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BEHAVIORAL GOALS FOR A PROGRAM OF INSTRUCTION TO PREPARE SPECIALISTS IN SCHOOL PLANT PLANNING

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

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* * * * * *

The Ohio State University
1968

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Chapter I

Background Data and Problem Bases

Statement of the Problem

As school systems grow in size and complexity, one of the major areas of concern is providing and maintaining school facilities attuned to the rapidly changing curricular structure. These facilities must provide spaces for the activities which such a curricular structure will involve. They must provide spaces specially adapted to the myriad of new teaching techniques which are appearing on the scene. And they must provide these spaces while also attending to the human comforts of the rapidly growing numbers of students which will be housed in them for longer periods of time, and throughout the entire year. The expenditure of capital for school facilities has increased rapidly since 1950. After World War II, many returning veterans started long-delayed families. Birth rates rose astronomically and expenditures burgeoned. Before 1950, less than one billion dollars was invested in school plant. From 1951 to 1957 more than fifteen billion dollars was invested in school buildings. This represented about twenty-five percent of the total monies spent on public education in this period (16, p.2).

The investment of enormous amounts of money in a
physical plant calls for the utmost care in planning so that the facility will: 1) house adequately the current program of studies; 2) encourage good teaching practice; 3) allow for frequent and rapid change in teaching techniques; 4) minimize maintenance costs; 5) have flexibility to provide for changes in curricular practice and for program change dictated by changes in the social processes; and 6) be an attractive, comfortable, and safe place for children during the greater part of their waking hours. In 1960, the School Building Commission of the American Association of School Administrators warned: "The end of the pressure for additional classroom space is not yet in sight; rather than diminishing, it will increase during the years ahead. All available population data indicate clearly that America's most rapidly growing quarter of a century lies ahead (8, p.2).

An increasing need is apparent for expertise in plant planning to ensure provision for these factors and to provide the administrative leadership necessary in the process. Cherry has stated: "No generation of superintendents ever had such a grand opportunity to make a significant contribution to the improvement of education. On the other hand, there is an opportunity to waste a vast amount of time, energy, and money.... This big problem, this unprecedented need for new facilities, can become the key to the door to a better educational program" (46, p.76). The basic purpose of this study is to provide a research base on which a
program to provide expertise for planning these facilities can be built.

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. Unless a program of studies is based on a statement of objectives which denotes measurable attributes that can be observed in one who has completed the program, it will be difficult, if not impossible, to determine whether the program is, in fact, worthwhile. As Magar states, "When clearly defined goals are lacking, it is impossible to evaluate a course or program efficiently, and there is no sound basis for selecting appropriate materials, content, or instructional methods (29, p.3).

Expertise in the school plant area is evidenced, without doubt, in the way those individuals who operate in the school plant field perform their tasks. If one intends to plan a comprehensive program of instruction for school plant specialists, it becomes imperative to identify the behavioral manifestations of the performances expected of these
specialists. It has been contended that one of the hardest things ever to prove is a relationship between how a person performs his job and what it was that happened to him — maybe years earlier — which shaped that performance. Curricula, though always built on some assumption of relationship between training and subsequent execution of certain responsibilities, rarely are built on clean-cut evidence that what is being done in the classroom results in performance at a later time. Here then, is the advantage of stating the basic assumptions for curricula as behavioral goals.

It was thought that an extensive examination of the opinions of the men who currently hold positions in the field would yield performance standards which can be precisely evaluated on the job. Through opinion surveys of school plant specialists such researchers as Morrisey, Drake, and Dibs in recent years have determined course recommendations for school plant planners in this manner. It was felt, however, that mere course names, titles, or designations do not sufficiently detail the content and scope of material to be offered the student and that the determination of behavioral goals is imperative.

Purpose of the Study

It was the purpose of the study 1) to identify and state in performance terms those behavioral goals which are imperative to the programs of preparation for training
qualified school plant planning specialists, and 2) to
develop a program of studies to prepare individuals as
school plant planning specialists so that they will manifest
by their performance on the job the behavioral goals which
are identified in the study.

Background Data

The literature is replete with opinions concerning the
training of school administrators. The consensus which may be presumed from these writings is that training for admin-
istrators should be about equally divided between general
and special areas.

Van Miller states that conditions causing concern about
common and specialized learnings stem from several compli-
cating factors which result in difficulty in determining
what to teach educational leaders. He identifies these
factors as: 1) the unrelenting growth in knowledge about
the nature of administration and supervision, 2) the start-
tling array of different jobs which have been developed
within the area of educational administration, and 3) the
increasing changes in school size, in complexity, and in
organizational structure which have occurred (31, p.1).

As school systems become larger and more complex,
educational administration increasingly becomes the task of
multiple administrators. This increased complexity calls
for more specialization and segmentation of administrative
work. The variety of career posts in educational adminis-
tration and the movement from one kind of post to another calls both for a common base and for appropriate specialization. Therefore, efficiency in organization of training and of work requires that the common elements be taught or shared in common rather than position by position (51, pp. 2-5).

In other words, the general areas are seen as common for all administrators. The special areas are seen as differentiated for those positions which require specialized content for handling technical functions in particular positions (27, p. 51). Indeed, some authorities suggest that there are many advantages of specialization as men of different abilities contribute their special knowledge and skill to neophytes in a profession. Specialization, it is further contended, need not imply separation, for as each educational component defines and redefines its contribution, cooperative mechanisms become possible (15, p. 80).

Leu has suggested several criteria for differentiating common and specialized content in the various technical fields. "Specialized content," he says, "will be needed a) when the organization served by an administrator performs a unique function, b) when the context where the knowledge is to be applied differs markedly, and c) when the characteristics of personnel immediately served by an organization differ" (27, p. 52). It is to the areas of specialization in the school plant field that this thesis will be addressed.

Within the special areas which are pertinent to school
plant specialists, divisions are apparent. For example, Shaplin suggests that, while general and somewhat vague, there are criteria for differences between training programs for future professors and for future practicing administrators. These differences occur not only in the course work prescribed, but in the desirable practical experience background of candidates for the two position types. It is unfortunate that "few preparation programs... have a sufficient number of candidates to allow them to develop special programs" to accommodate the aforementioned differences (41,p.14). This, however, leads one to conclude as did Drake that only a limited number of institutions should offer a more extensive program to train school plant specialists (82).

The Professional Training Committee of the National Council For Schoolhouse Construction in 1962 added further weight to the arguments for differing training programs for the various top school positions, and especially for professional school planners. This committee suggested that "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" (76,p.124).

Engelhardt has stated that "the services of the educational consultant in making school surveys and in his advisory work on school plant planning are valuable to the
degree that they are based on 1) professional educational training, 2) broad and extensive experience, 3) skills and background in allied fields, 4) a continuing program of research, 5) publication of pertinent books and articles, 6) understanding of public relations, and 7) an ability to defend findings and defend them in public meetings" (16, p. 11). It was believed that this preparation could be provided in large part through preparation programs and experiential field work. Internships, field studies, summer convocations or workshops, and on-the-job training were suggested as means to provide practical experience to the candidate's background. It was anticipated that the more formal aspects of the preparation programs would deal with the specific techniques involved in the various aspects of school plant planning. In addition, it was predicted that experiences in related aspects from the fields of city and regional planning, architecture, personnel management, curriculum, general administration, and a number of other disciplines would provide the candidate with basic and concrete understandings in the desired fields. Before, however, any sequential program of instruction could be built, there remained the task of identifying the goals which such a program would be designed to achieve. This study was designed to identify those goals.
Design of the Study

This is a theoretical, developmental study and is non-experimental in design. A study of the literature yielded a set of the task elements involved in school facilities planning. This set of tasks was subsequently submitted to a panel of experts in the plant planning field who were asked to suggest the planner's responsibility level for each of the identified tasks. Their comments were duly noted and incorporated into the final set of tasks from which the list of objectives was developed.

The literature in curriculum provided the taxonomy to classify the list of objectives and the procedural steps involved in establishing a program of studies. Observation of the day-to-day operations of operating school plant planners provided insight into the complexities of the planning tasks performed.

The objectives were formulated on three levels: general, institutional and instructional. From the list of instructional objectives, a group of illustrative learning experiences was developed. These learning experiences were then ordered and a sequential preparation program for plant planners was developed.

Finally, the set of objectives, the learning experiences and the sequential preparation program were submitted to a panel of nationally recognized plant planning experts.

Selection of the panel: The members of the panel are
all members of the Council of Educational Facilities Planners. The directory of the Council furnished the names of those individuals who are members and who reside in Ohio and the states which surround Ohio - Indiana, Kentucky, Michigan, Pennsylvania, and West Virginia. Members of the senior staff of the Educational Administration and Facilities Unit of the College of Education, The Ohio State University were asked to suggest individuals from the above identified list who might be most interested in serving on the expert panel. From this group the author selected twenty-one possible panel members. With the assistance of his adviser, the author reduced this list to twelve, a number thought to be manageable. These twelve individuals were selected to include: 1) operating planners at the local, intermediate, and state levels from jurisdictions of varying sizes; 2) college professors involved in teaching plant courses and in serving as educational consultants; 3) college campus planners; and 4) private or commercial educational consultants.

A letter was sent to each of these twelve Council members requesting their assistance as panel members (Appendix I). Enclosed with this letter was a post card on which the prospective panel member could indicate whether he would agree to serve in such a capacity (Appendix II). Favorable responses were received from all twelve individuals invited. These men became the expert panel (Appendix III).

Use of the Panel: Subsequently preliminary drafts of
Chapters I, III, and IV of this dissertation were sent to these individuals for their perusal. A cover letter indicated the specific points which the panel was to be used to test. In this letter it was indicated that further contact would be made in order to set up interviews with each panel member (Appendix IV). These contacts were made and interview appointments were established.

The Interviews: It was determined that the interviews were to explore four general areas. These were:

1. The comprehensiveness of the list of tasks involved in planning school plants and the level of responsibility for the task which would accrue to the school plant planning specialist;

2. The comprehensiveness and appropriateness of the resultant set of behavioral objectives. Suggestions about additional objectives were also to be explored;

3. The appropriateness of the set of illustrative learning experiences and suggestions about additional novel or unique learning experiences which should be included; and

4. The reactions of the panel to the flexible approach to the program of studies and to the teaching operations proposed.

In addition, comments were to be elicited about the model on which the program was based.

The panel members were asked to rate the list of tasks
presented in Table I as prime, major, or little according to the planner's level of responsibility. These categories were described to the panel members as follows: prime - the school facilities planner is personally responsible for performing the task or is directly responsible for the supervision of the individual who performs the task; major - the school facilities planner serves as a member of a team whose members are jointly responsible for the task, or as an adviser to the individual responsible for the task; little - the school facilities planner is interested in any task related to school plant construction; this category represents those tasks which are performed or supervised by someone other than the planner, for which the planner has no responsibility, but which may affect his performance so that he is interested in the results of the task.

Delimitation of the Specific Area of Research

As has been stated earlier, this study was designed to determine a set of behavioral goals on which a preparation program for school plant planning specialists could be built. The study was limited to identifying behavioral goals for candidates for the school plant planning position. It did not attempt to delineate behavioral goals for school plant operation and maintenance personnel, business managers, assistant superintendents for business affairs, or any other administrative position. Except for the process of involving
a panel of experts in their selection, no attempt is made
to criticize or defend the set of behavioral goals determined.
This study merely reports them and attempts to fit them into
an instructional program.

Procedural Statement

The following steps constitute the procedures followed
in developing the set of objectives and the training program.

1. A list of the tasks related to planning school
facilities was gleaned from the literature. This
list was submitted to the expert panel and modified
according to their comments.

2. The basic principles and generalizations pertinent
to school plant planning were identified.

3. A set of behavioral goals for the training of plant
planners was developed. To ensure that the set was
as comprehensive as possible, it was given to a
panel of experts in school plant planning for their
comments and/or additions.

4. A group of illustrative learning experiences was
developed.

5. A training program to achieve the behavioral goals
identified was developed using the aforementioned
objectives and experiences as a base.
Development of the Program

Having established a set of tasks, a list of behavioral objectives, and a group of learning experiences, the next step involved ordering these items so as to put forth a rational program for training plant planners. The final statement of the program assumed a form, then, that suggested a group of leaning activities to be conducted over a stated period of time in a given relationship to one another to achieve the list of behavioral goals.

Definitions

Clinic - a form of workshop in which the participants work on problems which have arisen in their school districts.

Common learnings - the knowledges, abilities, skills, attitudes, and appreciations regarded as essential for all administrators.

Competencies - the abilities needed to apply the essential principles and techniques of a particular field to practical situations.

Content - the ideas or meanings presented, or to be presented.

Convertibility - the characteristic of a school building which makes possible the transformation of space from one type to another with varying degrees of difficulty.

District-wide building survey - a study designed to develop a comprehensive plan for future school plant improvements in a given school district and to recommend next steps toward realization of this plan.
Educational objectives - 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.

Educational specifications - a statement of the facilities and qualities that a particular proposed building should include.

Expansibility - the characteristic of a school building which makes possible or convenient the construction of building additions in such manner that they may become an integral part of the building.

Facilities - the physical properties of a school; land, buildings, improvements other than buildings, and equipment, or any physical property outside the school campus used as a part of the curriculum.

Field study - a study for which data are gathered from a source broader than a single classroom.

Flexibility - the adaptability of buildings to various uses as needs change.

General administration - the direction, control, and management of all matters pertaining to school affairs.

Internship - service in preparation for a position, usually under the supervision of a university and a practitioner in the field; consists of a wide variety of experiences in one or more schools or school districts.
Long-range plan; master plan - a plan for school plant development in a particular school district, resulting from a survey of plant needs and usually covering some undefined period beyond the immediate present in which planning treats in more general terms rather than a shorter period in which planning deals with specifics.

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.

Operation - the keeping of the physical plant of a school in condition for use, involving work such as cleaning, heating, ventilating, and lighting.

Panel of experts; jury of experts - a group of expert persons who are asked to rate a given educational product in terms of their degree of acceptance of and/or agreement with such product.

Program of studies; curricular structure - a number of courses and/or other learning experiences properly organized into learning units for the purpose of attaining specified educational objectives.

Remodeling - the alteration or making over of buildings for the purpose of better adaptation of assigned floor area to instructional purposes.

Renovating - renewing school plants to accommodate school
Saturation study - a study which projects the probable number of family dwelling units, ranges of pupil density patterns, and enrollments by grade groups at the time of complete saturation, i.e., when all land which has the potential for residential development is completely utilized.

School plant planning - planning for the physical property belonging to a school district; consists of planning for grounds, buildings, and equipment to facilitate an instructional program.

School plant planning specialist; school facilities specialist - 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 translating school programs into educational specifications, in working with architects and in performing such other tasks as are identified more fully in this study. For purposes of the study this individual is considered a member of the administrative team whose sole responsibilities are 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 a member of an administrative team which includes, among others, experts for business affairs and for curriculum
planning.

**School system** - all the schools operated by a given board of education or central administrative authority.

**Sequence** - a plan of organization and order of presentation of curriculum materials.

**Simulation experiences** - training devices in which the student undergoes experiences and is presented with data which, while not real, closely approximates reality.

**Specialized learnings** - intensive study and work done by an individual in a specific area in preparation for professional operation in that area.

**Technical courses** - those aspects of the program of administrator education which stress the use of special methods or techniques.

**Workshop** - an in-service improvement activity designed to attack and study problems of such scope that many are interested.
Chapter II
The Related Literature

This chapter has been prepared in order to review the literature related to the problem under study. The chapter is divided into four sections according to the following pattern: 1) a section covering research pertaining to the over-all program of education of school administrators, 2) a section dealing with literature pertaining specifically to school plant courses, 3) a section dealing with literature pertaining to new roles for school plant planning personnel, and 4) a section dealing with some of the background literature concerning the establishment and use of behavioral goals as course objectives.

Training Programs For Administrators

In 1870 a township clerk for Hamilton Township, Ohio recorded in the board minutes a complete and detailed plan for the construction of a new school house. This plan clearly set forth the construction requirements for the building, but said nothing about the educational program to be housed in the building. One may conclude, however, that constructing school buildings has been a concern for school administration personnel since schools first were constructed as separate structures. Since school principals and later
superintendents of schools were the first professional persons to assume a share of directing school operation, it can be assumed that they were the first professionals to become involved in planning school facilities. It therefore seems a logical starting place if one begins a study of training programs for school plant planners with a brief investigation of the programs which have been developed for training general school administrators.

Programs for professional education of school administrators have, over the last several years, been given close and frequent attention by researchers and others interested in the training of school personnel. Some of this attention has been due to the general re-evaluation of American public education inspired by Sputnik and other advances in the technological aspects of modern society. Some attention has been due to the major sociological changes occurring in American society. And some attention has been due to the concern which schoolmen have felt over the shortcomings of current programs.

The aims, content, and methods of education for administrators have received considerable attention from two groups. These are the National Conference of Professors of Educational Administration and the Cooperative Program in Educational Administration. These groups have brought together persons vitally concerned with these programs, among them professors, administrators, and school board
members, in an effort to raise the general standards of the profession through improved preparation programs. These persons have contributed to the identification of current issues, to the investigation of program insipidness, and to the determination of new directions in the professional education of school administrators.

Current Issues in Professional Education

Who Shall Provide Training Programs?: The first course in educational administration appeared in an American institution of higher learning prior to 1900. Murphy, in an early study of training for the superintendency, found that from a beginning in 1900 of twelve schools offering thirty-two courses in administration, advances had been made by 1930 to twenty-five colleges offering two hundred and eighty-six courses (88, pp. 18-19). In a later study, Davies found that these figures had further increased so that more than six hundred institutions were offering training courses for school administrators (47, p. 19).

This increase in the number of institutions and courses in administration was criticized by later investigators. The Southern Section of the National Conference of Professors of Educational Administration pointed out that: 1) courses in administration too often increased through the additive process without consideration for the wholeness of design of the program; 2) it was common for the content of courses
to deleteriously overlap; 3) courses were inordinately concerned with internal operations of school systems; 4) some courses were outmoded in terms of purposes and content; and 5) proliferation of specialized courses had created specialists without interest in other areas (60, pp. 82-83).

In the same vein, the editors of the 1960 yearbook of the American Association of School Administrators criticized institutions which offered programs to prepare administrators when they are not equipped to do so. They state:

A substantial proportion of the colleges and universities now conducting preparation programs are ready in neither seriousness of intent nor resources. Some of these have been seduced from short-term motives that run counter to the best interests of American society.

There are colleges and universities across the land now contemplating going into the business that cannot conceivably do a quality job, at least not without seriously crippling other programs in the college. Ironically, their action will be lauded, if not by others, at least by themselves. Unfortunately, too, there are many institutions that do not claim a program, but offer enough courses to permit a student to sneak under the certification wire (7, p. 236).

General or Special Training?: Another issue in the organized study of educational administration centers around the question of whether preparation programs for school administrators should aim for broad, liberal education or specialized training. Chandler and McSwain state that "... there is no doubt that substantial agreement exists among leading educators and school board members that it is
imperative to shift from strong emphasis on managerial minutiae offered in numerous fragmented courses to broad-gauge programs with emphasis on a balance between professional education and liberal studies. Administrators must be prepared for social and educational leadership" (45, p. 62). This contention has been supported by reports of regional and national conferences of professors of educational administration. The Middle Atlantic Region of the Cooperative Program in Educational Administration in 1953 insisted that the education of an administrator should heavily emphasize areas of study in modern culture. Their report stated:

Especially will he need guidance in appreciating the actual and potential bearings of these on the growth and development of individual human beings and their institutions. He will need to understand deeply the origins, development, and functions of each of society's institutions and their inter-relationships in community life (69, p. 6).

The authors of this report argued further that emphasis on practical problems through specialization and technical course work tended to inhibit basic research and free inquiry (69, pp. 28-29).

Frederick has argued that any person who advises the policy forming body of a school or school system ought to be liberally and professionally educated. He says:

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 imagination and resourcefulness (52, p. 53).

The report of the Southern Region of the Cooperative Program in Educational Administration of 1954 criticized technical courses because they produced administrators "more conversant with the literature than competent to administer school programs" (60, p. 81).

Administrators, most of whom depend upon preservice education as a means of obtaining their professional status, have critically evaluated the relative merits of specialized courses. The American Association of School Administrators in its thirtieth Yearbook, suggested that much of the content in specialized courses could be learned on the job without any loss in administrative efficiency, thereby saving time which could be devoted to other content more essential to administrators (2, p. 394).

Some studies, however, have stressed the importance of specialized training courses. Riso concluded, after researching the literature in administration of a twenty-year period, that administration courses concerned with the special financial and business aspects of school administration were infrequently and inadequately treated in preparation programs in spite of the fact that studies have indicated that administrators consistently ranked courses of this type as most valuable (89, p. 58). Fisk pointed out that as many as nine school administrators out of ten were
not adequately prepared for the specialized functions of their position (53, p.65). Leu takes the position that research "suggests that approximately one-half of the technical content in a two-year program would be common for all school administrators. The remaining portion would enable those preparing for different administrative positions in education to gain specialized content for handling technical functions in particular positions" (27, p.51). Further, he suggests criteria for differentiation of common and specialized content. "Several criteria can be suggested for differentiating common and specialized content in the various technical fields", he says. "Specialized content will be needed a) when the organization served by an administrator performs a unique function, b) when the context where the knowledge is to be applied differs markedly, and c) when the characteristics of personnel immediately served by an organization differ" (27, p.51).

What are the conditions which have led to this concern over common and specialized learnings? Van Miller lists five possible causes. These are:

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 learnings as a basis for fitting specialities 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 (31, pp. 2-4).

