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AND UTILIZING OPEN SPACE
ELEMENTARY SCHOOLS

DISSERTATION

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

By

Roger Frank Deibel, B.S. in Ed., M.A.

The Ohio State University
1971

Approved by

Adviser
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CHAPTER I

PROBLEM STATEMENT

Overview of the Investigation

Interest in open space schools is growing. As an increasing number of open space schools are constructed, persons concerned with teacher education, curriculum development, architecture, administration, and supervision of schools will need to become better informed concerning common practices and concerns in the new schools.

Innovation in the housing of pupils always brings such a demand for information, as school and college personnel are well aware. Since 1951, when the Secondary School Principals appointed a Commission on Experimental Study of the Utilization of staff in the Secondary School, many changes have been made in secondary school housing. Under the leadership of J. Lloyd Trump and with support by the Ford Foundation and its Fund for the Advancement of Education, the Commission proposed a series of major innovations in staffing and organizing high schools, among the most significant of which were (1) new kinds of professional partnerships of teachers and aides, with differentiation of staff roles and responsibilities; (2) new patterns of flexible school organization, with variation of class size and time allotments; and (3) new combinations of architecture, visual and sound devices, and technical support in general.
In 1958, the Ford Foundation provided a second major source of innovation in the field of school architecture when it established the Educational Facilities Laboratories. Under the leadership of Harold B. Gores, the Educational Facilities Laboratories explored, worked over, re-designed, and reengineered virtually every aspect of the school facility at the elementary as well as the secondary school level.

The movement in elementary education during these years has been from the age-grouped, self-contained classroom toward new forms of organization. New knowledge about child development, teaching, and learning has brought with it new ways to deploy staff, group pupils, schedule time, and house instructional materials.

The response of architects to new curricular designs and instructional techniques has led today to the construction of an increasing number of open space schools. The open space concept not only makes present programs easier to implement but also acknowledges the fact that methods, techniques, and media will continue to evolve. The facilities are thus constructed to eliminate as many structural constraints as possible.

If the educational leaders in a community have decided that a building with unique design features best meets the needs of the educational program and have succeeded in acquiring the necessary confidence of the controlling agencies to proceed with the project, they are faced with an additional problem: the use of the facility to its full potential.
Heathers states the following concerns of the school:

Teachers must be brought into new relationships that take account of learning goals, the characteristics of pupils as learners, instructional methods, and teachers' knowledge and skills. Organizational arrangements also are necessary to make effective use of school facilities and learning media. Further, school organization must take cognizance of factors affecting staff utilization, staff morale, school costs, and school/community relations.¹

Unfortunately programs, much like people, do not always fully live up to their ideals. It is therefore necessary to take a look at the practices which supposedly are based upon a theory as well as the theory itself, as Shawver points out in reference to team teaching.² The theory may not be poor but it may mean that too few schools are willing or able at present to carry out this theory in enough detail to give it a fair chance.

The research method selected for this study is best identified as investigative because the problem is basically exploratory in nature. The investigation focuses on the open space elementary school.

It should not be assumed that the traditional educational facility is obsolete or ineffective. Neither can it be assumed that the concepts discussed are necessarily superior to the traditional methods of today. These concepts, as yet, have not been researched on a scientific and continuing basis because they have been in operation a relatively


short time, as Castaldi indicates. He further notes that the concepts look promising and careful research may soon give proof of their promise. While there is at this time no real reason to "jump on the bandwagon" and engage in wholesale innovation, every forward-looking educator and school building planner will want to explore these concepts thoroughly with a view toward their potential value in future educational programs and facilities.

The major reason for this investigation has been to determine what is happening in open space elementary schools. The basic premise behind the study is that school people should have additional data relative to the effectiveness of the open space facility in performing its priority functions.

Utilization of open spaces to provide more adequate support for team teaching, variable pupil groupings, nongraded advancement, multimedia instruction, and individualized instruction is currently a major concern in elementary education. The new strategies for organizing and staffing the school make heavy demands on educational facilities both old and new. The question behind this investigation, then, is, "How well do the open space schools meet the demand placed upon them?"

Purpose of the Investigation

The purpose of this inquiry has been to investigate educational program objectives related to the construction of open space elementary

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schools, assess what was going on in open spaces, and to look for assets and liabilities of the facility in its operation.

Considerable agreement exists among educators, program planners, and architects that form should follow function. Educational objectives and specifications should be developed first in order to give direction to the building design plans and specifications. This logic is only relevant for initial operation of the facility, however. As Eberle indicates, once the notions of scholars in the fields of education, psychology, sociology, and architecture appear in a completed building, the task of making the structure fully functioning falls to the professional educator. The on-going use is the long term concern. Even assuming that a staff was involved in initial planning, average turnover rate may provide a completely new staff to assume responsibility for the use of the facility within five years. New staff could return to older ways of using space, even if form followed function initially, unless teacher education programs teach the new theoretical approaches or adequate and continuous programs of orientation and in-service programs are maintained.

This investigation has been designed to determine what some of the personnel in selected new open space schools believe their school should be doing and then assesses the extent to which the programs of the schools appear to be meeting these objectives. Efforts have been made to determine which combination of factors is associated with successful as well as unsuccessful outcomes.

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The investigation provides information about the personnel involved and objectives formulated in decision making preparatory to the creation of the open space schools studied and the nature of practice in these open space schools. It also offers recommendations toward planning for the utilization of open spaces that may help bring specifications of future schools into sharper focus.

The study has been designed to reveal major benefits and problems of the open space concept and to suggest the need for further refinements and research related to rationale and techniques for utilization. The conclusion may help insure continued effort toward closing the gap between the reality of the existing school and hope for those in the future.

Theories and Assumptions

Educators are faced with the problem of preparing to move into open space schools. They need principles upon which to build their preparatory programs to insure the use of the facilities to their full potential. A report of actual current practice will help provide the base for such preparation.

The traditional school is capable of housing innovative programs, and the open space school is capable of housing traditional programs. However, new program elements of team teaching, ungrading, and individualizing instruction are among the educational innovations that would seem to be more feasible in open space than in traditional schools.

The open space school is both the product of and the creator of program innovations. It is with this reciprocal cause and effect relationship that this investigation of open space schools has been approached.
Critics who attack the graded system and the closed classroom have motivated innovations in plans for organizing instruction. In addition, open space encourages and sometimes may, in fact, enforce organizational change.

A building should facilitate and encourage the setting up of the programs deemed desirable. For example, movable partitions, freestanding bookcases, and mobile storage units permit teachers to divide space according to varied and changing purposes. One summary of the ideas basic to interior flexibility lists movable partitions, total absence of walls, balanced lighting, and a decided emphasis on proximity of resource centers.5

Central to most open space schools is a resource center, most frequently called an instructional materials center, which plays a significant role when teachers work in teams, groups are flexible, and instruction is individualized. Having materials readily available supports such innovations in action.

A guide for building planning suggests that evaluation forms the basis for on-going study and updating of standards for school building planning and construction. Analysis of these results also provides the feedback necessary for the retention of those features which facilitate good teaching and learning.6 Thus, this study has attempted to relate principle and practice in its analysis of open space schools.


Specifically, the study has sought answers to the following questions: (1) Why are open space schools created? (2) What evidence is there that these objectives are being met in open space schools? (3) What are the demands made upon pupils, staff, curriculum, and the facility? and, (4) What are some limitations of programing in open space schools?

Definition of Terms

An elementary school is that facility in which any pupil from age five through twelve is housed for educational purposes. This includes the K-6 school as traditionally graded. Those open space middle schools which house pupils eleven and twelve years old (grades 5-6) will be considered as valid sources of information for the benefit of this investigation but only programs for these two ages will be observed in the middle school.

An open space is an area of a building which has the equivalent of at least three normal classrooms combined to form one common instructional area that cannot be divided by a floor-to-ceiling partition system. This area may include more than one instructional area.

An instructional area is that part of an open space specifically designed for instruction of at least three normal sized groups of pupils. These instructional areas are identified by a variety of names such as the following: quad, pod, complex, triad, learning center, and other coined expressions uniquely individualized. The instructional area term is used in this study to distinguish those parts of the school used for
group instruction from the total school which may be called open space and have component parts.

An **open space school** is a term used to describe a school with at least one instructional area. The instructional materials center/library, and other ancillary areas may be present and immediately adjacent to or within the open space.

**Team teaching** utilizes instructional staff so that three or more teachers work cooperatively with three or more normal sized groups of pupils in an open space. This cooperation is designed to maximize individual teacher competencies and to better meet the diverse needs of individual pupils.

**Flexible grouping** of pupils occurs when the size of an instructional group may range from one to forty or more depending upon the instructional purpose or learning task.

**Nongradedness or continuous progress** occurs when an attempt is made to provide a continuum of learning experiences at levels which are both challenging and achievable for each individual pupil.

**Individualized instruction** refers to a wide range of activities when pupils are free to move from a regimented pattern of class groups so that they may pursue work independently both within and beyond the common curriculum. This work could be a normal sequence, remedial, or for enrichment in common curriculum topics or on interest areas beyond common topics, thus meeting unique and individual needs.

An **instructional materials center** is a location in which accessible sources of multi-media materials are housed. These materials are to fit a wide range of pupil needs and abilities.
Scope and Limitations

Fifty elementary schools in Ohio were identified as having operating open space facilities. Thirty of these were selected for visitation where areas of buildings without interior walls or a floor-to-ceiling partition system are being utilized. Only those spaces of at least the size of three normal classrooms were considered.

The primary functions of curricular organization, staff utilization, pupil organization, and availability of materials for instruction in open space elementary schools comprise the major scope of this investigation.

What goes on in a classroom or school is always changing. The nature of curriculum structure, roles of staff members, grouping of pupils, and the extent of facility utilization has always been in a state of flux; furthermore, where new facilities with unique design features have been built as a result of newly formed objectives, the evolving program will be characterized by even more rapid change. Respondents within the schools visited often prefaced their remarks by saying "this year," "last year," "next week," or "today" in an effort to point out that what was observed was valid for the present and not necessarily indicative of what was "normal" or proposed. This limitation imposed by a non-longitudinal study must be considered when the analyzed data are being read.

All data gathered in this investigation are not necessarily objective or universally representative of what is happening in all open space elementary schools. Answers to questions were based upon what the respondent perceived reality or the meaning of the question to be. Even
though observations and further inquiry by the investigator served as a check upon the respondents' relative assessments, the problem of establishing a point of reference in the continuum of program development remains elusive.

Many open space schools in Ohio are in their first few years of operation. Staff members in many of these schools volunteered or were selected especially for the new roles. It would be presumptuous to assume that attitudes expressed by the principals and teachers at these schools are universally held by teachers in general.

Specific research-related articles about the open space school are scarce. Most frequently reference is made to the appropriateness of the open space to provide the necessary environment for some other innovation concerned with teaching or learning. Most of the reports on open schools are informal observations of operating programs or are theoretical views of assumed desirable solutions to instructional problems.

This investigation has dealt with rationale developed generally but was concerned with practice in Ohio schools specifically.

Rationale for the open space school is not clearly defined. Eberle suggests that one of the most significant statements can be made relative to the psychological impact of an "open" or a "closed" environment upon the development of a personality. Longitudinal research possibilities in this area are pregnant and worthy but a measure of discrepancy between the theory and practice of these psychological concerns

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was beyond the realm of this investigation, even though some theoretical statements are made.

A legitimate rationale for the open space school can be developed from an economic point of view; however, cost factors of construction were not considered in this investigation.

Instrumentation and Administration

Open space elementary schools in Ohio were identified by and selected from information derived from periodical literature, Association Referral Information Service (ARIS) through the Ohio Education Association, Institute for Development of Educational Activities, Inc. (I/D/E/A) schools, Educational Facilities Laboratories' (EFL) profiles of significant schools, Council of Educational Facility Planners (CEFP), American School Board Journal, Nation's Schools' school of the month, Ohio State Department of Education, and personal contact and knowledge.

An instrument was developed to aid in the ability to observe educational practices with discernment and to communicate those observations accurately. Questions of inquiry about open space practices were responded to by the principal and at least one teacher at each of the facilities visited.

The principal of identified schools was contacted for consultation and visitation privileges. Form 1 (Appendix F) was completed by the principal or administrator in charge. Form 2 (Appendix F) was completed by at least one teacher at each location. If only the primary level or the intermediate level was appropriate, then only one teacher was asked to respond to Form 2. In any case, Form 2 was completed in
consultation with the observer who provided guidance and explanation for more rapid completion, with the observer avoiding any directive role as far as possible. Form 3 (Appendix F) was completed by the observer during the day of visitation in each school. The observer found a minimum of thirty minutes each was needed with the principal and the teacher after rapport had been established. One full day was allocated for each school visit.

Collected data were organized into meaningful tables for interpretation. First, a comparative analysis was made to determine the difference, if any, between what principals stated and what teachers stated about personnel influential in the educational planning, major objectives of the educational program, factors seen as those contributing to the successful operation of the open space school, and factors seen as those detrimental to successful operation. Second and most important for this investigation, a comparative analysis was possible of differences between what were thought to be major objectives and what components of those objectives were given priority in practice. Third, a systematic list was formulated identifying those features believed to be significant in the utilization of open space schools.

Some guidelines for this investigation were adapted from Provus' Discrepancy Model for evaluation of ongoing programs. Provus attempts to devise a plan to document the discrepancy between staff behavior and program specifications so that decisions based upon the information may direct the retraining of teachers, redesign the program specifications, or terminate the project. He further suggests that a definition should state the objectives of the program, the students, staff, media, and
facilities that must be present before the program can be realized, and the student and staff activities that form the process whereby the objectives are achieved. Simply stated, this investigation looks at the discrepancy between program specifications (objectives) and staff/student roles related to the ongoing operation of the open space elementary school.

Organization of the Dissertation

This first chapter has identified the nature of concerns related to planning for and executing elementary school programs in open space facilities. It has stated the problem to be investigated, developed the appropriate rationale, and outlined the methodology to be followed.

Chapter II reviews the literature on open space schools, including the nature of changing educational practices which motivate an open space architectural design. The theory that architectural spaces constitute a major element in the "psychological environment" of the people who experience them receives minor emphasis.

Chapter III presents the details of the investigation.

Chapter IV analyzes and interprets the collected data. Appropriate tables graphically present the information.

Chapter V summarizes and concludes with recommendations.

CHAPTER II

REVIEW OF PERTINENT LITERATURE

Introduction

Literature directly related to the rationale for open space schools is still limited in scope and sophistication due to the recency of interest in open space school house construction. In most cases, writers stress either the impact of theoretical and psychological positions toward freedom to learn in a free environment or the provision of a school environment in which there are fewer restrictions to innovative ways of managing staff, pupils, and curriculum materials. Thus, interrelationships among the concepts of team teaching, variable pupil groupings, nongrading, and individualized instruction as well as between these innovations and open space are assumed.

This chapter is organized into four sections: rationale for open space schools in general, staff organization, pupil organization, and curriculum and materials organization. The demands made upon the open space facility by major segments of an on-going instructional program are considered relevant aspects of the literature in support of open space.

Rationale for Open Space Schools

The process of public education is being substantially revised and reshaped as a result of new dimensions in curricular design and
instructional techniques. The renewed efforts to devise educational facilities most appropriate for these new dimensions has led to new phenomena in school designs. Capson\textsuperscript{1} presents the situation succinctly:

Educational purposes must be sufficiently precise to escape ambiguity, sufficiently reliable to escape impracticality, and sufficiently ideal to be different from what is. The horse (school organization) already has a pretty good sense of the direction it will take; it behooves us to have a cart (school plant) that is ready by the time the horse is ready. We believe our cart of new design is flexible enough to accommodate whatever teaching processes are adopted and that our plans for the new cart will spur on the grooming of the horse so that both will be ready at the same time to carry our program toward our goals.

Critical problems keep pressing on the schools. How can the schools best provide for the optimum development of each unique pupil? How can the schools best provide for the optimum development and utilization of talents of each unique teacher? What facilities and organization foster or retard optimum development? Team teaching, flexible grouping of pupils for both size and purpose, nongradedness, and individualized instruction seem worth attention and perhaps adoption. The result is, as one report of such questioning makes clear, that "The shape and atmosphere of the schoolhouse is changing drastically under such an approach."\textsuperscript{2}

As the people in Syracuse discovered, their stress on team teaching and nongraded programs represented only one of the new educational programs

\textsuperscript{1}Planning for Elementary Schools (California: Stanford University, The School Planning Laboratory, Educational Facilities Laboratories, 1965), unpaged. Statement made by A. Maurice Capson, Granite School District, Utah.

that have been or will be developed to meet the special needs of children and that will require new building designs.³

Wampler⁴ has set forth the following general educational concepts as basic to developing space for learning:

(1) the school must share the responsibility for the total growth of the child, (2) the school should use a multisensory approach to learning, (3) the school must avoid grade-level expectancies for children, (4) the school should offer considerable opportunity for pupil choice in the learning process, and (5) the school must recognize that learning is facilitated by pupils actively participating in the process.

Moller⁵ suggests that to provide this active participation on the part of the learner (or worker as he calls him), it may be wise to lay out circulation paths which will give workers contact with processes and people they ordinarily would not encounter. If possible, the immediate work space should have a visual relation to the total work area, or a large part of it. The worker's on pupil's sense of sharing in a common task, and of having an interest in the whole product, could thus be greatly strengthened.

Stoddard⁶ contends that both the graded system and the self-contained classroom failed to employ effectively what is known about


⁴Planning for Elementary Schools (California: Stanford University, The School Planning Laboratory, Educational Facilities Laboratories, 1965), unpaged. Norman Wampler was quoted in the section of the report by Charles Gibson.


child development, individual differences, learning, and teaching. He feels the remedy lies in modification of: "(1) grade level curriculum, (2) grade level placement and advancement, (3) the general elementary teacher, and (4) the general purpose classroom."

Eurich, also, lists some aspects of the organizational status quo that must yield before optimum learning situations can be provided: "(1) the self-contained classroom, (2) the isolated teacher, (3) the rigid schedule, (4) the grade level pattern with its unit of instruction, and (5) school houses built to the measure of these anachronisms."

When individual pupils are considered, Yamasaki and Cox classify the changing nature of schooling in the following manner:

<table>
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<th>FROM</th>
<th>TOWARD</th>
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<tr>
<td>Focus on group for administrative orientation</td>
<td>Focus on individual and growth potential</td>
</tr>
<tr>
<td>Disregard for individual uniqueness</td>
<td>Recognize individual differences</td>
</tr>
<tr>
<td>Clustered by chronological age</td>
<td>Clustered by readiness</td>
</tr>
<tr>
<td>Standard size groups</td>
<td>Extreme variation in grouping for educational functions</td>
</tr>
<tr>
<td>Togetherness for all</td>
<td>Solitude for some -- independent study</td>
</tr>
<tr>
<td>Sorted by grades</td>
<td>Nongraded continuum</td>
</tr>
<tr>
<td>Extrinsic motivation through grades and diplomas</td>
<td>Continuous and continuing education leading to self-education and independence</td>
</tr>
</tbody>
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Heathers\(^9\) found that other critics who attack the graded system and the self-contained classroom have motivated innovations to advance competing plans for organizing instruction. "These plans propose new solutions to a number of persistent problems: (1) pupil advancement, (2) pupil grouping, (3) scheduling, (4) uses of space and equipment, (5) teacher deployment, and (6) teacher interaction."

Eberle\(^10\) believes that in the open space school, it becomes possible to shift both the instructional style and the learning environment to harmoniously support the teaching objective. According to Eberle, "The more concrete or convergent the learning objective, the more direct the teaching behavior; the more divergent the objective, the more indirect the teaching behavior."

Further, Rathbone\(^11\) sees the teacher's job to be one of "... assistance to and not direction of children, and this obligates him to two masters, not one; he agrees to honor each child's private agenda. Obviously, much of this must be accomplished on a one-to-one basis; large group activities have all but disappeared."

The major aim in these open space schools is to provide an environment which encourages greater interaction between teacher and pupil and between teacher and teacher.\(^12\) A challenge in this regard is

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\(^9\)Heathers, op. cit., p. 111.


