibilities include school plant planning and management. Topics considered include how to use and maintain present school plants, keeping the school board and community informed as to building needs, selection of architects and financing construction.

Stephen F. Austin State University, Nacogdoches.

551, School Plant Administration. Operation, maintenance, utilization, and management of physical plant, property records, standards and control; school building programs; selection of architects and school plant development.

University of Houston, Houston.

778, Educational Facilities and Environment. Planning educational facilities and learning environment; program analysis for facility planning; administration of building projects; plant maintenance and operation.

University of Texas, Austin.

389, School Buildings and Equipment. Planning and modern school plant design and nature of effective educational facilities; directing finance programs for capital outlay.

UTAH

Brigham Young University, Provo.

750, Public School Building Programs. The course is designed for students majoring in educational administration. It covers school building surveys; planning the construction program; equipping and furnishing the school; relations of the architect, board of education, contractor and clerk of works; and in general the aspects included in the total planning stage and construction stage of school buildings.

University of Utah, Salt Lake City.

632, School Plant Planning. Educational specifications, determination of school plant needs, long-range programs, evaluation, utilization, site selection, legal problems, financing, architectural and constructional problems.

VERMONT

University of Vermont, Burlington.

295, School Facility Planning.

VIRGINIA

Old Dominion University, Norfolk.

690, School Plant Administration. This course will treat the areas of site selection, trends in design, lighting.

University of Virginia, Charlottesville.

800, School Plant. Administrative responsibility for the school plant; relation of the school plant program to community needs; to population trends, and to educational, health, and safety programs; selection and development of sites; determination of space requirements for various educational activities; planning, constructing and equipping the school building.

WASHINGTON

Gonzaga University, Spokane.

264, The School Plant. The operation and maintenance of the school plant from the viewpoint of the teacher and administrator; operation of school facilities, custodial care, heating and ventilating problems, building equipment and repairs.

University of Washington, Seattle:

533, School Buildings. Survey of problems and issues faced by educational administrators that are impacting on educational facilities. Directed readings and informal discussion of the people, processes, programming, planning, and evaluation of ways and means of accommodating changes due to identifiable problems and issues.

Washington State University, Pullman.

586, School Plant Planning. To meet the needs of superintendents and principals interested in school building programs.

Western Washington State University, Bellingham.

546a, School Plant Planning. Planning school building programs through analysis of population trends in the community relationship of school plants and the educational program problem in utilization of school facilities.

WEST VIRGINIA

Marshall University, Huntington.

603, General School Administration: Plant and Equipment. The use of the school building survey and educational specifications are studied in relation to how the building may enhance the educational program. Some field trips are taken to exemplary buildings.

WISCONSIN

University of Wisconsin, Madison.

272, School Buildings and School-Building Programs. Determination of school-plant needs based upon educational program, population and utilization studies. Evaluation of existing school plant.

WYOMING

University of Wyoming, Laramie.

882, Educational Surveys and School Buildings. School surveys are stressed in Part I of the course. Such items as evaluation of school buildings, community background, educational programs, financial ability, bond issues, and determination of building needs are included. In Part II of the course emphasis is placed on school building design and construction. Attention is also given to school sites, landscaping, parking, and play areas.

APPENDIX F

**ALPHABETIC LIST OF ADVANCED COURSES IN
SCHOOL FACILITY PLANNING BY
STATE AND INSTITUTION**

ALABAMA

Auburn University

*691, Educational Plant Planning.

689, Educational Plant Maintenance. Relationship of educational plant maintenance and operation to educational program; procedures in educational plant maintenance and operation; safety factors; trends in modernization and new plant planning.

694, Studies for Comprehensive Educational Planning. Principles and procedures for collecting, analyzing, and utilizing data in the process of educational planning, including topics as: community characteristics, including power structures; economic bases and population; system characteristics, including administrative organization, finance, personnel, physical facilities; and instructional program.

ARKANSAS

University of Arkansas

*5073, School Building and Custodial Services.

6133, School Plant Planning. Advanced course in planning and programming school facilities, particularly as related to preparing educational specifications and interpreting working drawings.

CALIFORNIA

University of San Francisco

*250, Environmental Planning for Educational Facilities.

320, Administration of Educational Facility Environments. The purposes, rationales, roles and responsibilities for operation and maintenance of physical facilities in education. The course is designed to emphasize the supportive environments of educational facilities for educational programs.

*The course numbers marked by an asterisk have already been described in the introductory programs in school facility planning. See Appendix E.

321, Physical Facilities for Education—Analysis of Needs and Program Development. Comprehensive study of educational facility requirements in district organization. Long-range planning.