How Can We Up-Grade Preparation Programs?: A re-evaluation of the content of specialized courses in school administration appears to be vital. Some need for differentiation between general and special aspects of training is needed. Van Hille also addresses himself to this problem. He indicates that there is no hard and fast boundary between common and specialized learnings since each grows out of the other and supports it. Further, he says, some of the differentiation between common and specialized learnings is based upon differences in depth, contextual detail or specificity of function. Those who have examined programs of preparation for the various kinds of educational leaders generally agree that about two-thirds of the content presented in training programs for administrators should be common material no matter what their speciality. The common background for all educational leadership personnel should include: a) a sense of educational purpose and program; b) the structure and controls of education and of society; and c) an understanding of leadership and social process (31, p. 7). When areas of specialization are provided within graduate programs they
should be developed to coincide with functional or service areas rather than being tailored to fit existing positions. According to Van Miller these areas would likely include:
1) curriculum and instruction; 2) student personnel; 3) staff personnel; 4) external relations: community, legislative, professional; 5) finance and business management; 6) school housing and physical facilities; 7) research and evaluation; and 8) general organization and administration (31, p. 8). Moreover, he adds, staff positions would normally be filled by specialists in the task areas, while the line positions of principal and superintendent would be filled by persons with a more general orientation.

Implied for training programs in educational administration are the following:

1. The program in educational administration and supervision should be under the auspices of a single department or structure which will ensure adequate coordination of total university resources and bring respective specializations into close relationship.

2. When the variety of prospective administrators are included in the program, the criteria for selective admission can tolerate a wider range of interests and competencies and still maintain tight standards for intellectual and personal qualifications of applicants.

3. Specialized learnings would normally be offered in advanced graduate course work extended well beyond the core of common learnings.

4. Administrative research would be geared more to the total field of administration or to a specialized function rather than to specific kinds of present administrative positions or kinds of districts.

5. The prospect of service in different administrative and supervisory positions and awareness of the large block of commonality, should make
the various kinds of administrators more aware of their common interests.

6. Since administrative personnel do move to various kinds of positions, any segment of the administrative family needs to be concerned about quality recruiting for all of educational administration.

7. When professional preparation is organized on the basis of a large block of common learnings topped by intensive work in specialized learnings geared to functional areas, organization is possible (31, pp. 3-10).

Those who have studied professional programs in educational administration in the past have reported debilitation in these programs. For example, the judgments of superintendents about their education were reported in the 1960 Yearbook of the American Association of School Administrators. Cited as major limitations of these programs were the lack of internships, the misuse of field training, the inadequacy of laboratory and research facilities, misorganized curricular elements, sparsity of advanced courses for the sixth year and doctoral programs, inadequate numbers of students, inappropriate class sizes, new and undeveloped programs, poorly planned and operated seminars, and a lack of cooperation with other departments (7, pp. 75-77).

Riso, in 1950, conducted a comprehensive study of the content and purposes of professional education for administrators. Weaknesses characteristic of most school administrator preparation programs were identified as: 1) failure to recognize the importance of personal and social traits, 2) neglect of an organized internship period, 3) the
multiplicity of specialized courses offered, 4) failure to distinguish between principles and applications, 5) premature introduction to specialized courses, 6) neglect of courses outside administration, and 7) failure to provide adequate balance for the entire program (89, pp. 261-262).

A review of the literature from 1928 to 1948 confirmed the concern felt over these weaknesses and pointed up the need for: 1) standardization of training programs, 2) cooperation with other university departments, 3) development of strong foundations in the social sciences, 4) inclusion of internship as part of the required program, and 5) inclusion of financial and business aspects of administration in the curriculum of such programs (89, p. 52).

Another 1950 study, this one by the staff and members of the Southwestern Region of the Cooperative Program in Educational Administration, involved graduate students in educational administration and experienced school administrators. The respondent students indicated that preservice programs could be improved by: 1) a more practical course content, 2) the provision of more group discussion, 3) more specific assignments, 4) giving and following more definite course outlines, 5) furnishing more positive leadership, and 6) encouraging cooperative class planning. The experienced school administrators, in their turn, suggested that in-service professional study programs could profitably make use of such techniques as summer school attendance,
short workshops for credit and non-credit, voluntary study
groups, and planned visitations (63, p. 78).

Features of New Preparation Programs For Administrators

The examination and evaluation of preparation programs
for administrators has produced some notable changes. A
1960 poll of superintendents by the American Association
of School Administrators indicated the validity of earlier
contentions (7, p. 71). The strengths of preservice education,
it showed, lay in the use of a wide variety of techniques.
These included: 1) internships, 2) field experience, 3)
workshops, 4) integrated and well-balanced programs, 5)
interdisciplinary approaches, 6) high admission standards,
7) research opportunities, 8) problem-centered curricula,
and 9) use of practitioners as instructors. The writers of
the 1959 Yearbook of the American Association of School
Administrators suggested that the ideal sequence and struc-
ture for the education programs for superintendents was:
1) a year of basic administration courses, 2) a year in
field experiences with actual administrative responsibilities,
and 3) a final summer session of individualized work, ad-
vanced theory, and evaluation of individual competency (5,
p. 158). Basic administration courses, they said, ought to
be taught by small multi-disciplinary teams, and methods to
emphasize individual guidance instead of group activity
should be employed (5, p. 189).
Jenkins and Blackman developed guides to preparation of administrators. They concluded that promising candidates for administration should: 1) be identified early, 2) be observed as teachers, 3) be involved in field observation and study, and 4) under direction of competent professors, examine the body of theory in educational administration (87, pp. 29-33).

Merrill has reported a plan for developing preparation programs for school administrators. A first step in this plan is the selection of the specific areas in the administrative field in which competency is required, and the arrangement of ideals, functions, knowledges, tools, and attitudes. The next steps are rigorous examination of present courses being offered in light of the specific competencies needed, determination of the competencies needed by professors, and analysis of the sequence of learnings. The final steps are recommendations for the improvement of present courses, and the implementation of these recommendations (60, pp. 84-86). This technique of improving courses, when used, has resulted in a general upgrading of these preparation programs. The competencies needed by professors of educational administration include the knowledges, skills, and understandings to perform the "critical tasks" of educational administrators. These competencies should be based on a theory of learning which will govern the manner in which the "critical tasks" will be performed.
Graff has stated:

Before a training program can be said to be an effective experience for educational administrators the first step must be to identify what the administrator does. Second, the skills and knowledges (personal equipment) necessary for him to do these things must be identified, and third, the basic beliefs and assumptions upon which the job is to be accomplished must be known. Finally, there must be described the many intricate and critical relationships which come about when the above three factors are combined to produce the competent behavior (20, p. 83).

Implementation of some of these recommended changes has occurred in the leading institutions which prepare school administrators. Griffiths summarized some of these changes:

More courses are being taught by the case method. The internship may become part of the certification requirements. More emphasis will be placed upon producing administrators who are also educated men. Another new area is preparation in the basic skills of administration, i.e., speaking, listening, business management. The skill level will be taught as such, not merely as textbook readings. A technique called the "simulated situation" may well be the greatest step forward. It involves constructing a model of a school system to improve decision-making ability (55, p. 51).

Internship programs have been adopted at almost all institutions preparing school administrators. New impetus has been given to this type of functional training. Cooperation between institutions of higher learning and school systems has been enhanced. Studies of the effectiveness of the internship indicate the value of intern training in the transition from preservice preparation to administrative responsibility.
Baldwin states:

The value of a well-planned internship has been generously and almost unanimously acknowledged by both the intern and the training institution. Likewise, the value placed on the services of interns to the school system has been generally and generously attested by the school systems and the administrators under whose direction interns have worked (69, p. 21).

Field services as adjuncts to educational administration programs have furnished valuable experiences difficult to provide in the classroom. Field services serve two major functions in the education of administrators. These are: 1) the direct services rendered by the college to the school system, such as comprehensive school surveys, research bulletins, and professional placement services; 2) the indirect services rendered by the college in cooperation with the school system, such as consultation with administrators about school problems, cooperative research projects, and assistance in community self-surveys (69, pp. 23-24).

Interdisciplinary approaches have proved valuable in expanding the scope of the general education of fledgling administrators. Johnson reported that some of the interdisciplinary methods successfully employed were seminars with specialists from other university departments and the business world, joint professorships with instructors competent in more than one academic speciality, faculty additions from disciplines outside professional education, and graduate assistants appointed from disciplines in selected subjects to the staff of the education college.
School Plant Courses For Administrators

In 1931 Murphy analyzed catalog descriptions of courses offered in school administration in the period from 1900 to 1930. From these catalog descriptions he compiled a list of the school plant topics included in school administration courses during the period. He found that in 1900 only twelve institutions of higher learning offered courses in school administration. Six of the twelve universities included school plant topics in their administration courses. Heating, lighting, hygiene and sanitation, construction, and equipment are representative of the plant topics covered. (88, pp.18-19).

By 1910, the study of school plant topics was well established in administration courses. The first course devoted exclusively to school plant planning and management was offered at the University of Washington before 1910. Separate courses involving plant related topics such as sanitation and hygiene were offered at other institutions (88, pp.21-11). The 1920's witnessed a sudden proliferation of school plant courses.

Riso, in 1950, discovered that thirty-nine graduate schools in the United States offered courses which included school plant topics in their titles (89, p.185). The number of school plant related courses had tripled in less than twenty years!

The United States Office of Education in 1959 sponsored
an authoritative research project designed specifically to ascertain the number and nature of school plant courses offered by colleges and universities in the United States during the period from 1956 to 1959. This study disclosed that there were over one hundred schools offering one hundred twenty courses whose curricula included a substantial proportion of time devoted to school plant topics. This represented an increase of four hundred per cent in the number of such courses offered during the decade of the 1950's, a not surprising figure for this period since societal conditions created a heavy demand for school housing during the same period (72).

The Importance of School Plant Training

The literature contains a number of references which affirm the importance of school plant training for school administrators. Murphy, in 1931, concluded that school-housing should be a major part of the unit core of essential topics included in a superintendent's training (88, p.101). The judgments of school superintendents and professors of educational administration were surveyed in 1960 by the American Association of School Administrators. School plant topics and courses were rated highly important in the training of superintendents (7, p.47).

The boom in school construction during the years since the end of World War II has been reflected in the numerous
reports in the professional literature which assert the need for school plant training for school administrators.

The Professional Training Committee of the National Council For Schoolhouse Construction reported in 1955 that an enormous task confronted administrators because of the great need for school housing. The report "praised" school administrators in a rather contumelious manner.

Who are the people responsible for measuring the existing need, estimating the coming need, planning and financing the building program, and supervising the construction of the school buildings? They are the school administrators who serve individual school districts. How well are these school administrators doing? Remarkably well considering the fact that most of them have entered a school building program without any preparation whatsoever (75, p.19)! 

The committee also criticized the existing school plant courses and castigated institutions which did not offer such courses. They asked:

Why do the 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 (75, pp. 19-20).

Cherry saw the unprecedented need for new school facilities as a fortuitous opportunity to provide better
educational programs. Arguing that past mistakes and new errors in planning schools must be avoided, he urged that wise planning make its contribution to the improvement of education (46, pp.75-76).

English found that the crisis in school housing was complicated by the lack of educators who were qualified by experience and training to meet the leadership demands that planning new schools thrust upon them. He noted that administrators with school building experiences prior to 1947 were rarities (83, p.5).

Evans found that superintendents felt quite unprepared by training. He urged that school plant courses be required for administrative certification (84, pp.430-432).

The issue of general vs. special training has been raised in reference to programs of instruction for school plant planners. The National Council For Schoolhouse Construction proceedings in 1962 contains a statement of this concern. They ask:

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 (76, p.124).

Topics in School Plant Courses

The topics included in school plant courses have been widely divergent over the years and yet a pattern of change can be clearly discerned. In the beginning, plant courses
emphasized technical aspects of school planning and management. This emphasis has slowly changed until current courses tend to stress the importance of the school plant in the instructional program.

The first specialized courses in school plant planning stressed the need for school buildings which provided for the physical welfare of pupils. Thus, great emphasis was placed on determining proper heating, lighting, ventilation, and sanitation standards (88, pp. 21-22). In 1930, selection of school sites, construction of the building, providing adequate and proper equipment, developing site plans, and writing specifications were current and popular plant topics (88, p. 32). In 1936, technical aspects of school plant planning were still of most concern to plant planners. Carpenter reports that:

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 (70, p. 26).

In 1950 Riso found that the most frequently listed topics in plant courses were planning and maintenance. At that time, however, general, non-technical topics related to the instructional program such as responsibility of administrators, integration of curriculum, analysis of
techniques, determining objectives, and outlining a program of education were infrequently included (89, p.185).

**Recommended Content For School Plant Courses**

In 1954 Evans attempted to determine the professional training needed by small school superintendents in the field of school buildings and maintenance. Responses of superintendents and board members regarding a list of skills and information were compared. Agreement was found between the two groups about the essential skills needed by small school superintendents in this area. Included in this list of essential skills were: educational programming; school plant factors in school finance; interpersonal relationships; knowledge of steps to be followed in building programs; and the perspicacity to consult expert technical advice when needed. Specific emphasis on the skills needed in planning new plants and in determining the feasibility of renovation for existing plants was considered desirable. Evans concluded that school plant courses were best conducted as workshops, and through laboratory, and field experiences (84, pp.401-404).

English utilized a jury of experts to determine the proper topics to be included in the study of school building needs. The resultant outline was a balance between topics which were technical and topics which treated the more general aspects of school plant planning. Major divisions of this outline indicated this balance. For example, they
included the nature of the community, the school population, the school program, the present school plant, the ultimate school plant, and the financial means of accomplishment (83, pp. 159-164).

Bottomly evaluated many of the articles about the school plant planning process which appeared in the professional journals between 1940 and 1957. He identified the major tasks which seemed to form a sequence in school plant planning. These were: 1) developing an awareness of the need for a building program, 2) defining the problems raised by the awareness of need, 3) formulating the plan of assault on the problem, 4) data gathering in the community, 5) drawing conclusions from the data gathered, and 6) transforming the program into the plant (79, pp. 50-54).

Conrad sees four task areas in school facilities planning. These are 1) the district-wide building survey, 2) educational planning, 3) architectural planning and construction, and 4) moving in and settling down (13).

Boles lists twelve steps to better school facilities. These are: 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 (11).

Collins showed that studies of special facilities for
specific subject matter classes constituted the study matter for a majority of studies in the school plant field. Heavy emphasis, he found, is placed on educational specifications for specific types of facilities (60, pp.260-262).

As might be expected, the National Council For School-house Construction has often studied the problems involved in training administrators to function expertly as school plant planners. Indeed, the Professional Training Committee of this organization has achieved such status that its recommendations have helped determine the content of many school plant courses. In 1955 this committee recommended four basic concepts for inclusion in school plant courses.

First, the educational value of the building must be considered and appreciated. Second, we should all recognize the physical effects of a building on its occupants. Third, there should be some recognition of the aesthetic values of a school building. Fourth, there should be a basic knowledge of the planning process which is vitally necessary to the production of modern functional schools (75, p.21).

In order to provide close integration between building program and the curriculum, the committee advised that the following specific knowledges be included in training courses for plant planners:

... survey techniques; analyzing data involving teachers, principals, board members, custodians, citizens, consultants, architects; weighing educational values and fiscal values; accepting responsibility for final decisions; expediting the mechanics of planning and building (75, p.21).

Carpenter is more specific and detailed in his comments.
The first course in school building problems in our institutions must necessarily be an over­view type for which we offer $2\frac{1}{2}$ or 3 hours credit. Most of our superintendents in training are graduates of state teacher's colleges. As a rule, they are not well prepared in the fields of science, engineering, industrial arts, architecture, and other related fields which make up to a considerable extent the subject matter in courses in school building problems. The first course in school buildings in our schools should be largely a course in a survey of the problems involved and an attempt to develop an appreciation of their importance. We cannot attempt in our beginning course to make building experts of these students (70, p.26).

The bulk of the articles in professional periodicals and the majority of the textbooks available that deal with school plant problems emphasize the planning aspect. This supports the principle that the educator's major responsibility in the plant area is the planning process.

Moehlman stresses the need for wise planning to meet building requirements without major financial difficulties. He identifies task areas important to school planning as: 1) locating new buildings, 2) determining the need for new buildings, 3) determining the size of the site, 4) translating curricular and social needs of the child and community into number, sizes, types, and locations of rooms, 5) determining structural standards, and 6) determining equipment standards and needs (33, p.226).

Herrick holds that professional competence in the planning of new schools is imperative. The principal characteristics of the professionally competent administra-
tor in school plant planning include:

- a general understanding of education
- knowledge of instructional practices and procedures
- understanding of public administration
- knowledge of school buildings
- command of specialized techniques

In order to develop these characteristics to their fullest extent, Herrick explains, one must:

1. acquire an understanding of the role of education in society.
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 planning 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 (25, pp.134-137).

Carpenter has addressed himself to this topic a number of times over the years. In 1964 he wrote:

Every graduate student planning to prepare for school house planning should have a number of experiences in cooperation with a university or institution of equal rank. Such experiences might be evaluation of sites and buildings; studying building codes, insurance services, and maintenance; making surveys of financial, population, land use, and/or building needs of a community; and serving internship with a state department of education or public school district. If a university cannot provide such services without overloading the staff members, then it should not be permitted to offer training in this area. Visits to buildings, state and city school planning sections, architect's offices and construction sites should be supervised. Haphazard visitations may easily have negative value. (71, p.33).

Miller lists twelve steps in planning a school which if properly treated could provide an effective framework
for developing school plant courses. These steps include:
1) a school plant needs survey, including the social and economic nature of the school district, industrial trends, future changes in school population, relative changes in various subdistricts within the school areas, educational policies of the board of education, adequacy of the present school plant, and location of present sites with respect to traffic hazards and noise; 2) curriculum planning; 3) educational programming, defined as a study of all the forces that are likely to change our ways of living; and 4) educational designing, that is, reducing educational needs to blueprints. Steps five through twelve involve aspects of site location, engineering, landscaping, equipment, and inspection (61, p. 40).

Engelhardt presents seven bases for judging the worth of the services of the educational consultant. These are: 1) professional educational training, 2) broad and extensive experience, 3) skills and background in allied fields, 4) a continuing program of research, 5) publication of pertinent books and articles, 6) understanding of public relations, and 7) ability to defend findings and defend them in public meetings (16, p. 11). Expanding these bases he says:

Training in educational philosophy and psychology, in educational methods and curriculum, should be extensive and continuous. An essential is graduate courses in all fields of elementary, secondary, and general school administration, including financing, school plant development, maintenance and operation problems, equipment, and transportation programs. Associated training
should be in the fields of city planning and general city administration. Education in engineering and service in an architectural organization assure coordination of the professional activities.

Training alone does not suffice. Experience must be offered in classroom teaching at various levels, in service as a school administrator, in apprentice participation in school survey work, in active membership in local, state, or national planning groups. The matured judgments of the educational consultant must be assured through years of intensive training, and extensive opportunities under expert supervision for applying the training to real situations. (16, p.12).

Long-range planning and adequate preparation before construction were the main themes of a 1954 conference at Stanford University. Elements of effective planning were identified as: 1) establishment of the need through population study, 2) treating site considerations based on such things as school population densities, total community development, and traffic patterns, 3) determination of educational ideals, objectives, and curricular patterns in light of current educational thinking and psychological research, and 4) establishment of space requirements through participation of administrators, teachers, and consultants (35, p.10).

Bursch and Reid suggest a complete and comprehensive way to develop a long-range plan for meeting anticipated growth in a school system. The initial element of good planning, they point out, is recognition and evaluation of building needs. This recognition comes about when community
and financial data, conditions of existing school buildings, and program considerations are analyzed and reconciled. A second element, according to these authors, is a determination of educational policy through a study of educational objectives, school system organization, school sites, curriculum, teaching techniques, adult education and community activities, and supplementary services. The formulation of the master plan, including the scope, planning principles, building cost, and financial program is the third element of effective planning. In the final instance, the building plan is developed. This development includes a number of operations which incorporate selection of the architect, development and adoption of preliminary plans, development and adoption of the working drawings, awarding of the building contracts, and construction of the building (12, pp. 48-88).

The National Council For Schoolhouse Construction sees public relations training as a vital aspect of training programs for plant planners. They state:

Our committee feels that an effective professional training program should consider the need for good public relations. Without question, progress in the planning of schools hinges directly on public support. It has been so well stated that the public reacts on the basis of the way things seem, not necessarily how they are. Progress requires consistent and thorough communication. (76, p. 124).

Engelhardt, too, sees public relations training as a major area which should be included in training programs.
Instruction Techniques for Plant Planning Specialist Training

Among the techniques employed by instructors of plant planning training programs have been field trips, guest speakers, lectures, study of school plans and blueprints, audio-visual presentations, laboratory work, study of mock-ups and of actual school plants, student reports, committee reports, role playing, and simulated studies. Of these, several deserve special mention.

The school survey has been a popular and useful means to perform a service to local school districts and at the same time provide a variety of educational opportunities to different types of people. They have enabled school administrators to learn school plant planning under expert guidance, and have afforded practical experience for graduate students.
training for consultant and specialist work.

Commenting on the use of the survey and its values extant, the Council For The Preparation Of Educational Administrators reported:

Some of these will be done for the school system, some with the school system, and in some cases the representatives of one institution will merely advise in setting up and carrying on the survey program. If the institution can stimulate local administrators to develop means for getting the fundamental facts, assist in interpreting these, and raise pertinent questions as to their bearing on school policy and program, it would seem to be performing its most promising role for promoting continuing professional development of superintendents (69, p.27).

The internship is another technique which has been included in training programs for administrators. Recognizing the value of this technique in alleviating the need for trained and experienced personnel in the expanding school building programs, the National Council For Schoolhouse Construction resolved:

The Council urges schools of education to encourage and foster an internship type of training whereby interested young men may secure on-the-job training in those school districts engaged in building programs, or with state departments of education having responsibility for school planning (77, p.89).