\(^12\)Schools Without Walls: Profiles of Significant Schools (New York: Educational Facilities Laboratories, Inc., 1965), p. 3.
presented by Hanrahan, principal of one of the SOLVE (Support for Open-Concept Learning Areas through Varied Educational Teams) schools in New Hampshire who says, "Interpersonal relationships were our biggest hang-up -- teacher-to-student and teacher-to-teacher."

Eberle has the psychological environment in mind when he reports that:

The open space school consents to the development of attitudes, values, and behaviors useful in supporting and advancing an open society. . . . A parallel may be drawn between the "open" and "closed" societies and "open" and "closed" schools. . . . . If teachers guide, support, stimulate, and encourage; then pupils are apt to explore, experiment, abstract, and create. The teacher's role shifts from "sage on stage" to "a guide on the side". . . . . The open school is pupil centered in that multiple learning routes provide pupils the opportunity to learn in ways best for them . . . How kids feel is important!

Support of the open space school is encouraged by the Harvard Educational Review in a publication titled, "Architecture and Education." A succinct theoretical examination of the phenomenon is presented with the conclusion that the environment of the school definitely influences the nature of the behavior of the pupils. Kohl suggests that the normal 30 x 30 classroom, with a closed door and a "people-plumbing" corridor running along the side, is an autocratic structure:

The parameters of acceptable performance and behavior of pupils are quite restrictive; it is not the kind of space most pupils

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would design. A junior high school student in writing about her ideal school said that her classes would require small groups in large rooms with easy access to everywhere.

The suggestion is that if the child is to be well adjusted and a communicating social being with inner motivation for continuing education and for making a positive contribution, perhaps he should grow up in a more liberating environment.

Stoddard\(^{17}\) says a building "should facilitate and encourage -- indeed invite -- the full participation of pupils in programs deemed desirable; otherwise, like the lobster's rigid shell, it retards progress." This statement could conceivably be the motivating force behind the creation of open space schools. Johnson and Hunt\(^{18}\) emphasize this point for teachers by saying that "the building design must include provisions for changeable, flexible, and usable space which must be adapted to the teaching needs at any particular time and in relation to any requirement that improved learning opportunity places on the teacher leader and each member of the team."

Further, Johnson and Hunt\(^{19}\) suggest the theory that

The open space school promotes a flexibility between groups. If the pupil learns rapidly, he can move, from week to week, to a group at a more advanced level of achievement. When he moves, the move is an easy one: around a cabinet or across to another cluster of pupils a few yards away. There is no need for adjustment to a new teacher, a new classmate, or a different room.


\(^{19}\) Ibid.
Flexible space, as Eurich defines the idea behind it, has been designed to accommodate the latest methods and equipment, to make better use of teachers' skills, and to provide more opportunities for individual instruction.

Flexibility means, in sum, providing teaching spaces and facilities that can continually be manipulated and reshuffled to meet the specific needs of teachers and students on a continuing but ever-changing basis. According to architect William Caudill, flexibility is a high abstraction. He has abandoned the word in favor of more specific terms: "expansible space, that can allow for ordered growth; convertible space, that can be economically adapted to program changes; versatile space, that serves many functions; and malleable space, that can be changed 'at once and at will'." These are the functions incorporated in the rationale for the open space school.

Cautions and dilemmas presented by open space as the answer to facility problems are numerous. Whether the facility is built at all may depend upon the personnel responsible for the educational plan to be housed.

Newcomer warns of the myth of democratic school building planning. He indicates that:

when teachers are allowed to plan, or assist in the planning of schools, there is no doubt that a good school will be built but

20 Eurich, op. cit., p. 212.
21 Educational Change and Architectural Consequences, op. cit., p. 15.
22 Planning for Elementary Schools, op. cit., section by Leland Newcomer, unpaged.
it will be a school that is functional only for the type of teaching that the teacher/planners use in their classrooms. We can ill afford to build a school that fits the specifications of only one system of teaching to the detraction of other techniques which may later be used in the school.

Spatial freedom will not insure educational innovation. Even its desirability in all situations is questioned by Sommer\textsuperscript{23} who cautions that if "presented to an unsure and inadequate teacher, it will result in greater efforts at discipline in order to keep people together and on the same track once the fixed rows of chairs, which greatly aided in discipline, are eliminated."

Kohl\textsuperscript{24} recognizes that "one ought not to try something basically incompatible with one's personality"; therefore, it is conceivable that some individual pupils or teachers might function best in the 30 x 30 classroom or some other type of learning environment besides open space. The suggestion is made by Green\textsuperscript{25} that the facility should include a variety of spaces, some expandable, with a variety of environments. Schools should be constructed so that they can be changed in time -- year-to-year, day-to-day, or hour-to-hour -- to allow for changing curricula.

Perhaps this need for a changing facility may be met by the use of mobile units within an open space and by the provision of satellite


\textsuperscript{24}Kohl, \textit{op. cit.}, p. 69.

areas for special needs. Caudill\textsuperscript{26} states that:

One of the major break-thrus of recent years is the use of the teaching space dividers which are pieces of educational furniture used to subdivide a large loft space into teaching stations, an economical and effective solution to the cry for flexible classroom wings. Movable furniture and equipment facilitates the activity concept of learning.

Thus, movable partitions, freestanding bookcases, and mobile storage units let teachers divide space according to their purpose; teachers may place partitions and furniture strategically.

Perhaps the open space concept should not be condemned when portable dividers are used to sub-divide space for control of traffic-flow, screening from activity to activity, etc. Green\textsuperscript{27} accepts their use and feels that "even if in place a year or more, the next educational program may suggest a different pattern and the move can be an easy one. That's why the open space was built, for flexible sub-division according to need, whenever the need becomes apparent."

Rollins\textsuperscript{28} feels that teachers need spaces for personal materials and a desk, carrel, or office with nearby work area oriented to the library or learning resource center and that one or more conference rooms must be provided immediately adjacent to where pupils and teachers work together. Rollins further suggests satellite spaces for curriculum areas such as the following: "music, instrumental and perhaps vocal;

\textsuperscript{26}William W. Caudill, Break-Thrus and Barriers of School Architecture, Undated (Mimeographed.)

\textsuperscript{27}Green, op. cit., p. A-49.

fine arts and crafts; science, a laboratory and adjacent preparation room; health (clinic); and physical education (for participation activities)." This writer would add that speech correction and remedial reading activities may suggest satellite spaces if these are parts of the local curriculum. Further, concern may be expressed in behalf of special "wet areas" with sink and tiled floor in the open space where pupils may pursue messy projects if separate art and craft spaces are not provided. Cutler\(^{29}\) found the need for a larger tiled area for art and shop activities at the new East Rochester, N.H., open space elementary school.

Should carpet and other acoustical treatments be expected to provide adequate sound control for all activities? Would a completely open space provide the security and seclusion desirable for certain activities and pupils at any given time? Green\(^{30}\) recognizes these questions and recommends that "the central instructional unit could be surrounded by adjunct spaces for complementary independent study, projects, conferences, teacher work areas, and resource facilities."

In a 1958 Texas study, Nowak\(^{31}\) discovered in an open space school that a science teacher was failing to make use of many fine audio-visual aids because of light control and sound problems; another teacher had


\(^{30}\)Ibid., p. B-52.

used phonograph records until she was informed she was disturbing the entire school; and a speech teacher was not communicating with the entire group because of the need to raise her voice. The extent of carpeting or other acoustical treatment in this school is not known; however, carpeting was not frequently used in early open spaces. Gilliland\textsuperscript{32} states his conviction that acoustically treated teaching spaces may be opened which will save in cost of wall construction and will improve the space as far as flexibility is concerned.

A theory proposed by Educational Facilities Laboratories states that the open space may provide a continuous sound which will cover up or mask more distinct sounds. "A large number of sounds so mixed that none is separately distinguishable are less disturbing to concentration than distinct sounds of lower intensity. At least in theory, a fairly open space can be designed with 'controlled acoustics' but this space will not be totally quiet."\textsuperscript{33} This present investigation helps to discover the parameters of acceptable open space activities relative to acoustical treatment and auditory diversion.

This section has reported a variety of concepts and concerns relative to the question of why open space schools are built. Sections which follow go into more detail about the three other major concerns of the investigation: staff, pupil, and curriculum organization.


\textsuperscript{33} Profiles of Significant Schools (New York: Educational Facilities Laboratories, 1960), p. 11.
Staff Organization

Volumes have been written about team teaching specifically and various methods of staff utilization and organization generally. No effort will be made to present a comprehensive position here. Data to support positive and negative factors in cooperative teacher teams are not the issue. Suffice it to say that the desire to team teach leads toward the construction of open space schools where more than one teacher can, in fact, be together with pupils.

Green\(^{34}\) reminds us that:

New ideas are not displacing teachers. Many roles are changing, however. The teacher is no longer merely a dispenser of knowledge, but an organizer of inquiry and acquire - an inspirer and co-learner. As teachers break out of the self-contained classroom, they must work, confer, and plan together. They need spaces to do this.

Heymeyer and McGrew\(^{35}\) found that their "associate teaching" project provided several techniques which allowed for more efficient and more effective use of time and talent. A film showing was as effective for a large group as a small one. One teacher previewed and presented, the other worked out a study unit, marked papers, prepared materials, read a new book, made anecdotal record of student reaction, gave remedial help to those who found the film (lecture) too advanced. When it was necessary to satisfy the special needs of a few students, the work of the group could proceed without interruption. Heymeyer and McGrew were able to give more than the usual amount of individualized instruction and

\(^{34}\)Green, op. cit., p. A-45.

counsel, and they could give this help in the classroom at the time the need for help presented itself.

**Decade of Experiment** presents the case of paraprofessionals supporting the professional team. "Besides mobility and better division of talent, the team principle arranges for the highly gifted teacher to be assisted by other teachers, trainees, and aides who perform non-professional, time-consuming, semi-skilled tasks."

The dichotomy of the relationship between the school program and the school facility is evident when we assume that the patterns suggested by open space are essentially simple, open, and flexible. A publication of the Educational Facilities Laboratories states, "Rather than dictating any particular instructional pattern or technological system, they are highly responsive to the educational desires of the particular people who will use them." However, another publication of EFL states that in the open space school:

the teacher is forced into close association with his colleagues in the open classroom area. He soon finds it natural and logical to work as a member of a team and the traditional self-contained, graded system is made more difficult. The space itself leads firmly toward joint planning, the pooling of talents, the intelligent division of time and tasks.

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37 **Educational Change and Architectural Consequences**, op. cit., p. 7.

38 **Schools Without Walls: Profiles of Significant Schools**, op. cit., p. 5.
In a review of an experimental team teaching program conducted by himself, Goodlad\(^{39}\) reports that:

it posed for them an alternative structure to the long-standing organizational structures of departmentalization and the self-contained classroom, both of which appear to hamper needed developments in educational efficiency. Its potential flexibility provided new possibilities for both innovative and classical practices in sex, age differences, group structures, and socialization factors in learning.

In the near future, Educational Facilities Laboratories\(^{40}\) predict that more teachers will be expected to work in teams, each teacher covering the subject matter in which he is most competent and all teachers free to spend more time with individuals and small groups.

Meyer\(^{41}\) suggests that teaming within a single subject is only a step in the right direction while interdisciplinary teaching provides great promise and really answers the question, "Why team teach? The need for a team at the elementary level to be interdisciplinary is considered evident. Two, three, or more teachers may form an independent faculty unit where cooperation among equals would be held accountable for the process and product of a larger than normal sized group.

Goodlad and Rehage assume requirements for team teaching to include hierarchy of personnel, differential staff functions, and flexible groupings. Anderson includes cooperation among team members in planning,

\(^{39}\) The Schools and the Challenge of Innovation (New York: Committee for Economic Development, 1969), p. 100. The study by John Goodlad was reported in the text of this publication.

\(^{40}\) The Schoolhouse in the City, op. cit., p. 13.

conducting, and evaluating instruction. Even though the formal hierarchy suggested by Goodlad and others would include team leaders, regular teachers, student interns, paraprofessionals, and clerical aides, other ways of looking at staff organization are possible. Hollaway strongly recommends that peer relationships in team teaching are superior to differentiated assignments. "Peer relationships," he says, "provide opportunities for leadership to evolve and constantly shift from one individual to another as the nature of the learning situation changes. The peer relationship is more democratic and will, in turn, result in superior human relationships."

Eberle mentions two qualities of a staff member that will affect the success of the open space team teaching venture:

first, it cannot be expected that all teachers are qualified or desire to teach in an open space school. Many may find the required changes in professional demeanor to be much too threatening. Tried and true teaching behaviors of the past may be too well ingrained to expect desirable behavior changes to come about. Second, teachers in an open space school will need perceptual qualities of vision and abstractness coupled with planning and organizational talent. One must be able to see if the space arrangement is contributing to the learning task. One must be able to disassociate himself and stand off from the class for the purpose of observing and evaluating.

Heathers is fearful that most of the thousands of local programs that employ the new plans involve a hasty and superficial implementation

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1^4 Eberle, op. cit., pp. 25, 27.

1^5 Heathers, op. cit., p. 132.
of structural features of a plan without making adequate provisions for the needed changes in instructional materials and procedures and without providing for the required staff training.

Staples\textsuperscript{46} presents the following challenges to any school planning an open space facility:

Like any other means of reaching an end, if the plan is used, it must be used well: (1) the teachers involved should believe sincerely that educational change is needed and desirable, (2) teachers should have sound and realistic knowledge of what the open space plan entails, (3) there should be no "bandwagon" motivation, (4) the creation of suitable physical facilities is not enough to ensure an effective program \textup{[}planning and staff development are of the utmost importance\textup{]}, (5) know what you want to do \textup{[}"fuzzy" goals will result in an insipid, disappointing program\textup{]}, and (6) teachers must be treated with "openness," they must be fully cognizant of all aspects of the program and must be regarded as the leaders in program development.

Davis\textsuperscript{47} presents a challenge of teaming in an open space in the following fashion:

Principals discover that in-service education becomes a daily routine, not a special problem. Beginning teachers bring enthusiasm and new ideas. Experienced teachers provide guidance and practical experience. Such change is feared by insecure teachers who prefer to work in isolation.

In like fashion, emergent leadership within the staff could be threatening to existing administrative and supervisory personnel.

To carry out the idea of personal as well as joint responsibility to its logical end, Heymeyer and McGrew\textsuperscript{48} jointly decided the mark to be


\textsuperscript{48}Heymeyer and McGrew, \textit{op. cit.}, p. 311.
assigned each student at the end of the marking period. Thus the dimensions of cooperative planning, teaching, and evaluating are included in the team teaching concept.

References on staff organization for this section are primarily those related to the functioning of staff outside the traditional self-contained classroom. The point is clear that cooperative teaching, especially in an open space school, requires roles and responsibilities of staff quite different from those traditionally performed.

Pupil Organization

Purposes for grouping by any size could be determined by an analysis of pupil needs, instructional levels, and interests. Inlow suggests that:

memory-cognitive learning of factual and simple conceptual content may not be a function of class size. But dialogue, reflective thinking, problem-solving, creativity, social growth, and emotional growth are very much functions of class size. Thus the schools need to articulate goals first and only then make decisions regarding the size of learning groups.

Rollins identifies a goal when he says that pupils need to begin their development as good citizens by assuming individual responsibility, and by learning to function effectively in the school community in large and small groups. He believes that buildings and equipment can contribute and help pupils develop a respect for and an interest in learning, so that eventually they will generate their own desire to learn.

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50 Rollins, op. cit., p. 116.
Another goal of the school is identified by Davis who states that:

according to research, people retain twenty percent of what they hear, fifty percent of what they see and hear, and seventy percent of what they say. Much learning takes place when pupils have the opportunity to talk. Evidence in the field of group dynamics indicates that group discussion should take place in groups of fifteen or fewer.

Davis feels that in the small discussion group, the pupil learns respect for another's point of view and that his own opinion must be presented for review in the court of public opinion; he also acquires pertinent information; and other gains include participating in a process which tends to preserve and strengthen democracy, learning that some talk is more valuable than other talk, and acquiring constructive and positive habits of discussion.

Some controversy exists relative to the need for a large room to be used primarily for large group "information giving" types of instruction. Eurich has found that larger than normal home-room groups of more than forty have proven suitable for certain information-giving, assembly-type instruction designed primarily for reaction-type learning experiences. Eurich feels that work in large groups can contribute to the saving of teacher time and talent for all-important work with small groups and individuals. The question of whether both of these functions can occur at the same time and in the same place is at the heart of the controversy.

\[51\text{Davis, op. cit., pp. 6-8.}\]
\[52\text{Eurich, op. cit., p. 107.}\]
Heathers\textsuperscript{53} reminds us of the warning of Goodlad and Anderson that "no pattern of grouping insures nongrading though some grouping practices facilitate it. Individual differences and intra-individual differences are large and are not provided for in the graded system."

When the nongraded school is defined to include a flexible system of grouping in which pupils are grouped regardless of age and in which extensive effort is made to adapt instruction to individual differences, Rollins\textsuperscript{54} asserts that it is the result of a genuine commitment to equality of educational opportunity through public education. Such a result involves philosophical changes and changes in school purposes. Also he feels that nongraded schools require a maximum effort on behalf of every pupil in them.

With nongradedness in mind, Carswell and Dague\textsuperscript{55} suggest:

The major point of focus is that the school is learner centered; it is designed to develop the learner as an individual and as a member of society. This means that the child will have opportunities to work with a large number of youngsters, with small groups, and sometimes alone.

There are three dominant considerations in school plant usage for facilitating nongraded programs: (1) a wide variety of learning activities requiring modified spaces; (2) a wide variety of materials and media requiring appropriate housing, plumbing, electricity, and the like; and (3) a large area for cooperative planning by adults.

\textsuperscript{53}Heathers, \textit{op. cit.}, pp. 112-3.

\textsuperscript{54}Rollins, \textit{op. cit.}, p. 11.

Individualized instruction exists when easy and systematic change in group membership is carried to its highest goal. In fact, individualized instruction is a natural consequence and ultimate aim of many team teaching and flexible group programs as is evident in rationale for open space schools. Stoddard\footnote{Stoddard, op. cit., p. 5.} advocates independent, nongraded study of science, mathematics, art, music and foreign language. These cultural electives, as he calls them, should be achieved in accordance with measured aptitudes and interests of a student.

The need for independent study and secluded study areas for some pupils is identified by Reville\footnote{School Management, reference made to statement by Nick Reville, elementary principal in Orangeburg, N.Y., XIII (October, 1969), p. 52.} when he says:

The behavior of a small group can influence a large number. Some kids can't be honest in a crowd; they behave artificially if they have to be concerned about other groups. At times, people need to act naturally. Sometimes they like a private place where they can go to concentrate.

How independent study evolves in pre-college years is graphically presented by Yamasaki and Cox\footnote{Yamasaki and Cox, op. cit., pp. 60-61.} in the following manner:

\begin{center}
\begin{tikzpicture}
\draw[->] (0,0) -- (0,5); \node at (0,5.5) {Large group (75-300)};
\draw[->] (0,0) -- (5,0); \node at (5.5,0) {Seminar (8-12)};
\draw[->] (0,0) -- (3,0); \node at (3.5,0) {Medium group (20-30)};
\draw[->] (0,0) -- (2,0); \node at (2.5,0) {Small group (10-15)};
\draw[->] (0,0) -- (1,0); \node at (1.5,0) {Individualized Instruction};
\draw[->] (0,0) -- (0.5,0); \node at (0.5,0) {Individual Independent Study};
\end{tikzpicture}
\end{center}
Yamasaki and Cox\(^5\) graph the nature of the ratio between teacher and student when varieties of student groupings are executed.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>TEACHER/PUPIL</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualized</td>
<td>0 / 1</td>
<td>Independent pace, content, interest</td>
</tr>
<tr>
<td>learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutorial/</td>
<td>1 / 1</td>
<td>Directions to resources, Questions/values/skills</td>
</tr>
<tr>
<td>consultive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team project</td>
<td>0-1/2-10</td>
<td>Cooperative team for study and self-learning</td>
</tr>
<tr>
<td>Discussion</td>
<td>0-1/2-10</td>
<td>Homogeneous and heterogeneous</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small group</td>
<td>1-2/ 10</td>
<td>Homogeneous - remedial and advanced</td>
</tr>
<tr>
<td>Medium group</td>
<td>1 / 11-20</td>
<td>Homogeneous - elementary level largely</td>
</tr>
<tr>
<td>Large group</td>
<td>1-3/ 50-300+</td>
<td>Heterogeneous for common curricular elements</td>
</tr>
</tbody>
</table>

Even though individual study areas were not mentioned, educators in Bloomington, Minnesota, found that their Olson School was required to find instructional spaces for large groups of 60 to 300 students, laboratory groups of 25 to 35, and small classes of 10 to 15.\(^6\)

\(^{5}\)Ibid., p. 65.