322, Physical Facilities for Education—Implementation of Developmental Plans. Detailed planning of the functional and environmental aspects of educational facilities—educational specifications, general plant design, and other assorted design variables.

342, Management Operations. Extensive study in physical plant maintenance and operations, including decision-making problems for physical changes.

COLORADO

University of Northern Colorado

*242, School Administration, School Plant Management.

630, Problems in Educational Facility Planning. This is a survey course, introducing the student to population projection and community survey techniques, school site selection criteria, the fiscal aspects of facility planning, the development of educational specifications, and the roles of various persons in the facility planning process.

631, Methodology of Comprehensive Facility Planning. This course is offered for the specialist in facility planning. It focuses on the methodology of demographic studies and populations projections, the problems of projecting financial resources and planning debt amortization schedules, and techniques for evaluating existing school facilities.

632, Educational Programming and Facility Planning. This course is offered for the specialist in facility planning. It concentrates on the development and writing of educational specifications for educational facilities, emphasizing the implications of trends in curriculum and teaching methodology.

633, Educational Facility Design and Construction. This course is offered for the specialist in facility planning. It focuses on architectural considerations in facility design, a comparative analysis of various structural systems and materials, and the functional design of educational furniture and technological equipment.

FLORIDA

Florida State University

*505, Planning Educational Facilities.

506, School Plant Management.

643, Design of Educational Facilities.

GEORGIA

University of Georgia

*907, School Plant.

920, Planning and Programming the Individual School Plant. Planning principles and strategies are reviewed; principles, concepts, processes and practices of planning and programming educational facilities are studied.

ILLINOIS

Northern Illinois University

*654, School Buildings.

545, Maintenance and Operation in School Business Management. Problems of maintaining buildings and grounds, custodial relationship, scheduling, budgeting, purchasing, supply administration, record keeping and cost analysis.

INDIANA

Indiana University

*640, Planning Educational Facilities.

645, Problem in School Buildings. Designed to help the school administrator with his specific problems in school facility planning. Also surveys the large field of unsolved school planning problems with the purpose of stimulating experimentation and research.

647, Problems in Maintenance and Operation of School Plants. Designed for administrative officers in charge of maintenance and operation. Includes methods of estimating and making repairs, long-range maintenance, and rehabilitation programs; also economics in administering the operation program.

KANSAS

Kansas State College

*830, Planning Educational Facilities.

795, Problems in Educational Administration—Educational facilities. Independent study of educational facility planning, care, utilization and construction.

MARYLAND

University of Maryland

*614, School Plant Planning.

721, Advanced School Plant Planning. Analysis of the educational program and planning of physical facilities to accommodate that program.

MASSACHUSETTS

Boston University

*722, Designing Facilities for Learning Resources.

804, Educational Facilities Planning.

MICHIGAN

Andrews University

*528, Educational Facilities Planning.

685, Advanced Educational Facilities Planning. A critical examination of the planning process in determining and planning facility needs, and implementing the desired educational program. Detailed consideration to be given to comprehensive educational surveys and to educational specifications. Specific facilities will be meticulously evaluated in relationship to modern technology and educational trends.

880, Seminar: Educational Facilities Planning. Specific contents of these seminars will vary from year to year. Current trends, conditions, and issues in the field of school facilities planning are reviewed and studied in depth.

Central Michigan University

*565, School Plant Planning, Management, and Operation.

585, Advanced Seminar in Educational Facility Planning.

Eastern Michigan University

*655, Problems and Procedures in Planning School Facilities.

596, Seminar: The seminar content deals with timely problems and concerns in the field.

University of Michigan

*758, School Plant Planning.

759, Practicum in School Site Selection and Planning for Environmental Education. An interdisciplinary program with instructors from the School of Education, the School of Natural Resources, and the Department of Landscape Design. Case and field studies of school sites planned and developed as outdoor laboratories for environmental education. The application of concepts of environmental education to the planning and development of a school site.

Wayne State University

*8808, Seminar in School Plant Planning

8809, Field Study in School Plant Planning. Intensive field work as a member of a staff planning a total building program, a construction project, or a school building survey.

8810, Internship in School Plant Planning. Internship in a role of major responsibility in a school building survey, a total building program or a construction project.

MINNESOTA

University of Minnesota

*226, Educational Facilities Planning.

236, Seminar: Educational Facilities Planning. The application of the principles of educational facility planning to the development of educational specifications.

MISSISSIPPI

University of Mississippi

*631, School Plant Planning.

633, School Plant Administration. Operation and maintenance of school plant: heating, lighting, ventilating, acoustical control; services involved and personnel required.