Workshops in school plant planning have generated interest in cooperative planning by experienced administrators. Baldwin reports the use of practicing superintendents as visiting specialists to lead workshop participants in school plant planning activities (69, pp.19-20). At a Cornell workshop the use of simulated situations, field
trips, and guest speakers proved exciting.

The course itself paralleled the development of an actual school building program through its various phases. Beginning with the determination of a community's school needs, it followed the growth of a project through establishment of educational requirements and recommendations for a school, the sketching of preliminary plans and room layouts, and the drafting of working drawings and specifications for the plant. The class group studied administrative procedures involving such matters as the selection of the architect, relations of the architect with the board of education, publicity and the community participation on the project, and sound business management in advertising for bids and in the awarding of contracts. Workshop students visited new school plants in several western New York communities. Conferences with architects at their offices comprised a portion of this field trip (67, p.70).

Closely similar to the workshop, yet different in some important respects are school building clinics. School building clinics have been built around selected problems of the administrators participating and have provided opportunities for individual consultations between the instructors and clinic members (66, pp.63-66). In such clinics the participant who doesn't present a building problem for solution gains as he helps develop solutions for the problems which are presented. The application of general principles to the case at hand makes possible the transfer of these principles to building programs in the home districts. The school building clinic contributes to the development of better school planning by making experience and expertness available in dealing with real problems. This approach offers possibilities for consultant services to school districts
by institutions and state, departments.

The Emerging Role of School Plant Specialists

The increasing incidence of school plant specialists as employees of boards of education necessitates further definition of the roles they will play. It makes all the more important the selection of proper content of basic and advanced school plant courses to prepare such personnel.

The increased need for plant planning specialists can be attributed to several factors. Some of these are: the pressure on time of the administrators 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 especially prepared by experience and education to plan schools. In the years right after World War II some consultants rendered inexpert aid. Bottomly writes:

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 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 (79, p. 5).

Because of such poor early experiences the need for professional advice in school plant planning was recognized. Linn justified the employment of school plant specialists on the grounds that better facilities at a more economical rate resulted from their use (52, p. 42).
The American Association of School Administrators suggested in their 27th Yearbook that colleges and universities develop coordinated programs of study in education, architecture, and engineering to prepare specialized school plant personnel (1, p.319).

Bottomly found that there was substantial agreement that the specialist made his greatest contribution in performing five specialized functions. These functions included: calculating room and space needs, making site selections, evaluating existing buildings, making enrollment projections, and advising on cost and finance (79, p.92). He recommended development of skills in understanding the methods of social research; in gaining insight into community relationships; in gaining acquaintance with financing, budgeting, and taxing; in understanding demography; in calculating space requirements, relationships, and use; in utilizing the professional mode of thinking; and in understanding the importance of group dynamics for those training to be school plant specialists (79, pp.117-120).

Lawler identified some of the qualifications seen as most desirable in candidates selected for advanced school plant study. These included: mechanical aptitude, interest in design and equipment, good personality, and interest in the education of children (73, pp.31-35). Competencies to be developed in these specialists through programs of
instruction were:

1. Ability to translate educational needs into concrete proposals for school facilities.
2. Ability to forecast pupil populations.
3. Ability to select sites, taking into account the requirements of city planning.
4. Ability to work well with people.
5. Have a mastery of public relations.
6. Have a thorough knowledge of the financial and legal framework in which his work has to be done.
7. Know how to deal effectively with architects in planning buildings.
8. Know how to organize maintenance for a school system.

(73, pp. 31-35)

The Need For Course Objectives Stated in Performance Terms

Graff has approached the training of administrators from the behavioral point of view. He stresses the need for improving competence in educational administration and states that "competence does not occur until the necessary elements are present, and then only as those elements interact to bring about the behavior appropriate to the situation" (20, p. 72). "Competence", he says, "results when the job tasks, the appropriate know-how, and the appropriate theory understandings are present, are purposefully engaged, and are interacting to produce the best possible behavior commensur-
A person will be most competent when the tasks he is to do have been clearly identified and defined, when he brings to these tasks an adequate amount of relevant "know-how" - personal equipment in the form of knowledge, skill, methods, tools, and understandings - and when his understandings of these tasks and ways or performing them are the reflection of some larger beliefs and assumptions which are in fact the governing and evaluating basis for all his activities (20, p.83).

This is not a novel approach, nor is it claimed that it is novel. One can find concern with objectives in education in many of the works of early writers in education. Bobbitt in 1918 wrote:

The central theory is simple. Human life, however varied, consists in its performance of specific activities. Education that prepares for life is one that prepares definitely and adequately for these specific activities. However numerous and diverse they may be for any social class, they can be discovered. This requires that one go out into the world of affairs and discover the particulars of which these affairs consist. These will show the abilities, habits, appreciations, and forms of knowledge that men need. These will be the objectives of the curriculum. They will be numerous, definite, and particularized. The curriculum will then be that series of experiences which childhood and youth must have by way of attaining those objectives (10, p.42).

Others have concerned themselves with objectives over the years in education. Many of the major and best known studies are in effect objectives for education, e.g., The Imperative Needs of Youth. However, according to Dyer:

The trouble is that in spite of all the hard thinking and earnest talk about educational goals, and how to define them, the goals produced have
been essentially non-functional - and I mean even when they have come clothed in the so-called "behavioral terms" we so much admire (48, p.2).

He argues further that:

In the last analysis, an educational goal is adequately defined only in terms of the agreed upon procedures and instruments by which its attainment is to be measured. It is to say that the development of educational goals is practically identical with the process by which we develop educational tests. It is to imply what in some quarters might be regarded as the ultimate in educational heresy: teaching should be pointed very specifically at the tests the students will take as measures of output; otherwise, neither the students nor their teachers are ever likely to discover where they are going or whether they are getting anywhere at all (48, p.12).

Pointing to the need for basing educational programs on a set of objectives, Eisner states:

Educational objectives... need to be clearly specified for at least three reasons: first, because they provide the goals toward which the curriculum is aimed; second, because once clearly stated they facilitate the selection and organization of content; third, because when specified in both behavioral and content terms they make it possible to evaluate the outcomes of the curriculum (49, p.250).

Gerhard sees six major categories of educational objectives. He lists these as:

1. Knowledge - concepts, generalizations, principles, relationships, and facts.
2. Tool-skills - those skills essential in further acquiring and applying knowledge.
3. Self-directive behaviors - which include self-instructive behaviors, i.e., those behaviors one undertakes to instruct oneself and conduct independent study; to select a topic, to discover sources, to extract essential data, utilize the data and set up goals and methods for achieving goals - and self-evaluative behaviors, i.e., the behaviors involved in using goals, constructs, standards and measures
of achievement so as to determine further self-instruction.

4. Socially-effective behaviors - the development and use of social capabilities such as assuming leadership and interacting harmoniously with others.

5. Positive attitudes toward and interest in content areas.

6. Thinking behaviors - deduction, induction, convergent thinking, divergent thinking, analysis, classifying, categorizing, comparing, association, critical thinking, concept formation, and creative thinking (54, p. 92).

Perhaps the most extensive categorization of educational objectives is that of Bloom and others in the cognitive domain and Krathwohl and others in the affective domain. Their taxonomies are complete and complex classifications of educational objectives (9)(26). They will not be further discussed here since they form an integral part of the development of behavioral goals in Chapter III.

Not all writers are wholeheartedly in favor of unlimited acceptance of objectives stated in behavioral terms. Eisner lists the following limitations:

1. The dynamic and complex process of instruction yields outcomes far too numerous to be specified in behavioral and content terms in advance.

2. Failure to recognize the constraints various subject matters place upon objectives... Theory concerning educational objectives has not taken into account the particular relationship that holds between the subject matter being taught and the degree to which educational objectives can be predicted and specified.

3. Curriculum theory which views educational objectives as standards by which to measure educational achievement overlooks those modes of achievement incapable of measurement, e.g., mode of curiosity, inventiveness, and insight.

4. Educational objectives need not precede the selection and organization of content. The
means through which imaginative curriculums can be built is as open-ended as the means through which scientific and artistic inventions occur. Curriculum theory needs to allow for a variety of processes to be employed in the construction of curriculums (49, pp. 253-260).

For the purposes of this paper, however, subscription to Hager's point of view is deemed imperative. Hager holds that unless a program of studies is based on a statement of objectives which denotes measurable attributes that can be observed in one who has completed the program, it will be difficult, if not impossible, to determine whether the program is, in fact, worthwhile. "When clearly defined goals are lacking," Hager insists, "it is impossible to evaluate a course or program efficiently, and there is no sound basis for selecting appropriate materials, content, or instructional methods (29, p. 3)."
Chapter III

Identification of Competencies Needed By The Plant Planning Specialist And Development Of The Statement Of Behavioral Goals

Analysis of the Plant Planning Specialist's Job and Identification of the Tasks Performed by the Plant Planning Specialist

Graff has suggested a job analysis as the first step in determining the competencies required in any position. He says:

Before a training program can be said to be an effective experience for educational administrators the first step must be to identify what the administrator does (20, p 83).

This has been the starting point for this investigation.

In order to determine the tasks involved in planning school plants a literature search was made. General agreement among the writers is evident. Conrad, Herrick, Leu, and Lawler, among a host of others, address themselves to this topic (13)(25)(27)(73). The most comprehensive list of tasks seems to be that of Boles (11).

In general, the tasks involved in school plant planning can be categorized under five major headings. These include: 1) determining the need for a building program; 2) planning school buildings; 3) developing the architectural plan; 4) occupying, equipping, staffing, and utilizing the facility; and 5) miscellaneous tasks in school planning. These major
headings were expanded and the miscellaneous tasks assorted among the other topics in their proper positions. In order to ascertain that all necessary tasks were included this list was reviewed by expert school plant planners and their comments were evaluated and incorporated into the final list.

A further analysis of the identified tasks was made in order to determine: 1) those tasks which are performed specifically by the planning specialist; these are the tasks for which he must be comprehensively trained; 2) those tasks about which he must have expert knowledge; these are the tasks which will require some training in related fields; 3) those tasks in which he will have some interest, but will not actually perform; these are the tasks for which an appreciation must be built in the training program; and 4) those tasks which are not the responsibility of the plant planner. This analysis was made by the panel of experts and the final tabulation reflects a composite of their opinions and the best thinking of the author (Table I).

Identification of the Cognitive, Affective and Psychomotor Aspects Relating to the Plant Planning Specialist

In order to identify the necessary skills, knowledges, understandings, appreciations and values of the plant planning specialist, a further examination of the literature was undertaken and the opinions of the panel of experts were solicited. In addition, observations were made of a number of plant planners in their day-to-day routine.
Table I
Planning Tasks Involved In Providing School Facilities

<table>
<thead>
<tr>
<th>Task</th>
<th>Planner's Responsibility Level</th>
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<tbody>
<tr>
<td></td>
<td>Prime</td>
</tr>
<tr>
<td>I. Developing a total long-range educational facilities plan</td>
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<tr>
<td>A. Organizing the study</td>
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<tr>
<td>1. Defining the problem</td>
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<td>2. Agreeing on philosophy on which to base study</td>
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<tr>
<td>3. Deciding how to proceed</td>
<td>x</td>
</tr>
<tr>
<td>4. Identifying and selecting lay participant, professionals and interested agencies such as educational consultants, school administrators, school staffs, students, boards of education, citizens of the community, architects, lawyers, real estate brokers, planning boards, city and regional planners, parks &amp; recreation boards, urban renewal commissions, non-public school personnel, transportation experts, sociologists, social workers, juvenile officials, members of the community power structure, and representatives of minority groups where indicated</td>
<td></td>
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<tr>
<td>5. Fixing responsibility for study segments</td>
<td>x</td>
</tr>
<tr>
<td>6. Establishing development sequence and setting time schedule for study</td>
<td>x</td>
</tr>
<tr>
<td>B. Surveying school plant needs</td>
<td></td>
</tr>
<tr>
<td>1. Ascertaining the desired educational program</td>
<td></td>
</tr>
<tr>
<td>a. Ascertaining the desired elementary school program in relation to:</td>
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<tr>
<td>the organization of</td>
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TABLE I (Cont.)

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<tr>
<th>Task</th>
<th>Prime Major Little</th>
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</table>

the elementary program; e.g., ungraded, independent study, individualized instruction, pre-school programs

- the elements of the regular instructional program such as reading, writing, arithmetic

- the elements of the special instructional program such as physical education, music, art, and library instruction

- the types of instructional materials services

- the forms of staff utilization; e.g., team approach, self-contained

- the desired school size

- the desired class sizes

b. Ascertaining the desired secondary school program through identifying:

- the desired organization of the secondary school program; e.g., periods per week or day, modules

- the desired elements of the regular instructional program

- the desired elements of the special instructional program

- the desired instructional materials services

- the forms of staff utilization such as teacher "home" or non-class work stations; the teacher as a diagnostic/prescriptive person; teaming
TABLE I (Cont.)

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<tr>
<td>. the co-curricular activities to be provided</td>
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<tr>
<td>. the desired school size</td>
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<tr>
<td>. the desired class sizes</td>
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<tr>
<td>. the subject area indexes</td>
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<tr>
<td>. the teaching station requirements</td>
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<tr>
<td>c. Ascertaining the general program characteristics such as:</td>
</tr>
<tr>
<td>1. the vertical organization</td>
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<tr>
<td>2. the need for program extensions such as</td>
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<tr>
<td>adult education, summer school, kindergarten, and nursery school</td>
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<td>3. the need for special programs for exceptional children; e.g.,</td>
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<tr>
<td>for mental or physically disabled and for the gifted</td>
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<tr>
<td>4. the auxiliary educational services such as</td>
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<tr>
<td>programs of speech and hearing therapy, health programs and</td>
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<tr>
<td>guidance and counseling services</td>
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<tr>
<td>5. the other services such as food service, transportation service,</td>
</tr>
<tr>
<td>and in-service education services for teachers</td>
</tr>
</tbody>
</table>

2. Ascertaining school enrollments
   a. Ascertaining past enrollment trends
   b. Identifying factors affecting enrollment change such as birth rates, migration patterns, non-public school enrollments, non-resident enrollments, retention rates, school district
boundary line changes, first grade entrance age-
date requirements, holding power of the school program,
grade-to-grade survival rate patterns, socio-
economic factors, and residential patterns and densities
c. Ascertaining future enroll-
ments
d. Performing a saturation study and projecting
saturation enrollments by:
- ascertaining residence locations of present pupils
- ascertaining locations of present dwelling units
  by type in the school district
- ascertaining plans of major developers
- ascertaining plans of business and industrial
  concerns
- ascertaining city and regional plans which affect
  saturation densities such as zoning changes, sewer/
  water installations, new streets and highways plan-
  ned, parks to be established
- projecting potential numbers of dwelling units which
  could exist in the entire district at the time when
  all land likely to be zoned for residential
development is completely utilized
- projecting numbers of pupils expected at satura-
tion

3. Ascertaining plant implica-
tions of the desired educa-
tional program as applied to
the projected school enroll-
TABLE I (Cont.)

<table>
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<th>Task</th>
<th>Prime</th>
<th>Major</th>
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<tbody>
<tr>
<td>a. Ascertain elementary school needs</td>
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<tr>
<td>b. Ascertain secondary school needs</td>
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<tr>
<td>c. Ascertain other plant needs such as administrative space, bus storage and maintenance space, central warehousing, athletic fields, outdoor education spaces, parking spaces, and future sites</td>
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C. Ascertain resources

1. Evaluating existing plant in light of the desired program x

a. Ascertain and analyze utilization of present school facilities

b. Evaluating the present elementary school facilities including:

. the regular classrooms
. the special instructional facilities
. the general building characteristics
. the outdoor facilities
. the capacities and utilizations of elementary school facilities
. the building locations in light of general safety, site utilization, environmental conditions, and other considerations subject to reconciliation with the long-range plan

c. Evaluating present secondary school facilities including:

. the academic classrooms if any
. the special instructional facilities such as the gymnasium; the auditorium; the locker/dressing/shower facilities; the science, home economics, and
TABLE I (Cont.)

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<th>Task</th>
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<tbody>
<tr>
<td></td>
<td>industrial arts laboratories</td>
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<td></td>
<td>the auxiliary instructional facilities such as the instructional materials center, large group spaces, independent study areas, language laboratories</td>
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<td></td>
<td>the general service facilities such as the guidance suite, the administrative suite, staff spaces, toilets, and work areas</td>
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<td></td>
<td>the general building characteristics</td>
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<td></td>
<td>the outdoor facilities</td>
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<td></td>
<td>the capacities and utilizations of secondary school facilities</td>
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<td></td>
<td>the building locations in light of general safety, site utilization, environmental conditions, and other considerations subject to reconciliation with the long-range plan</td>
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<tr>
<td>d.</td>
<td>Evaluating other school facilities such as school bus storage and maintenance space, the central administration and board offices, and future sites</td>
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<tr>
<td>e.</td>
<td>Projecting possible future use of present school facilities</td>
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<tr>
<td>2.</td>
<td>Evaluating the district's financial resources</td>
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<tr>
<td>a.</td>
<td>Determining ability of district to provide funds</td>
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<tr>
<td>b.</td>
<td>Determining willingness of citizens to provide funds</td>
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<tr>
<td>c.</td>
<td>Determining assessed valuations</td>
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<tr>
<td>d.</td>
<td>Determining sources of funds</td>
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<tr>
<td>e.</td>
<td>Constructing the financial plan</td>
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<tr>
<td>D. Making recommendations</td>
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<tr>
<td>1.</td>
<td>Understanding underlying principles of planning for</td>
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### TABLE I (Cont.)

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<th>Task</th>
<th>Prime</th>
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<tbody>
<tr>
<td>school facilities</td>
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<tr>
<td>2. Developing the long-range housing plan</td>
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<td>x</td>
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<tr>
<td>3. Developing immediate-action recommendations</td>
<td>x</td>
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<tr>
<td>a. Making general recommendations</td>
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<tr>
<td>b. Making specific building recommendations</td>
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<tr>
<td>c. Determining whether to modernize of construct new facilities</td>
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<td>. identifying problems of aging</td>
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<td>. identifying kinds of depreciation</td>
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<td>. knowing when to abandon</td>
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<td>. disposing of buildings</td>
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<td>. planning additions</td>
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<td>4. Making recommendations about the financial plan</td>
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<td>E. Drawing implications from the immediate-action recommendations</td>
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<tr>
<td>1. Determining capacity to be provided</td>
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<tr>
<td>2. Determining cost estimates and their implications for the financial plan</td>
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<td>x</td>
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<tr>
<td>II. Developing educational specifications</td>
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<tr>
<td>A. Planning a building</td>
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<tr>
<td>1. Ascertaining or initiating a study of the desired curriculum</td>
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<td>x</td>
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<tr>
<td>2. Reviewing the long-range educational plan</td>
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<td>x</td>
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<tr>
<td>3. Ascertaining qualitative needs</td>
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<td>x</td>
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<tr>
<td>a. Planning for function by:</td>
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<tr>
<td>. soliciting the ideas of the staff</td>
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<td>. putting their ideas to use</td>
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<td>. testing their ideas</td>
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<td>. evaluating their ideas</td>
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<td>. incorporating these ideas into the building plan</td>
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<tr>
<td>b. Planning the desired program elements</td>
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<td>c. Planning for health, safety, and comfort</td>
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<tr>
<td>d. Suggesting standards for</td>
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- Environmental factors

4. Ascertaining the quantitative needs
   - a. Identifying the numbers of pupils to be housed
   - b. Ascertaining the grade levels to be housed
   - c. Calculating the teaching station requirements to house the pupils in the desired program both initially and ultimately
   - d. Ascertaining the auxiliary spaces needed
   - e. Suggesting the desired general design of the building
   - f. Ascertaining site facilities to be accommodated such as courts, athletic fields, driver education areas, band practice areas, parking spaces, and delivery and access routes

5. Writing the specifications
   - a. Describing each instructional facility by:
     - suggesting area of space
     - determining capacity of individual spaces
     - establishing room location requirements
     - describing the activities for which space is provided
     - describing sub-areas of spaces
     - describing and delineating equipment and facilities to be provided in spaces
     - describing special characteristics of spaces
   - b. Describing the administrative service areas by:
     - suggesting area of space
     - determining capacity of individual spaces
     - establishing room location requirements
     - describing the activities
TABLE I (Cont.)

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<th>Task</th>
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<tr>
<td>for which space is provided</td>
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<tr>
<td>describing sub-areas of spaces</td>
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<tr>
<td>describing and delineating equipment and facilities to be provided in spaces</td>
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<tr>
<td>describing special characteristics of spaces</td>
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<tr>
<td>c. Describing the student service areas by:</td>
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<tr>
<td>suggesting area of space</td>
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<tr>
<td>determining capacity of individual spaces</td>
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<td>describing special characteristics of spaces</td>
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<td>d. Describing the custodial and maintenance service areas by:</td>
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<td>suggesting area of space</td>
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<td>determining capacity of individual spaces</td>
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<td>establishing room location requirements</td>
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<td>describing the activities for which space is provided</td>
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<td>describing sub-areas of spaces</td>
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<td>describing and delineating equipment and facilities to be provided in spaces</td>
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<td>describing special characteristics of spaces</td>
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<td>e. Planning for the factors which control future use of the facilities such as:</td>
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<td>changing technology</td>
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<td>oscillating organizational plans</td>
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### TABLE I (Cont.)