\(^{6}\)"School of the Month: Hubert Olson Elementary and Junior High School, Bloomington, MN," Nation's Schools, LXXXIII (January, 1969), pp. 84-6.
Davis \(^{61}\) reports, "The pupil benefits from this varied and improved instruction; large-group instruction that has been visualized rather than verbalized, small-group discussion where ideas are expounded and explored, independent study where individual projects are evolved and encouraged, where the emphasis is placed upon research rather than rote learning."

Paradoxically, free time for teachers to work with individuals and small groups is possible from both large group instruction and from individualized instruction or independent study itself. In one case one teacher assumes primary responsibility for the whole group and in the other case each pupil is to assume primary responsibility for his own activity under the guidance of any teacher.

The literature on pupil organization reviewed in this section points to the desirability of providing each pupil the opportunity to make steady progress. Continuous progress is an assumed concept related to nongrading. Furthermore, the literature suggests a balance of large group, "normal" group, small group, and individualized learning experiences. The hope is that these modes of reaction, interaction, and action types of organized learning experiences will meet the needs of each pupil.

This current investigation by the writer helps to determine if pupil organization in open space schools meets the demand of flexibility for individual learners.

\(^{61}\) Davis, op. cit., p. 10.
Curriculum and Materials Organization

It is the ideal of humaneness and the effort to liberate individuals, pupils, and teachers to the extent that each is free to make his greatest growth and contribution that Rogers has in mind when he says, "We seem to be aiming for a new reality in relationships, a new openness in communication, a love for one another which grows not out of romantic blind-ness but out of the profound respect which is nearly always engendered by reality in relationships." If schools hope to meet this goal to a greater extent, some additional opportunities must be provided to allow pupils and teachers to succeed.

The open space as a facility makes its contribution and allows Carswell and Dague to make the positive statement that when schools are fortunate enough to plan facilities for a full-blown nongraded program, the facilities will differ considerably from the box-like structures prevalent over the last century.

Nongradedness, itself, makes its own demands upon the organization and Roberts reports that the following physical facilities would be helpful in promoting the success of a nongraded program: "operable walls, planning areas for teachers, large areas for multiple group activities and large group instruction, movable furniture and equipment,

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63 Carswell and Dague, op. cit., p. 34.
provision for individual study, increased teaching aids of all types, pupil storage space, acoustical floor covering, increased area of teaching surfaces (bulletin boards and chalk boards), and increased storage space in the classroom."

Lindvall and Bolvin state the rationale for the support of individualized instruction in the following manner:

Learning may take place within a social context, and many types of instruction are traditionally carried out with groups of students. But it is the individual who learns, not the group. This, in turn, dictates that instructional plans should be prepared for the individual, not for the group.

Avery states that they have considered the influence of the total school environment for individualized instruction in Winnetka:

Since one of the ultimate objectives was to motivate children to engage in self-education beyond the confines of the classroom, a new wing was added with the central core housing what is now referred to as the learning laboratory staffed for proper guidance and stocked with many instructional resources.

Davis identifies a demand made upon the facility when he says:

Independent study should mean study and research conducted in a learning center where references are readily available and where teacher and librarian can provide direction. Student growth can be gauged through contributions in small groups and in written work. While pupils are engaged in independent study, the teacher is free to meet with individual pupils who wish to go beyond assignments or with those who need remedial help.

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He further suggests that teachers should give more attention to developing the student's responsibility for his own education and that effective work-study skills would help each pupil to grow in self-direction and ultimately assume responsibility for his own continued education.

The greater flexibility of organizational structure is both the result of and the creator of greater flexibility in instructional materials. Green68 asserts that media can allow students to work under many situations without teacher guidance or supervision, freeing the teacher for individual assistance:

When the objectives of individualization are met, the role of the school becomes, in effect, a learning center, a warehouse of knowledge, a central storage bank for pupils to come and grow as tall educationally as their own potential and their own abilities permit.

Further, Green69 demands even more from the facility. "It is not enough," he says, "to provide more and better resources. They must be made conveniently available to those who are going to use them. No longer are these materials ancilliary to learning, they are learning. As such, the student must be able to get to them quickly and easily."

Johnson and Hunt70 request instructional materials, space, free time, and ancilliary facilities for the school program:

Commercially produced or teacher prepared materials and programs must be available at all times. Space must be provided and allowance made for free time from class groups so that pupils may pursue some independent study. Facilities are provided through listening laboratories, science laboratories, study carrels, resource centers, and independent study areas around the facility.

70Johnson and Hunt, op. cit., p. 153.
Rollins lists five requirements for the library resource center:

1. It must be easily accessible,
2. It must be comfortable, attractive, and have a relaxed atmosphere,
3. It must be stocked with multi-media equipment and materials,
4. It must provide spaces for individual and group study,
5. It must provide a central cataloging service if satellite resource centers are utilized.

The assumption is made that having no walls between classroom areas and the instructional materials center/library facilitates accessibility to hardware and software materials. Absence of walls also provides better communication between teachers and aides in team teaching projects.

Cisco and Lake state their rationale for well organized material in the following manner:

The object of the learning laboratory is to help the child learn individually. The child must be treated with respect and dignity. Learning to learn is one of the chief goals. The learning style of each child is to be discovered. Task analysis is to be applied for placement and progress. Materials in the laboratory are arranged in order of difficulty but ungraded. The child is led to make and evaluate his own decisions.

Leu states the ideal position with its demand upon curriculum, instruction, and financial support. "If we are really professionals, we are going to have to move toward the zero-reject concept. This, as with guided independent study, is tremendously expensive; probably the most expensive education there is and probably the best there is if it is done right."

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71 Rollins, op. cit., p. 125.
73 "Staff Involvement Is Important Benefit of Planning Facilities," Ohio Schools, XLVIII (April 24, 1970), p. 15. Quotation of Donald J. Leu, Dean of San Jose California State College School of Education.
This, then, is the challenge to curriculum and materials organization in the open space school where pupils and teachers are engaged in a great variety of learning opportunities. Principal DiFranco74 insists that a new school must be aimed at the individual; the library is to be well designed, well equipped, and adequately staffed to help reach the goal of individualizing instruction.

Summary

The literature reviewed for this curriculum and materials section begins with a base of humaneness and the development of motivated, positive thinking, and successful pupils and staff. The theory is presented that nongradedness and independent study can help the pupil reach this objective. References cited feel the contribution of the teacher and the school is dependent upon the flexibility of the facility, a variety of instructional materials and media, and easy access to these resources.

Writers see the open space school as a place where many of the recent educational innovations can function. It provides the flexibility for variable sizes of pupil groups and for adaptation to changing programs. The open space allows the teaching team to cooperatively plan and teach as a unit with members in open access to each other.

The open space has its limitations and its problems. Writers see the space as a parameter that forces "open" education; they wonder about

the effect on those teachers and pupils who might function best in another type of structure. There are those special curricular demands in music, art, science, and physical education which suggest the need for isolated facilities. The open space creates its own auditory and visual diversion problems which suggest the need for baffles and barriers in the form of mobile screens and cabinets.

For the open space school to function as it should, writers infer the need for new types of teacher behavior, new patterns of pupil learning, and new kinds of curriculum structure. Are the schools able to facilitate these changes?
CHAPTER III

METHODOLOGY OF THE INVESTIGATION

Introduction

The decision to engage in this study of the open space elementary school resulted from the effort to select a high priority concern related to teacher education. The writer is responsible for the supervision of student teachers in some new open space facilities and is responsible for making teacher education a relevant and significant study for the pre-service student.

Current literature is replete with reports of one kind or another on innovations in the grouping of pupils, staffing patterns, and curriculum structures in the elementary school. Many of these innovations suggest a new kind of educational facility; therefore, a study of the rationale for open space construction and an investigation of the program that is occurring in the open space school seemed likely to be both worthy and significant.

There is interest in finding out the extent to which frequently discussed ideas related to open space schools prevail in practice. Some effort to look at the discrepancy between planning for open space elementary schools and actually developing school programs in them would clarify concerns inherent in the processes and improve the quality of the facilities still to be constructed or suggest changes in patterns of pupil, staff, and curriculum organization.
Therefore, it was decided that close study of what was happening in a group of open space schools would be useful.

**Selection of Schools**

One of the first problems faced in the selection of schools to visit was the problem of identification. Publications of the Educational Facilities Laboratories (EFL) name significant open schools nation-wide. Correspondence with James D. MacConnell and John W. Gilliland, directors of EFL Regional Centers at Stanford University and the University of Tennessee, and reports of exemplary schools in Nation's Schools and American School Board Journal uncovered other leads to open space schools.

Use of the Association Referral Information Service (ARIS) available through the Ohio Education Association and correspondence with and publications from the Institute for Development of Educational Activities (I/D/E/A) helped to identify open space Ohio schools.

The investigator had conferences with Dwayne E. Gardner, Executive Secretary, Council of Educational Facility Planners (CEFP), John E. Brown, State of Ohio Department of Education, and authorities in school building planning and administration at The Ohio State University. These inquiries and correspondence with schools previously identified disclosed that there were fifty open space schools in Ohio, an adequate number for this investigation. (See Appendix A for list of Ohio schools identified.) This list has not been totally validated for compatibility to definition and no claim can be made for its completeness. No school visited had been in operation more than four years; thus, it is evident that interest in open space is recent and a complete and current list would be difficult to construct.
The original intent was to visit twenty to thirty open space schools and after fifty were identified in Ohio, the decision was made to confine visitations to Ohio schools.

Arrangements were made with five schools identified for a preliminary investigation using trial forms. It became evident during this preliminary investigation that a definition of "open space" would need to be specifically stated before arrangements with other schools were made. The intent was to consider as open space only those areas that are large enough to house at least three normal-sized classroom groups and that cannot be divided by a floor-to-ceiling partition system; however, two of the five preliminary visits were to schools that did not meet these specifications.

The attempt was made to select schools from as wide a distribution as possible in the state. Letters to principals of schools identified stated the definition and asked for visitation privileges for a specified date. Principals were to verify the appointment if their school met the definition and if the day for visitation was suitable. (See Appendix B for model letter.)

In some cases the school did not meet the specifications. In most of these schools found not to meet fully the open space definition set by this investigation, movable or demountable walls were available which could be used to divide the space into individual teaching stations of

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1See Open-Space Schools Project Bulletin (Stanford University: School Planning Laboratory, James D. MacConnell, Director, Number 1, March, 1970), unpaged. This classification is used by The School Planning Laboratory to define truly open space.
standard size. (This arrangement is called modified open space by The School Planning Laboratory.)

An alternate date was suggested and later verified when the original specified date for visitation did not meet with approval. Ultimately, thirty schools were selected for visitation from the original fifty identified. Of the thirty schools scheduled for visitation, five were made where close observation disclosed that the school actually did not meet the definition of the day proved inappropriate for the collection of data. Therefore, valid data for this investigation were collected in twenty-five schools, one-half of those identified. (See Appendix C for a list of the twenty-five schools and date of visitation.) A total of thirty-two different schools were visited including the two in the preliminary investigation that did not meet the specifications. This number was thought to be a significant percentage of the fifty identified, and a sufficient representation of the status of open space elementary schools in Ohio for the purpose of this study.

Locations of schools visited indicate that the majority exist in suburban areas surrounding metropolitan centers. Two large cities are exceptions; one of these has only two open space schools and recent additions and reconstructions in the other large city have frequently resulted in small modified open spaces. Another exception is the two isolated locations where educational programs were found in open space schools. These schools were located in each of the five major areas of Ohio: Central, Northeast, Southeast, Northwest, and Southwest. (See Appendix D for a map showing the geographical location of schools.)
Seventeen different school districts are represented in this investigation. Eighteen of the twenty-five schools visited were totally new open space facilities; seven were open space instructional areas added to existing schools. No effort was made to describe one factor to be mutually exclusive of any other relative to location, size, or type of open space.

Development of Forms

Literature was reviewed to identify the priority issues related to the development of open space schools. These issues or concerns included cooperative teaching with new roles and responsibilities, variable sized pupil groups for differing instructional purposes, and organization of curriculum materials for easy and meaningful utilization by individual pupils.

The first effort to construct suitable forms for the recording of data resulted in a sequence of questions and concerns to which the respondent was to react by narrative comment. The decision was made at this time to have both the principal and teacher respond to identical items on the same two forms. (See Appendix E for first draft forms.)

These trial forms were used at five preliminary locations of open space elementary schools in April, 1970. This trial disclosed some redundant items and an inadequate classification of topics. In revision, a numerical ranking system was applied to a reorganization of items. The decision was made at this time to add a third form for the observer to complete during the day of visitation. This form included the more
obvious physical characteristics apparent at the school and did prove to save time in conversation with principal and staff.

The three revised forms, Form 1 for the administrator, Form 2 for the teacher, and Form 3 for the observer, were those included in the proposal approved by the Reading Committee. With some minor revision suggested by Reading Committee members and editorial refinements, these forms were those used for the collection of data. (Appendix F.)

Examination of the forms will disclose selected concerns thought to be significant in the construction and use of open space elementary schools. Both the principal and the teacher were asked to respond to identical items related to: (1) groups or individuals influential in developing the educational specifications to be housed, (2) objectives of their school, and (3) factors relative to the successful operation of their school.

In addition, teachers were asked to express their role as professional staff members, their practice in grouping pupils, their practice of managing pupil progress, the mechanics of space manipulation, and, in narrative form, their opinions of strengths and weaknesses of mobile units of furniture/equipment and the open space to provide for the needs of the program.

The observer recorded information on the adequacy of the facility to: (1) meet the space needs of teachers, aides, pupils, special curriculum areas, and storage of curriculum materials, and (2) provide for the availability and utilization of equipment and mobile units.
The Twenty-five Visitations

In every case this observer was given a cordial welcome at the schools. Every principal was willing to share his experiences and concerns relative to the ongoing program at his school. In every case, also, if the teacher was free from the responsibility of pupils she was willing to give of her time to discuss the school's program.

Visitations began with a general orientation meeting with the principal, at which time anything available in the way of documentation (descriptive brochure, floor plan, organizational chart, or statement of philosophy of the school) was presented and explained by the principal. Some principals completed Form 1 at this early stage, others chose to complete it during the day.

In most cases, the principal had made previous arrangements with one or more teachers so that they would be free for a conference with the observer sometime during the day. In other cases, the observer was told to feel free to consult with any teacher at any time she was not directly involved with pupils. Librarians, aides, student teachers, secretaries, and pupils were valuable communicators and sources of information throughout the day. In most cases Form 2 was the result of a composite of staff contributions; however, one teacher generally contributed more than all others and was so indicated as representing primary or higher grade levels on the form.

On several occasions the observer was invited to sit in on team meetings. Some teams were concerned with both short and long range instructional planning, some were evaluating staff organization, some were
evaluating pupil progress, some were solving "house-keeping" problems, and some were planning social events.

On several occasions the observer was invited to sit in on instructional experiences with groups of pupils. Frequently the observer would find it appropriate to talk with individual students and get their views of how they thought their program was organized and how it was progressing.

In every school it was possible to record information on the school as a whole -- what teachers, support staff, and pupils did; how equipment and materials were managed; and how the facility was utilized. Objective data of the general physical characteristics of space and equipment were noted. Subjective analysis of human reactions was also made.

At appropriate times during the day the observer drew a rough sketch of the space and made rough measurements in order to determine the approximate square feet per pupil currently housed. If the instructional materials center was central and open to the instructional areas, this area was included in the available floor area per pupil. Standard dimensions of acoustical ceiling tile were found to be used in most schools and were helpful in reaching quick and fairly accurate estimations.

**System of Reporting Findings**

Objective data are reported for analysis in tabular form. Comparative tables are drawn to analyze likenesses and differences between the way principals and teachers feel about the development of educational
specifications, school objectives, and the operation of their school program. Summary tables are used to analyze data recorded by teachers and the investigator.

Narrative comments made by principals and teachers are included as supplementary data when tables are described. Appendix G presents the narrative responses of teachers related to the way they feel open space contributes to the school program. These comments are both interesting and insightful and should be used as a supplement to the coded data.

Summary

This chapter identifies the rationale for visitation in open space schools. The reasons for making an effort to collect data in operating schools to check out the claims made by statements in the literature is clarified.

Exemplary open space schools were identified nation-wide to help clarify criteria of open space. Then, from various sources, a number of Ohio open space elementary schools was identified for this investigation. Thirty-two of the fifty identified were visited. Some of those schools not visited did not meet the specifications of the definition for truly open space: an area large enough for at least three normal-sized pupil groups where there is no floor-to-ceiling partition system.

Trial forms for the classification of data were used in five preliminary school visits. This trial resulted in revised forms with numerical ratings for greater discernment in responses from principals, teachers, and the investigator. Data from twenty-five schools were finally used in this investigation.
The principal, a teacher, and the investigator completed their questionnaire forms during the day of visitation in each school. The objective data collected were collated in tabular form for analysis and interpretation.
CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Introduction

Data for this study were gathered from principals and teachers in 25 open space elementary schools in Ohio. Responses were recorded on questionnaire forms specifying a series of concerns related to planning for and executing educational programs in open space schools. Observations of the investigator served as a check on the responses.

The data are presented in table form. Each table represents summary tallies derived from one or more of the various forms of the questionnaire: Form 1 for the principal, Form 2 for the teacher, and Form 3 for the investigator.

Some of the concerns on Forms 1 and 2 contained the item "Other" to give each respondent an opportunity to add a personal statement. A report on these comments is included as appropriate in the narrative comments made in explanation of the various tables.

Not all respondents expressed their opinion on each category. For this reason a "Not marked" entry in a fifth column of data is found in some tables.

The findings of the study are presented here in the following order: first, persons influential in the development of educational specifications for open space schools; second, objectives in open space
schools; third, positive and negative factors in the operation of pro-
grams in open space schools; fourth, teacher role factors in open space
schools; fifth, pupil grouping factors in open space schools; sixth,
nongradedness and continuous progress factors in open space schools;
seventh, individualized instruction factors in open space schools;
eighth, use of the instructional materials center/library; ninth, mobile
units available, their location, use, strengths, and weaknesses; tenth,
narrative statements about strengths and weaknesses of open space to meet
needs of the program; eleventh, the investigator's response to selected
features of open space facilities; and twelfth, the investigator's summary
of selected features of the 25 open space elementary schools visited.

Those Influential in Development of
Educational Specifications

Names of people thought to have been influential on the local
scene in the development of educational specifications preparatory to the
development of new schools or additions to schools are mentioned in the
first set of concerns. Principals, as respondents, were asked to indicate
the extent of influence in each category. Teachers, as respondents, were
asked to indicate the extent of influence in the same set of categories.