MISSOURI

Central Missouri State University

*6725, School Plant Planning and Construction.

6740, School Plant Operation and Maintenance. A study of school plant operation, maintenance, employment and training of custodial personnel.

University of Missouri

*414, Development of School Facilities.

453, Advanced School Facilities Planning Practices.

NEBRASKA

University of Nebraska at Omaha

*860, School Plant Planning and Operation.

861, Organization and Administration of the Physical Plant.

NEVADA

University of Nevada at Las Vegas

*360, The Educational Plant.

361, Educational Surveys and Educational Facilities. Designed primarily for master planning, involving the details of programming, site selection, construction, educational specifications and maintaining and equipping the school plant.

University of Nevada at Reno

*931, The Educational Plant.

930, School Surveys and Educational Facilities. Master planning involving the details of programming, site selection, constructing, maintaining, and equipping the school plant.

NEW JERSEY

Montclair State College

*523, School Plant Planning.

623, Advanced School Plant Planning. Advanced course in school plant enables student to plan an innovative educational facility. Independent (contract) study approach to instruction, coupled with scheduled critiques with the professor, is the main method of instruction.

625, School Plant Maintenance and Operation. Latest techniques in the maintenance and operation of the school plant. Various specialists in specific areas of study utilized in the instructional program. Topics include: determination of work loads, formulation of job descriptions, supply storage, care of mechanical and hand tools and equipment and care of the school site.

NEW MEXICO

University of New Mexico

*526, Educational Planning and the School Plant.

626, Educational Buildings and Equipment.

NEW YORK

Columbia University

*3050, Environmental Variables in Educational Facilities.

5150, Administration of Educational Facility Environments. Purposes, rationales, roles, and responsibilities for plant operation and maintenance; personnel requirements, characteristics, policies, schedules, tools, equipment, training programs, and budgeting designed to maximize a supportive environment.

5152, Physical Facilities for Education—Analysis of Needs and Program Determination. Analysis of demographic, enrollment, environmental, curricular, and financial variables essential to the determination of facilities development programs in a district organization; facility evaluation, site selection, architectural and engineering services, project budgeting, and scheduling for facilities programs.

5154, Physical Facilities for Education—Implementation of Development Plans. Detailed planning of functional and environmental aspects; educational specifications, general plant design variables, learning space for diversified activities including administrative support, and resources areas in both conventional and atypical settings.

5179, Field Work in School Administration—Educational Facilities Oriented. Work on special research or professional problems in schools or school systems.

OHIO

Miami University

*705, School Plant Administration.

785, Advanced Seminar in School Plant Administration.

Ohio University

*742, Planning Educational Facilities.

844, Seminar in Planning Educational Facilities.

652, Problems in Administration of Education—Educational Facilities.

784, Educational Planning and Evaluation.

TENNESSEE

East Tennessee State University

*6830, School Plant Planning.

5830, School Housing and Transportation.

Memphis State University

*7140, School Plant.

8140, Advanced School Plant. A consideration of the school plant, grounds, and major equipment in relation to the educational needs of the community; factors in site selection, procedures in planning school buildings, principles of design and construction, architectural and contractual services and maintenance.

University of Tennessee

*5470, Introduction to School Facility Planning.

5770, Maintenance of School Plants. This course is designed to acquaint the student with every aspect of the custodial program. The scope extends from organization and finance to actual cleaning procedures.

5870, Advanced Study in School Facility Planning.

5756/5766/5776, Problems in School Plant.

5996, Special Seminar in School Plant.

6996, Seminar in School Facility Planning. This seminar is a laboratory designed to provide field experiences for facility planners in actual problem situations.

6100, Internship in School Facility Planning.

TEXAS

University of Houston

*778, Educational Facilities and Environment.

788, Systems Analysis and Planning. Rationale and application of systems theory; systems analysis of educational situations and practice administration and research.

APPENDIX G

PANEL OF EXPERTS

PANEL OF EXPERTS

Dr. Russell C. Armitage
Department of Educational Leadership
School of Education
Miami University
Oxford, Ohio

Mr. Charles W. Brubaker
Perkins & Will Architects, Inc.
309 West Jackson Blvd.
Chicago, Illinois

Dr. George J. Crawford
The School of Education
University of Kansas
Lawrence, Kansas

Dr. Harold B. Gores
President, Educational
Facilities Laboratories
850 Third Avenue
New York, N.Y.