<table>
<thead>
<tr>
<th>Task</th>
<th>Prime</th>
<th>Major</th>
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<tbody>
<tr>
<td></td>
<td>sociological factors</td>
<td>programs for exceptional children</td>
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<tr>
<td>6.</td>
<td>Interpreting the document to staff, board, and community</td>
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</table>

#### B. Planning financing of construction

1. Understanding economics of plant planning | x |
2. Reviewing the long-range educational plan and the building specifications | x |
3. Estimating cost of construction | x |
4. Examining revenue sources | x |
5. Securing funds for construction | x |

#### C. Acquiring site(s) and planning site layout

1. Developing criteria on which to base site selection | x |
   a. Selecting site with an aesthetic point of view |
   b. Developing building-site relationship which enhances beauty |
   c. Providing for building-time relationship |
   d. Selecting color schemes for beauty as well as utility |
2. Locating possible sites and comparing site possibilities | x |
3. Establishing values of sites and negotiating for sites | x |
4. Obtaining approval of supraordinate bodies | x |

#### III. Working with the architect and constructing the building

A. Planning with the architect

1. Selecting the architect | x |
2. Providing information to the architect
   a. Suggesting proper standards for materials and surfaces |
   b. Planning circulation patterns |
   c. Planning proper visual, thermal, aural, anatomical, psychological, respiratory, tactile, and olfactory climates |
TABLE I (Cont.)

<table>
<thead>
<tr>
<th>Task</th>
<th>Prime</th>
<th>Major</th>
<th>Little</th>
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<tbody>
<tr>
<td>3. Authorizing architectural documents, reviewing working documents and approving architectural documents</td>
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<td>x</td>
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</table>

B. Supervising Construction

1. Assuring compliance with educational specifications | x     |

2. Collecting and storing documents | x     |

IV. Occupying, equipping, staffing and utilizing the facility

A. Equipping and furnishing a building

1. Deciding on needed educational equipment and furnishings | x     |

B. Occupying a building

1. Informing all concerned about building layout, deciding how the building will be used, informing all concerned about equipment usage, and charging all concerned with stewardship of the building, its equipment and furnishings | x     |

2. Establishing means for evaluation of how well building elements accommodate the desired program | x     |

   a. Detecting faults in construction and establishing means for evaluation of final construction |

C. Orienting people

1. Involving people in occupying and using the building by:
   - establishing communication channels
   - reporting about building progress
   - gaining acceptance of the long-range plan and of the new facility
   - helping people "feel at home" in the new facility
   - meeting unique needs such as those of community groups, and after-school activities
   - saying "thank you" | x     |
Utilizing Bloom's and Krathwohl's categories to differentiate among these factors, relationships were established between these categories and the identified tasks of the school plant planner. These relationships are presented in the next section. The categories of the taxonomies have by necessity been condensed for this paper. A brief description of the categories is presented here for the benefit of the reader unfamiliar with these taxonomies.

Behavioral goals have been broadly categorized as constituting cognitive, affective and psychomotor domains. The cognitive domain taxonomy was developed by Bloom and others in 1956. Major sections were: 1.00 Knowledge, 2.00 Comprehension, 3.00 Application, 4.00 Analysis, 5.00 Synthesis, and 6.00 Evaluation. The Knowledge area simply involves processes, or the recall of a pattern, structure, or setting. Comprehension, as a division, refers to a type of understanding or appreciation such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications. The Application section refers to the use of abstractions in particular and concrete situations. These abstractions may be: general ideas, rules of procedure, and generalized methods, or technical principles, ideas, and theories which must be remembered and applied. Analysis manifests itself in the breakdown of a communication into its constituent elements or parts such that the relative
hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit. Synthesis, as is implied in the title is the putting together of elements and parts so as to form a whole. Evaluation involves judgments about the value of material and methods for given purposes (9).

Each of these sections is divided and sub-divided so as to form an outline which appears as follows:

Cognitive Domain

1.00 Knowledge
  1.10 Knowledge of Specifics
    1.11 Knowledge of Terminology
    1.12 Knowledge of Specific Facts
  1.20 Knowledge of Ways and Means of Dealing With Specifics
    1.21 Knowledge of Conventions
    1.22 Knowledge of Trends and Sequences
    1.23 Knowledge of Classifications and Categories
    1.24 Knowledge of Criteria
    1.25 Knowledge of Methodology
  1.30 Knowledge of the Universals and Abstractions in a Field
    1.31 Knowledge of Principles and Generalizations
    1.32 Knowledge of Theories and Structures

2.00 Comprehension
  2.10 Translation
  2.20 Interpretation
  2.30 Extrapolation

3.00 Application

4.00 Analysis
  4.10 Analysis of Elements
  4.20 Analysis of Relationships
  4.30 Analysis of Organizational Principles

5.00 Synthesis
  5.10 Production of a Unique Communication
  5.20 Production of a Plan, or Proposed Set of Operations
  5.30 Derivation of a Set of Abstract Relations

6.00 Evaluation
  6.10 Judgments in Terms of Internal Evidence
  6.20 Judgments in Terms of External Criteria
In 1964, Krathwohl and others published the Affective Domain section. Major areas in this domain included: 7.0 Receiving, 8.0 Responding, 9.0 Valuing, 10.0 Organization, and 11.0 Characterization By a Value or Value Complex. These sections were defined simply as: Receiving, sensitization to the existence of certain phenomena and stimuli; Responding, sufficient involvement in or commitment to a subject, phenomenon, or activity so that the learner will seek it out and gain satisfaction from working with it or engaging in it; Valuing, the internalization of a set of specified, ideal values; Organization, the beginnings of the building of a value system; and Characterization by a Value or Value Complex, acting consistently in accordance with values internalized (26).

These sections as sub-divided appears as:

**Affective Domain**

7.00 Receiving  
7.10 Awareness  
7.20 Willingness to Receive  
7.30 Controlled or Selected Attention  

8.00 Responding  
8.10 Acquiescence in Responding  
8.20 Willingness to Respond  
8.30 Satisfaction in Response  

9.00 Valuing  
9.10 Acceptance of a Value  
9.20 Preference for a Value  
9.30 Commitment  

10.00 Organization  
10.10 Conceptualization of a Value  
10.20 Organization of a Value System  

11.00 Characterization by a Value or Value Complex  
11.10 Generalized Set  
11.20 Characterization
At the present time no satisfactory taxonomy, stated in simplistic and non-technical terms, exists for the Psychomotor Domain. Consequently, all objectives which fall into this domain have been thrown together in the category, 12.0 Psychomotor. Objectives of this nature are characterized by their physical, almost rote nature. These objectives, while requiring mental activity, are usually habitualized forms of action and involve physical manipulation of objects, items, machines, and the like.

Educational objectives are explicit formulations of the ways in which it is expected that students will be changed by the educative process; that is, the ways in which students will change in their thinking, their feelings, and their actions. Obviously, there are many possible changes that can take place in students as a result of learning experiences. Since the time and the resources of most training programs are limited, only a few of the possible changes can be achieved. It is important that the major objectives of the training program be clearly identified so as not to waste resources on less important things. This becomes the curricular plan (9, pp. 3-5).

In order to proceed to a statement of behavioral objectives, Table I was related to the specific skills, knowledges, understandings, appreciations, and values of the plant planning specialist in outline form. This outline is a composite of the tasks and of the behavioral objective
taxonomies as outlined earlier. This form was selected to enable the reader to see the developed objectives in their task related perspectives.

Composite Outline of the Planner's Tasks and the Related Behavioral Objectives According to the Taxonomies of Bloom and Krathwohl

I. Developing a total long-range educational facilities plan
   I.A. Organizing the study
      I.A.1. Defining the problem
       1.0 Knowledge
          1.12 Knowledge of specific facts
             1.121 Knowledge of current conditions in the school district in relation to:
                 . migration patterns
                 . industrial and commercial planning
                 . national, state, and local governmental planning
                 . curriculum change
             1.122 Knowledge of condition of existing facilities
             1.123 Knowledge of building facts including:
                 . current construction costs
                 . modern technological improvements and possibilities for future improvements
          1.22 Knowledge of trends and sequences
             1.221 Knowledge of trends in:
                 . population factors such as birth rates, sociological balance, urban patterns
                 . educational factors such as curriculum theory, learning theory, and instructional theory
                 . educational tools such as teaching machines, audio-visual materials, and data processing equipment
                 . organizational patterns
             1.24 Knowledge of criteria
                1.241 Knowledge of criteria for evaluating
existing facilities in relation to:
  - the desired program elements
  - health, safety, and sanitation standards
  - feasibility of repair or modernization

1.242 Knowledge of criteria on which judgments are made concerning:
  - the effects of population changes
  - financing the school program
  - allocation of available funds

2.0 Comprehension

2.10 Translation

2.101 Translation of demographic data into data affecting school plant
2.102 Translation of curricular decisions into data affecting school plant
2.103 Translation of financial data into data affecting school plant

2.20 Interpretation

2.201 Interpretation of school plant data in terms of curriculum, finance, sociological implications, etc.

2.30 Extrapolation

2.301 Extrapolation of demographic data into implications for school plant
2.302 Extrapolation of curricular decisions into implications for school plant
2.303 Extrapolation of financial data into implications for school plant

4.0 Analysis

4.10 Analysis of elements

4.101 Ability to recognize unstated assumptions when:
  - making curricular decisions
  - discussing building financing
  - interpreting governmental communiques

4.102 Skill in distinguishing fact from hypothesis when:
  - examining research findings
  - discussing school programs with
collegues and lay patrons

4.20 Analysis of relationships

4.201 Ability to check the consistency of expressed curricular desires with current operational patterns
4.202 Ability to check the consistency of expressed program desires with community financial effort and ability

6.0 Evaluation

6.10 Judgments in terms of internal evidence

6.101 Ability to assess the value of information collected or made available
6.102 Ability to detect fallacies in arguments

6.20 Judgments in terms of external criteria

6.201 Ability to compare local curricular programs with:
   - state standards
   - selected curricular plans
6.202 Ability to compare local school facilities with:
   - selected model schools
   - conceptual building plans
6.203 Ability to compare the local school system with others in terms of:
   - financial effort
   - financial ability
   - excellence of product
   - staffing practices
   - operation and maintenance programs

7.0 Receiving

7.10 Awareness

7.101 Has an awareness of weaknesses in present curricular programs and of shortcomings in the present school plant which contribute to these weaknesses

I.A.2. Agreeing on philosophy on which to base study

1.0 Knowledge

1.21 Knowledge of conventions
1.21 Knowledge of forms and conventions frequently used in stating a philosophy

1.22 Knowledge of trends and sequences

1.22.1 Understanding the continuity and development of American educational thought

1.22.2 Knowledge of the basic trends underlying the development of philosophy in public education

1.23 Knowledge of classifications and categories

1.23.1 Recognition of the area encompassed by educational philosophy

1.24 Knowledge of criteria

1.24.1 Familiarity with criteria for making judgments appropriate to the development of educational philosophy

1.24.2 Knowledge of criteria for the evaluation of elements proposed for an educational philosophy

1.3 Knowledge of the universals and abstractions in a field

1.31 Knowledge of principles and generalizations

1.31.1 Knowledge of the important principles on which educational philosophy is based

1.31.2 Ability to recall major generalizations about educational practices

1.31.3 Knowledge of the basic principles of school house planning

1.32 Knowledge of theories and structures

1.32.1 Ability to recall major theories in the field of education

1.32.2 Knowledge of a relatively complete formulation of one learning theory, a related instructional theory, and the resultant curriculum theory

2.0 Comprehension

2.10 Translation
2.10.1 Skill in translating educational theories

2.20 Interpretation

2.20.1 Ability to interpret philosophical and theoretical statements at an operational level

2.30 Extrapolation

2.30.1 Ability to determine implications for school plant planning from the philosophy statement

4.0 Analysis

4.30 Analysis of organizational principles

4.30.1 Ability to recognize the major elements and to understand what is meant in the philosophy statement

5.0 Synthesis

5.20 Production of a plan, or proposed set of operations

5.20.1 Ability to develop a plan of work to implement the statement of philosophy

11.0 Characterization by a value of value complex

11.20 Characterization

11.20.1 Displays a "code of behavior" for regulation of his professional life based on the principles and generalizations which have been identified as basic to the plant planning process

11.20.2 Evidences a general philosophy of education consistent with the ideals of democracy and the precept of equality of educational opportunity for all students who may be affected by his work

I.A.3. Deciding how to proceed

5.0 Synthesis

5.20 Production of a plan, or proposed set of
operations

5.201 Ability to develop a plan of work to implement the school housing study

9.0 Valuing

9.10 Acceptance of a value

9.101 Shows consistency in belief about the basic tenets on which planning for school plants is based

I.A.4. Identifying and selecting lay participants, professionals, and interested agencies

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Ability to identify agencies which can contribute to the school housing study

1.122 Ability to identify agencies which have regulatory powers over procedures necessary to plant development

1.123 Ability to identify persons who will be working in any of the developmental steps in making a school survey and to describe the role to be played by each

I.A.5. Fixing responsibility for study segments

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Ability to identify an acceptable responsibility-authority structure for the development of a long-range plan

1.122 Knowledge of legal restrictions which apply to the fixing of the responsibility-authority structure

I.A.6. Establishing development sequence and setting time schedule

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Evidences a thorough understanding of all the further steps necessary in
developing a long-range plan

1.25 Knowledge of methodology

1.251 Evidences an understanding of the methods of inquiry, techniques, and procedures employed in the long-range plan

4.0 Analysis

4.20 Analysis of relationships

4.201 Shows a clear understanding of the relationships dictating the ordering of steps in developing a long-range plan

I.B. Surveying school plant needs

I.B.1. Ascertaining the desired educational program

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is able to define technical curriculum terms by giving their attributes, properties, or relations

1.112 Has familiarity with a large number of pertinent words in their common range of meanings

1.113 Can supply terminology related to school plant to replace curricular language when drawing up a plan to implement the curriculum through providing school plant

1.12 Knowledge of specific facts

1.121 Can demonstrate knowledge about a variety of approaches to curriculum formulation and about course content, teaching techniques, and educational technology

1.122 Can list the usual services rendered in a school district and can discuss intelligently the implications concerning the school plant that providing these services will evoke

1.123 Is familiar with specific plant
provisions necessary to implement the common curricular elements

1.124 Is familiar with innovative plant provisions suggested in the literature to implement innovative curricular elements

1.125 Can identify the factors to be considered in determining total facility needs. For example:
- sites
- condition and capacities of existing school buildings
- construction trends in residential housing
- growth patterns of the community
- desired curricular structures

1.22 Knowledge of trends and sequences

1.221 Knowledge of the basic trends underlying the development of modern curricular structures and of related school facilities and equipment patterns

1.222 Is familiar with current thinking among authorities in curriculum and criticizes existing curriculum in light of this thinking

1.23 Knowledge of classifications and categories

1.231 Is familiar with and can differentiate between curriculum factors, instructional factors, and learning factors

1.232 Can distinguish between theories and hypotheses, and applications and practices

1.24 Knowledge of criteria

1.241 Is familiar with criteria for judging the extent to which the existing curricular structure effectuates the stated philosophy

1.25 Knowledge of methodology

1.251 Is familiar with techniques used to elicit information about program elements from school staffs
1.252 Can suggest various techniques to determine what school staffs see as things to be learned

1.251.1 Is skillful in securing information and in organizing, evaluating, and reporting results of study and research
   - asks questions in such a way as to secure accurate information of public service officials, governmental offices, or persons likely to have special information
   - systematizes his work in order to accomplish the things he wants to do
   - is able to draw relevant information from several sources, correlate it, make a defensible set of conclusions, and discard what is not relevant

1.253 Can suggest various techniques to determine what services are to be rendered to students

1.31 Knowledge of principles and generalizations

1.311 Knowledge of the important principles by which curricular structure is evaluated

1.312 Knowledge of the important principles of curriculum planning and the ability to rationalize these principles in light of the important principles in school facilities planning

1.32 Knowledge of theories and structures

1.321 Knowledge of current theories of curriculum formulation

1.322 Knowledge of historical theories of curriculum formulation

2.0 Comprehension

2.10 Translation

2.101 Ability to translate a variety of data into a long-range plan to make possible the facilities to house the desired curriculum
2.20 Interpretation

2.201 Ability to interpret various types of data in light of the principles of school plant planning

2.202 Ability to reorder the stated curriculum in terminology applicable to school plant planning

2.30 Extrapolation

2.301 Ability to determine implications for school plant from the stated curricular structure

2.302 Ability to determine plant implications from the statement of curricular structure

3.0 Application

3.01 Ability to predict the probable effect of a change in a factor under study on the long-range plan

3.02 Ability to demonstrate the effects of the present curriculum upon school plant structure

3.03 Ability to demonstrate the effects of the present school plant structure upon the present and/or desired curriculum

4.0 Analysis

4.01 Analysis of elements

4.101 Ability to draw inferences from the curriculum plan, to recognize unstated assumptions in the curriculum plan, and to see plant factors deriving from these inferences and assumptions

4.30 Analysis of organizational principles

4.301 Can identify the organizational plan implied by the curriculum plan if not explicitly stated; can suggest a number of types of school organizational patterns if not determined in the curriculum plan; and can suggest plant modifications which such differing organizational plans will entail
6.0 Evaluation

6.10 Judgments in terms of internal evidence

6.101 Ability to detect inconsistencies between the stated school district philosophy and the current curricular structure

6.102 Ability to detect inconsistencies between the official curricular structure and current classroom practices

6.103 Is able to assess the general probability that proposed curricular structures will implement stated philosophies

7.0 Receiving

7.20 Willingness to receive

7.201 Has the trait of listening, that is, attending carefully to the spoken word of others so he may more accurately understand what is told him in terms of desired program characteristics, preferred structural design, etc.

7.30 Controlled or selected attention

7.301 Can, in a given situation, listen with discrimination to the comments of individuals and groups and sort out that which is pertinent from that which is irrelevant in terms of implications for the planning process for which he is responsible

8.0 Responding

8.10 Acquiescence in responding

8.101 Willingness to comply with the decisions made by the curriculum experts in determining the desired curricular program

9.0 Valuing

9.10 Acceptance of a value

9.101 Holds consistently to values which are
basic to the planning process in school plants, but is ready to accept new values as they can be shown more viable in providing adequate curricular programs for all youth

9.20 Preference for a value

9.201 When working with school staffs, is able to draw forth a variety of viewpoints on the more controversial issues and is able to form an opinion about these issues

9.202 When working with school staffs, is able to elicit from even the most reticent members, a statement of their views and can help them feel a part of the group and understand the importance of their contributions

9.30 Commitment

9.301 Has commitment to the centrality of program in the plant planning process and is evangeline in his commitment to improving and updating curricular programs

10.0 Organization

10.10 Conceptualization of a value

10.101 Forms judgments as to the responsibility of school personnel to provide alternative programs for the variety of students in their charge and as a plant planner recognizes the need to plan facilities to accommodate a wide variety of program elements

10.20 Organization of a value system

10.201 Compares alternative educational policies and practices in light of their effect on the majority of students without sacrificing the need for providing special programs for individual students and when making decisions about alternatives in the total housing plan, reflects this concern for the individual within the framework of providing for the whole
11.0 Characterization by a value or value complex

11.10 Generalized set

11.101 Is willing to base judgments about sites, building designs, curricular plans, etc., on evidence which may become available rather than on pre-conceived notions and will alter educational planning in light of this evidence

I.B.2 Ascertaining School Enrollments

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Can fluently use terminology used by:
   - city and regional planners
   - census personnel
   - real estate brokers
   - demographers

1.112 Is familiar with and can define terminology used in talking about enrollment projections

1.12 Knowledge of specific facts

1.121 Can identify the data to be collected in a pre-school census and suggest how such data is to be utilized in projecting enrollments

1.122 Can list and identify the factors to be considered when projecting school enrollments

1.123 Is familiar with laws applying to the school census

1.124 Can identify a number of typical zoning restrictions or regulations

1.125 Can list a number of factors resulting from the planning of industrial and commercial interests which affect the projection of enrollments

1.126 Can list a number of factors which may result from governmental planning and/or operations which will affect the projection of enrollments
1.127 Can list a number of physical items such as churches, schools, cemeteries, highways, airports, quarries, etc. which will have an effect on the projection of enrollments.

1.25 Knowledge of methodology

1.251 Can identify a number of different methods used to project school enrollments
   1.2511 Can utilize at least one enrollment projection technique fully and completely

1.252 Can list various methods for taking a pre-school census

1.253 Can demonstrate and discuss the techniques used in sampling

1.254 Demonstrates familiarity with and can apply techniques involved in demographic saturation studies of communities

1.255 Is familiar with techniques of house-to-house data collection

1.256 Is able to list and differentiate the statistical techniques which may be utilized in surveys

2.0 Comprehension

2.10 Translation

2.101 Is able to read topographical maps and interpret demographic data

2.102 Is able to read and construct statistical charts and tables

2.20 Interpretation

2.201 Is able to interpret topographical maps and demographic data

2.202 Is able to interpret statistical charts and tables

2.30 Extrapolation

2.301 Is able to determine plant implications, consequences, and effects from topographical maps and demographic data

2.302 Is able to determine plant implications, consequences, and effects from statistical charts and tables
12.0 Psychomotor

12.10 Writing skills

12.101 Can write in a clear and legible fashion under a variety of conditions

12.20 Skills in operating a variety of machines

12.201 Can use with reasonable facility the common types of recording instruments
12.202 Can use a variety of machines as aids in calculating
12.203 Can use a number of projective devices

12.30 Skills in drawing

12.301 Can draw rough sketches of building plans, site layouts, equipment and furniture layouts and line maps
12.302 Can draw rough maps locating items which will affect site locations such as:
  . street intersections
  . building locations
  . railway locations
  . sewer line routes
  . locations of cemeteries, quarries, public buildings, etc.

12.40 Skills in measuring

12.401 Can demonstrate techniques for making rough measurements of room size, size of chalkboards and tackboards, room heights, etc.
12.402 Can demonstrate the use of simple measuring instruments such as:
  . the tape measure
  . a simple ruler
  . compasses
  . protractors

I.C. Ascertaining resources

I.C.1. Evaluating existing facilities in light of the desired program

1.0 Knowledge

1.11 Knowledge of terminology
1.11 I am familiar with the common terminology used by:
   - teachers
   - administrators
   - custodians
   - curriculum specialists

1.12 Knowledge of specific facts

1.121 I am able to identify standards developed to maintain optimum levels of performance in the various aspects of school house construction and maintenance.