Table 1 gives the tally of each group of respondents and compares
principals' and teachers' responses to the concern of priority of influ-
ence in the development of educational specifications. Using a standard
weighted score system, tallies of choices from the response categories
are ranked in order of significance; that is, the higher the score, the
higher the rank.
<table>
<thead>
<tr>
<th>Persons or Groups</th>
<th>Highly influential (1)</th>
<th>Influential (2)</th>
<th>Slightly influential (3)</th>
<th>Not considered (4)</th>
<th>Not marked (5)</th>
<th>Principal</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prin Tchr</td>
<td>Prin Tchr</td>
<td>Prin Tchr</td>
<td>Prin Tchr</td>
<td>Score&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Rank</td>
<td>Score&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
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<td>11</td>
<td>8</td>
<td>3</td>
<td>1</td>
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<td>90</td>
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<td>7</td>
<td>5</td>
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<td>5</td>
<td>1</td>
<td>7</td>
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<tr>
<td>Architects</td>
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<td>3</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>64</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>Consultants</td>
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<td>2</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>6</td>
<td>56</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>44</td>
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<td>Board members</td>
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<td>3</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>51</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>43</td>
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<tr>
<td>Parents</td>
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<td>0</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>48</td>
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<td></td>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>
Data indicate that the two groups of respondents are in agreement on the rank order of all possible influentials except superintendent and principal. Here the order is reversed, with principals feeling the superintendent came first and teachers that the principal did.

Teachers are seen by both groups to be next most influential after the superintendent and the principal. Agreement extended, as has been pointed out, to the order of influence seen for the rest of those named -- supervisors, architects, consultants, board members, and finally parents. Teachers, generally, feel that parents are much less influential than do principals, even though both groups consider parents least influential of the categories given.

The lower weighted scores of the teacher respondents on all items might reflect the sizable number of times a given item was not marked (46 instances for teachers as compared to only 8 instances for principals).

Statements made by respondents under "other" include a number on how the movement to open space got started and what helped it along. These can be classified as follows:

**Prior experience in district**
- previous projects in two former buildings
- previous school preceded with open space development
- '61-'62 started nongraded discussion and organization in traditional building
- 7 years ago variety of community spaces had to be used and found that innovated systems worked

**Study by all concerned**
- visitations, readings
- other established programs and facilities (both in and out of state)
- Educational Research Council workshops
- I/D/E/A speaker
- extensive research
Differences in role played
board accepted the plan but not leadership
State Department
Educational Facilities Laboratories

Planning after bid
teachers particularly influential immediately after bid
teachers and principal planned the program after the building
was under construction
consultants to activate the program after construction
visitations after bid was let

Objectives of the Open Space Schools

Principals and teachers were asked to indicate how important each
of nine objectives was in the development of their open space school.
They indicated the importance of each factor by choosing from the follow­
ing response categories: (1) a basic purpose, (2) a secondary purpose,
(3) slightly important, and (4) not considered.

Each summary tally from principals and teachers was assigned a
weighted score. A total score was derived as before for each of the nine
items, and they were ranked in order of importance. The summary tallies
and the comparative rank order of the nine objectives are presented in
Table 2.

Examination of the data reveals that both principals and teachers
feel that individualized instruction is their basic purpose. Close rela­
tionship between variable groups and nongradedness is shown by near
equality in weighted scores within each group of respondents and by the
exchange of rank order between principals and teachers.

Virtually the same rank order is given the remaining objectives
by both groups. Team teaching is fourth with both. Principals rank "free,
open, humane environment" fifth and "environment for student self-motivation"
## TABLE 2

NUMBER OF PRINCIPALS AND TEACHERS INDICATING OBJECTIVES OF THEIR OPEN SPACE SCHOOL

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Basic purpose (1)</th>
<th>Secondary purpose (2)</th>
<th>Slightly important (3)</th>
<th>Not considered (4)</th>
<th>Not marked (5)</th>
<th>Principal</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualized instruction</td>
<td>19</td>
<td>19</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Variable groups</td>
<td>13</td>
<td>14</td>
<td>8</td>
<td>11</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Nongradedness - continuous progress</td>
<td>15</td>
<td>16</td>
<td>5</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Team teaching</td>
<td>12</td>
<td>12</td>
<td>8</td>
<td>12</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Free, open, humane environment</td>
<td>9</td>
<td>12</td>
<td>9</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Environment for self-motivation</td>
<td>7</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Use of instructional materials center</td>
<td>3</td>
<td>8</td>
<td>14</td>
<td>12</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Long range flexibility</td>
<td>4</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Building first to encourage innovation</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

\(^a\)Each tally was assigned a weighted score: 4 points for category 1 (basic purpose), 3 points for category 2 (secondary purpose), et cetera.
sixth, while the two items tie for fifth and sixth place in teachers' ranking. Both agree on the order of the remaining items: seventh, use of instructional materials center; eighth, long range flexibility; and ninth, building first to encourage innovation.

Other objectives offered in comments under "other" on the forms can be classified as follows:

To benefit staff
- positive in-service growth opportunity
- professional growth for staff
- motivation for teaching excellence
- to work with universities to help develop staff
- better utilization of staff
- emergent independent leadership
- to strengthen the weak teacher

To benefit pupils
- to better meet both ends of ability continuum
- success oriented program, environment
- learning skills for independence
- child centered with the teacher as a resource
- for best placement of the child
- diagnosing needs, prescribing next experience
- help child to understand others and himself
- working on school without failure, less fear and threat
- helps the primary pupil mature

Other purposes
- team teaching assumed
- commitment to forced change agent made in good faith
- multi-aged groupings with variable concepts
- promote instructional materials but not necessarily the materials center
- so that daily quest time might grow into full day pattern
- large interplay of instructional techniques
- free movement with a purpose
- horizontal age/grade and vertical content area teaming
- best use of site and budget limitations

Positive and Negative Factors
in the Program

Principals and teachers were asked to rate nineteen factors on the extent to which they contribute to the successful operation of their
open space school. Response categories given were: (1) positive factor, (2) neutral factor, (3) negative factor, and (4) factor not considered.

Table 3 indicates the summary of principals' responses, Table 4 indicates teachers' responses, Table 5 indicates a comparison of Tables 3 and 4, with rank order of positive percentages given, and Table 6 shows a comparison of Tables 3 and 4 with rank order of negative percentages given.

Principals feel that staff and pupil reaction are the most positive factors in the program. (Table 3) In-service development of staff and variable pupil groups are the next most positive factors, with diversity in teacher competencies, leadership, community reaction, differentiated roles, released time for planning, paraprofessional and clerical help, accessible equipment, and variety of materials following in order of importance.

Those factors seen by principals to be more neutral than positive or negative in the operation are pre-service preparation, curriculum structure, flexible time scheduling, visual diversion, and auditory diversion. Principals, apparently, feel that satellite spaces for small group activity and satellite spaces for normal sized groups are about equal in positive, neutral, and negative influence. Data indicate that no factor from those given was more negative than neutral but that curriculum structure and auditory diversion were more negative than positive.

Teachers indicate, as shown on Table 4, that they feel in-service development and pupil reaction are the most positive influences in the program. Variable pupil groups and leadership are seen to be the next most positive factors. Other influences in order of importance are
<table>
<thead>
<tr>
<th>Factors</th>
<th>Positive influence</th>
<th>Neutral influence</th>
<th>Negative influence</th>
<th>Not considered</th>
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<tr>
<td>Pre-service preparation</td>
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<td>1</td>
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<td>Differentiated roles</td>
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<td>Diversity in competencies</td>
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<td>1</td>
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<td>Paraprofessional and clerical help</td>
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<td>2</td>
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<td>Released time for planning</td>
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<td>2</td>
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<tr>
<td>Variable pupil groups</td>
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<td>0</td>
<td>2</td>
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<td>Curriculum structure</td>
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<td>14</td>
<td>5</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Flexible time scheduling</td>
<td>6</td>
<td>15</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Accessible equipment</td>
<td>12</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>2</td>
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<td>Variety of materials</td>
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<td>3</td>
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<tr>
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<td>Satellite spaces - small</td>
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<td>Satellite spaces - normal</td>
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<td>Pupil reaction</td>
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</tbody>
</table>
### TABLE 4
**NUMBER OF TEACHERS RESPONDING TO FACTORS WHICH CONTRIBUTE TO THE SUCCESS OF THE PROGRAM**

N=25

<table>
<thead>
<tr>
<th>Factors</th>
<th>Positive influence</th>
<th>Neutral influence</th>
<th>Negative influence</th>
<th>Not considered</th>
<th>Not marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-service preparation</td>
<td>4</td>
<td>17</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>In-service development</td>
<td>23</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Differentiated roles</td>
<td>8</td>
<td>13</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Diversity in competencies</td>
<td>17</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Paraprofessional and clerical help</td>
<td>10</td>
<td>8</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Released time for planning</td>
<td>10</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Variable pupil groups</td>
<td>19</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Curriculum structure</td>
<td>3</td>
<td>13</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Flexible time scheduling</td>
<td>7</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Accessible equipment</td>
<td>15</td>
<td>7</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Variety of materials</td>
<td>13</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Leadership</td>
<td>19</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Visual diversion</td>
<td>3</td>
<td>17</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Auditory diversion</td>
<td>1</td>
<td>15</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Satellite spaces - small</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Satellite spaces - normal</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Community reaction</td>
<td>17</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Staff reaction</td>
<td>18</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pupil reaction</td>
<td>23</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
diversity in competencies, community reaction, accessible equipment, variety of materials, professional and clerical help, and released time for planning. Factors seen by teachers to have a neutral influence in the operation are pre-service preparation, differentiated teacher roles, curriculum structure, flexible time scheduling, visual diversion, and auditory diversion. As with principals, teachers feel that satellite spaces for small (15 or less) groups and satellite spaces for normal sized (20-35) home base groups are about equal in positive, neutral, and negative influence. Data indicate that teachers feel released time for planning is more negative than neutral (but more positive than negative), and that curriculum structure is more negative than positive in the ongoing operation of the program.

Data in Table 5 compare responses of both principals and teachers and give the percentage of positive tallies on each factor given. The sum of positive, neutral, and negative tallies was used as the divisor on each factor. Rank order of percentage is shown for comparative purposes. Those responses recorded as "not considered" and "not marked" were not included in the calculations.

Comparison of the rank order of percentages of positive responses between principals and teachers on nineteen factors contributing to the successful operation of the program shows that there is agreement in the following categories: pupil reaction, first; variable pupil groups, third; diversities in teacher competencies, sixth; community reaction, seventh; professional and clerical help, tenth; and auditory diversion, nineteenth.
TABLE 5  
PERCENTAGE OF PRINCIPALS' AND TEACHERS' RESPONSES  
TO FACTORS WHICH MAKE A POSITIVE CONTRIBUTION  
TO THE SUCCESS OF THE PROGRAMa  

<table>
<thead>
<tr>
<th>Factors</th>
<th>Percentageb</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Principals</td>
<td>Teachers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ %</td>
<td>Rank</td>
<td>+ %</td>
</tr>
<tr>
<td>Staff reaction</td>
<td>96</td>
<td>1.5</td>
<td>78</td>
</tr>
<tr>
<td>Pupil reaction</td>
<td>96</td>
<td>1.5</td>
<td>96</td>
</tr>
<tr>
<td>Variable pupil groups</td>
<td>91</td>
<td>3</td>
<td>90</td>
</tr>
<tr>
<td>In-service development</td>
<td>88</td>
<td>4</td>
<td>96</td>
</tr>
<tr>
<td>Diversity in competencies</td>
<td>83</td>
<td>5.5</td>
<td>77</td>
</tr>
<tr>
<td>Leadership</td>
<td>83</td>
<td>5.5</td>
<td>86</td>
</tr>
<tr>
<td>Community reaction</td>
<td>67</td>
<td>7</td>
<td>74</td>
</tr>
<tr>
<td>Differentiated roles</td>
<td>65</td>
<td>8</td>
<td>38</td>
</tr>
<tr>
<td>Released time for planning</td>
<td>64</td>
<td>9</td>
<td>48</td>
</tr>
<tr>
<td>Paraprofessional/clerical help</td>
<td>57</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>Accessible equipment</td>
<td>52</td>
<td>11.5</td>
<td>68</td>
</tr>
<tr>
<td>Variety of materials</td>
<td>52</td>
<td>11.5</td>
<td>57</td>
</tr>
<tr>
<td>Satellite spaces - small</td>
<td>36</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
<td>Satellite spaces - normal</td>
<td>35</td>
<td>14</td>
<td>40</td>
</tr>
<tr>
<td>Pre-service preparation</td>
<td>30</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>Flexible time scheduling</td>
<td>27</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>Visual diversion</td>
<td>22</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>Curriculum structure</td>
<td>14</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Auditory diversion</td>
<td>9</td>
<td>19</td>
<td>4</td>
</tr>
</tbody>
</table>

aTables 3 and 4 compared

bThe tally in each cell in column (1) from Tables 3 and 4 was divided by the total number of positive, neutral, and negative responses in columns (1), (2), and (3) in the corresponding row of each factor to get the percentage of positive responses.
Those rank orders which show the largest discrepancy among positive factors are differentiated roles with principals ranking the item eighth and teachers thirteenth, staff reaction ranked by principals first and teachers fifth, and in-service development ranked by principals fourth and teachers first.

Among the significant data shown on Table 6 relative to negative factors in the operation of the program, teachers see auditory diversion to be first, inadequate spaces for small (15 or less) groups second, inadequate satellite spaces for normal sized (20-35) groups third, released time for planning fourth, and curriculum structure fifth. Principals consider inadequate small satellite spaces first, inadequate normal sized satellite spaces second, curriculum structure third, auditory diversion fourth, and inadequate professional/clerical help fifth. Thirteen percent of the principals feel there is a negative influence from accessible equipment available, but no teacher does.

Some general summary statements of the data on Tables 5 and 6 could be made. First, in-service development of staff and variable pupil groups are significant positive factors in the successful operation of the schools. Second, with curriculum structure defined as those guidelines suggested by State standards and local courses of study, both principals and teachers apparently feel some constraint from this source but the majority consider it a neutral factor. Third, there is considerably more negative concern over auditory than over visual diversion. Teachers seem more aware of negative visual factors than principals recognize. Fourth, approximately one in three principals and teachers feel they get a positive return from satellite spaces available, one in three a negative
### TABLE 6

PERCENTAGE OF PRINCIPALS' AND TEACHERS' RESPONSES
TO FACTORS WHICH MAKE A NEGATIVE CONTRIBUTION
TO THE SUCCESS OF THE PROGRAM

<table>
<thead>
<tr>
<th>Factors</th>
<th>Percentage</th>
<th>Rank</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Principals</td>
<td></td>
<td>Teachers</td>
<td></td>
</tr>
<tr>
<td>Satellite spaces - small</td>
<td>32</td>
<td>1</td>
<td>32</td>
<td>2</td>
</tr>
<tr>
<td>Satellite spaces - normal</td>
<td>25</td>
<td>2</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>Curriculum structure</td>
<td>33</td>
<td>3</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>Auditory diversion</td>
<td>22</td>
<td>4</td>
<td>33</td>
<td>1</td>
</tr>
<tr>
<td>Paraprofessional/clerical help</td>
<td>17</td>
<td>5</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Released time for planning</td>
<td>14</td>
<td>6</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>Accessible equipment</td>
<td>13</td>
<td>7.5</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Variety of materials</td>
<td>13</td>
<td>7.5</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Flexible time scheduling</td>
<td>5</td>
<td>9</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Leadership</td>
<td>4</td>
<td>11.5</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Visual diversion</td>
<td>4</td>
<td>11.5</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Community reaction</td>
<td>4</td>
<td>11.5</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Pupil reaction</td>
<td>4</td>
<td>11.5</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Pre-service preparation</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>In-service development</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Differentiated roles</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Diversity in competencies</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Variable pupil groups</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>14.5</td>
</tr>
<tr>
<td>Staff reaction</td>
<td>0</td>
<td>16</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

---

\(^a\)Tables 3 and 4 compared

\(^b\)The tally in each cell in column (3) from Tables 3 and 4 was divided by the total number of positive, neutral, and negative responses in columns (1), (2), and (3) in the corresponding row of each factor to get the percentage of negative responses.

\(^c\)Inadequate spaces available
return, and one in three a neutral return. Comments on the forms indicate that the negative is a result of lack of satellite spaces available. Respondents wrote: (1) spaces will result from new wing addition, (2) need an art room, (3) need a science multi-purpose room, and (4) need more spaces for individuals and small group work.

Narrative comments about factors contributing to successful operation made by respondents under "other" could be classified as follows:

**Teacher contribution**
- can make use of subject strengths of teachers
- pre-service student can think about open space throughout her training program
- biggest problem is developing appropriate internal conceptualization patterns in staff

**Materials and equipment contribution**
- always in a stage of development, supply always short of demand
- instructional materials stored in central supply, not readily available

**Open space contribution**
- child seated with own age but taught on appropriate skill levels
- helps the primary pupil mature
- must have a concern for others in order for auditory diversion to not be a problem
- with carpet, no greater problem with noise than in self-contained program

**Contribution of the operation**
- in-service orientation/workshops very desirable for new teachers
- not all pupils have positive reaction
- positive gain from our guidance project in-service program

**Teacher Role Factors**

Data on the nature of the role teachers feel they play in their day to day performance are reported in Table 7. Response categories given are: (1) basic practice, (2) secondary practice, (3) slight concern, and (4) not considered.
<table>
<thead>
<tr>
<th>Roles</th>
<th>Basic practice</th>
<th>Secondary practice</th>
<th>Slight concern</th>
<th>Not considered</th>
<th>Not marked</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive in-service gain</td>
<td>19</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>88</td>
<td>1</td>
</tr>
<tr>
<td>Cooperative planning</td>
<td>16</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>81</td>
<td>2</td>
</tr>
<tr>
<td>Cooperative teaching</td>
<td>14</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>78</td>
<td>3</td>
</tr>
<tr>
<td>Cooperative pupil evaluation</td>
<td>11</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>75</td>
<td>4</td>
</tr>
<tr>
<td>Candid inner team evaluation</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>0</td>
<td>2</td>
<td>70</td>
<td>5</td>
</tr>
<tr>
<td>Multi-level team - all areas</td>
<td>15</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>68</td>
<td>6</td>
</tr>
<tr>
<td>Function in most competent area</td>
<td>9</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>65</td>
<td>7</td>
</tr>
<tr>
<td>Grade level team - all areas</td>
<td>8</td>
<td>8</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>61</td>
<td>8</td>
</tr>
<tr>
<td>Reduction of repetitions</td>
<td>5</td>
<td>6</td>
<td>10</td>
<td>0</td>
<td>4</td>
<td>58</td>
<td>9</td>
</tr>
<tr>
<td>Differentiated roles</td>
<td>5</td>
<td>3</td>
<td>8</td>
<td>6</td>
<td>3</td>
<td>51</td>
<td>10.5</td>
</tr>
<tr>
<td>Daily planning time</td>
<td>6</td>
<td>1</td>
<td>10</td>
<td>4</td>
<td>4</td>
<td>51</td>
<td>10.5</td>
</tr>
<tr>
<td>Guidance for new teachers</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>49</td>
<td>12</td>
</tr>
<tr>
<td>Use of paraprofessionals</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>3</td>
<td>48</td>
<td>13</td>
</tr>
<tr>
<td>Use of clerical help</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>3</td>
<td>45</td>
<td>14.5</td>
</tr>
<tr>
<td>Guidance for teachers in-training</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>45</td>
<td>14.5</td>
</tr>
<tr>
<td>Responsible for one group</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>13</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>Grade level team - one area</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>11</td>
<td>22</td>
<td>17</td>
</tr>
<tr>
<td>Multi-level team - one area</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>11</td>
<td>13</td>
<td>13</td>
<td>18</td>
</tr>
</tbody>
</table>

*a Each tally was assigned a weighted score: 4 points for basic practice, 3 points for secondary practice, et cetera.*
Among five kinds of teaching roles described, fifteen of the twenty-five feel they basically have multi-level teams with each member responsible for all common subject areas. Eight are basically in grade level teams responsible for all common subject areas. One teacher has a slight concern for one area only as a member of a multi-level team. Some teachers are members of two kinds of teams.

More teachers plan cooperatively than teach cooperatively; more teach cooperatively than evaluate pupil progress cooperatively, as indicated by the 16, 14, 11 response in the basic practice category. The number of secondary practice and slight concern responses tend to equalize the differences, however.