Dr. A. Shaw
Department of Administration
College of Education
Michigan State University
East Lansing, Michigan

Mr. Miles L. Sheffer, Architect
1315 Peachtree Street
Atlanta, Georgia

Dr. G. Kent Stewart
The College of Education
Kansas State University
Manhattan, Kansas

Dr. Wallace H. Strevell
The College of Education
The University of Houston
Houston, Texas

Dr. James A. van Zwoll
Department of Administration
College of Education
University of Maryland

Mr. David M. Ward
Ward Associates Architects
1720 Euclid Avenue
Cleveland, Ohio

APPENDIX H

THE COVERING LETTER AND PRELIMINARY MODEL
FOR THE INSTRUCTION AND PREPARATION OF
SPECIALISTS IN SCHOOL FACILITY PLANNING
SUBMITTED TO THE PANEL OF EXPERTS

April 8, 1975

As part of my dissertation, I have been developing a model for the instruction and preparation of specialists in school facility planning.

Several months ago I requested information about school facility planning courses relative to course outlines, course requirements, activities undertaken, etc., from all those universities and colleges in the United States that were offering such courses. The response from those instructors was tremendous, and their help was greatly appreciated.

A number of leading architects in the United States, who had considerable experience in school designing were also requested to present suggestions in connection with the instruction and preparation of specialists in school facility planning. Their suggestions were very helpful, too.

From the information received and from a review of literature, I have formulated guidelines for the development of a model. May I request you to review these guidelines and express your opinion regarding their validity. I will greatly appreciate your comments. In this study, I have taken an open, unstructured approach. Again in this request, I am not asking for any type of scaled response. I know that you are very busy, but I would very much appreciate your opinion. Your expertise in this area is greatly valued. A stamped, return envelope is enclosed for your convenience.

Thank you for your help.

Yours very sincerely,

Edward A. Streeter
Research Associate
School Planning Laboratory

Enclosure

THE PRELIMINARY MODEL FOR THE INSTRUCTION AND PREPARATION OF SPECIALISTS IN SCHOOL FACILITY PLANNING

It was the purpose of this study to develop a model for the instruction and preparation of specialists in school facility planning. The effort focused on five elements for such a unit: (1) foundation; (2) structure; (3) specialization; (4) service; and (5) research.

I. THE PROCEDURES

The study consisted of three major phases. The first involved consideration of the literature pertaining to the emerging role of specialists in school facility planning and the development of programs for instruction and preparation.

The second phase involved correspondence with all the instructors of courses in school facility planning offered by colleges and universities in the United States. Data relative to course titles and descriptions, course outlines and activities, and textbooks used were obtained from the instructors.

The third phase involved correspondence with the instructors and a selected number of architects in the field of school design who were invited to make suggestions of what they felt should be incorporated into a model for the instruction and preparation of specialists in school facility planning if funds, personnel, or opportunity were not restricted. They were asked to try and relate these suggestions to future conditions and changes that may be anticipated.

From this information, guidelines for a model for the instruction and preparation of specialists in school facility planning were developed. As the model represents the conclusions of the investigator obtained from the sources listed above and from conversations with facility planning experts, no attempt was made to document the contributing sources to these conclusions. In some cases, the guidelines are identifiable, while in others the conclusions represent no specific source, but are rather a judgment based on the entire body of information gathered for this study.

It was felt that two concepts pertaining to model development should be reviewed—the meaning of the term "model," and limitations inherently involved. The term "model for the instruction and preparation of specialists in school facility planning" was not intended to be a solution for all college or university instructors in school facility planning to emulate, but rather guidelines that may be adapted to circumstances and needs. Inherent limitations dictate that the model be general and theoretical. In order for the model to have maximum application to the various colleges and universities and their unique situation, the model must function as a set of general guidelines.

II. THE PRELIMINARY MODEL

The model was developed upon preliminary conclusions that served as the rationale from which the instructional program, the service activities, and the research projects were developed. These preliminary conclusions were built upon the basic assumptions of this study and

indeed extended beyond them. Because of their relationship, those basic assumptions are repeated:

1. Educational facilities do influence the programs contained within them.
2. Specialists in school facility planning are playing an increasingly important role in education based on creative and progressive thought.
3. Not all universities wish to provide adequate staff and programs to prepare specialists in school facility planning.
4. Certain basic concepts in school facility planning should be offered in the area of educational administration in all colleges or schools of education.
5. Basic concepts germane to the instruction and preparation of specialists in school facility planning may be identified by reviewing literature and examining current programs of instruction in this area.

The Rationale for the Model

The ten preliminary conclusions that provide the rationale for the remainder of the model are as follows:

1. Colleges or universities are educational forces that should assure instructionally functional educational programs within their jurisdiction. Colleges and universities are the recognized agencies, both by tradition and charter, for the instruction and preparation of educational personnel—teachers and administrators. Because of this

responsibility, schools or colleges of education must ensure that any such program is instructionally functional.