1.122 I am aware of and can compare and contrast acceptable and unacceptable school environments in light of:
   - health, safety, and sanitation factors
   - heating, cooling, and ventilation factors
   - lighting and acoustic standards
   - aesthetic considerations

1.1221 Recognizes such items as water damage to plaster, settling cracks, vapor condensation damage, etc.

1.24 Knowledge of criteria

1.241 I am able to identify components of the educational program which bear directly on the evaluation of existing school plants.

1.25 Knowledge of methodology

1.251 I am able to identify a number of different methods for determining the capacity of a building, its regular and special classrooms and its auxiliary spaces and can apply at least one technique listed.

2.0 Comprehension

2.30 Extrapolation

2.301 I am able to determine the extent to which existing facilities will optimize the desired curricular program.

6.0 Evaluation
6.20 Judgments in terms of external criteria

6.201 Ability to compare the workmanship evidenced by the building structure with accepted building standards

6.202 Ability to compare the configuration of the existing plant with that accepted by educators as optimal

I.C.2. Evaluating the district's financial resources

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is familiar with the terminology used in discussing the financial aspects of school plant construction

1.12 Knowledge of specific facts

1.121 Is able to list the factors for which information is readily available, which one may examine in order to determine:
   . the ability of a school district to pay for school housing and program
   . the willingness of a school district to pay for school housing and program

1.122 Can list the items to be considered when developing a cost estimate for the short-range plan or any part thereof

1.24 Knowledge of methodology

1.241 Is familiar with and can describe the common methods of financing school building construction

6.0 Evaluation

6.20 Judgments in terms of external criteria

6.201 Is able to draw conclusions concerning the willingness and ability of a school district to pay for school construction

I.D. Making recommendations

1.0 Knowledge
1.11 Knowledge of terminology

1.111 Ability to define all terms used in discussing the long-range plan or any of the background data pertinent to the long-range plan by giving their attributes, properties, or relations

1.12 Knowledge of specific facts

1.121 Ability to outline the usual components reported in a long-range housing plan
1.122 Is able to identify the common phases in the life cycle of a building and the types of deterioration accompanying each phase
1.123 Is able to identify in on-the-spot inspections a number of deterioration symptoms and to suggest difficulty of repair factors

1.21 Knowledge of conventions

1.211 Knowledge of the characteristic ways of treating and presenting the ideas and phenomena which commonly compose a long-range school housing plan

1.24 Knowledge of criteria

1.241 Is able to suggest criteria on which judgments should be based when attempting to determine whether to abandon or renovate buildings
1.242 Exhibits a knowledge of the historical guidelines which have been proposed for determining whether to abandon or renovate buildings
1.243 Exhibits a knowledge of the considerations currently thought to be proper determinants for school modernization
1.244 Ability to suggest criteria on which decisions can be made concerning disposal of school buildings

1.25 Knowledge of methodology

1.251 Familiarity with the methods followed in building new school buildings including the major legal stipulations which are to be controlling factors
1.31 Knowledge of principles and generalizations

1.311 Knowledge of the guiding principles used in making judgments about whether to modernize or build new buildings

5.0 Synthesis

5.10 Production of a unique communication

5.101 Can express his and other peoples ideas in speech or writing with clarity and correctness
5.102 Demonstrates skill in noting and recording information in outline notes and summary statements
5.103 Uses a readily acceptable footnote and bibliographical form in identifying sources of information and ideas
5.104 Organizes material which is to be recorded in written form or is to be presented in oral form into a meaningful sequence of ideas and puts them into good sentences and paragraphs:
   - spells correctly the words he uses in ordinary written discourse and can use the dictionary if uncertain of spelling
   - seeks to find words which express his meaning accurately and which add variety and interest to the subjects about which he is writing. Can use a thesaurus to accomplish this purpose
   - adapts his vocabulary, usage, organization, and style to his purpose and to the persons or audience addressed

5.20 Production of a plan, or proposed set of operations

5.201 Is able to recommend action to solve immediate problems and to provide for short-range possibilities within the scope of a long-range plan from a study of the facts which have been identified
5.202 Ability to build upon an idea and to propose ways and means of implementing the idea to accomplish a specific purpose

5.30 Derivation of a set of abstract relations
5.301 Ability to attack a given problem, apply to the problem what is already known, and to develop an hypothesis or hypotheses to solve the problem

6.0 Evaluation

6.20 Judgments in terms of external criteria

6.201 Ability to compare the conditions found in the building in question with standards accepted by expert opinion

I.E. Drawing implications from the immediate-action recommendations

3.0 Application

3.001 Ability to predict the probable effect of the immediate-action recommendations on the long-range plan

5.0 Synthesis

5.30 Derivation of a set of abstract relations

5.301 Ability to formulate implications based upon an analysis of factors which are presented

II. Developing Educational Specifications

II.A. Planning a building

II.A.1. Ascertaining or initiating a study of the desired curriculum

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is familiar with the common terminology used by:
  . teachers
  . administrators
  . curriculum specialists

1.12 Knowledge of specific facts

1.121 Is able to identify standards developed to guide teachers in the development of curriculum guides
1.24 Knowledge of criteria

1.241 Is able to identify components of the educational program which bear directly on the evaluation of existing school plants

1.242 Is familiar with criteria for judging the extent to which the existing curricular structure effectuates the stated philosophy

1.25 Knowledge of methodology

1.251 Is familiar with techniques used to elicit information about program elements from school staffs

1.252 Can suggest various techniques to determine what school staffs see as things to be learned

1.253 Can suggest various techniques to determine what services are to be rendered to students

1.31 Knowledge of principles and generalizations

1.311 Knowledge of the important principles of curriculum planning and the ability to rationalize these principles in light of the important principles in school facilities planning

4.0 Analysis

4.10 Analysis of elements

4.101 Ability to draw inferences from the curriculum plan, to recognize unstated assumptions in the curriculum plan, and to see plant factors deriving from these inferences and assumptions

II.A.2. Reviewing the long-range educational plan

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Ability to define all terms used in discussing the long-range plan or any of the background data pertinent to the long-range plan by giving their
attributes, properties, or relations

II.A.3. Ascertaining qualitative needs

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Can list the usual services rendered in a school district and can discuss intelligently the implications concerning the school plant that providing these services will evoke.

1.122 Is familiar with specific plant provisions necessary to implement the common curricular elements.

1.123 Is familiar with innovative plant provisions suggested in the literature to implement innovative curricular elements.

1.124 Can identify the factors to be considered in determining total facility needs.

1.25 Knowledge of methodology

1.251 Is familiar with techniques used to elicit information about program elements from school staffs.

1.252 Can suggest various techniques to determine what services are to be rendered to students.

II.A.4. Ascertaining the quantitative needs

1.0 Knowledge

1.25 Knowledge of methodology

1.251 Is able to calculate the number of educational and auxiliary spaces needed to house the desired program.

1.2511 Can identify the elements to be considered in such a calculation.

1.2512 Can list a number of the more familiar techniques used in such a calculation and can utilize at least one of the listed techniques to perform such a calculation.
1.2513 Can determine space requirements for:
- standard academic classrooms
- special classrooms such as the gymnasium, the swimming pool, laboratories, large-group instruction spaces, seminar spaces, and individual study spaces
- administrative activities
- auxiliary instructional spaces such as the instructional materials center and the auditorium
- service activities such as the lunchroom, the clinic, the toilets, and custodial spaces

II.A.5. Writing the specifications

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is able to use terminology which is precise enough so that architects can transform educational ideas into plans and specifications

1.112 Ability to define the terminology applicable to providing for future building use

1.22 Knowledge of trends and sequences

1.221 Knowledge of the basic sociological trends and their influence on school planning

1.222 Knowledge of the trends in methodology, technology, and organizational plans in the planning and construction of facilities, in furnishings and equipment

1.223 Knowledge of the trends in methodology, technology, and organizational plans in the art of teaching

1.24 Knowledge of criteria

1.241 Familiarity with the criteria by which one judges school facilities to be flexible, expandable, or convertible

1.242 Can list factors to be considered in
developing room specifications such as:
- those which determine location of various spaces
- those which determine the size and shape of various spaces
- those which identify the activities to be carried on in various spaces

1.25 Knowledge of methodology

1.251 Is familiar with the common methods by which flexibility, expansibility, and convertibility are achieved
1.252 Can suggest a number of methods currently being used to adjust school facilities to sociological change
1.253 Is familiar with a number of ways by which plant modifications can make facilities more usable for exceptional children

5.0 Synthesis

5.20 Production of a plan, or proposed set of operations

5.201 Ability to draw up a plan to take into account:
- flexibility of facilities
- expansibility of plant
- convertibility of existing structures
- oscillating organizational plans
- sociological changes
- special construction to assist exceptional children

5.202 Is able to develop room specifications and to write these educational specifications in a lucid and erudite manner following a standard outline

5.203 Is familiar with the usual components included in a set of educational specifications

II.A.6. Interpreting the document to staff, board, and community

2.0 Comprehension

2.20 Interpretation

2.201 Ability to interpret educational specifications to a small group in a
pleasing manner and voice without being overcome by embarrassment or experiencing undue strain

5.0 Synthesis

5.10 Production of a unique communication

5.101 Ability to explain technical aspects of educational specifications in lay language

II.B. Planning financing of construction

II.B.1. Understanding economics of plant planning

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is familiar with the basic terminology applicable to school financing

1.12 Knowledge of specific facts

1.121 Knowledge of factors to investigate in order to determine true costs of various building materials
1.122 Knowledge of various financing plans and their effect on economic planning
1.123 Knowledge of various design factors and their effect on economic planning
1.124 Knowledge of innovative building techniques and their effect on economic planning

1.31 Knowledge of principles and generalizations

1.311 Is familiar with the economic principles which relate to the school plant operation

II.B.4. Examining revenue sources

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Is able to list and identify a number of sources of revenue for financing building construction
1.122 Is able to suggest the major legal aspects of school plant financing for at least one state

II.B.5. Securing funds

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Is able to suggest a number of common means for financing school facilities
1.122 Can outline the procedural steps to be followed to obtain financing for school plants for one of the states
1.123 Can identify governmental agencies involved in approving financing plans for school buildings

6.0 Evaluation

6.20 Judgments in terms of external criteria

6.201 Ability to compare various suggested plans to meet housing needs in terms of their suitability in meeting the needs of the desired program at the least possible cost

II.C. Acquiring site(s) and planning site layout

II.C.1. Developing criteria on which to base site selection

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is familiar with terminology used by city and regional planners, real estate brokers, and governmental officials in discussing and describing sites

1.12 Knowledge of specific facts

1.121 Can list and evaluate factors to be considered in site selection and development which tend to indicate the adaptability of the site to the desired program (e.g., size, availability of utilities, etc.)
1.122 Is familiar with and can cite research
1.123 Can list the common school site health, safety, and comfort factors to be accommodated

1.25 Knowledge of methodology

1.251 Can suggest means by which to accommodate the health, safety, and comfort factors of school sites

7.0 Receiving

7.10 Awareness

7.101 Has an awareness of health, safety, and comfort factors in the total school plant

II.C.2. Locating possible sites, and comparing site possibilities

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Can identify sources which list available sites

1.122 Can demonstrate a knowledge of common restrictive use practices for real estate such as zoning laws, restrictive land use regulations, etc.

1.123 Is familiar with and can identify types of soils and their characteristics

1.24 Knowledge of criteria

1.241 Familiarity with the criteria for judgment concerning site aesthetics

6.0 Evaluation

6.20 Judgments in terms of external criteria

6.201 Can evaluate the site in terms of geographical factors such as slope, sun angle, elevation, access routes, drainage patterns, core samples of sub-strata, etc.

7.0 Receiving
7.10 Awareness

7.101 Has an awareness of aesthetic factors in architecture, design, and site planning

II.C.3. Establishing values of sites and negotiating for sites

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Is familiar with and can evaluate the site in terms of cost vs. desirability
1.122 Is familiar with current land values
1.123 Is cognizant of the procedures involved in condemning real estate for governmental use

II.C.4. Obtaining approval of supraordinate bodies

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Can list the governmental agencies involved in land transfer

1.25 Knowledge of methodology

1.251 Is familiar with the procedures to be followed in land transfers

III. Working with the architect and constructing the building

III.A. Planning with the architect

III.A.1. Selecting the architect

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Can identify the general competencies required of the architect as:
   - an adviser for site evaluation, building appraisal, construction budgeting, technical problems
   - a designer who translates educational specifications into space relations,
who decides on methods and materials, who develops final drawings and construction specifications, he helps select contractors, he supervises construction, he inspects and approves completed buildings.

1.122 Can list the factors to be investigated when determining qualifications of the architect (e.g., design ability and technical knowledge).

1.21 Knowledge of conventions

1.211 Is familiar with the standard questionnaire developed by the National Council for Schoolhouse Construction and the American Institute of Architects.

1.212 Is familiar with and can list the usual parts of the architectural contract.

1.25 Knowledge of methodology

1.251 Understands and demonstrates in practice techniques in human relations.

1.252 Can, in an interview situation, elicit information necessary to make judgments about the competencies of the architect.

6.0 Evaluation

6.20 Judgments in terms of external criteria

6.201 Is able to compare the work of one architect with another and with the standards generally accepted as optimal by the profession.

III.A.2. Providing information to the architect

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is familiar with architectural terminology and can define those terms commonly used by architects in discussing architectural drawings and specifications.

1.112 Displays familiarity with terminology used by fire safety experts.
1.12 Knowledge of specific facts

1.121 Can list the common fire safety hazards found in school plant construction and in completed buildings

1.122 Is cognizant of the usual fire regulations and has a working relationship with fire safety personnel

1.123 Can suggest standards for factors in environmental control

1.124 Can list the standards suggested as optimal for each of the environmental areas which include: visual, thermal, aural, anatomical, psychological, respiratory, tactile, and olfactory

1.125 Can cite sources for standards for each of the above

1.21 Knowledge of conventions

1.211 Is familiar with the form used in developing educational specifications, architectural specifications, punch lists, preliminary drawings, working drawings, etc.

1.25 Knowledge of methodology

1.251 Can suggest means to eliminate fire safety hazards, both during construction and in the completed building

1.252 Knows how to plan circulation patterns in a building, and, because of his knowledge of the way in which each section of the building will be used, can suggest to the architect ways to avoid trouble areas and "bottlenecks"

1.253 Can, because of his knowledge of the ways items will be used, suggest the standards to be considered when selecting materials and planning surfaces

2.0 Comprehension

2.20 Interpretation

2.201 Ability to interpret the educational factors spelled out in the educational specifications to architects and engineers
8.0 Responding

8.30 Satisfaction in response

8.301 Finds pleasure in conversing with the many kinds of people who are involved in the planning process such as schoolmen, architects, city planners, real estate brokers, etc.

III.A.3. Inspecting, analyzing, reviewing, and authorizing architectural and construction documents

6.0 Evaluation

6.20 Judgments in terms of external criteria

6.201 Can constructively criticize completed architectural documents. (e.g., preliminary drawings, working drawings and specification lists)

7.0 Receiving

7.20 Willingness to receive

7.201 Has an appreciation of the jobs done by the:
   - architect
   - city and regional planner
   - contractor
   - construction trades people

8.0 Responding

8.10 Acquiescence in responding

8.101 Willingness to accept decisions made by architects in terms of possibilities for utilizing certain building materials, designs, plans, etc.

III. B. Supervising construction

III.B.1. Assuring compliance with educational specifications

1.0 Knowledge

1.11 Knowledge of terminology
1.11 Is familiar with the terminology used by a wide variety of building trades people and can discuss day-to-day operations in their language.

1.12 Displays familiarity with terminology used by experts in the environmental control field.

1.12 Knowledge of specific facts

1.121 Is familiar with the general requirements set forth in architectural drawings and specifications.

1.122 Is familiar with the requirements set forth in educational specifications and can visualize how ongoing construction will fulfill these specifications.

1.123 Can identify at least one legal firm specializing in drawing building contracts and one which specialized in the legal aspects of bonding for public capital investments.

1.24 Knowledge of criteria

1.241 Is familiar with the more common standards of construction and can criticize intelligently but not technically, the more obvious construction techniques. (e.g., the trueness of level and straightness of line of concrete block and brick walls, the surface texture of plaster walls, the installation, location and placement of lighting fixtures, etc.)

1.25 Knowledge of methodology

1.251 Is familiar with the methodology for inspecting various construction aspects in order to make judgments about the completed product.

III.B.2. Collecting and storing documents

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Can list the documents which are usually available and which are vital and important for preservation during
and after the construction or renovation of a building

1.25 Knowledge of methodology

1.251 Can suggest proper means to provide safe storage for these documents

IV. Occupying, equipping, staffing, and utilizing the facility

IV.A. Equipping and furnishing a building

IV.A.1. Deciding on needed educational equipment and furnishings

1.0 Knowledge

1.11 Knowledge of terminology

1.111 Is familiar with the terminology generally used by salesmen and by purchasing agents

1.112 Is familiar with the terminology used in drawing specifications for furniture and equipment

1.113 Is familiar with the terminology used in catalogs and descriptive brochures

1.12 Knowledge of specific facts

1.121 Can list a number of sources for securing information about school furniture and equipment which will:

. fit a desired program
. enhance the physical and educational environment
. ensure practicality, safeness, durability, and economy of such furniture and equipment

1.122 Is familiar with the current rates for school furniture and equipment

1.123 Is familiar with and can identify the major items of furniture and equipment found in school plants

1.25 Knowledge of methodology

1.251 Is familiar with the standard techniques for listing equipment and furniture specifications, taking bids, analyzing bids, producing purchase orders, etc.
IV.B. Occupying a building

IV.B.1. Informing all concerned about building layout, deciding how the building will be used, informing all concerned about equipment usage, and charging all concerned with stewardship of the building, its equipment and furnishings.

1.0 Knowledge

1.25 Knowledge of methodology

1.251 Can train the staff and pupils to use the educational features and can suggest means for training in the use of such mechanical equipment as may fall within his province.

5.0 Synthesis

5.10 Production of a unique communication

5.101 Can prepare instructional materials such as brochures and instruction manuals which are readily understandable by individuals who will normally be involved in such instruction.

IV.B.2. Establishing means for evaluation, and detecting and correcting faults

1.0 Knowledge

1.12 Knowledge of specific facts

1.121 Can list a number of common educational fault areas in new building construction and can suggest symptoms of such defects.

1.25 Knowledge of methodology

1.251 Can prepare a "punch list" in an intelligible and legible fashion after inspection of an existing building.

5.0 Synthesis

5.20 Production of a plan or proposed set of operations

5.201 Can suggest guidelines for future
planning to alleviate or eliminate possible problems which have occurred during current building construction

6.0 Evaluation

6.20 Judgments in terms of external criteria

6.201 Can evaluate the completed building in light of the educational specifications, and the architectural specifications

IV.C. Orienting people

IV.C.1. Involving people in occupying and using the building by:
- reporting about building progress
- establishing communication channels
- gaining acceptance
- helping people "feel at home"
- meeting unique needs
- saying "thank you"

1.0 Knowledge

1.25 Knowledge of methodology

1.251 Can identify a number of devices or plans to present the building to the community
1.252 Can demonstrate experience in planning dedication ceremonies and/or open houses by listing a number of activities basic to such programs

4.0 Analysis

4.20 Analysis of relationships

4.201 Can compare and contrast the effects that various building components will have on the functions of the building and how these functions will affect the school program

5.0 Synthesis

5.10 Production of a unique communication

5.101 Is familiar with and can describe
Development of the Statement of Behavioral Goals

Having now identified tasks to be performed, and related them to the skills, knowledges, understandings, appreciations and values pertinent to the school plant planning process, one can proceed to formulate the statement of behavioral goals for a training program for the school plant planner.

Bringing together the identified behavioral statements we can derive a set of behavioral objectives. This set appears below.

A FIRST OBJECTIVE for a program of instruction to prepare school plant planning specialists will be to provide the student with a vocabulary based upon special terminology unique to the plant planner's work and upon technical terminology which will enable him to communicate with a wide variety of specialists such as:

- professional educators
- curriculum experts
- city and regional planners
- census personnel
- real estate brokers
Instructional goals related to this objective are:

1.111 Is able to define technical education terms by giving their attributes, properties, or relations

1.112 Has familiarity with a large number of words in their common range of meanings

1.113 Can supply terminology related to school plant to replace curricular language while drawing up a plan to implement the curriculum through providing school plant

1.114 Can fluently use terminology utilized by:

- city and regional planners
- real estate brokers
- demographers
- architects
- builders and contractors
specialists in heating, ventilating, plumbing, pipe fitting, roofing, etc.
operation and maintenance of buildings
governmental officials
salesmen and purchasing agents
fire safety experts
experts in visual, thermal, aural, anatomical, psychological, respiratory, tactile, and olfactory climates

1.115 Is familiar with and can define terminology used in talking about enrollment projections
1.116 Has ability to define all terms used in discussing the long-range plan or any of the background data pertinent to the long-range plan by giving their attributes, properties, or relations
1.117 Is able to use terminology which is precise enough so that architects can transform educational ideas into "brick and mortar" facilities
1.118 Is familiar with the basic terminology applicable to school financing
1.119 Is familiar with the terminology used in catalogs and descriptive brochures
1.1110 Is familiar with the terminology used in drawing specifications for furniture and
1.111 I am able to define terms commonly used in discussing problems of aging school buildings.

1.112 I am able to define the terminology applicable to providing for future building use (e.g., flexibility, expansibility, and convertibility).