Data show a wide spread of roles related to the teacher functioning in her most competent area as shown by the tallies of 9, 5, 6, and 2 in the four categories given. A similar wide spread pattern is shown in the differentiated role category. Use of paraprofessionals and clerical help are considered significant in about one third of the schools; ten schools do not use either paraprofessionals or clerks.

Nine of the twenty-three respondents feel they candidly evaluate each other within the team as a basic practice; six consider it a secondary practice; and eight consider candid inner team evaluation a slight concern.

Nineteen of the twenty-three teachers responding feel that they are engaged in in-service education as a basic practice in their school. Only eight schools show that they have a program of guidance for new teachers or teachers-in-training at the basic or secondary levels.

More teachers consider reduction of repetitions a slight concern than a basic or secondary practice. Ten give daily planning time only
slight concern; six of twenty-one respondents consider daily planning
time a basic practice in their role. (This planning is related to the
opportunity for team members to get together during the school day.)

The rank order determined from weighted scores summarizes the
way teachers see their role. First, teachers see themselves as partici­
pants in an in-service experience from which they receive positive gain
from team cooperation. Cooperative planning, teaching, and evaluation
come next in that order. Fifth, open space teachers see themselves per­
forming as a candid evaluator of the work of each other within the team;
sixth, as a member of a multi-level team responsible for all common
curriculum areas; seventh, as a teacher functioning where she is most
competent; and eighth, as a member of a grade level team responsible for
all common curriculum areas. Reduction of repetitions is ranked ninth;
differentiated roles and planning during the day; tied for tenth; guidance
for new teachers, twelfth; use of paraprofessionals, thirteenth; and use
of clerical help and guidance for teachers-in-training, tied for four­
teenth. The three least significant roles identified are: one teacher
responsible for one home base group, sixteenth; member of grade level
team responsible for one common curricular area, seventeenth; and last,
member of multi-level team responsible for one curricular area.

Narrative statements about teacher role made under "other" are
classified as follows:

- Demands of the role
  - Many haven't taken advantage of opportunities to reduce repetitions
  - Must be receptive to openness, forget personality differences
  - Need for group dynamics or sensitivity training
  - Time schedule prohibits cooperation with other levels
teacher must be willing to flex with exterior demands some cannot accommodate all the alternatives

Teacher development
good opportunity for guidance of the beginning teacher and the teacher-in-training but no program evaluation of each other natural consequence of working together, positive gain from cooperation

Benefits of team organization
variety of roles and organization among the different teams four teachers in a three-year span pupil group make it possible to free one to work with individuals and small groups team evaluates pupil progress better than individual teacher grade level team in language arts and math, multi-level team in science and social studies

Pupil Grouping Factors
Data in Table 8 identify patterns of the creation and management of pupil groups as teachers report practices in their current program.

Rate of learning as a variable is recognized as a basic practice by twenty-one of twenty-four teachers responding; however, only four recognize pupil interests as a basic practice. Twelve recognize pupil interests as a slight concern.

Two schools consider large group instruction a basic practice to free teachers for personal contact, seven consider large group instruction a secondary practice, eleven consider it a slight concern, and four do not consider it at all.

Data show that multi-age/grade groups are formed in nine schools as a basic practice, in five schools as a secondary practice; in five schools this practice is regarded as a slight concern and it is not considered in five schools. (Two of the 25 schools visited were instructional areas housing only one age/grade group.)
### TABLE 8
NUMBER OF TEACHERS' RESPONSES TO GROUPING FACTORS IN THEIR SCHOOLS

<table>
<thead>
<tr>
<th>Factors</th>
<th>Basic practice</th>
<th>Secondary practice</th>
<th>Slight concern</th>
<th>Not considered</th>
<th>Not marked</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rates of learning recognized</td>
<td>21</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>92</td>
<td>1</td>
</tr>
<tr>
<td>Discussion groups 20-35</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>72</td>
<td>2</td>
</tr>
<tr>
<td>Pupils regroup easily and frequently</td>
<td>8</td>
<td>9</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>67</td>
<td>3</td>
</tr>
<tr>
<td>Grouping across age/grade lines</td>
<td>9</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>66</td>
<td>4</td>
</tr>
<tr>
<td>Discussion groups 15 or less</td>
<td>4</td>
<td>11</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>63</td>
<td>5</td>
</tr>
<tr>
<td>Pupil interests recognized</td>
<td>4</td>
<td>6</td>
<td>12</td>
<td>2</td>
<td>1</td>
<td>60</td>
<td>6</td>
</tr>
<tr>
<td>Large group instruction frees teacher</td>
<td>2</td>
<td>7</td>
<td>11</td>
<td>4</td>
<td>1</td>
<td>55</td>
<td>7</td>
</tr>
</tbody>
</table>

*Each tally was assigned a weighted score: 4 points for basic practice, 3 points for secondary practice, et cetera.*
More discussion occurs in normal sized groups than in small groups. Two schools indicate that discussion in groups of 15 or less is not considered.

Easy and frequent regrouping of pupils is considered in each of the twenty-one schools responding to the item; it is considered a basic practice in eight, of secondary importance in nine, and of slight concern in four.

Rank order indicates that recognition of the rate of pupil learning is the most significant factor related to pupil groups; discussion in normal sized groups (20-35) came second; regrouping easily and frequently, third; grouping across age/grade lines, fourth; discussion in small groups (15 or less), fifth; recognition of pupil interests, sixth; and utilization of large group instruction to free teachers for personal contact came last.

Statements made by teachers under "other" related to pupil grouping factors in the current program are:

**Teacher roles**
- working toward skill groups rather than age or grade groups
- team meets once each week to discuss changes in groupings
- more potential from use of packets and guides for self-instructional experience than from large group instruction
- to free teachers for individual work

**Pupil roles**
- small group discussion in reading primarily
- mini-course pupil groups across grade lines: drama, art appreciation, poetry, poster making, etc.
- rates of learning considered in reading, math, and spelling
- more potential for small group discussion from individualizing the rest than from utilization of large group instruction
- less regrouping across age/grade lines this year than before
- only graded for standardized testing
- grouped for continuum of skills
Pupil interests recognized in science and social studies through story selections in individualized reading in daily activity hour in Friday afternoon "quest" time

Nongradedness and Continuous Progress Factors

Data in Table 9 indicate that twelve of the twenty-four teachers who responded consider a success-oriented curriculum to be a basic practice in their school, nine consider it to be a secondary practice, and three consider it to be of slight or no concern.

Progress through the program by levels is considered a basic practice in seven of seventeen schools reporting in the primary area and in five of twenty-one schools reporting in the intermediate area; progress by levels is not considered in seven schools in the primary area and in ten schools in the intermediate area. The relatively large number of times items were not marked (8 and 14) is an indication that some instructional areas serve one level only.

Nongradedness and continuous progress is considered most significant in the area of reading ability as shown by the 11, 9, 2 tallies in the basic, secondary, and slight concern categories. Thirteen respondents indicate a basic practice to be the recognition of a pupil's maturity, learning rate, and interest with pupil progress in mind. An additional eight teachers consider this recognition to be a secondary practice.

With nongradedness and continuous progress in mind, teachers indicate that the highest priority is given to trying to insure a success feeling for each pupil; the recognition of a pupil's maturity, learning rate, and interest comes second; his reading ability, third; and progress
### TABLE 9
NUMBER OF TEACHERS' RESPONSES TO NONGRADEDNESS AND CONTINUOUS PROGRESS FACTORS

<table>
<thead>
<tr>
<th>Factors</th>
<th>Basic practice</th>
<th>Secondary practice</th>
<th>Slight concern</th>
<th>Not considered</th>
<th>Not marked</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success feeling for each pupil</td>
<td>12</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>80</td>
<td>1</td>
</tr>
<tr>
<td>Recognize pupil's maturity, rate, and interest</td>
<td>13</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>78</td>
<td>2</td>
</tr>
<tr>
<td>Reading ability most significant</td>
<td>11</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>76</td>
<td>3</td>
</tr>
<tr>
<td>Progress by levels intermediate</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>10</td>
<td>4</td>
<td>45</td>
<td>4</td>
</tr>
<tr>
<td>Progress by levels primary</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>8</td>
<td>43</td>
<td>5</td>
</tr>
</tbody>
</table>

*Each tally was assigned a weighted score as before.*
by levels, last. It should be noted that respondents were asked to indicate the "levels system" at both the primary and intermediate areas; thus, the significance of rank order could be misinterpreted in these categories on Table 9 even though their priority placement was clearly last.

Statements about nongradedness and continuous progress made under "other" included the following:

Success orientation
- Attitudes and value system come prior to reading ability in progress
- Are trying for success orientation at present time
- Basic attempt within schedule and structure demands
- Remedial and enrichment in reading for average and below
- Accent rights, not wrongs

Levels orientation
- Hope to work toward nongraded continuous progress by levels across grade levels
- Ages play no part in grouping, only for standardized testing in reading, spelling, and math only
- This year in reading, next year in math

Individualized Instruction Factors

Teachers were asked to rate twelve individualized instruction factors as related to what they were now doing in their schools. Their responses are reported in Table 10.

Data indicate that a variety of multi-level reading materials rank highest among the twelve factors given. Availability of math, science, and study skills materials appears about equal in the 25 schools investigated. The sixteen tallies in the "not marked" category under other (unclassified) materials available are indications of an irrelevant item in current programs.
**TABLE 10**

NUMBER OF TEACHERS' RESPONSES TO INDIVIDUALIZED INSTRUCTION FACTORS

<table>
<thead>
<tr>
<th>Factors</th>
<th>Basic Practice</th>
<th>Secondary Practice</th>
<th>Slight concern</th>
<th>Not considered</th>
<th>Not marked</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading materials - variety available</td>
<td>16</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>84</td>
<td>1</td>
</tr>
<tr>
<td>Pupil encouraged to study on own</td>
<td>10</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>76</td>
<td>2</td>
</tr>
<tr>
<td>Individual interest and aptitude observed</td>
<td>6</td>
<td>11</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>69</td>
<td>3</td>
</tr>
<tr>
<td>Counseling relationship established</td>
<td>5</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>65</td>
<td>4</td>
</tr>
<tr>
<td>Math materials - variety available</td>
<td>6</td>
<td>8</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>63</td>
<td>5</td>
</tr>
<tr>
<td>Materials organized for student selection</td>
<td>5</td>
<td>7</td>
<td>9</td>
<td>2</td>
<td>2</td>
<td>61</td>
<td>6.5</td>
</tr>
<tr>
<td>Projects outside common curriculum encouraged</td>
<td>2</td>
<td>13</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>61</td>
<td>6.5</td>
</tr>
<tr>
<td>Study skills mat. - variety available</td>
<td>6</td>
<td>3</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>57</td>
<td>8</td>
</tr>
<tr>
<td>Science materials - variety available</td>
<td>2</td>
<td>9</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>56</td>
<td>9</td>
</tr>
<tr>
<td>Learning tasks identified</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>55</td>
<td>10</td>
</tr>
<tr>
<td>Contracts drawn for task completion</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>13</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>Other material - variety available</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>16</td>
<td>16</td>
<td>12</td>
</tr>
</tbody>
</table>

*Each tally was assigned a weighted score as before.*
With individualized instruction in mind, ten teachers report that pupils are encouraged to study on their own as a basic practice; eleven teachers report that self-study is a secondary concern. Thus, twenty-one of the twenty-three teachers responding consider individual study to be a high priority issue. However, projects outside the common curriculum are encouraged in only two schools as a basic practice and in thirteen schools as a secondary practice. Self-study within the common curriculum was not given as a response category.

Data show evidence that materials are organized for student selection. Five teachers report this item as a basic practice; seven, a secondary practice; and nine, a slight concern. To a similar degree, counseling relationships are established as a basic practice in five schools, as a secondary practice in ten schools, and as a slight concern in six schools. Observation of individual interest and aptitude is seen as the third highest priority in the individualized instruction program.

Data reported on the two related items, learning tasks identified and contracts drawn for task completion, show that identification is a higher concern than contracts; eighteen teachers indicate a concern for identification of tasks and eleven indicate a concern for contracts to give direction to task completion. The thirteen forms not marked in the contract category indicate an irrelevant item to those responding.

Comments recorded under "other" as related to individualized instruction are classified as follows:

Teacher roles
- teacher-made tapes for listening/reading
- interests identified in science and social studies
- problem of organizing multi-age/grade materials in sequence for each child
new teacher might be more able to adjust to new roles
individualization not dependent on variety and quantity of
materials available, level of staff member development
very important
difficult if teacher is never relieved of total group
trying for diagnostic teaching

Pupil roles
individual tasks identified for the accelerated in science
primarily only the able encouraged to select projects outside
common curriculum
"goal post" system in upper grades give direction to 1 1/2 hr.
"quest time" each day
some task identification and contracts drawn with 6 and 7 year
old

Program components
uni-paks in math, science and some in social studies
multi-text adoptions
help available for materials selection
other materials available in human relationships (behavior
science), economics, and vocational orientation
breadth and depth packages in IMC

Use of Instructional Materials
Center/Library

Teachers were asked to mark "yes" or "no" to five categories of
concerns related to the use of the instructional materials center/library.
Table 11 summarizes their response.

Of the twenty-three teachers responding to these items, seventeen
reported that normal sized groups are scheduled there, twenty-one reported
that small groups and individuals are free to work there, twenty reported
that an adult was always on duty, and fifteen reported that the IMC pro-
vides a variety of work spaces. It is significant to note that eight
"no" responses were made by teachers on provision for a variety of work
spaces.
TABLE 11
NUMBER OF TEACHERS' RESPONSES TO MECHANICS
OF USE OF THE INSTRUCTIONAL MATERIALS
CENTER/LIBRARY

N=25

<table>
<thead>
<tr>
<th>Use</th>
<th>Yes</th>
<th>No</th>
<th>Not marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small groups free to use</td>
<td>21</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Individual students free to use</td>
<td>21</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Adult always on duty</td>
<td>20</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Normal sized groups scheduled</td>
<td>17</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Provides variety of work spaces</td>
<td>15</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>
Comments made by teachers under "other" are the following:

**Utility of the facility**
- Library should be open and centrally located
- Two paraprofessionals as tutors
- Dispense individual projectors, film strips, etc.
- Electronic computer/calculator available to pupils
- Typewriters available to pupils
- Scheduled class visits limit availability
- Much too small
- Too controlled
- Groups not scheduled but each team has one hour scheduled access per day
- Machines and programs available
- Tapes for spelling used here

**Staffing the facility**
- Librarian 1 1/2 days per week, volunteer on all days
- Teacher must furnish continuity, two different volunteers each day of the week
- Librarian requisitions from need expressed by teachers and from requests of pupils

**Teachers' Response to Mobile Units Available, Their Location, Use, Strengths, and Weaknesses**

Data in Table 12 show the kinds of mobile units used as space dividers in the 25 open space schools visited. Book storage units are found most frequently, being identified nineteen times. Teachers reported display boards (bulletin boards) and curriculum materials storage units fifteen times, chalkboards fourteen times, pupil's wardrobe storage units eight times, and pupil's personal study materials storage units seven times.

Teachers identified other types of mobile units available as space dividers. Comments under "other" were: tote tray storage units, science lab tables, counter-top base cabinets, carrel units, white boards for projection surfaces, tables, and semi-mobile storage units on legs.
### TABLE 12

NUMBER OF TEACHERS' RESPONSES TO MOBILE UNITS AVAILABLE

<table>
<thead>
<tr>
<th>Unit</th>
<th>Yes</th>
<th>No</th>
<th>Not marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chalkboard</td>
<td>14</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Display board</td>
<td>15</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Book storage</td>
<td>19</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Curriculum materials storage</td>
<td>15</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Pupil's wardrobe storage</td>
<td>8</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Pupil's personal study materials storage</td>
<td>7</td>
<td>14</td>
<td>4</td>
</tr>
</tbody>
</table>

### TABLE 13

NUMBER OF TEACHERS' RESPONSES TO LOCATION AND USE OF MOBILE UNITS

<table>
<thead>
<tr>
<th>Location</th>
<th>Yes</th>
<th>No</th>
<th>Not marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define traffic flow</td>
<td>7</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Screen small groups within a group</td>
<td>5</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Define home base group</td>
<td>15</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Define whole group of a team</td>
<td>10</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Relatively fixed display boards</td>
<td>7</td>
<td>14</td>
<td>4</td>
</tr>
</tbody>
</table>
Data in Table 13 show the location and use of mobile units in the 25 open space schools visited. Fifteen of the twenty-two schools reporting use units to define home base groups, ten of twenty-one reporting use units to define the whole group of a team, seven use them to define traffic flow and for relatively fixed display boards, and five use them to screen small groups within a group. The investigator found it impossible to collect systematic data relative to the elapsed time since units were moved. Some narrative comments made by teachers under "other" give an indication of the function of mobile units and state words describing elapsed time since given units were moved.

**Other units**
- pupil storage and wardrobe units down center of each instructional area seldom moved
- base cabinet counter-top units moved daily for construction and demonstration purposes
- carrels along MLC direct flow of traffic

**Elapsed time since units were moved**
- daily
- frequently
- not since September
- seldom
- two weeks
- on demand
- never
- moved when desirable

Teachers were given an opportunity to make narrative comments on Form 2 relative to the strengths and weaknesses of mobile units used as space dividers in their school. A sample of their statements follow:

**Strengths**
- easy to change size of groups
- reduces noise factor
- enhances individualized and small group instruction
- can bring into the area whatever you need for specific lessons, displays, etc.
- storage units and slides under tables for tote trays work well
- large variety of types available for interest in environment
book cartage from and to library more convenient
display spaces and mobile units do not dictate procedure and
utility of space as do permanent cabinets, etc.
provides for flexible space arrangements

**Weaknesses**
- Bookshelves on mobile display boards restrict movement
can be in the way unless they have a specific function in the
lesson
- Shelf units for storage of boxes used for pupil materials some­what fragile
- Units on legs not mobile enough
- Pupils have been hurt from tripping over base of units
- Small pupils need bottom portion of unit closed for visual
barrier
- Do not want wardrobe units in the space to take up space
- Storage and book units too heavy to move
- Wheels too small to move on carpet

**Teachers' Stated Strengths and Weaknesses**
**of Open Space to Meet Needs of the Program**

The last section of Form 2 gave teachers the opportunity to make
narrative observations in response to the question: To what degree does
the open space provide for the needs of the program? Further descriptors
given on the form suggested that a relationship could be drawn between
strengths and weaknesses of open spaces compared with the normal class­
rooms; and in conversation, this investigator found that teachers often
responded easily to the following two questions: (1) What can you do
that you couldn't do before? and (2) What can't you do that you would like
to do?

Appendix G gives the narrative data stated as strength and weak­
ness in the following categories: (1) influence on teachers, (2) influ­
ence on pupils and grouping, (3) influence on program management, and (4)
influence on human relationships. An additional category, other
significant factors of the open space, includes those comments not classified as strengths or weaknesses.

All statements in each category of data presented need to be read to get the flavor of responses; however, some priority themes and contradictions are evident.

Many teachers feel that professional growth is improved through greater interaction in the open space and that unique strengths of individual teachers can be better utilized. Some teachers feel that the open space liberates them from the isolation of the closed classroom; others feel a loss of personal freedom in the move from individual to group governance. Some teachers feel that pupils have greater opportunities and more options to participate in activities suitable for them. Other teachers feel that it is more difficult to integrate learnings in the open space and that the additional alternatives available add confusion to the experience of some pupils.

Many teachers express concern about not having adequate satellite spaces for quiet or noisy activities in the program; many comments refer to noise as a problem in the open space; and some teachers express frustration in the attempt to establish close rapport with individual students within the total group.

Many teachers accept the open space as a suitable facility to support the objectives of the program but realize that changed performance standards and internal conceptualization of new roles must accompany new demands of the program in the open space school.
Observer's Response to Selected Features of the Facilities

Data in Table 14 show the observer's tally of selected physical features of the 25 schools visited. Judgment was made and a tally recorded in one of three response categories for each of eighteen items given. The three categories were: adequate, interpreted as adequate or better; poor, interpreted as limited quality or quantity; and non-existent.

