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RECOMMENDATIONS FOR SPACE UTILIZATION IN
THE BROWNING JUNIOR HIGH SCHOOL

by

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ABSTRACT

The purpose of this study was to develop a plan for more effective utilization of open space in the existing Browning Junior High School. Substantiation for recommendations on space utilization in this study was established by reference to the writings of authorities who have stated principles on the subject.

General procedures for the study were to review related literature in the fields of open space and open education, conduct an examination of the present space utilization in the Browning Junior High School, and to propose an alternative plan for space utilization.

An examination of the existing space utilization showed that it should be modified by providing greater flexibility in the use of the existing space. In the instructional media center (IMC), the open stacks should be expanded to accommodate greater numbers of volumes, a listening center should be provided, and greater use of audiovisual materials should be made possible with the addition of study carrels. The audiovisual center should have greater photographic facilities added and provisions should be provided for tape reproduction. The food service area could be of greater use if the carpeting was removed and replaced with tile. In the math area, tables and chairs should be used to replace the student desks and greater chalk board space was needed. The math area should also have facilities for greater storage, display, and use of audiovisual equipment. The major change to be made in the science area is replacement of the fixed wet labs with movable wet labs. In the social studies area, greater display space is needed. Provisions should be made for greater use of audiovisual equipment. Some facilities should be provided for work in constructions, model building, chart, graph, and map work. The language arts area should be provided with a reading lab.

It was further recommended that a physical education facility be constructed. A gym capable of housing at least 500 students should be provided at the earliest possible time. It was further recommended that a continuous evaluation be carried on to insure the effective utilization of open space.

Chapter 1

INTRODUCTION

The Browning Public Schools opened a new junior high school plant in the Fall of 1974. This new facility was constructed as an open space school. It was of brick construction with a large open central core joined on three sides by pods which are octagonal. It was designed to accommodate 500 students with 30 to 35 teachers and administrators. It was accredited as a three year junior high by the Montana State Department of Public Instruction. This design was chosen as the most acceptable for the implementation of an open education system (Dodge, 1975). (See appendix A for the basic floor plan.)

The Board of Trustees and the administrative staff felt the system of education being used prior to the opening of the new school was not satisfactory in meeting the needs of the students at the junior high school level. They viewed the traditional approach of strict departmentalization, with most teachers using the lecture-examination method of instruction, as being close to the root of many of the problems the students were experiencing (Dodge, 1975).

Several authorities in education have championed open education as an exciting alternative approach to the traditional closed classroom with its often inherent boredom and lack of student motivation. Charles E. Silberman (1970) and Roland S. Barth (1972)

have been outspoken critics of traditional education in the United States. Silberman (1970) attacked traditional education as being dehumanizing, and a slayer of the child's natural interest in learning. Barth (1972) described the teachers' concern for their position as a dispenser of knowledge in the traditional system of education.

Open education was not embraced as a panacea for all problems in the Browning Junior High School. It was, however, accepted as an alternative to the traditional system which was not working to the satisfaction of those concerned.

Statement of the Problem

The problem of this study was to develop a plan for more effective utilization of open space in the Browning Junior High School. Substantiation for recommendations on space utilization in this study was established by reference to principles noted by authorities who have written on the subject of open space plants and open education. Particular attention was given to the development of the open education concept.

Need for the Study

Due to several problems dealing with finance and inflation which reached record highs during the period of construction of the new junior high school in Browning, it was necessary to eliminate a portion of the building (Dodge, 1975). It was decided that one

of the four pods and the second floor of the central core not be built. The pod which was not built would have housed the gym and physical education facilities. The second floor of the central core would have contained a business education department, foreign language department, and a student lounge. The loss of these areas generated a tremendous need for more effective use of the remaining space. It is hoped that this study will assist school officials in meeting this need.

General Questions to be Answered

This study shall attempt to answer the following questions:

1. What are the major events in the history and development of the open space concept?
2. What are the principle differences between the open space and open education concepts?
3. What are the general principles underlying effective use of open space facilities?
4. What types of school furniture are best suited to open space schools?
5. What kinds of display space will be needed?
6. How much and what kinds of storage space will be needed?
7. What kinds of activities will be taking place in the different areas?

8. What provisions must be made to accomodate physical education activities?
9. What provisions will be made to provide for individual study and small group activities?
10. Where shall resource centers be located for individual subject areas?

General Procedures

The procedures to be followed in this study are:

1. Review of literature related to both open space and open education.
2. Conduct an examination of the present space utilization in the Browning Junior High School.
3. Propose an alternate plan for space utilization in the Browning Junior High School.