2. Minimal regulations are essential to the development of an adequate instructional program. To assure the participants in the desired program of instruction and preparation recognition, certain academic regulatory controls must be exerted. These controls provide a student with a program that is balanced, is compatible with other recognized activities, and attains to minimum standards. These controls should be as few in number as possible so that individual variances may be capitalized upon and developed.

3. A general assessment of the instructional areas should be identified to which priorities may be assigned to suggest direction to the instructional program a department may provide. Such an assessment will function as an organizer within which the actual services may be developed.

4. A program of instruction and preparation should relate to, and center around, the planning process. Educational planning for the present and the future requires continuous appraisal of existing program resources and facilities. It is an ongoing spiral process that requires perpetual revision of information which may be used in decision making. The instructional program, the service activities, and the research projects must be related to, and centered around, the process of determining existing educational facility resources, planning educational facility needs, and implementing the desired educational program.

5. Any planning that deals with instruction and preparation programs must be executed within the context of the total academic purview. It is unrealistic for all educational instruction and preparation to take place in isolation from the community and its interests. Other professional organizations and interests should be utilized in a coordinated effort, but the accrediting responsibility should remain an educational function.

6. Basic concepts related to instruction and preparation must be curriculum-oriented. Interpreting curriculum needs into physical spaces is the primary goal of facility planning. This is a basic assumption on which educational specifications are developed and should be the heart of the planning process and the most consuming activity related to the instruction and preparation in facility planning.

7. Individual instructors must function in a coordinated, interdisciplinary capacity. The vastness and scope of the facility planning field necessitates cognizance and coordinated interdisciplinary use of personnel, public and private, whose expertise and resources may contribute immeasurably to the planning process.

8. Instructional and service activities should be closely related to, and extensively planned with, ongoing school programs. This is to ensure that instructional and service activities are relevant and in keeping with current conditions and needs.

9. Models for instruction and preparation should provide follow-up and evaluation services. The process of instruction and preparation should be regularly and carefully examined and reviewed. Revealed

weaknesses or unattained expectations should be revised or eliminated. This is in keeping with the planning process.

10. Models for the instruction and preparation of specialists in school facility planning should avoid involvement in activities that are not directly related to the functional planning process.

Figure 2 depicts the organization of the model. It illustrates the functional division of the five units and their relationship to one another.

Foundation

Administration has long been recognized as one of the great practical arts. However, due to the increased complexity of the social organization and its urgent demands, and with the modern faith in formal study as a means for the improvement of practice, earnest efforts have been made to transform this instinctive and common sense activity into a science or a learned art. Educational administration, which has much in common with administration, in general, requires a thorough familiarity with the field in question, and an awareness of its unique features.

The role of the specialist in school facility planning is closely allied to that of the educational administrator. The specialist should be one who is "at home" in more societies than his own; who sees the educational problems of his own society more clearly because of his knowledge of others; who is capable of creative leadership rather than mere manipulation; who sees education as a most important instrument in determining the kind of world which men will build; and who knows men,