Fewer than ten schools have adequate pupil conference areas, pupil interest centers, pupil construction areas, individual alcoves or carrels, and science lab areas. Only four schools have a science laboratory of any kind. Ten schools have an adequate team work area, ten have poor work areas, and five have no team work areas. Team conference areas are more adequate, the data showing seventeen, four, and four in the three categories.

Twenty-two of the schools have teachers' desks as home base stations in the instructional areas. Twenty or more schools were found to have an adequate large group presentation area, speech correction area, and physical education area. Acoustical control (carpet on the floor and acoustically treated ceiling) was considered adequate in twenty-three of the schools and the pattern of pupil traffic was considered less than adequate in only one school where limited access resulted in a high density area.

Ten schools have made adequate provision for secretary/aide areas, five poor provision, and ten no provision at all. Fourteen of the 25 schools have an adequate instructional materials center and eleven have poor facilities. In most cases a poor instructional materials center is
### TABLE 14

**OBSERVER'S RESPONSE TO SELECTED FEATURES OF THE BUILDINGS**

N=25

<table>
<thead>
<tr>
<th>Feature</th>
<th>Adequate</th>
<th>Poor</th>
<th>Non-existent</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pattern of pupil traffic</td>
<td>24</td>
<td>1</td>
<td>0</td>
<td>49</td>
<td>1</td>
</tr>
<tr>
<td>Large group presentation area</td>
<td>23</td>
<td>2</td>
<td>0</td>
<td>48</td>
<td>2.5</td>
</tr>
<tr>
<td>Acoustical control</td>
<td>23</td>
<td>2</td>
<td>0</td>
<td>48</td>
<td>2.5</td>
</tr>
<tr>
<td>Speech correction area</td>
<td>22</td>
<td>2</td>
<td>1</td>
<td>46</td>
<td>4</td>
</tr>
<tr>
<td>Home base teacher stations</td>
<td>22</td>
<td>1</td>
<td>2</td>
<td>45</td>
<td>5</td>
</tr>
<tr>
<td>Physical education area</td>
<td>21</td>
<td>2</td>
<td>2</td>
<td>44</td>
<td>6</td>
</tr>
<tr>
<td>Instructional materials center</td>
<td>14</td>
<td>11</td>
<td>0</td>
<td>39</td>
<td>7</td>
</tr>
<tr>
<td>Team conference area</td>
<td>17</td>
<td>4</td>
<td>4</td>
<td>38</td>
<td>8.5</td>
</tr>
<tr>
<td>Materials and equipment storage</td>
<td>14</td>
<td>10</td>
<td>1</td>
<td>38</td>
<td>8.5</td>
</tr>
<tr>
<td>Music area</td>
<td>16</td>
<td>5</td>
<td>4</td>
<td>37</td>
<td>10</td>
</tr>
<tr>
<td>Pupil interest centers</td>
<td>7</td>
<td>17</td>
<td>1</td>
<td>31</td>
<td>11.5</td>
</tr>
<tr>
<td>Arts and crafts lab</td>
<td>14</td>
<td>3</td>
<td>8</td>
<td>31</td>
<td>11.5</td>
</tr>
<tr>
<td>Team work area</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>Individual alcoves or carrels</td>
<td>8</td>
<td>11</td>
<td>6</td>
<td>27</td>
<td>14</td>
</tr>
<tr>
<td>Pupil conference area</td>
<td>7</td>
<td>11</td>
<td>7</td>
<td>25</td>
<td>15.3</td>
</tr>
<tr>
<td>Pupil construction areas</td>
<td>6</td>
<td>13</td>
<td>6</td>
<td>25</td>
<td>15.3</td>
</tr>
<tr>
<td>Secretary/aide areas</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>25</td>
<td>15.3</td>
</tr>
<tr>
<td>Science lab</td>
<td>3</td>
<td>1</td>
<td>21</td>
<td>7</td>
<td>18</td>
</tr>
</tbody>
</table>

*a* Items adequate or better  

*b* Items of limited quality or quantity  

*c* Each tally was assigned a weighted score: 2 points for adequate, 1 point for poor, and 0 points for non-existent
identified as either small, poorly equipped, or at a remote location not easily accessible to the pupils in the open space instructional areas.

Sixteen of the schools have an adequate music area, five poor, and four none at all; fourteen have an adequate arts and crafts room, three poor, and eight none at all; fourteen have adequate materials and equipment storage areas, ten have poor storage facilities, and one has no storage areas.

Ranking indicates that schools have made provision for given selected items in the following order: (1) management of pupil traffic within the open space; (2,3) acoustical control and areas for large group instruction; (4) area for speech correction; (5) home base teacher stations in instructional areas; (6) physical education area; (7) instructional materials center; (8,9) team conference area and storage areas for materials and equipment; (10) music area; (11,12) pupil interest centers and arts/crafts laboratory; (13) team work area; (14) individual alcoves or carrels; (15,16,17) pupil conference areas, construction areas for pupils, and secretary/aide areas; and (18) science laboratory.

Table 15 indicates the observer’s evaluation of the adequacy of nine selected features of equipment found in the 25 schools visited. Adequate multi-media equipment for open space use was found in twenty-two schools, adequate pupil furniture in twenty-one schools, adequate storage for pupil materials and mobile storage units in twenty schools; sixteen schools have adequate mobile display units and tape replay units with head sets, and fifteen schools have adequate mobile chalkboards. Seven schools have no mobile chalkboards and in these schools, walls are used for permanent mounting.
### TABLE 15

**OBSERVER'S RESPONSE TO SELECTED FEATURES OF EQUIPMENT**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Adequate</th>
<th>Poor</th>
<th>Non-existent</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-media equipment</td>
<td>22</td>
<td>3</td>
<td>0</td>
<td>47</td>
<td>1</td>
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<tr>
<td>Utility of pupil furniture</td>
<td>21</td>
<td>4</td>
<td>0</td>
<td>46</td>
<td>2</td>
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<tr>
<td>Storage of pupil materials</td>
<td>20</td>
<td>5</td>
<td>0</td>
<td>45</td>
<td>3.5</td>
</tr>
<tr>
<td>Mobile storage units</td>
<td>20</td>
<td>5</td>
<td>0</td>
<td>45</td>
<td>3.5</td>
</tr>
<tr>
<td>Mobile display units</td>
<td>16</td>
<td>5</td>
<td>4</td>
<td>37</td>
<td>5</td>
</tr>
<tr>
<td>Tape replay units with head sets</td>
<td>16</td>
<td>3</td>
<td>6</td>
<td>35</td>
<td>6</td>
</tr>
<tr>
<td>Mobile chalkboards</td>
<td>15</td>
<td>3</td>
<td>7</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>Projectors for pupil use</td>
<td>9</td>
<td>11</td>
<td>5</td>
<td>29</td>
<td>8</td>
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<tr>
<td>Wired carrels for individual study</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>22</td>
<td>9</td>
</tr>
</tbody>
</table>

\[\text{a} \text{Items adequate or better}\]

\[\text{b} \text{Items of limited quality or quantity}\]

\[\text{c} \text{Each tally was assigned a weighted score: 2 points for adequate, 1 point for poor, and 0 points for non-existent.}\]
Eleven schools are poorly equipped with projectors for pupil use, nine are adequate, and projectors for pupil use are non-existent in five schools. Ten schools have no wired carrels for individual study, eight are poorly equipped, and seven are adequate.

Ranking indicates that schools have made provision for given selected items in the following order: (1) multi-media equipment; (2) utility of pupil furniture; (3,4) storage for pupil materials and mobile storage units; (5) mobile display units (bulletin boards); (6) tape replay units with head sets; (7) mobile chalkboards; (8) projectors for student use; and (9) wired carrels for individual study.

Table 16 indicates the observer's evaluation of the adequacy of eight selected items related to instructional materials found in the 25 schools visited.

Access to materials and media was identified as poor in twelve of the 25 schools. Teacher-made materials were found to be poor in sixteen schools and non-existent in five schools. Filmstrips were identified as poor instructional materials resources in twelve schools and audio tapes poor in fifteen schools. (Poor indicated limited quality or quantity.)

Ranking indicates that schools have made provision for given selected items in the following order: (1) research related resources; (2) library books and other printed material; (3,4) access to materials and media, and packages of commercial units; (5) programmed courses; (6) filmstrips; (7) tapes; and (8) teacher-made materials.
## TABLE 16

**OBSERVER'S RESPONSE TO SELECTED FEATURES OF INSTRUCTIONAL MATERIALS**

N=25

<table>
<thead>
<tr>
<th>Feature</th>
<th>Adequate</th>
<th>Poor</th>
<th>Non-existent</th>
<th>Score</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research related resources</td>
<td>20</td>
<td>4</td>
<td>1</td>
<td>44</td>
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<tr>
<td>Library books and other printed material</td>
<td>16</td>
<td>9</td>
<td>0</td>
<td>41</td>
<td>2</td>
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<tr>
<td>Access to materials and media</td>
<td>13</td>
<td>12</td>
<td>0</td>
<td>38</td>
<td>3.5</td>
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<tr>
<td>Packages of commercial units</td>
<td>14</td>
<td>10</td>
<td>1</td>
<td>38</td>
<td>3.5</td>
</tr>
<tr>
<td>Programed courses</td>
<td>13</td>
<td>9</td>
<td>3</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>Filmstrips</td>
<td>11</td>
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<tr>
<td>Tapes</td>
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<td>15</td>
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<td>7</td>
</tr>
<tr>
<td>Teacher-made materials</td>
<td>4</td>
<td>16</td>
<td>5</td>
<td>24</td>
<td>8</td>
</tr>
</tbody>
</table>

---

"a" Items adequate or better

"b" Items of limited quality or quantity

"c" Each tally was assigned a weighted score: 2 points for adequate, 1 point for poor, and 0 points for non-existent
Summary of Descriptive Data of the Twenty-five Schools Visited

Table 17 presents data collected during the twenty-five visitations. Eleven selected categories of information revealed the following:

1. Three schools were in metropolitan school districts, four were in isolated districts, and eighteen were in suburban school districts.

2. A total of 9,652 pupils were housed in open space instructional areas in the 25 schools with an average of 386 pupils per school. Enrollment ranged from 130 to 706.

3. The schools average 42 square feet of floor space per pupil. (Table 20 summarizes these data.)

4. Three hundred thirty-eight certified teachers work directly with pupils in the 25 schools with an average of 13.5 certified teachers per school. The number of teachers per school ranged from 4 to 22.

5. The ratio of pupils to certified teacher in the 25 schools averages 28 to 1.

6. The 25 schools contain 71 instructional areas large enough to house at least three normal sized groups. The average is three instructional areas per school.

7. Sixty-one aides work directly with teachers in instructional areas of the schools. Twenty-seven of the aides were identified in two schools and ten schools have no aides working with teachers in the instructional areas.

8. Thirty-one aides work in instructional materials centers/library in 15 of the 25 schools; only two schools have no aides in the instructional materials center. These same two schools are the only schools that have no aides at all.

9. The average number of teachers per team is 4.5.

10. This category presents the span of pupils traditionally graded and housed in instructional areas of the 25 schools.

11. The average length of
### Table 17

**Observer's Summary of Descriptive Data of Twenty-Five Schools Visited**

<table>
<thead>
<tr>
<th>School</th>
<th>Suburban SD</th>
<th># Of Pupils</th>
<th># of Teachers</th>
<th># Certified Teachers</th>
<th># of Pupils per Team</th>
<th># of Pupils per Certified</th>
<th># of Pupils per Student</th>
<th># of Pupils in Inst. Areas</th>
<th># of Pupils in IMC</th>
<th># of Aides in Inst. Areas</th>
<th># of Aides in IMC</th>
<th># of Aides in Misc. Areas</th>
<th># of Aides in Each Team</th>
<th>S/T Ratio</th>
<th>Instructional Area</th>
<th># of Pupils Inc.</th>
<th>Year of Operation</th>
<th># of Pupils Inc. (Grades of)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>61</td>
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</tbody>
</table>

**Note:** All schools visited are located in the metropolitan area of the school district.
time these 25 schools were in operation was 2.2 years. (Table 20 summarizes these data.)

Table 18 shows that fourth graders were included most often in the open space schools visited. Rank order of grades included from most often to least often was fourth (22), fifth (20), first and third (both 19), second (18), sixth (16), and kindergarten (2).

Combinations of grades included in the 25 schools visited are presented in Table 19. Data show that grades 1-6 were housed in ten schools; grades 1-5 in three schools, grades K-6, 1-4, and 4-6 in two schools; and grades 1, 1-3, 3-6, 4, 4-5, and 5-7 in one school each.

Data in Table 20 show that eleven of the schools provide from 30 to 39 square feet of floor space per pupil; seven schools provide from 40 to 49 square feet; four schools provide from 50 to 59; two schools less than 30; and one school more than 60 square feet per pupil. The floor area of the instructional materials center/library was included in the calculations of square feet available if the center was open and within the open space. Table 17 indicated that the average of all schools was 42 square feet per pupil.

Table 21 shows data relative to the number of years the twenty-five open space schools were in operation. Twelve of the schools were in their second year, six were in their first year, four were in their fourth year, three were in their third year, and no school had been in operation more than four years. Table 17 indicated that the average of all schools visited was 2.2 years in operation.
TABLE 18

NUMBER OF SCHOOLS AMONG THE TWENTY-FIVE VISITED HOUSING INDICATED GRADE LEVELS

<table>
<thead>
<tr>
<th>Grades</th>
<th>No. of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>2&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>First</td>
<td>19</td>
</tr>
<tr>
<td>Second</td>
<td>18</td>
</tr>
<tr>
<td>Third</td>
<td>19</td>
</tr>
<tr>
<td>Fourth</td>
<td>22</td>
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<tr>
<td>Fifth</td>
<td>20</td>
</tr>
<tr>
<td>Sixth</td>
<td>16</td>
</tr>
</tbody>
</table>

<sup>a</sup>Kindergarten is generally in a separate satellite room with both pupils and staff self-contained.
<table>
<thead>
<tr>
<th>Grades</th>
<th>No. of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-6</td>
<td>2</td>
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<tr>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td>5-7</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>
### TABLE 20

**NUMBER OF SCHOOLS BY SQUARE FEET OF FLOOR AREA PER PUPIL\(^a\)**

<table>
<thead>
<tr>
<th>Less than 30</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>More than 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>11</td>
<td>7</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^a\) Area of the instructional materials center included if open and within the open space.

### TABLE 21

**NUMBER OF SCHOOLS BY YEARS THEY HAVE BEEN IN OPERATION**

<table>
<thead>
<tr>
<th>First</th>
<th>Second</th>
<th>Third</th>
<th>Fourth</th>
<th>More than four</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>
Summary

Chapter IV reports the analysis and interpretation of the data. Responses from Form 1, recorded by the principal; from Form 2, recorded by a teacher; and from Form 3, recorded by the investigator are presented in tabular form. Narrative comments describe and supplement the data in each table.

Principals and teachers were asked to respond to the same first three sets of items: those influential in the development of educational specifications, objectives of the open space school, and positive and negative factors contributing to the success of their program. Comparative rank orders of the two groups of respondents indicate the areas of agreement and areas of discrepancy among the items given.

Teachers were asked to define their role, to describe the way they created and managed pupil groups, to identify factors related to nongradedness and continuous progress, to describe what they were doing about individualized instruction, to explain the use of their instructional materials center/library, to identify mobile units available, and in narrative form, to specify strengths and weaknesses of the open space in the on-going operation of the instructional program. Weighted scores with rank order analyses are applied to the coded data.

The investigator recorded data about the relative adequacy of physical features, equipment, and materials observed at each of the twenty-five facilities. Other quantitative data about staff, pupils, and the schools are presented in summary tables.

A summary and conclusions drawn from this data are presented in Chapter V.
CHAPTER V

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

New schools and new additions to schools are being constructed every day. One trend in this new construction is toward open space where there is no floor-to-ceiling partition system between instructional areas. A study of this current phenomenon holds promise for the discovery of significant data that will improve the operation of facilities already built and improve the planning of schools for the future.

Literature about the rationale for open space schools is presented in Chapter II. "Why open space?" is a complex question to answer. Basically, three general goals have emerged: (1) to meet individual student needs better; (2) to make better use of teacher time and talents, and (3) to further immediate, short-range, and long-range use of space. However, the development of open space schools is beset with the major problem of translating such terms as "individualization," "nongrading," and "team teaching" into the concrete elements of people, space, time, and materials.

While changing educational concepts and practices are considered major influencing factors, it is noted that other less educationally-based factors are considered to be highly influential. For example, economy of construction and the impact of an "open" environment upon the psychological lives of pupils are mentioned.
Using the rationale for open space schools as guidelines, systematic forms were developed to aid in the collection of data in twenty-five open space elementary schools in Ohio. Forms were completed by principals, teachers, and the investigator. The effort to investigate on-going programs was designed to look at what open space schools were doing in reference to why open space schools were built. Chapter III describes the problem of identifying schools, development of the forms, selection of the twenty-five schools for visitation, and the visitation experience.

Chapter IV presents the findings of the twenty-five open space elementary school visitations. The first part of the present chapter summarizes the data provided by school principals, teachers, and the observer as recorded on Forms 1, 2, and 3; the second part draws conclusions from these data and identifies areas of relationship between rationale and practice; and the third part makes recommendations for future planning and study.

Summary

What goes on in a school is difficult to codify with objectivity; however, this investigation does identify some significant data relative to open space elementary schools.

Principals feel that superintendents are the most influential in developing educational specifications resulting in open space schools. Teachers feel that principals are the most influential. In all other categories of influentials given, both respondents agree on rank order: teachers, supervisors, architects, consultants, board members, and last, parents. It is perhaps significant that principals feel teachers have
had more influence than they themselves feel. In like manner, teachers feel that principals have had greater influence than the principals themselves feel.

The time-lag from the need to build, to the decision to build, to the launching of the instructional program is long enough to create problems in determining who was most influential in creating the educational specifications. Other variables of expediency, time to plan, and available leadership contribute to the complexity. The principal was more likely to have been involved in pre-planning than was any given teacher; thus, one possible reason why some teachers failed to respond to given categories of influentials was that they were not in the system or involved at that time.

Both principals and teachers feel that individualized instruction is their basic purpose in the open space school. There is little disparity in their agreement of other objectives given. In general, the rank order following individualized instruction is variable pupil groups; nongradedness; team teaching; free, open, humane environment; environment for self-motivation; use of instructional materials center; long range flexibility; and the building prior to program development to encourage innovation. The most frequent comment made in reference to impact of the open space school was that the school offered much opportunity for in-service staff development. This point introduces the dilemma between the cause/effect relationship of a new school design. One principal and his staff accept their school to be a forced change agent for in-service growth.
Teachers indicate that in-service development and pupil reaction are the two most positive influences in the successful operation of the program. Principals feel that teacher and pupil reaction are the two most positive influences. Both principals and teachers agree that satellite spaces for small groups and normal sized groups are about equal in positive, neutral, and negative influence. In the comparative rank order of percentages of positive responses between the nineteen factors given as those contributing to the successful operation of the program, both principals and teachers agree that auditory diversion come last. There is, apparently, much concern about the auditory problems created in the open space facility. Some teachers comment, however, that auditory diversion can be controlled and that "noise" is frequently a problem in the traditional closed classroom.

There are some inconsistencies and contradictions among teachers as respondents relative to the strengths of the open space as a facility to meet the needs of the program. Some feel that the team teacher group provides greater opportunities than teachers in isolation; others feel a loss of freedom to choose as individual teachers. Some teachers appreciate the freedom open space provides; others feel restricted because of inadequate satellite spaces.

Patterns of the teaching team are varied. The average size of teams was found to be four members, and teachers indicate that the most desirable size is four. Many teams working with large groups of pupils in an open space are multi-level teams, and even though individual strengths of the staff are being utilized, no member teaches in only one curriculum area. Planning and teaching were found to be a team effort,
and responsibility for the product is shared by each individual member. Teachers frequently mentioned the need for sensitive human relationships among members of a team.