A SECOND OBJECTIVE for a training program for plant planners, then, will be to provide opportunity for the student to gain a working knowledge of the multitude of specific facts related to the planning, constructing, equipping, staffing, occupying, and utilizing of school buildings such as:

- the facts related to a survey of school building needs and the production of a long-range plan
- the facts related to the development of a set of educational specifications
- the facts related to the selection of the architect and to his subsequent role in school house planning
- the facts related to moving in and settling down.

Instructional goals related to this objective are:

1.121 Knowledge of factors to be considered in the survey of school building needs and the production of a long-range plan such as:

- the effect of migration patterns
- the effect of industrial and commercial planning
the effect of national, state, and local governmental planning
the condition of existing facilities
facts about current construction costs
facts about modern technological improvements in building techniques and materials and about the possibilities for future improvements
the governmental agencies who will be involved both as sources of information and as regulatory agencies
the persons who will be involved in the survey and the roles they will play
the responsibility-authority structure involved and the legal factors affecting this structure
the desired educational program; i.e., the stated curriculum, espoused teaching techniques, course content and sequence, activities of a co-curricular nature, etc.
the services to be rendered to students in a school district
enrollment projections and the school census
the effect of existing physical factors such as churches, schools, cemeteries, highways, airports, quarries, etc.
school site locations and conditions
residential housing patterns
financial factors such as the ability to pay and the willingness to pay evidenced in a school district

1.122 Knowledge of the factors to be considered in the development of educational specifications such as:
- the educational program to be housed
- building capacities considered in light of subject-area capacities
- the cost of construction and its rationalization with the ability to pay for school housing
- the effect of various design elements on economical planning
- the effect of innovative building techniques on economical planning
- the services to be provided to students in a given building

1.123 Knowledge of the roles the architect plays in planning and constructing school facilities and of the competencies he must possess to fulfill these roles such as:
- when the architect functions as an adviser in site evaluation and selection, construction budgeting, and in various technical problems
the architect functions as a designer who translates educational specifications into space relations, who decides on methods and materials, who develops drawings and construction specification.

when the architect helps select contractors, when he supervises construction, and when he inspects and approves completed buildings.

1.124 Knowledge of the factors to be considered in the many facets of occupying, equipping, staffing, and utilizing a school facility such as:

- the collection of documents usually available which are vital and important to the future functioning of the building
- the selection and purchase of furniture and equipment which will fit the desired program, enhance the physical and educational environment, and be practical, safe, durable, and economical
- the detection of construction errors
- the orientation of pupils, staff, and the public to the new facility

1.125 Knowledge of the myriad of miscellaneous factors about school facilities which must constitute a part of any plant planners background such as:

- knowledge of sources for standards which
have been developed for regulating the quality of sanitation facilities, ventilation capacities, and temperature control; for establishing optimal visual, thermal, aural, anatomical, psychological, respiratory, tactile and olfactory climates; for ensuring safety from fire hazards, and from other hazards commonly associated with school facilities such as falls, danger of contagion, etc.

. knowledge about various financing plans and about current construction costs

. knowledge about building deterioration and the maintenance problems which such deterioration creates

A THIRD OBJECTIVE is to impart to the student a knowledge of the characteristic ways of treating the ideas and other phenomena related to the tasks of the school plant planner. Some of these conventions deal with:

. the ways in which the data composing the long-range plan are treated

. the forms or styles used in developing and writing educational specifications, architectural specifications, and architectural drawings

. the technical and legal papers and their component parts which are commonly used by school planners such as the National Council For Schoolhouse
Construction and American Institute of Architects developed questionnaire for evaluation of architects and the variety of contracts involved in school plant construction

Instructional goals related to this objective are:

1.211 Knowledge of the characteristic ways of treating and presenting the ideas and other phenomena which commonly compose the long-range school housing plan

1.212 Is familiar with the form or style used in developing educational specifications, architectural specifications, preliminary drawings, working drawings, etc.

1.213 Knowledge of various types of technical and legal papers and their component parts which are commonly used by school planners such as:
   - the National Council For Schoolhouse Construction and American Institute of Architects developed questionnaire for evaluation of architects
   - the usual parts of architectural and construction contracts

1.214 Knowledge of forms and conventions frequently used in stating a philosophy

1.215 Knowledge of the characteristic ways of treating and presenting demographic and other sociologi-
cally related data

1.216 Is familiar with the form or style used most successfully when applying to state or federal sources for financial assistance to construct school facilities

A FOURTH OBJECTIVE is to impart to the student a knowledge of the trends in school plant related phenomena such as:

- trends in population factors like birth rates, migration patterns, residential housing starts, etc.
- trends in educational factors like curriculum theory, learning theory, instructional theory, and educational philosophy
- trends in the production of educational tools such as teaching machines, audio-visual materials, and data processing equipment
- trends in the organizational patterns of education
- trends in sociological factors which affect education
- trends in the financial aspects of educational practice
- trends in the principles and theories of planning school plants

Instructional goals related to this objective are:

1.221 Knowledge of trends in population factors such as birth rates, sociological balance, etc.

1.222 Knowledge of trends in educational factors such
as curriculum theory, learning theory, and instructional theory; educational philosophy

1.223 Knowledge of trends in educational tools such as teaching machines, audio-visual materials, and data processing equipment

1.224 Knowledge of trends in organizational patterns

1.225 Knowledge of trends in school facilities planning

1.226 Knowledge of trends in the sociological effects on education

A FIFTH OBJECTIVE is to familiarize the student with the classification and categorization of factors involved in the field of school plant planning such as:

. the differentiation of curriculum factors, instructional factors, and learning factors

. the distinction between theories and hypotheses and between applications and practices

Instructional goals related to this objective are:

1.231 Is familiar with and can differentiate between curriculum factors, instructional factors, and learning factors

1.232 Can distinguish between theories and hypotheses, and applications and practices

1.233 Recognition of the area encompassed by educational philosophy

1.234 Recognition of the differences encountered in school housing planning in different sized school districts
Recognition of the differences commonly found in the desired programs of suburban, rural and urban school districts

A SIXTH OBJECTIVE is to bring to the cognizance of the student a knowledge of the criteria involved in the various aspects of school plant planning such as:

1. Knowledge of current and historical guidelines which have been developed for evaluating existing facilities in relation to the desired program elements, health, safety, and sanitation, physical condition of the component parts of a building, the feasibility of repair or replacement of equipment or whole buildings, etc.

2. Knowledge of the criteria for evaluating the existing curricular structure in relation to the extent to which it effectuates the stated philosophy and to which it can be housed in the existing plant

3. Knowledge of criteria to be considered when developing educational specifications such as those which are considered when determining the size, shape, and location of various spaces, those which are considered when determining the number of spaces to be provided and those which are considered when determining possible future uses of the building

Instructional goals related to this objective are:

1. Knowledge of current and historical guidelines
which have been developed for evaluating existing facilities in relation to:

- the desired program elements
- health, safety, and sanitation
- physical condition of its component parts
- feasibility of repair or replacement of the building and/or its equipment
- making decisions about renovating or abandoning buildings
- making decisions about the disposal of school buildings

1.2.4.2 Knowledge of criteria for evaluating the existing curricular structure in relation to:

- the extent to which it effectuates the stated philosophy
- the extent to which it can be housed in the existing plant

1.2.4.3 Knowledge of criteria to be considered when developing educational specifications such as:

- those which are considered when determining the size, shape, and location of various spaces (e.g., the activities to be carried on in the various spaces)
- those which are considered when determining the number of spaces to be provided
- those which are considered when determining
possible future uses of the building (e.g., flexibility, expansibility, and convertibility of spaces)

A SEVENTH OBJECTIVE is to provide the student with a knowledge of the methodology commonly used by school plant planners in performing their duties, such as:

. an understanding of the methods of inquiry and determination
. an understanding of the techniques in human relations
. a working knowledge of the procedures utilized in a wide variety of tasks
. an understanding of the use patterns of a building to enable the planner to suggest means to solve a number of frequently encountered problems which arise because of building use

Instructional goals related to this objective are:

1.251 Evidences an understanding of the methods of inquiry and determination, i.e., the techniques and procedures employed in:
. collecting data on which to base the long-range plan
. determining what school staffs see as things to be learned by students
. determining what services are to be rendered to students
. projecting school enrollments
. taking a school census
. collecting data house-to-house
. sampling
. statistical treatment of data
. determining the capacity of a building, its regular and special classrooms and its auxiliary spaces
. calculating the number of educational and auxiliary spaces needed to house a desired educational program
. conducting demographic saturation studies of communities

1.252 Understands, and demonstrates in practice, techniques in human relations

1.253 Is familiar with the proper procedures for:

. making land transfers
. inspecting various construction aspects in order to make judgments about the completed product
. issuing construction change orders
. assuring expeditious completion of construction
. constructing a "punch list"
. providing safe storage for building documents
. preparing specifications for equipment and furniture purchase
. taking bids, analyzing bids, producing purchase
orders, etc.

- training the staff and pupils to use the educational features and mechanical equipment of a building
- presenting the building to the community through dedication ceremonies and/or open houses
- disposing of school property including the major legal stipulations which are to be controlling factors

1.254 Knows the usual use patterns of the several portions of a building and based on this knowledge can suggest means to:

- accommodate the health, safety, and comfort factors of a school
- eliminate safety hazards, particularly fire safety hazards, both during construction and in the completed building
- avoid trouble areas and "bottlenecks" in building circulation patterns
- provide flexibility, expansibility, and convertibility in a building
- adjust school facilities to sociological changes
- make school plants more usable for exceptional children
1.255 Is familiar with the methodology employed in a number of planning techniques such as operations research, Program Review and Evaluation Technique, and Planning-Programming-Budgeting System

An EIGHTH OBJECTIVE is to present to the student the principles, generalizations, and major educational theories applicable and pertinent to the field of school plant planning, and to provide him with sufficient understanding of these principles and generalizations, these major educational theories so he can apply them with facility to his future deliberations as a school plant planner.

Instructional goals related to this objective are:

1.311 Knowledge of principles and generalizations applicable to:
   . the formulation of educational philosophies
   . educational practices
   . school facilities planning ...
   . evaluation of curricular structure
   . the economics of school plant construction, maintenance, and operation
   . making judgments about whether to modernize school plants or build new buildings
   . planning techniques such as operations research, Program Review and Evaluation Technique, and Planning-Programming-Budgeting System

1.321 Knowledge of major theories in education
including:

. learning theories
. instructional theories
. curriculum theories
. theories of school administration

A NINTH OBJECTIVE is to develop in the student, skill in comprehension so that he understands data which are communicated to him and is able to manipulate this data in the development of educational plans.

Instructional goals related to this objective are:

2.101 The ability to read a variety of illustrations, such as:

. topographical maps and demographic data
. blueprints
. statistical charts and tables

2.102 The ability to render a variety of data into forms which are directly applicable to school facilities planning. These may include:

. demographic reports
. curricular statements
. financial figures

2.201 The ability to interpret the information presented in a variety of illustrations such as:

. topographical maps and demographic reports
. blueprints
. statistical charts and tables

2.202 The ability to reorder a variety of data in light
of the principles of school plant planning

2.203 The ability to interpret philosophical and theoretical statements at an operational level

2.301 Ability to determine implications, consequences, and effects which relate to school plant from:
   - demographic data
   - curriculum statements
   - financial data
   - statements of educational philosophy
   - topographical maps
   - statistical charts and tables

2.302 Ability to determine the extent to which existing facilities will optimize the desired curricular program

2.303 Ability to extend identified trends to determine implications for school facilities planning for the long-range

A TENTH OBJECTIVE is to prepare the student so that he will be able to apply the technical principles, ideas, and theories pertinent to school facilities planning as he performs his professional function.

Instructional goals related to this objective are:

3.001 The ability to demonstrate the effects of the present curriculum upon school plant structure

3.002 The ability to demonstrate the effects of the present school plant structure upon the present
3.003 The ability to predict the probable effect of a change in a factor under study on the long-range plan

An ELEVENTH OBJECTIVE is to develop in the student the ability to identify the relationships among the ideas and among the factors on which a school facilities plan is based so that the student can more readily evaluate the pertinence of these ideas and factors in the development of such a plan.

Instructional goals related to this objective are:

4.101 The ability to draw inferences from a curricular plan, to recognize unstated assumptions in the curricular plan, and to see plant factors deriving from these inferences and assumptions.

4.102 The ability to distinguish fact from hypothesis when:

- examining research findings
- discussing school programs with colleagues and lay patrons

4.201 Ability to verify the consistency of expressed curricular desires with:

- current operational patterns
- community financial ability and effort

4.202 Ability to understand the relationships which dictate the ordering of developmental steps in
a long-range plan

4.203 Can compare and contrast the effects that various building components will have on the functions of the building and how these functions will affect the school program

4.301 The ability to recognize the scheme of organization in:

. the curricular plan
. the long-range housing plan
. the plan of educational specifications

A TWELFTH OBJECTIVE is to develop in the student skill in melding components, factors, and elements related to the school facilities function into an integrated plan, communication, or report which can serve as a basis for providing school facilities

Instructional goals related to this objective are:

5.101 Can prepare materials which express his and other peoples' ideas with clarity and correctness. Such materials may include:

. reports of educational surveys
. educational specifications
. public relations brochures
. instruction manuals
. statements of educational philosophy
. statements of the curricular plan
. newspaper serializations and educational articles
5.201 The ability to build upon an idea and to propose ways and means of implementing the idea to accomplish a specific purpose.

5.202 From a study of the data collected, is able to recommend action to solve immediate school housing problems and to provide for short-range possibilities within the scope of a long-range plan.

5.203 Is able to develop room specifications and to write these educational specifications in a lucid and erudite manner following a standard outline.

5.204 Can suggest guidelines for future planning to alleviate or eliminate possible problems which have occurred during current building construction.

5.205 Ability to draw up a plan to take into account:
- flexibility of facilities
- expansibility of plant
- convertibility of existing structures
- oscillating organizational plans
- sociological changes
- special construction to assist exceptional children

5.301 The ability to attack a given problem, apply to the problem what is already known, and to develop an hypothesis or hypotheses to solve the problem.
A THIRTEENTH OBJECTIVE is to train the student to use the knowledges, skills, and understandings developed in the training program to make judgments about factors related to school facilities planning and to make evaluations which will result in school housing plans to ameliorate the educational programs of school districts.

Instructional goals related to this objective are:

6.101 Ability to assess:
   . the value of information collected or made available
   . the general probability that proposed curricular plans will implement stated philosophies
   . the general probability that proposed school housing plans will implement stated curricular plans

6.102 Ability to detect:
   . fallacies in arguments and presentations
   . inconsistencies between stated educational philosophies and proposed or imposed curricular plans
   . inconsistencies between the stated curriculum plan and the observed classroom practices

6.201 Ability to compare:
   . local curricular programs with state and national standards and with selected curricular plans
local school facilities with selected model schools and with conceptual building plans

local school systems with others in terms of:
1) financial effort, 2) financial ability,
3) excellence of product, 4) staffing practices, and 5) operation and maintenance programs
workmanship evidenced by the building structure with accepted building standards

the configuration of the existing plant with that accepted by educators as optimal
health, safety, and sanitary conditions found in a building with standards accepted by expert opinion
various suggested plans to meet housing needs in terms of their suitability in meeting the needs of the desired program at the least possible cost

the work of one architect with another, and with the standards generally accepted as optimal by the profession

6.202 Can evaluate:

the completed building in light of the educational specifications, the architectural drawings, and the architectural specifications
school sites in terms of geographical factors such as slope, sun angle, elevation, access
routes, drainage patterns; in terms of aesthetic factors; and in terms of how it enhances the educational program

6.203 Can constructively criticize completed architectural documents

The FOURTEENTH OBJECTIVE is to develop in the future planner a responsiveness to the variety of clues, suggestions, implications and factors which present themselves in a study of school building needs or in the process of developing educational specifications. Through this intensified responsiveness, the planner will become better attuned to the elements insinuating themselves on his consciousness and his future planning will properly reflect their influence.

Instructional goals related to this objective are:

7.101 Has an awareness of:

. aesthetic factors in architecture and design
. weaknesses in present curricular programs and of shortcomings in the present school plant which contribute to these weaknesses
. health and safety factors in the total school plant

7.201 Has an appreciation of the jobs done by:

. architects
. city and regional planners
. contractors
. construction trades people
7.202 Has the trait of listening, that is, attending carefully to the spoken word of others so he may more accurately understand what is told him in terms of desired program characteristics, preferred structural design, etc.

7.301 Can, in a given situation, listen with discrimination to the comments of individuals and groups and sort out that which is pertinent from that which is irrelevant in terms of implications for the plant planning process for which he is responsible.

A FIFTEENTH OBJECTIVE is to create in the future planner an involvement in the task of providing educational facilities of the highest order, and to do so by seeking out the opinions and advice of those experts knowledgable in the myriad of fields which affect the planning of school plants. Within this objective is subsumed the intent to instill in the student a sense of satisfaction in performing the tasks which result in a set of facility recommendations or in the educational specifications necessary for school facility design.

Instructional goals related to this objective are:

8.101 Willingness to:

. comply with the decisions made by the curriculum experts in determining the desired curricular program
accept decisions made by architects in terms of possibilities for utilizing certain building materials, designs, plans, etc.

8.301 Finds pleasure in conversing with the many kinds of people who are involved in the planning process such as schoolmen, architects, city planners, real estate brokers, etc.

A SIXTEENTH OBJECTIVE is the development in the student of a set of attitudes based on the value system inherent in the American ideal of democracy in education, and further based on the value system accepted by operating plant planners which centralizes curriculum, health, and safety Instructional goals related to this objective are:

9.101 Shows consistency in belief about the basic tenets on which planning for school plants is based

9.102 Holds consistently to values which are basic to the planning process in school plants, but is ready to accept new values as they can be shown more viable in providing adequate curricular programs for all youth

9.201 When working with school staffs is able to:

• draw forth a variety of viewpoints on the more controversial issues and is able to form an opinion about these issues

• elicit from even the most reticent members, a
statement of their views, and can help them feel a part of the group and understand the importance of their contributions.

9.301 Has commitment to the centrality of program in the plant planning process and is evangelistic in his commitment to improving and updating curricular programs.

A SEVENTEENTH OBJECTIVE is to assist the planner to establish for himself a system of values from among interrelated values which he has identified in his studies. This objective is extended to include assisting the student as he attempts to order the set of values impinging upon him. Instructional goals related to this objective are:

10.101 Forms judgments as to the responsibility of school personnel to provide alternative programs for the variety of students in their charge and as a plant planner recognizes the need to plan facilities to accommodate a wide variety of program elements.

10.201 Compares alternative educational policies and practices in light of their effect on the majority of students without sacrificing the need for providing special programs for individual students; when making decisions about alternatives in the total housing plan, reflects this concern for the individual within the frame-
work of providing for the whole

The EIGHTEENTH OBJECTIVE involves more than the specialized program herein described. This objective may not, in fact, be properly located here. However, it shall be stated since all aspects of the training program lead toward it. This objective is simply to help the student to bring together his beliefs, ideas, and attitudes to form for himself a philosophy on which all subsequent acts will be based.

Instructional goals related to this objective are:

11.101 Is willing to base judgments about sites, building designs, curricular plans, etc., on evidence which may become available rather than on preconceived notions and will alter educational planning in light of this evidence.

11.201 Displays a "code of behavior" for regulation of his professional life based on the principles and generalizations which have been identified as basic to the plant planning process.

11.202 Evidences a general philosophy of education consistent with the ideals of democracy and the precept of equality of educational opportunity for all students who may be affected by his work.

A NINETEENTH OBJECTIVE is to see that the planner is equipped with the myriad of motor skills which he will need in the performance of his duties. While many of these skills
are typically attained by the student before he enters the program, the program is to be planned to overcome any voids which may prove a hindrance to his optimum future functioning.

Instructional goals related to this objective are:

12.101 Can write in a clear and legible fashion under a variety of conditions

12.102 Demonstrates skill in noting and recording information in outline notes and summary statements

12.201 Can use the common types of recording instruments with reasonable facility

12.202 Can use a variety of machines as aids in calculating

12.203 Can use a number of projective devices

12.301 Can draw rough sketches of building plans, site layouts, equipment and furniture layouts, etc.

12.302 Can draw rough maps locating items which will affect site locations such as:

. street intersections
. building locations
. railway routes
. sewer lines
. locations of cemeteries, quarries, and public buildings

12.401 Can demonstrate techniques for making rough
measurements of room size, size of chalkboards and tackboards, and room heights

12.402 Can demonstrate the use of simple measuring instruments such as the tape measure, the simple ruler, compasses, and protractors
Introduction

Brackenbury has said, "Objectives are to the educational enterprise what destinations are to a ship—both teaching and seamanship require direction if they are to have meaning and significance" (34, p. 89). In the preceding chapters we have identified a set of objectives for a preparation program in school plant planning. Therefore, we have the direction called for by Brackenbury. Objectives and destinations are, however, merely conceptual dreams unless some means is put forth to move us toward them. As the crew of a ship performs certain operations to arrive at their destination, so must teachers and students undergo certain experiences to achieve the course objectives.

Selecting Learning Experiences

Principles

Tyler has suggested that such experiences should be those kinds of experiences likely to move toward achievement of the identified objectives. He avers further that any educational situations provided ought to evoke or provide within the student these kinds of learning experiences (39, p. 42).

Selection of learning experiences, too, can be likened
to the operation of a ship. Just as there are rules of
seamanship and a priority of operations aboard a ship, so
too, are there rules or principles and a priority of opera-
tion to the selection of learning experiences. Tyler has
identified some general principles that apply to the
selection of learning experiences. These, simply stated,
are:

1. To attain a given objective a student must have
   experiences which give him an opportunity to
   practice the kind of behavior implied by the
   objective;
2. The learning experiences must be such that the
   student obtains satisfactions from carrying on
   the kind of behavior implied by the objectives;
3. The reactions desired in the experience must be
   within the range of possibility for the students
   involved;
4. There are many particular experiences that can
   be used to attain the same educational objectives;
5. The same learning experience will usually bring
   about several outcomes (39, p.42).