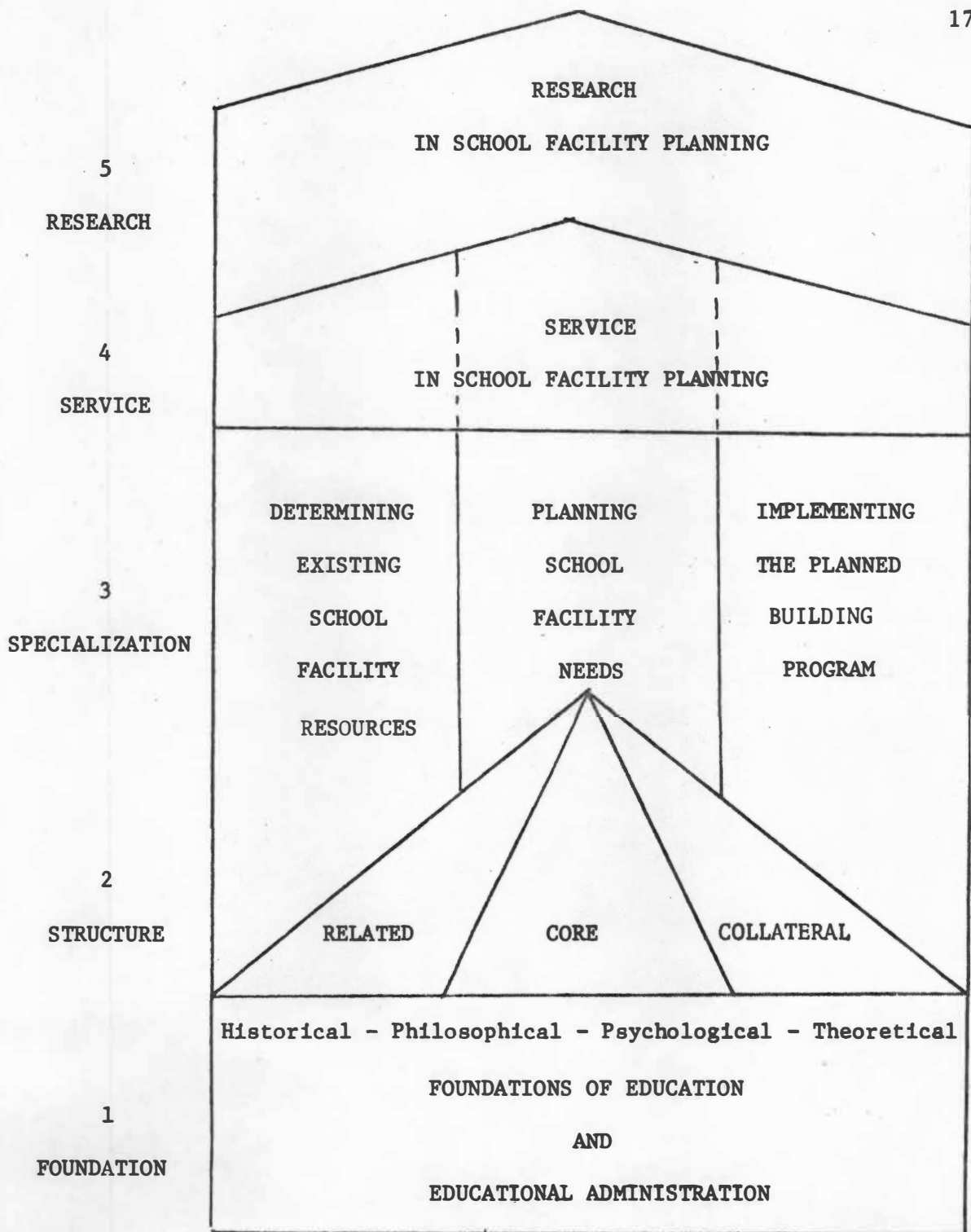


Figure 2. A preliminary model for the instruction and preparation of specialists in school facility planning.

their needs and organization sufficiently to aid them in utilizing their potential power.

Specifically, the specialist will need a broad understanding of people and community needs, as well as knowledge and skill in the specific problems and tasks of educational administration. He will need a high level of competence (knowledge, technical skills, conceptual ability, human leadership skills) in the various foundations of educational administration—historical, philosophical, psychological, theoretical, or behavioral. These goals may be achieved through an understanding of:

1. The changing world and the forces at work in it
2. Culture and education in societies other than his own
3. Historical and philosophical background and sociological conditions of his own society
4. The local community, its composition, and the forces at work in it; community organization, how various institutions may cooperate in their efforts
5. Human growth and development
6. The processes of education
7. The organization and functioning of formal education and its relation to informal education
8. Large-scale organization, theory and practice of administrative organization, structure, functioning in general (i.e., in other selected areas) and in education in particular

9. The behavioral sciences and their contribution to an understanding both of the individual and of groups (large and small), leadership, power, authority, motivation, and change
10. The character and potentialities of research; research design, administration, and utilization as applied to a wide variety of issues in education and related areas.

Structure

The specialist in school facility planning is in essence entering a career in educational administration. The intent of this unit is to present some minimal guidelines for the determination of content of learning experiences to which all administrators might be deliberately exposed. An oft-repeated generalization at all levels of education is that learning is evident when there are changes in behavior. In terms of structure, a large block of content and experience should be designed to change the behaviors of potential administrators so that they will decide more wisely, communicate more effectively, cope with change more constructively, and handle morale problems more skillfully.

The first step in changing behavior through preparatory learning experiences is to provide opportunities for administrators to become more perceptive about the dynamics of processes in organizations. A core block of content and experience should include the administration of local school systems, state-federal relations, legal and financial implications, personnel and public relations, supervision and leadership, and other general administrative concerns.

Studies in other areas of education should be included in this structure unit. Curriculum development at the various levels is crucial in school facility planning, and should be an important collateral area in the specialist's instruction and preparation. For him, curriculum design should be as important as building design.

Students in educational administration are urged to do work in related disciplines, such as sociology, anthropology, psychology, political science, business and public administration, or philosophy. The specialist in school facility planning is intimately involved in social processes and any planning of instruction and preparation should include related studies in the social context.