Three of the schools had hierarchy of staff and differentiated roles, with the team leader getting extra pay. In each of these cases, student teachers were members of the sub-professional staff, and the team leader had supervisory responsibilities for the university. Even though the data were not directly solicited, it was reported that no extra compensation was given in any other case.

Teachers consider rate of learning to be much more basic than pupil interest for grouping purposes. Only two schools consider large group instruction to be a basic practice.

Twelve of the twenty-four teachers responding consider a success-oriented curriculum to be a basic practice in their school. Recognizing the uniqueness of each pupil, especially through meeting his needs in reading skill development, appears to be the basic way teachers plan to reach this success objective. Teachers report that programs of continuous progress through sequenced levels of reading is their answer to nongradedness and continuous progress; therefore, the problem of considering multi-level progress to be nongrading remains unresolved in the open space schools. Data indicate that in practice, providing a variety of reading materials is the basic way of achieving individualized instruction.

One school uses the instructional materials center as a tutoring center in which two paraprofessionals perform the tasks prescribed by the professional staff. Six schools do not schedule home base groups in the
center in order that the adult aide on duty might be available for individuals and small groups working on individual activities.

Enrollment in the schools visited ranged from 130 to 706, with an average of 383. The average number of certified teachers in open space schools visited was 13.5 with a range from 4 to 22. Sixty-one aides work directly with teachers in instructional areas in 15 of the schools and 9 aides work in the instructional materials center only in 8 additional schools. Two of the 25 schools visited have no aides at all.

Eighteen of the 25 schools were totally new open space schools; 7 were open space instructional area additions to existing schools.

Conclusions

Conclusions are drawn from an analysis of literature cited, from data collected during the twenty-five open space elementary school visitations, and from a comparative study of agreement and discrepancy between statements made in the literature and conditions existing in operating open space schools.

First, open space promotes and supports innovation. Literature cited suggests that innovations of team teaching, flexible groupings of pupils, and individualized instruction are enhanced in open space schools.

This investigation disclosed that open space schools in Ohio are promoting the innovations mentioned in the literature and that, in practice, staff development in the on-going program is considered to be the highest positive factor in the successful operation of the school.

This study shows that there is a strong reciprocal cause and effect relationship evident between planning and executing programs in
an innovative facility. The cycle of progressive development is dependent upon stimuli from both the planning and operational phases.

Second, broad objectives developed locally for specific open space schools are similar to those stated generally in current literature; both consider team teaching and flexible pupil groups to be means to the end of individualization.

Individualized instruction, as the first priority, is considered the *raison d'être* by principals and teachers in the open space schools of this study. Few schools express satisfaction with the extent to which they have attained that goal and note the following limitations: internal conceptualization of staff, limited software materials, and insufficient satellite spaces for individual and small group work. These problems are also identified in literature cited. Carswell and Dague, Roberts, and Johnson and Hunt insist upon a variety of kinds of spaces in the facility to meet individual needs. Rollins and Green would insist upon a variety of instructional materials, easily accessible, if individuals are expected to pursue instruction to adequately meet needs and interests.

Furthermore, this investigation indicates that some principals and teachers now working in Ohio open space schools are ready to take a giant step toward individualizing instruction if and when the limitation imposed by inadequate financial resources is substantially reduced. Few schools feel that they have adequate instructional materials to meet the needs of the individualized instruction objective.

Third, limited internal conceptualization of new roles in open space schools is seen to be a limiting factor in program development. For example, personnel in the schools of the study state that nongraded
continuous progress is a high priority objective in their programs; how­
ever, the major avenue to permit continuous progress is through the
sequential "levels" system -- a common practice employed by the majority
of schools to "nongrade" the curriculum, especially in reading. This
conclusion is in agreement with a recent classroom visitation project
reported by Goodlad and Klein.¹ Although Goodlad and Klein's study high­
lights the slow rate of change in education, many open space schools are
in this "levels" stage of program development even though the practice
does not fully meet the theoretical precepts of nongradedness.

Teachers, traditionally, have not worked in proximity with each
other; therefore, conceptualization of new roles must be developed. The
roles will call for more skill in establishing supportive human relation­
ships and a personal sensitivity to the concerns of each other, both found
desirable if not required in the open space. Many principals and teachers
expressed interest in this new demand.

The problem of internal conceptualization of new roles is appar­
ent, also, with the common concern over auditory problems in the open
space. This investigation reveals that many traditional patterns of
teacher behavior are not compatible with open space teaching but that
adjustments in behavior can be made so that auditory diversion is reduced.
Thus, satisfaction with the facility is relative, being dependent upon
the notions held by the staff as they function within it.

¹John I. Goodlad, M. Frances Klein, and associates, Behind the
Classroom Door (Worthington, Ohio: Charles A. Jones Publishing Co.,
1970).
Fourth, the respondents in this study feel that the inadequacy of satellite areas limits the flexibility initiated by the open space. The data disclose the need for a compromise between open space and more satellite spaces for individuals and special activities. The uniqueness of open space is seen to be advantageous for a mix of staff strengths, for the profitable exchange of professional observations, and for the enlarged pupil group from which sub-groups can be formed. Satellite spaces are seen to be advantageous for the distribution of individuals and small groups of pupils as they go about their varied activity developed in open space teaching. Open space seems primarily of benefit to teachers in the organization of meaningful instructional experiences; a variety of support spaces seems primarily for the benefit of pupils in carrying out the experience.

In practice, teachers of this study agree with Davis and see greater potential for the conservation of staff time from individualized/independent study activity by pupils than from the use of large group instruction. Furthermore, the independent study approach is both the means and the end with individualization in mind. Teachers consider inadequate satellite spaces to be a limiting factor in the effort to individualize.

Fifth, team staff organizations are governed by peer group responsibility rather than by hierarchy of authority. Contrary to the position taken by Anderson on the desirability of a hierarchy in the team, the teachers of this study prefer rotating leadership. Except in three of the schools visited, each team member is considered equal in status to any other. In the three cases, team leaders received an additional
stipend for their role. These team leaders had coordinating responsibility, which included supervision of diversified staff with student teachers and lay aides. Growth in the use of paraprofessionals and lay aides will no doubt promote growth in diversified pay for diversified responsibility; however, as teams are currently governed in the schools of this study, leadership is dependent upon that emerging from team cooperation among professional peers.

Sixth, construction of the open space cannot be justified for the purpose of large group instruction at the elementary level. Even though Eurich and others propose large group instruction as a way of freeing teachers for individual contact with pupils, the functioning schools investigated do not utilize this procedure.

Open space schools in this study have been launched according to the rationale as described in the literature. The major discrepancy is the extent to which schools have been able to implement and expedite programs deemed advisable. Principals and teachers of the study schools express frustration with a variety of limitations but are excited about the potential of innovation.

Recommendations

Analysis of data and observations gleaned from this study can provide helpful recommendations for the planning of new open space schools and for improved operation of the instructional program in existing schools.

The physical facilities. The following physical features would be helpful in promoting the success of the school: planning/work area for teachers, easily movable furniture and equipment, satellite rooms for
"special" curricular concerns, some closed areas for normal sized (20-30) groups for noisy or quiet activities, some closed areas for conference sized (15 or less) groups, provision for individual study, increased teaching aids of all types, acoustical floor covering, and adequate mobile storage units. The instructional materials center should be central to the instructional areas and should provide a variety of work spaces if the educational objectives specify that individualized instruction is to occur there.

Lectures and large group presentations do not play a significant role in operating elementary school programs; however, if local educational objectives specify presentations requiring a public address system and extensive multi-media techniques, some thought should be given to a separate facility -- considering the comments about noise problems in the open space.

Mobile units are valued as space dividers, storage, and display purposes but a more adequate quantity and greater variety are called for. Wheels need to be large and each wheel on a swivel for adequate mobility on the carpeted floors.

Teachers expressed considerable satisfaction with the flexibility possible from trapezoidal shaped tables. Tables must be constructed with a solid core if tote tray storage slides are to be attached.

**Staffing patterns.** Staff members in open space schools feel that the instructional program benefits from the utilization of individual strengths among members of the team. For this reason, it would seem profitable to provide pre-service students in teacher education the opportunity to develop their own unique competencies. Certification standards
should be liberalized so that more "wiggle" would be possible in a four-year baccalaureate program of teacher education to allow for the development of these unique competencies.

New staff roles in an open space teaching team situation require new patterns of human relationships among team members. Further research is necessary in this area; however, it is already clear that pre-service and in-service group dynamics programs are desirable. Teachers need help and guided experience to continue to improve their interrelationships in supportive and non-threatening ways.

Many school systems do provide a rather extensive opportunity for staff involvement in planning preparatory to operation in an open space facility but this study disclosed that it is the on-going development of staff throughout the operating program that presents a more enduring challenge. Much more support needs to be given to pre-service and in-service programs that provide the necessary orientation as new staff take over.

The apparent success some schools are having with differentiated staff utilizing paraprofessionals and lay aides suggests that "new careers" of supporting roles are a growing reality. It seems reasonable to encourage training programs for less than professional levels of skills in the following areas: library aides, media technicians, clerks, and tutorial aides to administer programs prescribed by professionals.

Pupil organization and curriculum implications. This investigation disclosed considerable confusion among the schools visited on the inter-relatedness of nongradedness, continuous progress, and individualized instruction. Even though there is some sense that these concepts need to
be unified, moving away from age/grade level implications has been found difficult. More effort needs to be expended in pre-service and in-service programs to help teachers determine tasks from the diagnosis of pupil needs if the goal of individualized instruction is to be reached.

Pupil interests need to be recognized through expanded use of "quest time" or an "activity hour" if individual pupil needs are to be more adequately met. Individual packets for self-instruction, rather than dependence on large group instruction, are recommended to free teachers for individualized contact.

A greater variety of instructional materials must be provided if the instructional program is to be flexible enough to meet the needs and interests of individual pupils and to provide a success oriented, continuous progress environment beyond the homogeneous "levels" concept. It is significant to note, furthermore, that staff in many schools visited were not knowledgable about available commercial materials that would have helped them meet some of the objectives they did perceive; thus, pre-service and in-service programs should be devised which would help teachers become more aware of resources for learning.

**Implications for Future Research**

This investigation was exploratory in nature; its basic objective was to discover relationships between planning for open space elementary schools and operating instructional programs in them. A number of recommendations and suggestions for research can be generated from the data collected in this investigation, including those that follow.
1. Concern for improvement in the procedures of planning for the construction of open space schools would seem to call for more information along these lines:

   A. Strategies to involve teachers more profitably in pre-planning while developing educational specifications
   
   B. Circumstances under which new open space programs can be launched successfully, given certain limitations of finance, staff, leadership, and time
   
   C. The type of environment most likely to enhance success with given educational objectives
   
   D. Factors contributing to successful operation between "total open space schools" and "tacked on" instructional areas adjacent to a traditional facility

2. The psychological aspects of the effect of open space on children deserve study in relationship to a number of factors:

   A. Sex difference
   
   B. Age/grade differences
   
   C. Socioeconomic differences
   
   D. Personality differences
   
   E. Optimum group size range for specified learnings

3. The nature of pupil motivation engendered in the open environment of the open space school deserves study. This study might disclose information about the types of activity supported by open space and those possibly hampered by open space.

4. A longitudinal study should be conducted in order to describe what happens after pupils have an open space experience. The innovative
facility may be created to enhance the reaching of some objectives and it may be the creator of other problems or potentialities.

5. New roles required of teachers in open space schools deserve study in relationship to a number of factors:

A. More specific identification of new roles

B. Types of teachers who function best in open space

C. Pre-service and in-service teacher education programs most likely to help develop the capability of filling the new roles

D. Pre-service teacher education programs that might permit the student to perceive of the new roles throughout the educational experience

E. Pre-service and in-service teacher education necessary to develop an effective educational diagnostician, thought necessary to fulfill the high priority objective of individualized instruction

F. Pre-service and in-service programs most appropriate to develop familiarity about new instructional materials available

G. More specific identification of occupations and supporting roles which enhance the contributions of the professional teacher

H. Planning time required of staff in order to profitably utilize unique strengths of members of the teaching team
6. A study is needed to determine the unique problems encountered in the operation of an open space school. Among the possibilities are the following:

A. Appropriate instructional materials for open space use
B. Most appropriate and functional furniture for open space use
C. The relationship of a successful program to the number of years an open space school is in operation
D. Factors existing in schools in various geographical locations outside of Ohio

7. Attention needs to go to the development and testing out of new formats for school reports and statements of minimum standards for schools where grade-level organization has been replaced by new forms of organization.

A Last Word

The literature search and the school visitations of this study were interesting and profitable experiences for this investigator. Personnel in the schools seemed pleased that the study was being made and that their programs were to be parts of it. They were curious about and interested in the investigator's observations and impressions of their program compared with patterns elsewhere. They seemed to offer candid views about their problems and successes.

The data gathered in this investigation are not necessarily representative of what is happening in all open space elementary schools but visitations in thirty-two of the fifty originally identified in Ohio
provide ample evidence of what is happening in one state. The paragraphs that follow are general impressions of the study.

Principals and teachers are working in open space schools with particular objectives in mind. They are able to communicate those objectives and each seems perceptive of the growth potential of both individuals and institutions through open space utilization.

There is a real problem with vocabulary in attempting to communicate among a variety of school people across the state of Ohio. Homogeneous grouping to one principal meant the placement of pupils alphabetically so that each home base group would be alike -- in their range of differences; team teaching included only cooperative planning in some schools; individualized instruction was a multi-levels system of organizing traditional curriculum materials in some schools; "open space" has many interpretations; et cetera.

It is natural to look at innovative practices in reference to what had been the school district's pattern of operation; thus, the new concepts related to the rationale for open space schools are perceived at quite different levels. Traditional patterns at some schools would be considered innovative at other schools. Each open space school is in a developmental stage and each staff is facing the formidable task of redefining and reconstructing the school while, at the same time, maintaining a defensible program.

Development of successful programs in many open space schools is limited by inadequate instructional materials. Furthermore, an observation of this study is that many teachers appear to be unaware of available media for instruction and are slow to utilize a variety of resources to
supplement their own unique contributions. The changing role of the teacher in the open space school demands these two capabilities: awareness of a variety of instructional materials and ability to utilize them with pupils.

Most open space elementary schools included in this investigation seem obliged to operate on the characteristic graded standards at this stage. Some individuals in these schools have been able to push their thinking beyond traditional patterns and have been able to make some progress toward new goals. The impact of a few teacher-leaders who are knowledgable about the specific objectives of the school is indeed significant in on-going program development.

Team teaching can be assumed in the open space school; however, the staff in one of the schools visited admitted that it had done very little cooperative team planning, teaching, and evaluating of pupil progress during the current year. It is, of course, true that many teams of teachers are functioning in regular self-contained classroom facilities; however, the open space team must share common problems of our problems, not your problems or my problems. This personal involvement makes a difference in the relevancy of contributions offered by any given individual member of the team; thus, the potential benefits derived from team cooperation are enhanced in the open space school.

Efforts to devise educational facilities most appropriate for new dimensions of teaching and learning has led to the construction of open space schools. Narrative comments made by principals and teachers in the schools visited indicate renewed commitment toward improving the educational opportunities for boys and girls. This devotion will enhance
the construction of new open space schools and will intensify the positive contribution of programs already in operation.

The open space school is a change agent for progress, demanding clarification of vocabulary, issues, and teacher/pupil roles. Personnel in the open space schools visited feel that they are engaged in a significant movement and there is evidence that Ohio is moving ahead with many energetic and resourceful leaders.
APPENDICES
APPENDIX A

OHIO SCHOOLS IDENTIFIED AS OPEN SPACE
ELEMENTARY SCHOOLS

<table>
<thead>
<tr>
<th>Allen Elementary</th>
<th>Gurney Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dayton City</td>
<td>Chagrin Falls E.V.</td>
</tr>
</tbody>
</table>

| Annehurst Elementary   | Harris Elementary    |
| Westerville City       | Amherst E.V.         |

| Betty Jane Primary     | Harrison Elementary  |
| Akron City             | Lakewood City        |

| Beverly Elementary     | Hawthorne Elementary |
| Washington County      | Westerville City     |

| Big Walnut Middle      | Highland Park Elementary |
| Delaware County        | Southwestern City     |

| Birch Elementary       | Hole Elementary       |
| North Olmsted City     | Centerville City      |

| Butternut Elementary   | Huffman Elementary    |
| North Olmsted City     | Dayton City           |

| Carlson Elementary     | Indian Hills Elementary |
| Dayton City            | Rossford E.V.         |

| Cleveland Elementary   | Jefferson Primary     |
| Dayton City            | Dayton City           |

| Cuyahoga Heights Elementary | Kae Avenue Elementary |
| Cuyahoga County          | Whitehall City        |

| Dricoll Elementary      | Kean Elementary       |
| Centerville City        | Wooster City          |

| Edison Elementary       | Lake Elementary       |
| Dayton City             | Mentor E.V.           |

| Franklin Elementary     | Lincoln Elementary    |
| Dayton City             | Dayton City           |

| Grant Elementary        | Longfellow Elementary |
| Lakewood City           | Dayton City           |

| Green-Sterling Elementary | Lowell Elementary |
| Brown County (Mt. Orab)  | Washington County    |
McAdams Elementary
Clark County

McKinley Elementary
Lakewood City

Mayfield Center Elementary
Mayfield City

Meadowdale Elementary
Dayton City

Miller Elementary
Newark City

Orchard Hollow Elementary
Mentor E.V.

Powers Elementary
Amherst E.V.

Pulaski-Jefferson Elementary
Bryan City

Residence Park Elementary
Dayton City

Robinwood Elementary
Whitehall City

Sands Primary
Chagrin Falls E.V.

Shilohview Elementary
Montgomery County (Trotwood)

Spruce Elementary
North Olmsted City

Stewart Primary
Akron City

Trimble Elementary
Athens County

Valerie Elementary
Dayton City

Valley Hills Elementary
West Carrollton City

Village South Elementary
Centerville City

Webster Elementary
Dayton City

Wright Elementary
Dayton City

Schools identified after the investigation was complete:

Bryden Elementary
Beachwood City

Erie Elementary
Elyria City

Garfield Elementary
Heath City

Helke Elementary
Vandalia-Butler City

Mesiter Road Elementary
Lorain City

Orchard Elementary
Cuyahoga County (Solon)

Prospect Elementary
Elyria City

Rushwood Elementary
Summit County (Northfield)

Shawnee Elementary
Allen County (Lima)
Dear ________________:

I am making an investigation of the planning for open space elementary schools and an observation of the staff, pupil, and curriculum organization being utilized within those spaces.

It has come to my attention that your school has an open space where three or more normal sized classes meet and where there is no floor-to-ceiling partition system. If this is true, I would appreciate visitation privileges on the suggested date, ________________. At this time I would like to confer about a half hour each with you and a teacher in the open space.

Please inform me if your school and the date of ________________ are appropriate for visitation.