With these principles as a base, then, the task evolves
to that of suggesting learning experiences which may fulfill
our set of objectives.

The set of illustrative learning experiences

The development of the set of illustrative learning
experiences has drawn heavily on observation of the actual
processes involved in the work of plant planners both for
types of experiences and for the content of these experiences.
In addition, the literature concerning the planning of school
plants and the suggestions of the panel of experts have
proved helpful.
Conrad has categorized learning experiences as action experiences, interaction experiences and reaction experiences. Reaction learning activities are those characterized for the most part by passive student behavior; activities by the student are, on the whole, listening and observing; activities on the part of the teacher are generally lecturing and demonstrating. Interaction learning activities can involve both students and teachers or students alone. In either case participants are active as both listeners and speakers in face-to-face communication. Action learning activities are those activities which involve doing something. These activities are highly student directed and learning takes place as the individual alone or in small groups performs an action. The teacher is involved as a consultant or adviser to the student (14, p.15).

Examples of the activities which may be utilized in a program of studies are:

**Action Activities**

**Laboratory Experiences**
- Operate calculator
- Use slide rule
- Perform enrollment projection
- Use research data
- Compose tabular materials
- Operate recording devices
- Perform capacity studies
**Individual Study**

Become familiar with literature in field
Visit offices of an architect, a city planner, and/or an educational consultant and observe daily operations
Attend zoning commission, urban renewal board, etc., meetings

**Individual Research**

Seek out census data
Seek out vital statistics
Seek out financial data

**Gaming, Simulation**

Perform simulated school building needs study
Perform simulated educational facilities specifications development
Create a game using enrollment projection data
Create a game using saturation study data
Play a game in which a set of recommendations are created from given data

**Skill Development**

Practice those skills required in performing a capacity analysis, a saturation study, and an enrollment projection

**Analyzing, Synthesizing, Writing**

Analyze data supplied and synthesize recommendations concerning immediate-action and create a long-range plan. Write up the report in an accepted fashion
Field Experiences

Attend program meeting in a district where a school building needs study is being conducted, take notes, ask pertinent questions to clarify program concepts, and write a synopsis of the desired program.

Interaction Activities

'Seminars

Conduct seminars; attend seminars

"Brain-storming"

Utilize the brain-storming techniques of industry to create new ideas to solve school building problems.

Reaction Activities

Lecture

Presentation of theories and principles related to school facilities planning

Demonstration

Demonstration of how dwelling units are determined from an aerial photo; demonstration by city planner of how potential dwelling units are determined

Audio-visual

Presentation of slides of innovative school buildings

These types of activities then, are representative of those one may utilize to achieve the previously derived objectives.
A Model

Since this study is based on a set of objectives which calls for behavioral changes in students, one must examine the research which has been produced about the way changes occur. One of the many theory models of change is that developed by Everett Rogers who writes in the rural sociology tradition. He suggests a model based on stages of adoption. It envisions five stages in the adoption process: awareness, interest, evaluation, trial, and adoption. This model, it seems, while perhaps not the epitome of models of the change process, fits well the needs of this study. The learning experiences which have been designed are those which create awareness of the problems in school plant planning, which arouse interest in the student, and provide information on which he can make evaluations. They are experiences which provide a means for trial of a variety of solutions and an opportunity for adoption of processes as the planner proceeds with his myriad of tasks (65, p. 173).

The experiences, too, create in their introduction into the program a spiral effect. That is, as suggested earlier, the learning experiences designed to fulfill specific objectives often trigger the pursuit or achievement of other objectives. Thus, as we introduce learning activities to provide information, we may actually be creating awareness of other elements; as we introduce experiences designed to try out what has been introduced we may provide information
needed for the evaluation process.

When we combine the ordering model for sequential activities as discussed above with our levels of learning model, we achieve a logical way of introducing our learning experiences so as to create the needed changes in behavior to achieve the identified goals.

In ordering the experiences over the time period which has been allotted one may expect that those experiences which deal with the basic items in school plant planning will appear in the early quarters. It seems likely that a basic vocabulary will be a first item to be treated. Since we have assumed that the student will have had some background in administration and curriculum, planning experiences in these areas will likely deal with those aspects directly related to the plant planning process. That is, these experiences will be chosen to enable the student to identify relationships between the theories and practices in school plant planning. Other early activities of the training program will introduce the student to experiences in which the basic methodology of the planning process is utilized. It is likely that the student will first undergo these learning experiences in a laboratory situation; later he will put into practice the methodology he has learned in contrived experience situations and finally he will bear the responsibility for utilizing the methodology he has learned in practical and real experiences.
FIGURE I
Model of a Program of Instruction Utilizing Conrad's "Levels of Learning" Model and Rogers' Theory Model of Change Illustrating the Spiral Effect and Interactive Result Desired
The student will participate almost immediately in field experiences in real situations. His participation in these early experiences will tend to be as an observer. As the student progresses in the program he will assume more responsibilities for the conduct of field activities and in his final quarters will assume the instruction and directive duties of a senior staff member so that no student will finish the program without experiencing major responsibility for a school building needs study and for the development of educational specifications for at least one school plant.

The principles and generalizations applicable to the planning process will be introduced in early activities and carried forward in all subsequent situations. Early experiences will also be designed to produce a general feeling of affinity on the part of the student for the plant planning field. These, too, will be repeated and reiterated, developed and expanded as the student progresses in the program.

In order to see the overall picture, the following listing was developed. This list sets forth the set of objectives in such a manner that it is possible to get an over-all perspective of the objectives and their accompanying learning experiences. It should be noted that there are experiences at all three levels for most of the objectives listed.
General Goals For A Preparation Program For School Plant Planners

The purpose of a preparation program is to train individuals as planners who are committed:

. to provide school housing for students which will facilitate and enhance a desired curricular program as outlined by local school personnel
. to provide school housing which will tend to maximize educational opportunity for all students
. to provide safe, healthful, and comfortable housing for all students as they attend their daily classes
. to provide school housing in an economical manner

Institutional objective - I

To provide the student with a vocabulary based upon special terminology unique to the plant planner's work and upon technical terminology which will enable him to communicate with a wide variety of specialists

Instructional objectives

. Shows familiarity with a large number of words in their common range of meanings
. Is able to define technical educational terms by giving their attributes, properties, or relations
. Can use and define in a reasonably thorough manner the terminology used by city and regional planners, census personnel, real estate brokers, demographers, architects, builders, a variety of building specialists, governmental officials, salesmen of a broad variety of materials,
purchasing agents, and safety experts

- Can use and define precisely the terminology used by plant planning specialists
- Can supply synonymous terminology between the various categories of professions listed above

Learning experiences

- Develop from the literature, from documents, from lectures, and from conversations with various occupational types, a glossary of the most commonly used terms related to school facilities planning and to the various specialties which will be involved in the planning process

- Talk informally with a variety of specialists paying particular attention to the vocabulary used and way in which it is used

- Make up crossword puzzles utilizing technical terms which the plant planning specialist will meet in his daily work; exchange puzzles with classmates and solve

Institutional objective - II

To provide opportunity for the student to gain a working knowledge of the multitude of specific facts related to the planning, constructing, equipping, staffing, occupying, and utilizing of school buildings
**Instructional objectives**

- Can identify the factors to be considered in the school building needs survey
- Can suggest the effects these factors will have on the production of the long-range housing plan
- Can identify the persons who should be involved in a school building needs survey and describe the roles they will play
- Can identify the factors to be considered in the development of educational specifications
- Is able to describe the roles the architect plays in planning and constructing school facilities and can identify the competencies he must possess to fulfill these roles
- Is able to list and identify the many facets of occupying, equipping, staffing, and utilizing a school facility
- Can identify a number of building factors which directly or indirectly affect the teaching-learning situation for which standards have been developed or are prescribed and can suggest sources where these standards can be obtained

**Learning experiences**

- Audit a course in staff personnel in order to derive a background for understanding staffing of a school
- Examine a set of guides or manuals (such as those prepared by Wohlers) for gathering data preparatory to writing educational specifications and discuss the items included with fellow students
Develop from the literature a list of the factors to be considered in the school building needs survey and suggest a number of possible effects each factor may have on the planning of school facilities.

Develop a list of those persons (by type) and agencies apt to be involved in planning school plants.

Develop a list of the factors to be considered in preparing educational specifications. This could involve a literature search, interviews, etc.

Interview an architect, a city planner, a social worker, an educational consultant and draw up a job description for his position.

**Institutional objective - III**

To impart a knowledge of the characteristic ways of treating the ideas and other phenomena related to the tasks of the school plant planner.

**Instructional objectives**

- Can describe the characteristic ways of treating and presenting the ideas and other phenomena which commonly compose the long-range school housing plan.
- Is able to demonstrate the form or style commonly used in developing educational specifications and is familiar with those used in architectural specifications, preliminary drawings, working drawings, etc.
- Can list and describe a number of technical and legal documents commonly used by school planners.
Learning experiences

- Serve as a teaching assistant to a senior staff member who teaches a school plant course designed for the non-specialist.
- Examine a set of architectural drawings and list of specifications and describe the included items in a monograph; discuss the monograph in a seminar situation.
- Examine a number of typical school building needs survey reports and contrast and compare their styles and included items in a term paper.
- Examine a number of typical educational specification reports and compare and contrast their styles and included items in an oral presentation before a student seminar.
- Make a collection of the technical and legal documents applicable to school facilities planning from a given state.

Institutional objective - IV

To impart knowledge of the trends in school plant related phenomena.

Instructional objectives

- Can suggest current trends in population factors such as birth rates, ethnic balance, etc.
- Can demonstrate a knowledge of current thinking in educational theory and philosophy.
- Can describe the current patterns of educational technology.
- Is able to describe the popular organizational patterns.
for school district operation

- Is familiar with and can describe the current thinking in regards to school facilities planning
- Shows familiarity with the current sociological trends and can suggest some possible effects on the school plant planning process

**Learning experiences**

- Attend a demonstration session by an expert in class scheduling using modular segments less than the usual 45 to 60 minute module
- Prepare a term paper dealing with current sociological happenings; identify some actual practices affecting school plant which have been proposed to accompany these happenings; and propose and defend an innovative practice of this type; present paper to a seminar group and discuss
- Examine the pertinent statistical information for a given state and prepare a statement of trends for the items sampled
- Identify a number of educational theories from the literature and derive a personal philosophy statement based on these findings
- Prepare a drawing to rough scale depicting the result of incorporating an innovative pattern of educational technology in planning a school building
- Make an analysis of a variety of plant planning programs, presented as a part of a simulation experience or derived
from actual case studies, in terms of their correspondence to current thinking in regards to school facilities planning as identified from the literature in the field.

- Visit a core section of a large city and talk to the man on the street; elicit his views concerning the facilities provided for the education of the children in his area; prepare an oral report to a seminar group

- Visit a rural community and elicit the views of a "typical" resident concerning the facilities provided for the education of the children in his area; prepare an oral report for a seminar group

- Visit a suburban community and elicit the views of a "typical" resident concerning the facilities provided for the education of the children in his area; prepare an oral report and present to a seminar group

- Compare and contrast the reactions found in the three areas visited

Institutional objective - V

To familiarize the student with the classification and categorization of factors involved in the field of school plant planning

Instructional objectives

- Can differentiate between school building needs studies and educational planning resulting in educational specifications

- Can differentiate among the various educational factors
which affect school facilities planning
- Can classify activities according to type so as to be able to determine proper facility to house activity
- Can classify building spaces according to the typical plant planner's classification such as regular educational spaces, special instructional spaces, auxiliary instructional spaces, administrative service spaces, student service spaces, and custodial service spaces
- Can classify program elements according to the types of special facilities which will be required

Learning experiences
- Examine the literature for suggestions about types of spaces which are related to different kinds of activities
- Discuss with an architect the concept of classes of spaces and determine how the architect categorizes building spaces
- Examine a number of educational specifications to see how building spaces are categorized; discuss findings and compare reactions with fellow students
- Visit a school house and suggest a classification pattern for the various types of spaces found

Institutional objective - VI
To develop in the student a knowledge of the criteria involved in the various aspects of school plant planning

Instructional objectives
- Can list current and historical guidelines which have been developed for evaluating existing facilities
- Can list criteria to be considered when developing educational specifications

**Learning experiences**

- Prepare a check-list for evaluating school plants; discuss check-list with fellow students for inclusiveness
- Prepare a detailed outline to be followed when preparing the report of a school building needs study
- Prepare a detailed outline to be followed when preparing the set of educational specifications
- Ascertain the various state and local departments whose rules and regulations will affect the planning and construction of school facilities and make a collection of such rules and regulations for a given state

**Institutional objective - VII**

To provide the student with a knowledge of the methodology commonly used by school plant planners in performing their duties

**Instructional objectives**

- Can demonstrate the techniques and procedures employed in the various aspects of school plant planning
- Demonstrates in practice, techniques in human relations
- Can demonstrate proper procedures employed in the various aspects of school plant construction

**Learning experiences**

- From the literature obtain a description of the role of the school plant planner during the construction phase of
providing school facilities

- Visit a variety of schools in different situations and evaluate these schools in light of a desired program supplied; present to staff and discuss
- Conduct a program meeting in an actual field setting
- Perform a capacity study for a proposed new building to be constructed to house a simulated desired educational program
- Prepare an enrollment projection based on data provided in a simulated situation
- Perform a saturation study based on data provided for a simulated school district
- Visit a community and identify those community components which may affect location and construction of schools, community growth and expansion, and community attitudes toward support for schools
- Observe a session in which architects and educational planners seek to resolve problems which arise because of specific educational specifications
- From a set of simulated plans determine whether all aspects of the educational specifications are covered
- Attend a "T" group session

Institutional objective - VIII

To provide the student with a background knowledge of the major educational theories and to present him with the principles and generalizations applicable and pertinent to
the field of school plant planning

Instructional objectives

- Can list and describe the major principles and generalizations applicable to the field and demonstrate their application in field problems
- Can list and describe the major principles and generalizations from a variety of fields related to the school plant planning process and show their pertinence to the field of school plant planning
- Can identify and describe a number of the major theories both modern and historical in curriculum
- Can identify and describe the major theories in educational administration both modern and historical
- Can identify and describe some major theories from such fields as sociology, business organization, political science, psychology, city and regional planning which are applicable to the school plant planning field

Learning experiences

- Attend a seminar concerning various planning techniques such as operations research, systems analysis, the Program Review and Evaluation Technique, the Critical Path Method, and the Planning-Programming-Budgeting System
- Attend a lecture describing the major principles and generalizations applicable and pertinent to the field and prepare study notes
- Attend and participate in a curriculum seminar in which
curricular theories are compared and contrasted.

- Take part in a practicum in administration in which administrative theories are identified and discussed.

- Participate as part of a team with students in each of the curricular areas to develop a desired program of studies for a traditional and an innovative school and write educational specifications for a plant to facilitate the developed program.

- Show how these principles and generalizations affect the plan of a building by showing how the plan is modified because of the principles and generalizations.

- Identify and describe the major curricular theories both modern and historical.

- Identify and describe the major administrative theories both modern and historical.

- Instruct a "junior" student in techniques involved in performing a capacity study, an enrollment projection, and a saturation study.

- Prepare a set of slides or edit movie film taken to depict common faults in building design and construction; to depict proper building design and construction; to depict optimum elements of building design and construction; to depict innovative building designs intended to facilitate innovative curricular practices; to depict good and bad elements in site location.

- Prepare a simulation study or game to provide learning.
in: conducting program meetings; preparing data to perform a saturation study, an enrollment projection, a capacity study, a building analysis, the financial statement; preparing educational specifications

Institutional objective - IX

To develop in the student skill in comprehension so that he understands data which are communicated to him and is able to manipulate these data in the development of educational plans

Instructional objectives

- Can demonstrate the ability to read and interpret a variety of illustrations commonly used by plant planners
- Can render a variety of data into forms directly applicable to school facilities planning
- Can interpret philosophical and theoretical statements at an operational level
- Can determine implications, consequences, and effects which relate to school plant from a variety of data

Learning experiences

- Attend classes in statistics to glean a basic knowledge of statistical treatment of data
- Discuss in a seminar situation attended by students and experts in educational philosophy, the plant implications which accrue if school programs are built on a given philosophy
- With students in public health including medical special-
ists, dentists, nurses, and others plan the physical facilities to enhance a program of school health services as they relate to the community-wide health program.

With outdoor education students plan and draw up specifications for an outdoor education facility to facilitate an outdoor education program including summer camping activities.

Play the role of the planning specialist in a team with architectural and engineering students and develop a school plant utilizing educational specifications developed by the curriculum team.

Play the role of the educational planning specialist in a team with students in real estate, public administration, and city planning and develop a plan for a city program of parks, streets, and educational and recreational facilities.

From demographic and topographical data supplied prepare an analysis of factors which may affect school plant planning and cite implications of these factors for the long-range plan.

From statistical charts, graphs, and tables identify factors to be considered in planning school plants and cite implications of these factors for the long-range plan.

Develop an annotated bibliography of articles and books dealing with school plant topics for the current calendar year.
Institutional objective - X

To prepare the student so that he will be able to apply the technical principles, ideas, and theories pertinent to school facilities planning as he performs his professional function.

Instructional objectives

1. Can demonstrate the effects of the present curriculum upon school plant structure
2. Can demonstrate the effects of the present school plant structure upon the present curriculum
3. Can suggest the probable effects of changes in factors under study on the long-range plan

Learning experiences

1. With a student group analyze several building plans and suggest the types of curricular programs which can be provided for without major remodeling or additions
2. From a simulated or actual curricular plan prepare a list of the building components needed to provide space for the activities implied or stated
3. From factors given in a simulated school district indicate how changes in a number of these factors might influence a long-range plan by preparing a basic plan and showing alternate plans based on assumed changes in basic data
4. From data presented in the newspapers of a selected city over a time period draw up a series of conclusions which seem to fit the data concerning the educational climate
of the community and suggest possible effects which such climate may have on school facilities planning.

- From data collected by on-site inspection of a school house, demonstrate in some fashion how the present plant structure inhibits change in the curriculum.
- Show by writing a parable, creating a cartoon or by some other graphic means an understanding of the basic principles and generalizations in school plant planning.

Institutional objective - XI

To develop in the student the ability to identify the relationships among the ideas and factors on which a school facilities plan is based so that the student can more readily evaluate the pertinence of these ideas and factors in the development of such a plan.

Instructional objectives

- Can draw inferences and recognize unstated assumptions in a curricular plan and derive plant implications from these inferences and assumptions.
- Can demonstrate the relationships which dictate the ordering of developmental steps in a long-range plan.
- Can compare and contrast the effects that various building components will have on the functions of the building and how these functions will affect the school program.
- Can recognize and describe schemes of organization suggested by the curricular plan, by the long-range housing plan, and by the plan of educational specifications.
Learning experiences

1. Prepare a term paper defending or criticizing the ordering of the developmental steps in a simulated or actual long-range plan
2. Prepare a scholarly paper describing the common schemes of organization in education and show how the choice of one plan or another will affect the operation of a curricular plan, will alter the long-range housing plan, and will change the plan of educational specifications
3. As an oral presentation to fellow students compare and contrast the effects that various building components will have on the functions of the building and indicate how these functions will affect the school program; discuss the presentation in seminar fashion
4. From a simulated or actual curricular plan prepare a set of educational specifications to provide spaces for the activities implied or stated
5. Prepare an exhibit of a number of innovative facilities modifications which enhance a selected curricular program
6. Prepare a file of innovative schools; include a description of the school, the name of the architect, and a description of the innovations incorporated in the building

Institutional objective - XII

To develop in the student skill in melding components, factors, and elements related to the school facilities function into an integrated plan, communication, or report which can serve
as a basis for providing school facilities

Instructional objectives

. Can prepare materials which express his and other peoples' ideas with clarity and correctness

. Can, from a study of pertinent data, recommend action to solve immediate school housing problems and to provide for short-range possibilities within the scope of a long-range plan

. Can, from data supplied, develop room specifications

. Can suggest guidelines for future planning to alleviate or eliminate problems which occur during building construction

. Demonstrates the ability to attack a given problem, to apply to the problem what is already known, and to develop an hypothesis or hypotheses to solve the problem

Learning experiences

. Conduct a simulated or actual school census

. Prepare a school building needs study based on actual field experience or upon simulated materials furnished

. Prepare a set of educational specifications for a secondary school based on actual field experience or upon simulated materials furnished

. Prepare a set of educational specifications for an elementary school based on actual field experience or upon simulated materials furnished

. Prepare a set of educational specifications for both a
middle school and a junior high school based on actual
field experience or upon simulated materials furnished.
Show how differences in program for these two types will
affect the educational specifications produced.
- Visit a building with presumed operational difficulties
and suggest modifications in building use which may
alleviate the presumed difficulties

Institutional objective - XIII
To train the student to use the knowledges, skills, and
understandings acquired in the training program to make
judgments about factors related to school facilities plan-
ning and to make evaluations which will result in school
housing plans to ameliorate the educational programs of
school districts

Instructional objectives
- Demonstrates the ability to assess the value of information
collected or made available, to assess the general
probability that proposed curricular plans will implement
stated philosophies, and to assess the general probability
that proposed school housing plans will implement stated
curricular plans
- Demonstrates ability to detect inconsistencies between
stated educational philosophies and proposed or imposed
curricular plans and to detect inconsistencies between the
stated curricular plan and the classroom practices
- Demonstrates ability to compare local curricular plans
with state and national standards and with selected curricular plans, to compare local school facilities with selected model schools and with conceptual building plans, to compare local school systems with others in terms of: 1) financial effort, 2) financial ability, 3) excellence of product, 4) staffing practices, and 5) operation and maintenance programs, to compare workmanship evidenced by the building structure with accepted standards, etc.