Specialization

In analyzing the field of school facility planning, both common and unique specialized learnings emerge. The specific function of the person determines the scope and depth of learning required. For the general school administrator—superintendent or principal—school facility planning should be more of a common core learning, whereas for the specialist in school facility planning, it is a specialized field.

In all schools preparing educational administrators, certain basic concepts of an introductory overview nature should be provided in the area of school facility planning. This would familiarize educators with the general processes and techniques of school facility planning. This is in harmony with the concept that a portion of the content of all technical areas should be common for all school administrators—decision-making, communication, change, morale, etc.

Because of the need to provide adequately trained staff and special activities for the instruction and preparation of specialists in school facility planning, not all universities or colleges are able nor should specialize in this area. Circumstances and needs should guide in the selection and planning of such offerings.

The following seven general divisions are proposed to facilitate the instruction and preparation of specialists in school facility planning. No attempt is made to group or organize these general divisions into course sequences or the content to particular course.

1. An Introductory Overview. The introductory overview should include a historical review of school plant development in the United States, and elsewhere as needs suggest. Environmental factors, with emphasis on energy conservation and the state of the economy are vital factors in the consideration of school facility planning and should be a part of the introductory overview. Educational trends and philosophical perspectives give direction to the study of school facility planning, and the extent of study given to this area should be governed by the needs of the students. Statistical data about school facilities are an important part in any introductory overview and should be planned accordingly.

2. The Role of Personnel and Agencies in School Facility Planning. A team approach is an essential element of any successful planning process, and the outcome is limited only by the competence of the participants. The roles of school board members, school administrators and staff, facility specialists, architects, engineers, contractors,

community personnel, and local or state personnel, and a multitude of agencies are unique, and have varied contributions to make. Consideration should be given to the function of each. Urban planning and community involvement, and the importance of public relations are recommended topics that should be included in a review of the role of personnel and agencies involved in school facility planning.

3. Determining Facility Needs. Three major topics should be considered in determining facility needs—curriculum needs and design, enrollment projections, and the undertaking of comprehensive educational surveys. It is the conclusion of this investigation that functional facilities are the result of good planning. It is recommended that close attention be given to the planning process as it relates to these three topics. An accurate evaluation of the existing facilities and resources and the scope of the educational program to be undertaken determine the continued planning and implementing of the desired educational goal.

4. Planning Facility Needs. This major division constitutes the largest clustering of topics and should be given emphasis accordingly. The following topics are recommended for consideration:

- a. Development of Educational Specifications
- b. Standards and Minimum Requirements
- c. Design as It Relates to Facility Planning
- d. Function
- e. Economy
- f. Health/Safety/Comfort
- g. Environmental Control

- h. Aesthetics/Color
- i. Instructional Areas
- j. Special Areas
- k. Site Selection
- l. Master Planning
- m. Equipment and Furniture
- n. Modernization and Rehabilitation
- o. Evaluation

5. Implementing the Building Program. The planning process culminates in curriculum planning translated into facilities requirements. It is recommended that the following topics be included in implementing the desired building program:

- a. Architectural Implications
- b. Finance/Bonding/Bids/Contracting
- c. Construction
- d. Legal Implications
- e. Orientation of the Staff to the New Facility

6. Managing the School Plant. The maintenance and custodial care of the school plant are topics judged to be within the province of school facility planning as it is a planning consideration, in both design and materials. Finance and economy necessitate the care and upkeep of facilities designed. The specialist in school facility planning should be knowledgeable in this area.

7. Planning for the Future. To ensure the relevance of present planning to present and future conditions, serious thought must be

given to the outlook of the future and elements of change. These topics will vary according to the location and the personnel involved.

The success of the instruction and preparation of specialists in school facility planning is dependent on the activities planned. These activities will vary considering the style of the instructor or the opportunities available. The following are suggested activities:

1. Lectures by Instructors
2. Reading and Reading Reports
3. Field Trips
4. Papers/Term Projects/Written Reports
5. Class Presentations by Students
6. Evaluation/Examinations/Tests
7. Use of Resource Personnel/Guest Speakers
8. Study Topics
9. Surveys
10. Critiques
11. Independent Study
12. Interdisciplinary Team Teaching
13. Internships

Internship and field services are activities recommended as being most helpful in the preparation of specialists. It is further recommended that 50 percent of the time involved in the preparing of specialists should be spent in these activities. It is felt that real, on-the-job experiences are of great value and will provide greater results than a multiplication of theoretical course offerings.