Sincerely yours,

Roger Deibel
APPENDIX C

OPEN SPACE SCHOOL VISITATION SCHEDULE

October 1, 1970 Kae Avenue, Whitehall
9 Highland Park, Southwestern, Grove City
12 Annehurst, Westerville
13 Hawthorne, Westerville
30 Robinwood, Whitehall

November 6 Big Walnut Middle, Delaware Co., Sunbury
9 Beverly and Lowell, Washington Co.
17 Miller, Newark
24 Betty Jane Primary, Akron

December 1 Mayfield Center, Mayfield
2 Birch, North Olmsted
3 Butternut, North Olmsted
4 Spruce, North Olmsted
7 Grant, Lakewood
8 Orchard Hollow, Mentor
9 McKinley, Lakewood
10 Cuyahoga Heights, Cuyahoga Heights
11 Lake, Mentor
14 Shilohview, Trotwood
15 Jefferson, Dayton
16 Carlson, Dayton
17 Valley Hills, West Carrollton
18 Village South, Centerville
21 Indian Hills, Rossford
APPENDIX D

LOCATION OF OHIO OPEN SPACE
SCHOOLS VISITED

* Marks location of the twenty-five schools whose data were used for this investigation
APPENDIX E

TRIAL FORMS

FORM 1

STATEMENTS OF RATIONALE FOR THE FACILITY

School ________________________________

Location ________________________________ Year in program ___

Extent of staff involvement in pre-planning:
Comment -

Current in-service activities of the staff:
Comment -

Proposed program for team teaching:
Comment -

Proposed program for flexible pupil grouping:
Comment -

Proposed program for non-gradedness and continuous progress:
Comment -
Proposed program for individualized instruction:
   Comment -

Proposed use of instructional materials center:
   Comment -

Provision for flexibility in facility to minimize obsolescence:
   Comment -

Other:
   Comment -
APPENDIX E (continued)

FORM 2

DESCRIPTION OF EXISTING PROGRAM

School _________________________________________

Staff selection and development:
Comment -

Extent of staff cooperation for team teaching:
Comment -

Extent of flexible pupil grouping:
Comment -

Extent of non-gradedness and continuous progress:
Comment -

Extent of individualized instruction:
Comment -

Extent of use of instructional materials center:
Comment -

Strengths and weaknesses of the program:
Comment -
APPENDIX F

FINAL FORMS

School ____________________________ Year in program _______

Location __________________________

FORM 1

ADMINISTRATOR - PRINCIPAL OR SUPERVISOR

Circle the numeral showing the influence of people who formed the educational plan resulting in your open space school, according to the following categories: (1) highly influential, (2) influential, (3) slightly influential, and (4) not considered.

1 2 3 4 Teacher(s)
1 2 3 4 Principal(s)
1 2 3 4 Supervisor(s) of Curriculum
1 2 3 4 Superintendent(s)
1 2 3 4 Member(s) of Board of Education
1 2 3 4 Outside Consultant(s)
1 2 3 4 Architect(s)
1 2 3 4 Parent(s)
1 2 3 4 Other __________________________

Circle the numeral to rate the objectives of your open space school, according to the following categories: (1) a basic purpose, (2) a secondary purpose, (3) slightly important, and (4) not considered.

1 2 3 4 To facilitate team teaching
1 2 3 4 To facilitate variable groupings of pupils
1 2 3 4 To facilitate nongradedness and continuous progress
1 2 3 4 To facilitate individualized instruction
1 2 3 4 To promote use of instructional materials center
1 2 3 4 To provide an environment for student self-motivation and learning
1 2 3 4 To provide a free, open, humane school environment
1 2 3 4 To provide a long range flexibility to allow for future pedagogic theories and methods
FORM 1 (continued)

1 2 3 4 To provide the building first so that an innovated educational program might be developed

1 2 3 4 Other __________________________

Circle the numeral to rate these factors relative to the extent to which they contribute to the successful operation of this open space school, according to the following categories: (1) positive influence in the operation, (2) neutral influence in the operation, (3) negative influence in the operation, and (4) factor not considered in the operation.

1 2 3 4 Teacher pre-service preparation
1 2 3 4 Teacher in-service development
1 2 3 4 Differentiated teacher roles and responsibilities
1 2 3 4 Diversity in teacher competencies
1 2 3 4 Use of paraprofessionals and clerical help
1 2 3 4 Released time for planning
1 2 3 4 Variable groupings of pupils
1 2 3 4 Curriculum structure - State standards and local guidelines
1 2 3 4 Flexible scheduling of time allotments
1 2 3 4 Accessible equipment (hardware)
1 2 3 4 Accessible variety of instructional materials (software)
1 2 3 4 Administrative/supervisory leadership
1 2 3 4 Visual diversion
1 2 3 4 Auditory diversion
1 2 3 4 Satellite spaces for individuals and small group work
1 2 3 4 Satellite spaces for activities requiring security or seclusion - such as __________________________
1 2 3 4 Community reaction
1 2 3 4 Staff reaction
1 2 3 4 Pupil reaction
1 2 3 4 Other __________________________
1 2 3 4 Other __________________________
Appendix F (continued)

School _______________________________________________________

Form 2

Completed by - _____ Primary level teacher
                 _____ Intermediate level teacher

Circle the numeral showing the influence of people who formed the educational plan resulting in your open space school, according to the following categories: (1) highly influential, (2) influential, (3) slightly influential, and (4) not considered.

1 2 3 4 Teacher(s)
1 2 3 4 Principal(s)
1 2 3 4 Supervisor(s) of Curriculum
1 2 3 4 Superintendent(s)
1 2 3 4 Member(s) of Board of Education
1 2 3 4 Outside Consultant(s)
1 2 3 4 Architect(s)
1 2 3 4 Parent(s)
1 2 3 4 Others ________________________________________________

Circle the numeral to rate the objectives of your open space school, according to the following categories: (1) a basic purpose, (2) a secondary purpose, (3) slightly important, and (4) not considered.

1 2 3 4 To facilitate team teaching
1 2 3 4 To facilitate variable groupings of pupils
1 2 3 4 To facilitate nongradedness and continuous progress
1 2 3 4 To facilitate individualized instruction
1 2 3 4 To promote use of instructional materials center
1 2 3 4 To provide an environment for student self-motivation and learning
1 2 3 4 To provide a free, open, humane school environment
1 2 3 4 To provide a long range flexibility to allow for future pedagogic theories and methods
1 2 3 4 To provide the building first so that an innovated educational program might be developed
1 2 3 4 Other _________________________________________________
Circle the numeral to rate these factors relative to the extent to which they contribute to the successful operation of this open space school, according to the following categories: (1) positive influence in the operation, (2) neutral influence in the operation, (3) negative influence in the operation, and (4) factor not considered in the operation.

1 2 3 4 Teacher pre-service preparation
1 2 3 4 Teacher in-service development
1 2 3 4 Differentiated teacher roles and responsibilities
1 2 3 4 Diversity in teacher competencies
1 2 3 4 Use of paraprofessionals and clerical help
1 2 3 4 Released time for planning
1 2 3 4 Variable groupings of pupils
1 2 3 4 Curriculum structure - State standards and local guidelines
1 2 3 4 Flexible scheduling of time allotments
1 2 3 4 Accessible equipment (hardware)
1 2 3 4 Accessible variety of instructional materials (software)
1 2 3 4 Administrative/supervisory leadership
1 2 3 4 Visual diversion
1 2 3 4 Auditory diversion
1 2 3 4 Satellite spaces for individuals and small group work
1 2 3 4 Satellite spaces for activities requiring security or seclusion - such as ________________________________
1 2 3 4 Community reaction
1 2 3 4 Staff reaction
1 2 3 4 Pupil reaction
1 2 3 4 Other ________________________________
1 2 3 4 Other ________________________________
Relative to what you are now doing in your school, circle the numeral to rate these teacher role factors, according to the following categories: (1) a basic practice, (2) a secondary practice, (3) slight concern, and (4) not considered.

1 2 3 4 Basically one teacher responsible for one home base pupil group (20 to 35) in all common areas

1 2 3 4 Grade level team, each member teaching in all common subject areas

1 2 3 4 Grade level team, each member primarily responsible for one subject area

1 2 3 4 Multi-level team, each member primarily responsible for all subject areas

1 2 3 4 Multi-level team, each member primarily responsible for one subject area

1 2 3 4 Cooperative planning among team members

1 2 3 4 Cooperative teaching among team members

1 2 3 4 Cooperative evaluation of pupil progress among team members

1 2 3 4 Teacher functioning where she is most competent

1 2 3 4 Use of paraprofessionals

1 2 3 4 Use of clerical aides

1 2 3 4 Differentiating staff roles and responsibilities

1 2 3 4 Fairly candid evaluation of the work of each other among staff members

1 2 3 4 Positive in-service gain from team cooperation

1 2 3 4 Reduction of repetitions

1 2 3 4 Daily planning time during which teachers have no other duties

1 2 3 4 Systematic guidance for beginning teachers

1 2 3 4 Systematic guidance for the teacher in training

1 2 3 4 Other ____________________________________________

1 2 3 4 Other ____________________________________________
Relative to what you are now doing, circle the numeral to rate these grouping factors, according to the following categories: (1) a basic practice, (2) a secondary practice, (3) slight concern, and (4) not considered.

1 2 3 4 The pattern of grouping provides for different rates of learning
1 2 3 4 The pattern of grouping provides for different pupil interests
1 2 3 4 Pupils regroup across age/grade lines
1 2 3 4 Utilization of large group instruction frees teachers for work with individuals and small groups
1 2 3 4 Most discussion occurs in small groups (15 or less)
1 2 3 4 Most discussion occurs in normal size groups (20 to 35)
1 2 3 4 Pupils move into new groupings easily and frequently
1 2 3 4 Other _____________________________

Variable groupings of pupils - Over-all average of present practice in this school

___ % of time pupils spend in larger than normal home base groups (40 or more)
___ % of time pupils spend in regular home base groups (20 to 35)
___ % of time pupils spend in an interaction discussion small group (15 or less)
___ % of time pupils spend in individual work

100 %

Estimate average sizes of groups for the following kinds of purposes:

___ Common essential skill development at appropriate instructional levels
___ Common topics for unit study or committee work
___ Interest areas (enrichment supplements)
___ Special needs (remedial reinforcements)
___ Other _____________________________
Relative to what you are now doing, circle the numeral to rate these nongradedness and continuous progress factors, according to the following categories: (1) a basic practice, (2) a secondary practice, (3) slight concern, and (4) not considered.

1 2 3 4 Primary pupils progress by levels
1 2 3 4 Intermediate pupils progress by levels
1 2 3 4 Each pupil has reason to feel successful
1 2 3 4 Reading ability is considered the most significant factor in progress
1 2 3 4 Differences within a pupil's maturity, learning rate, and interests are recognized
1 2 3 4 Other ________________________________

Relative to what you are now doing, circle the numeral to rate these individualized instruction factors, according to the following categories: (1) a basic practice, (2) a secondary practice, (3) slight concern, and (4) not considered.

1 2 3 4 A wide variety of multi-level reading materials available
1 2 3 4 ... variety of math materials available
1 2 3 4 ... variety of science materials available
1 2 3 4 ... variety of study skills materials available
1 2 3 4 ... variety of (other) ___________ available
1 2 3 4 Materials well organized for student selection
1 2 3 4 Teachers free to establish a close counseling relationship with individual students
1 2 3 4 Individual interests and aptitudes carefully and logically observed
1 2 3 4 Students encouraged to select projects outside the common curriculum for independent study
1 2 3 4 Students encouraged and helped to develop the skills and desire to proceed on their own
1 2 3 4 Learning tasks identified
1 2 3 4 Contracts drawn by teacher and pupil giving direction to the completion of the learning task
1 2 3 4 Other ________________________________
FORM 2 (continued)

Mechanics of space manipulation - **Yes** or **No** response.

Pattern of use of library/resource center:

_____ Are normal size groups (20 - 35) scheduled in the center?
_____ Are small groups (15 or less) free to work in the center?
_____ Are individuals free to work in the center?
_____ Is an adult always available in the center?
_____ Does the center provide a variety of work spaces?
_____ Other

Mobile units available as space dividers:

_____ Chalkboards
_____ Display boards
_____ Book storage units
_____ Curriculum materials storage units
_____ Pupil's wardrobe units
_____ Pupil's personal study materials storage units
_____ Other

Location and motility of mobile units: Why are they used and how often are they moved?

_____ To define traffic flow
   Elapsed time since unit was moved

_____ To screen small groups within a group
   Elapsed time since unit was moved

_____ To define the home base group
   Elapsed time since unit was moved

_____ To define the whole group of a team
   Elapsed time since unit was moved

_____ Relatively fixed display boards
   Elapsed time since unit was moved

_____ Other
   Elapsed time since unit was moved

Comments -
To what degree does the open space provide for the needs of the program?

**Strengths of open spaces** compared with the normal classroom:

Comments - What can you do that you couldn't do in conventional classroom?

**Weaknesses of open spaces** compared with the normal classroom:

Comments - What can't you do that you could do in conventional classroom?
APPENDIX F (continued)

School ______________________________

FORM 3

OBSERVER'S RESPONSE TO SELECTED FEATURES OF
THE BUILDING, EQUIPMENT, AND MATERIALS

_______ Square feet of open space including the library/resource center if it is contained within the space
_______ Pupils housed in this open space area now
_______ Number of certificated teachers in this space now
_______ Other full time equivalent adult aides in this space

Items are to be scored A for adequate or better, P for poor, and N for non-existent. Poor indicates limited quality or quantity.

Building:

_______ Home base teacher stations
_______ Team conference areas
_______ Team work areas

Comments -

_______ Large group presentation area
_______ Pupil conference areas
_______ Pupil interest centers
_______ Pupil construction areas
_______ Individual alcoves or carrels

Comments -

_______ Instructional materials center
_______ Speech correction area
_______ Music area

Comments -
FORM 3 (continued)

- Arts and crafts laboratory
- Science laboratory
- Physical education area

Comments -

- Materials and equipment storage areas
- Secretary/aides areas

Comments -

- Acoustical accommodation and control (carpeted whole area - yes or no)
- Pattern of pupil traffic within the space

Comments -

**Equipment:**

- Pupil storage for own materials
- Utility of pupil desks (or table and chair)
- Mobile chalkboard units
- Mobile display units
- Mobile storage units
- Other space dividers

Comments -
FORM 3 (continued)

____ Multi-media equipment for open space use
____ Projectors for student use
____ Tape replay units with ear phones or head sets
____ Wired carrels for individual study

Comments -

Materials:
____ Access to materials and media
____ Packages of commercial units
____ Programmed courses
____ Teacher-made materials
____ Research related resources for pupil use
____ Library books and other printed materials
____ Filmstrips
____ Tapes
____ Other ____________________________

Comments -
The many responses to this kind of inquiry can be classified in a meaningful way by listing strengths and weaknesses in the following categories: influence on teachers, influence on pupils and grouping, influence on program management, and influence on human relationships. An additional classification, other significant factors, is included.

Influence on teachers

Strengths:
- expands teachers' concepts of curriculum
- less confined "shut in" feeling
- more adequate teacher preparation and planning
- teacher able to project strengths
- team teachers can work together more easily
- encourage and promotes teacher growth
- get to see other methods and share with one another
- teacher interaction
- teacher strengths utilized
- check and balance with pupil evaluation
- can leave to get material on emergency need
- can't do as we please - Respondent considered this restraint a strength.

Weaknesses:
- lose individual autonomy as with self-contained group; can be worked out with team, however
- can't have privacy, if you want privacy
- the individual can't adjust his schedule as easily; restricts flexibility of time scheduling; the change is from individual to group decision
- can't follow personal judgment spontaneously
- must be more aware of professional role, less opportunity to relax when with fellow staff
- can't shut the door when teacher is in poor mood or when pupils are having a bad day
- won't work if team members aren't satisfied or compatible
- teachers must be willing to flex with exterior demands or conditions beyond an individual's control
some teachers cannot accommodate all the alternatives that additional opportunities permit

**Influence on pupils and grouping**

**Strengths:**
- pupils benefit from individual strengths of teachers
- allows student to "move out"
- easier and less conspicuous regrouping across age/grade lines
- more interest foci for those who would be looking out the window or day-dreaming in conventional classrooms
- children feel more positive toward school
- provides flexibility for grouping, study, discussion
- encourages the changing of pupils and to be more accurate in placement
- child may adapt to changing teacher style and expectation
- student has more opportunity to work at his own level due to cooperative teaching
- students learn independent work habits and can seem to concentrate on tasks at hand
- complete flexibility in grouping and individual assignment
- fidgety child more likely to be ignored: he can release energy without disturbing others as much as in a closed room
- less frustrated from constraints
- flexibility of groupings and use of space

**Weaknesses:**
- more difficult to integrate disciplines with variable groupings
- composite collection of 12-15 slow children too large for individual attention necessary - could manage 3-4 in conventional classroom
- pretty hard to isolate a child
- testing situations difficult - need more satellite spaces, both small and normal size, but not willing to sacrifice part of existing space for this, however
- some pupils have difficulty in adapting to freedom and diversions

**Influence on program management**

**Strengths:**
- learning centers easily accessible with flow of traffic between activities
- large group instruction to eliminate repetitions such as lecture-type or recreation activity
- amplified sound can be managed
- flexibility
- more facilities and materials available for any given child
help more readily available for functional or method concerns
or for emergency types of situations
children are more free to select from alternatives
seems to be less conduct/discipline problem due to different
process of teaching
flexibility for grouping and use of facility during on-going
current program and for unforeseen future needs
able to have more groups of pupils, greater diversity of
possibilities
can try groupings and methods that I felt I couldn't try
before; maybe I could but I felt I couldn't
simple to change learning areas
materials can be shared more easily
various activities can be carried on simultaneously
presentation to large group possible if advantageous
no problem with showing film or playing records with whole,
    half, or smaller group
can group across age/grade lines much more easily
easier grouping of pupils - variables increase
large group area available for noon-time game activities
during bad weather when gym is used for lunch
can meet individual needs better, thus, providing for a more
    success oriented program
can easily do units together
the product will be better when more than one person plans
the program even though some would rather "do it myself"

Weaknesses:
dramatic productions and puppet show practice difficult
can't read and appreciate poetry - whole group
need satellite science room
can't spend all afternoon on Christmas, for example, if any
    individual teacher should choose to want to
can't do projections in science, for example, which requires
    lighting different from adjacent group
can't do listening activities requiring quiet: sharing
    creative stories, listening skills test, "sounds the
    letters make", etc.
noise factor evident with our extremely over-crowded space
excessive noise type activities, such as skits, are distractiv­ing if pupils get carried away with their actions
space for messy art work is not ample, open space should
    have a section of tile floor
difficult to do "pencil work" on carpet floor
can't sing with your group when the occasion suggests
    handicap to those children who are poor listeners
not adequate spaces for activities requiring quiet or for
    those producing high noise levels
art room and gym, only, inadequate for satellite spaces
change in activity may take a little longer
may be more cognitive accomplishment on the part of some pupils in the closed classroom - in the short run activity must be carefully controlled so as not to interfere with another noise - concern and caution must be practiced constantly can't integrate art with reading, etc., without bothering someone can't sing or do exercises with own group without group planning can't let noise rise to desirable level for appropriate activities can't shut the door to keep the world out noise and difficulty of teaching young children how to move and handle themselves in the open space

**Influence on human relationships**

**Strengths:**
- everyone knows everyone
- allows, by necessity, forces, interaction of more than one teacher to any given activity or pupil
- in multi-age group, the pupil will return to the same team the second year to further establish rapport with staff
- better communication among teachers
- allows for easy adjustment to changing teachers for various subject areas
- staff can share problems or concerns
- child can relate with teachers of own choice
- professional growth from close cooperative teaching
- larger potential source of student-to-student help
- more opportunity to talk with other adults and learn from each other
- more teacher eyes to control the devious pupil so that others feel more protected and secure, thus, behavior is better
- good opportunity to help pupils feel empathetic toward the rights and pleasures of others

**Weaknesses:**
- loose possibility to really know small group with shared responsibility of total group
- can never understand any given child as well
- closed room allows one to show more consideration and empathy to rest of group
- some pupils need a "one teacher/child" relationship
- if it's hard to reach a child in a conventional classroom, it would be harder in the open classroom
Other significant factors of the open space

definite strengths over weaknesses
it is a laboratory suitable for development of new designs and
techniques
anything of greater value requires harder work
team members must be compatible
facilitates the desirable objectives of the program
teachers must have confidence in open space
attitude of individual teacher must be positive
commitment of staff must be internalized
definite need for the career teacher to reduce turnover
roles within the professional staff team are changing: pattern
of decision making, governance, etc.
can be uneasy feelings - requires more mature staff and
administration
individual staff strengths all come together - sometimes with
conflict which is challenging to individuals
strong emergent leadership and growth of staff could challenge
the administration/principal
contributions of staff must be honored and the system compatible
with their ideas
great for student teachers to see variety of models
opportunity for pre-service observations limited
control of noise necessary: electronic, student movement,
lockers, etc.
more children see bad as well as good behavior
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