Learning experiences

. In a clinical situation, participate in discussion sessions with operating superintendents and/or plant planners who bring to the session actual problems and real data. Such a session will be designed to develop a number of alternative plans for solving the school housing problems presented.

. Supervise the work of a "junior" staff member who is performing a school building needs study or who is planning a building and developing educational specifications.

. Examine a philosophy statement for an actual or simulated school and compare this statement with the curricular plan of the same school pointing out how the curricular plan does or does not facilitate the philosophy statement.

. Cite sources for statistical data about financial effort and ability. Make a collection of such data for the past ten-year period for a given state.

. Examine the schedule of a secondary school and make an
analysis of how well the program offerings fit the stated curricular plan

- Examine the total program of a secondary school and analyze whether the program meets state standards, meets accreditation association standards

Institutional objective - XIV

To develop in the future planner a responsiveness to the variety of clues, suggestions, implications, and factors which present themselves in a study of school building needs or in the process of developing educational specifications. Through this intensified responsiveness, the planner will become better attuned to the elements insinuating themselves on his consciousness, and his future planning will properly reflect their influence

Instructional objectives

- Demonstrates an awareness of aesthetic factors in architecture and design, of weaknesses in present curricular programs and of shortcomings in the present school plant which contribute to these weaknesses, and of health and safety factors in the total school plant

- Shows an appreciation for the jobs done by architects, city and regional planners, contractors, and construction trades people

- Has the trait of listening to the spoken word of others so he may more accurately understand what is told him in terms of desired program characteristics and preferred
Can listen with discrimination to the comments of individuals and groups and sort out that which is pertinent from that which is irrelevant in terms of implications for the plant planning process for which he is responsible.

**Learning experiences**

- Conduct or attend a meeting called to discuss the desired curricular program for a school building needs study. This may be an actual session or a contrived one or both. After the session from notes taken and from what is retained mentally write a statement of the desired curricular program.

- Interview a campus planner for a good sized university and prepare a job description for his position.

- Prepare a brief critique of the aesthetic climate found in a designated school plant.

- Spend a day observing the operations in an architect's office, in a city planner's office, on the site of new school construction. After a search of the literature, prepare a paper which rationalizes the on-the-job observations with the literature statements.

- Compare and contrast the duties and responsibilities of a campus planner with those of a public school plant planner; a public school plant planner and an educational consultant for facilities.
Institutional objective - XV

To create in the future planner an involvement in the task of providing educational facilities of the highest order. Within this objective is subsumed the intent to instill in the student a sense of satisfaction in performing the tasks which result in a set of facility recommendations or in the educational specifications necessary for school facility design.

Instructional objectives

- Demonstrates a willingness to comply with the decisions made by the curriculum experts in determining the desired curricular program and a willingness to accept decisions made by architects in terms of their speciality.
- Evidences pleasure in conversing with the many kinds of people involved in the plant planning process.

Learning experiences

- Draw up a statement of the desired program for a school district in such a manner that it reflects accurately and genuinely the statements of the school staff about their concept of a desired program.
- Prepare a list based on readings in the field of those areas of specialization which are the inviolate province of the architect. Suggest what, if any, conditions might result in a board of education or school administrator overruling the architect in these areas.
- Attend and take part in a workshop, convention, or
Institutional objective - XVI

To develop in the student a set of attitudes based on the value system inherent in the American ideal of democracy in education, and further based on the value system accepted by operating plant planners which centralizes curriculum, health, and safety

Instructional objectives

- Holds consistently to values which are basic to the planning process in school plants, but is ready to accept new values as they can be shown more viable in providing adequate curricular programs for all youth.
- When working with school staffs is able to draw forth a variety of viewpoints and is able to form an opinion about these issues.
- Can elicit from school staffs a statement of their view, and can help even the most reticent to feel a part of the group and understand the importance of their contributions.
- Demonstrates commitment to the centrality of program in the plant planning process and is evangelistic in his commitment to improving and up-dating curricular programs.

Learning experiences

- Encourage discussion which centers about modern and innovative curricular techniques when conducting program meetings.
. Demonstrate techniques to involve each group member in the discussion when conducting program meetings with administrators and teachers

. Demonstrate the importance of program centrality by showing how school facilities can enhance or hamper program activities when conducting program meetings

. Prepare a set of educational specifications based on a traditional curricular program while at the same time providing for enough building flexibility to accommodate known innovative practices

Institutional objective - XVII

To assist the planner to establish for himself a system of values from among interrelated values which he has identified in his studies. This objective is extended to include assisting the student as he attempts to order the set of values impinging upon him

Instructional objectives

. Forms judgments as to the responsibility of school personnel to provide alternative programs for the variety of students in their charge and as a plant planner recognizes the need to plan facilities to accommodate a wide variety of program elements

. Can compare alternative educational policies and practices in light of their effect on the majority of students without sacrificing the need for providing special programs for individual students; when making decisions about
alternatives in the total housing plan reflects this concern for the individual within the framework of providing for the whole

Learning experiences

- Examine a number of curricular plans and prepare a critique of each based on an analysis of breadth and depth of offerings and on the degree to which individual differences are accommodated.
- Visit the offices of city planners, school personnel and the urban development commission in order to obtain data about the inequities which have accrued in the various segments of the city in terms of housing, educational program, educational housing, and economic parities.

Institutional objective - XVIII

To help the student bring together his beliefs, ideas, and attitudes to form for himself a philosophy on which all subsequent acts will be based.

Instructional objectives

- Is willing to base judgments about sites, building designs, curricular plans, etc., on evidence which may become available rather than on preconceived notions and will alter educational planning in light of this evidence.
- Displays a "code of behavior" for regulation of his professional life based on the principles and generalizations which have been identified as basic to the plant planning process.
Evidences a general philosophy of education consistent
with the ideals of democracy and the precept of equality
of educational opportunity for all students who may be
affected by his work.

Learning experiences

- Prepare a statement of a philosophy of education which
  is consistent with personally held beliefs and rationalize
  this statement in terms of the ideals of democracy and
  the precept of equality of educational opportunity.

- Demonstrate to a panel of experts that the long-range
  plan developed in the school building needs study is
  consistent with the evidence on which it is based.

- Discuss the progress one has made with a member of the
  senior staff; jointly diagnose ones weaknesses and arrive
  at a prescriptive program designed to alleviate these
  weaknesses.

- Perform in-depth research on a topic in school plant
  planning and write a thesis or dissertation relating to
  this research.

- Produce a "code of behavior" for the school plant planner
  based on the principles and generalizations which have
  been identified as basic to the plant planning process.

Institutional objective - XIX

To see that the planner is equipped with the myriad of
motor skills which he will need in the performance of his
duties.
**Instructional objectives**

- Can write in a clear and legible fashion under a variety of conditions
- Demonstrates skills in operating a variety of machines used in various stages of educational planning
- Demonstrates skills in drawing
- Demonstrates skills in measuring

**Learning experiences**

- Take notes while surveying school facilities and later transcribe these notes into a form usable in the final report
- Demonstrate the use of the calculator in computing enrollment projections
- Draw off-hand sketches of a school building floor plan to locate key portions of the building and to give a rough approximation of scale
- Demonstrate a variety of techniques for determining rough dimensions of rooms, equipment, shelving, tackboards, and chalkboards
- Instruct a "junior" student in the procedures involved when operating a calculator

**Organizing the learning experiences**

The basic guiding criteria for developing an organizational plan for learning experiences are well known to educators. The terms continuity, sequence, and integration have become a part of the educational lexicon familiar to
even the most junior of teachers. It is another thing, however, to apply them as principles for organizing learning experiences.

According to Tyler, continuity refers to the vertical reiteration of major curriculum elements; sequence emphasizes the importance of having each successive experience build upon the preceding one and to extend and to perscrutate the matters involved; and integration refers to the horizontal relationship of curriculum experiences (39, p. 55).

The experiences listed are, by the very nature of the organization of the goals for which they are designed, roughly organized in terms of continuity and integration. Since the objectives have been organized according to the taxonomies developed by Bloom and Krathwohl, there is a continuity and integration to them, first in terms of cognitive elements and second in terms of affective elements. The last category, which deals with psychomotor skills, has not been structured since no general taxonomy has as yet been developed for this domain. It is included in order to indicate that there are functions of the school plant planner which fall into this domain, but no attempt has been made to create a detailed structure. This continuity and integration is not definite, however, since movement from one category to another may not occur regularly. Nor does movement from one category to another depend on completion of the former category since engaging in a learning exper-
ience may trigger a series of experiences at a variety of levels. Learning experiences, too, frequently may provide for objectives other than the one for which they are designed.

Since the experiences illustrated here are intended as part of a training program for school plant planners, certain assumptions can be made about them and about the training program of which they are a part. A first assumption which we shall make is that the program under consideration is a graduate program. A second assumption is that one who engages in such a program will likely be seeking the doctoral degree. A third assumption is that such an individual has committed himself to a two-year program in residence. A fourth, and final, assumption is that a candidate will have undergone careful screening before he is registered for the program and that he will possess adequate prerequisites for functioning as a student in school plant planning.

The program herein described utilizes as its basic teaching component the advisement team concept. It envisions the field experiences of its students as the basic, but not the only, teaching operation. As illustrated earlier a wide variety of teaching operations and learning experiences are to be utilized. Objectives of this program are those set forth in earlier chapters.

Basic requirements for those in the program will
diverge widely from that found in the usual doctoral program. No course work will be prescribed by catalog edict. No grades other than progress or satisfactory will be given. Students not performing satisfactorily will be advised that their talents lie in other fields and that they should make arrangements to enter another program. Credit will be assigned to segments of the program, if necessary, and the completion of the two-year sequence will be regarded as having fulfilled any university requirement which may stipulate a number of credit hours beyond the Bachelor's degree.

Since the advisement team is to be the basic teaching component, let us examine the concept for a moment. As it has usually been used in high schools, the advisement team is composed of one or more teaching staff members, a group of eight to twelve students and a group of special teachers, paraprofessionals and clerks, and outside consultants. Here, too, the advisement team is seen as being composed of two or three senior staff members, a group of eight to twelve students, some paraprofessionals and clerks, and outside consultants and lecturers. In addition, however, the team in this program envisions two or three junior staff members, that is, second year students, who will assume some of the teaching duties or instructional operations for the advisement team.

It is obvious, since the identified behavioral object-
ives are the course goals, that teaching operations and learning experiences must be designed to achieve those goals and evaluative procedures must be designed to determine whether the student accomplishes the goals. As heretofore discussed these evaluations will not be for the purpose of establishing a letter grade for the student, but for diagnostic purposes leading to prescriptive notions of what needs are yet to be accomplished. It is anticipated that students as well as staff will evaluate the progress of the individual as well as the group.

This program calls into action only those university personnel seen as necessary to ameliorate the program for the learning group currently at hand. This is not to say that students may not be assigned to engage in course work outside the home team, but it means that no course work will be regularly expected of all students. Where needs require, individual students may be assigned to sit in on regularly scheduled classes, but only after such course has been thoroughly investigated and determinations have been made that the course will in fact achieve the identified objective or objectives which it purports to achieve. No outside minors or courses are to be regularly required. For the most part, it is proposed that, as the advisement team (both staff and students) feels the need for professional treatment in an area, lecturers, specialists, professionals, demonstrators, or other expert personnel will be brought
to lecture-demonstration sessions, seminar meetings, or laboratory periods at which time they will be asked to discuss those specific areas which the advisement team feels are needed to accomplish the specific objectives in a given teaching area.

Since one of the basic teaching operations is to be the field experiences of the student, it is expected that much time will be spent off campus in operating school systems. Where actual field experience proves unfeasible, simulated field situations will be utilized. These may be experienced in groups or as individuals, as games or as posed by computerized, programmed lessons. This is not to say that the student will have no formal class sessions. Much of what is to be learned lends itself to the lecture-demonstration type teaching operation. Some of the objectives to be achieved best fit into a laboratory situation. Consequently, many experiences will take place in the laboratory. Sometimes the team may feel that providing a workshop or clinic for others will lead to a more precise and complete achievement of an objective. In such cases the entire team, but especially the students will be expected to plan and execute such a session.

Whatever the teaching operation, the program must fulfill the purposes for which it was designed. That is, it must free the teacher and learner from "hide-bound" university regulations and allow individualization of the
program to fit the needs of the individual student.
Chapter V
Summary and Conclusions

In the preceding chapters a set of fifty-nine task elements which the specialist in plant planning commonly performs has been developed. While this list is comprehensive in scope, no claim is made that this list of tasks represents the entire realm of activities for each and every operating plant planner for which he may find himself responsible. It is, however, inclusive enough to serve as a base for developing behavioral goals for a training program for prospective plant planners.

The taxonomies of Bloom and Krathwohl have proved to be useful and practical as a means for ordering the developed goals. Some difficulties were encountered in interpreting the type of goals intended by the authors to be included under each of the taxonomy sections. In addition, some identified goals seemed not to fit specifically into one or another of the categories, a result no doubt of the inexactitude of the statement of the objectives or the ignorance of the interpreter.

From the task area base, eighty-eight separate instructional goals, stated in behavioral or performance terms, and ordered according to the aforementioned taxonomies have been developed. Whether there are other goals is a moot question. There is no intent to claim that this list
is all inclusive. It is, however, representative and provides a sufficient base for the preparation program which has been developed.

A next step has been to collect like goals and to develop from them a group of institutional goals. This collation has resulted in nineteen such goals.

Next, an illustrative set of learning experiences was developed. One hundred nine possible experiences have been listed.

Finally, a suggested ordering of these experiences and of a number of teaching operations has resulted in a statement of a possible instructional program for preparing plant planners.

It should be noted here that no attempt has been made to "try it on for size." Certainly a next step which ought to be taken is to put the suggested program to use. This is not, however, the purpose of this study.

The suggested goals are, it is believed, pertinent to the task area for which they are designed, possible of attainment, and capable of being evaluated in some reasonable manner if included as part of a course of study for training school plant planners.

A word about the suggested teaching operations is in order. While it is recognized that a certain amount of lecture-demonstration type class time is needed, a personal conviction is that the instructor should minimize this type
of activity in a training program of this type. On the other hand, the importance of the individualized instruction aspect of the program cannot be stressed enough. As Frymier has argued: "In effect, (if a one-to-one teacher/pupil relationship is established) each learning experience could be precisely tailored to each learner's experience level, his motivations, and his ability. A much closer "fit" of teaching procedures and students' needs might result in the release of learning potential undreamed of in conventional teaching ways" (85, p. 21). He sees the role of the instructor involved in individualized instruction as a "diagnosing-data processing-interpreting-prescribing role," one which would "enable teachers to unleash the full capacity of their students" (85, p. 24).

Several conclusions may be drawn from the reactions of the expert panel to the proposed program. First, there seems to be no over-all agreement on the relative level of responsibility of the variety of tasks known to be involved in school facilities planning. This lack of agreement seems to stem from the demands of the variety of positions which the panel members hold. Second, a continuum has developed between those individuals who would stress the "brick and mortar" aspects and those individuals who feel that their function is purely that of planning the educational aspects of buildings. Third, there is some interest in the development of a program to train specialists in the planning
process, not only as it relates to the provision of school facilities, but to the total educational process. Fourth, experience in actual situations is seen as the most valuable means by which the planner learns his trade. Fifth, the panelists were in agreement that the development of a set of objectives based on performance traits was a useful way in which to approach this portion of a curriculum to train plant planning specialists. Sixth, there is an increasing interest in viewing plant planning from the perspective suggested in a systems approach to problem solution. And last, that there is more need to individualize programs at the graduate school level to provide students with experiences to complement skills and knowledges which they already possess.

A conjecture which the author has confirmed from his experience in the development of the set of objectives is that some educational objectives do not lend themselves to statement in terms which can be tested by observation of performance, at least in an objective manner. These difficult-to-state objectives tended to cluster in the affective domain categories and to increase in difficulty as the objective became more abstruse.

The author is convinced that the proposed program or a modification thereof can prove useful for training the mature educator in the plant planning process.

A further word is deemed necessary about the third
conclusion listed above. It became apparent as the author moved through the interviews with the expert panel that if a position exists which fulfills the author's conception of school plant planner exists, it was not in the ken of the various experts interviewed. Each of the operating planners interviewed were encumbered with duties and tasks not envisioned as part of the planners task.

According to Gulick and Warwick, planning is "working out in broad outline the things that need to be done and the methods for doing them to accomplish the purpose set for the enterprise" (21, p. 223). Planning, then, is a process of attempting to determine appropriate goals and objectives, of obtaining and analyzing pertinent information that will bring into focus present and emerging problems and needs, and obtaining agreement on steps and procedures that are designed to meet those needs so the objectives can be obtained. It is a process designed to improve the analysis of alternative courses of action so the processes of selecting are better guided toward long-range goals. This process should show the immediate and long-range implications of alternative actions. Huefner describes the planning process as research, goal-setting, and plan formulation. He says that the process should: 1) provide a management tool whose purposes are to support the decision-making process by improving the selection of goals and policies and to guide administrative action to implement these goals
and policies; 2) better coordinate elements of the program being planned; 3) better coordinate the total program with other programs outside the scope of the plan; 4) maintain a current plan, flexible to changing conditions and goals yet provide a firm enough plan that it maintains its integrity and provides real guidance; 5) provide the best information and the most competent skills available for each step of the decision-making process including general planning information and skills, such as population projections and also specific program information and skills pertinent only to specific elements of the plan (32, pp. 16-17).

As one reviews the set of objectives and the illustrative learning experiences, it becomes clear that much of the student's time will be involved with those types of activities which will train him in the phase of the planning process involved with data collection. Less obvious are those activities which will provide training in goal-setting and plan formulation. They are present, however, in sufficient numbers, the author avers, to provide a background on which to build experiences in these areas. It is the plan formulation and goal-setting phases of the planning process which make so vital the field activities suggested for the program. It was these phases of the process which led a majority of the expert panel to suggest strongly that a period of internship ought to be built into the program.

It is felt that two major areas of continued research
and development have been suggested in this work. The first area, already mentioned, involves the apparent need to begin where this thesis stops and develop in detail a course of study based on the objectives identified. Such a development should include "trying it on" an number of groups over a period of time with any indicated changes made in the learning activities and in the objectives themselves. The second area deals with the broader aspects of educational planning. The impact of federal programs on local school systems has not been fully comprehended as yet. This, coupled with the other items of social and professional change, which are insinuating themselves into the attention of school officials will necessitate better and more comprehensive planning. Of vital concern, it seems, is the development of a set of objectives and a program of instruction to provide the nation with individuals who have been trained to utilize the planning process to its fullest potential.
Appendix I

Mr. xxxxxxxxxxx
Assistant Superintendent
401 xxxxxxxx
State Department of Public Instruction
xxxxxxxxxxxxxxxxxxx

Dear xxxxxxxxxxx:

As you know, the Council of Educational Facilities Planners has long been interested in programs for preparing school plant planners. We here at Ohio State are vitally interested and one of my doctoral students is working on the development of such a program. It is believed that expert opinion concerning this study is desirable. Because of your interest and expertise in this area, I should like to invite you to serve as a member of an expert review panel.

In preparing this study Mr. Griggs has identified many task areas in school facilities planning. Utilizing this list he then attempted to derive behavioral goals for each task according to the categories as developed by Bloom and Krathwohl in their taxonomies. For this set of behavioral goals he has suggested a number of learning experiences for preparing school plant specialists.

I should like to send you a copy of this study for your perusal. Shortly thereafter I would like for Mr. Griggs to meet with you to discuss the sections submitted and to get your reaction to the tasks, behavioral goals, and learning experiences. I believe that examination of these materials should take an hour or two.

Upon return of the enclosed post card indicating your willingness to assist, I shall send you the aforementioned materials and we will contact you by telephone to arrange a time when Mr. Griggs may meet with you to discuss this study. I estimate that such an interview will require about an hour.

Thank you for your cooperation in this matter

Sincerely yours,

Marion J. Conrad, Head
Educational Administration
and Facilities Unit
Appendix II

Dear Connie,

Yes, I'll be happy to assist in this project.

No, my schedule will not permit me at this time.

xxxxxxxxxxxxxxxxxxx
Appendix III

The Expert Panel

Mr. Warren Beers
Special Assistant to the Superintendent
Columbus Public Schools
Columbus, Ohio

Dr. Dwayne Gardner
Executive Secretary
The Council of Educational Facilities Planners
Ohio State University
Columbus, Ohio

Dr. Neil Gibbins
Associate Professor, Department of Education
Marshall University
Huntington, W.Va.

Dr. William Griffith
Director, Office of Campus Planning
Ohio State University
Columbus, Ohio

Mr. Milton Miller
Director of Educational Facilities Planning
Grand Rapids Public Schools
Grand Rapids, Michigan

Dr. Paul Seagers
Professor, School of Education
Indiana University
Bloomington, Ind.

Mr. Alfred Speck
Superintendent, Lake Ridge Schools
Gary, Indiana

Mr. Paul Thomas
Assistant Superintendent for Research and Planning
Kanawha County Board of Education
Charleston, W.Va.

Mr. Paul Thurman
Director, Division of Buildings and Grounds
State Department of Education
Frankfort, Ky.
Appendix III (cont.)

Dr. Charles Wells
School Planning Consultant
Wayne County Intermediate School District
501 City-County Building
Detroit, Mich.
Appendix IV

Dear xxxxxxxxxxxxx

Enclosed is a copy of the material which you have agreed to peruse. In about a week Mr. Griggs will call you to set up an appointment for the interview mentioned in my earlier letter.

The purpose of this interview is to establish your rating of the tasks in Table I and obtain suggestions of other tasks, goals, and learning experiences.

We thank you for assisting in this project.

Sincerely yours,

M.J. Conrad, Head
Educational Administration
and Facilities Unit
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