Service

An objective of the program for the instruction and preparation of specialists in school facility planning of providing assistance to private and public schools, colleges and universities in solving problems that may arise in planning new facilities or rehabilitating older ones, should afford students valuable on-the-job learning experiences. Service activities may take many forms, but the following should be incorporated into a viable program for the instruction and preparation of specialists:

1. Consultations on Specific School Facility Problems
2. Comprehensive Educational Studies
3. Educational Surveys
4. Educational Specifications
5. Curriculum Studies
6. Clinics
7. Conferences
8. Seminars
9. Workshops
10. In-Service Education
11. Correspondence
12. Guided tours of Educational Facilities
13. Location of Information about Educational Facilities
14. Evaluations and Recommendations of Specific Educational Needs
15. Aid to School Systems in Selection of Professional Services
16. Charrettes
17. Information

In planning service activities, the utilization of human resources is critical. A staff of competent consultants should be the means of developing a sense of confidence both in the instructional personnel and in the clientele served.

Students should be inducted into service activities as soon as possible, first in observing, and then in assuming greater responsibilities. Opportunity should be provided for students to associate with as many consultants as feasible, both as assistants and associates. Each student should have some responsibility of leadership in the various segments of a particular service project, and eventually assume the full responsibility of coordinating a project. It should be recognized that the instructor has the overall responsibility of directing all service projects undertaken. A major function of the instructor should be to help and guide the students in their various service project activities. This segment of their instruction and preparation as specialists in school facility planning is vital and should not be overlooked. A major portion of their professional practicum should be in the area of public service, working with the instructional personnel and public and private agencies.

Another function of service experience should be the promotion of workshops and conferences in the area of school facility planning. Each student should take part in planning and coordinating these activities. One-day clinics for school personnel in the various areas of school plant operation, i.e., custodial services, should provide students valuable experience in research, presentation, and association with the public at large.

Research

Research in educational administration has, over the years, been encouraged in its many facets. Since the early 1900's, school authorities have sought the assistance of experts to survey their systems and to suggest ways for improvements. The formulation of administrative theories, the study of administrative roles and behavior, and the development of guidelines and models have commanded the attention of many research workers. In the program for the instruction and preparation of specialists in school facility planning, research should be undertaken not only in doctoral dissertations or spare-time projects by instructional faculty, but also in deliberate devotion of energies to investigation and experimentation.

The role of school facility planners has become vitally important in future planning because of the growing interest in educational innovations that will upgrade the educational product and decrease pupil alienation.

The difficulty of keeping up with today's educational problems and their solution has left most educators with little or no time to focus on the future. It must be recognized that today's educational practices have a great bearing on the direction of tomorrow's course.

It is anticipated that in the late 1970's and 1980's more people will be served by schools for a wider range of grade levels and ages, for a longer time period—day, night, or year—and with a vaster array of technology hardware and software. Implications for facilities of the future will dictate that tremendous effort in the way of research

for flexibility and functionality will have to be put forth. The many social, cultural, and technological changes that have literally pushed education into another era, are challenging facility planners to update their whole planning process, to enter into better coordinated "team planning" ventures, and to conduct research with greater dedication and deliberation.

VITA

Edward Ashley Streeter was born in Mussoorie, Uttar Pradesh, India, on August 25, 1923. He was graduated from Vincent Hill High School in 1940. The following spring he entered Avondale College, New South Wales, Australia, and graduated with a diploma in business education and religion in 1944.

In the spring of 1949 he was appointed the treasurer of Vincent Hill College, Mussoorie, India, and held that position for six years. He taught business education in the college division for three years. In February of 1956, he received his Bachelor of Arts degree from Loma Linda University, California.

For the next six years he was principal of Raymond Memorial High School in Northern Bengal, India. He entered the Graduate School at Andrews University, Berrien Springs, Michigan, in the fall of 1961, and received the Master of Arts degree in educational administration and supervision the following year.

In the fall of 1962 he was appointed the principal of Roorkee High School in Northern India, and served in that capacity for four years. In September of 1966 he was selected superintendent of schools for the Northern India Union, and continued in that appointment until June, 1969. In the fall of the same year he joined the faculty of Andrews University, Berrien Springs, Michigan, and was still a member of the Department of Educational Administration of that institution at the time of this study.

In September, 1973, he entered the Graduate School at the University of Tennessee, Knoxville, and received the Doctor of Education degree in educational administration and supervision in June, 1975. While at the University of Tennessee he served on the staff of the School Planning Laboratory as a research associate.

He is a member of the American Association of School Administrators, the Council of Educational Facility Planners, Phi Delta Kappa, Kappa Delta Pi, and other professional organizations. He is married to the former Verna Green of Melbourne, Australia. They have four children, Jennifer, Yvonne, Stephen, and Elizabeth.