Limitations

This study will be limited in the following ways:

1. The review of literature will be limited to references in the Montana State University Library, ERIC materials over the period of 1972 through 1975 and the writer's personal library.
2. The proposed space utilization plan will be untested at the conclusion of the professional project but will be presented to administrative staff of the Browning Public Schools.

3. The proposed plan of space utilization will be only for the Browning Junior High School Building. Particulars of the plan may not be applicable for general adoption in other existing school buildings.

Definition of Terms

For the purposes of this study the following definitions will be used:

Open Space School. The open space school will be a combination of committed and uncommitted space. In its simplest form open space would consist of a large structure with a floor, four walls, and a roof. This form is then modified to meet the particular needs of the educational program to be carried out in the building. Open space is dynamic. It is capable of almost instant change. Open space allows teachers and students to flow from place to place with a minimum of obstacles to impede this flow.

Committed space is that space within a school which is closed off or turned over to a specific use permanently. The commitment of such space may be generated because of a need for privacy or to accommodate noisy or odorous activity.

Uncommitted space is the open, flexible areas usually available for general learning areas, language arts areas, social studies areas and mathematics areas. The Instructional Materials Centers,

resource centers, food service areas, and general circulation spaces are all uncommitted space (AASA Commission On Open Space Schools 1971).

Open Education. The writer experienced a great deal of difficulty in defining this term. Authorities in the field tended to avoid a simple but direct definition. For purposes of this study Beardsley's statement that open education has as its essence participation and choice by both students and teachers, will be used (Beardsley, 1972).

In answer to the question, "What is open education?", Barth stated:

Open education is a way of thinking about children, about learning, and about knowledge. It is characterized by openness: doors are ajar, and children come and go; classrooms are open, and children bring objects of interest in and take objects of interest out; space is fluid, and not preempted by desks and chairs organized in rows or in any permanent way; a variety of spaces are filled with a variety of materials; children move openly from place to place, from activity to activity. Time is open, to permit and release rather than constrain or prescribe. The curriculum is open to choices by adults and children as a function of the interests of children. The curriculum is the dependent variable, dependent on the child, rather than the independent variable upon which the child must depend.

Perhaps most importantly, open education is characterized by an openness of self on the part of children and adults (1972: 56-57).

Open Classroom. The truly open classroom must meet the following criteria:

1. It must have a welcoming environment.

2. An environment which invites exploration and investigation must be created.

3. A wide variety of choices must be available within the organic curriculum.

4. Interrelatedness of the disciplines must be explored.

5. It must allow for the accommodation of different learning styles.

6. Risk taking is encouraged as a natural process in the learner's growth.

7. The open classroom must provide opportunity to demonstrate strengths and to develop weaknesses into strengths.

8. Peer teaching and learner sharing are encouraged in the learning nodes.

9. The learner must be an active participant in the learning process.

10. The uniqueness of each learner is respected and nurtured.

11. The open classroom encourages cognitive, affective, and psychomotor growth.

12. Curiosity is encouraged.

13. Students and teachers are partners in the seeking of knowledge and understanding.

14. The open classroom nurtures self-esteem and self-

awareness (Newman, 1972).

Summary

The Browning Public Schools new junior high school, opened in the Fall of 1974, as an open space school. It has a central core with three attached pods.

This open space was considered a desirable attribute because it seemed to offer the best type of plant for the implementation of the open education concept. The open education concept was adopted by the Board of Trustees and the local administration as the best alternative educational system leading to the improvement of instruction and learning. Substantiation for the afore mentioned adoption may be found in the writings of Silberman (1970) and Barth (1972). This change of educational approach was not viewed as a panacea, but rather as an effective alternative to a system that was not meeting the needs of the students.

The purpose of this study was to develop a plan for more effective utilization of open space in the existing Junior High School. Substantiation for recommendations on space utilization in this study was established by reference to the writings of authorities who have stated principles in the subject.

Problems dealing with finance and inflation made a reduction in the size of the school plant necessary. This

reduction generated a pressing problem for the effective utilization of the existing space.

This study attempted to answer several questions relating to open space plans and open education. The writer sought to provide an overview of the history and development of the open space concept. An attempt to determine the differences between open space and open education was made. The general principles underlying effective use of open space facilities will be considered.

Other areas of exploration are:

1. Types of school furniture best suited to open space.
2. Types of display space needed.
3. Storage space needed.
4. The kinds of activities individual areas must support.
5. Provisions to accommodate physical education.
6. Provisions for individual study and small group activities.
7. The location of resource centers for individual subject areas.

General procedures for the study are to review related literature in the fields of open space and open education. Conduct an examination of the present space utilization in the Browning Junior High School, and to propose an alternate plan for space utilization in the Browning Junior High School.

The open space school is defined as having large areas of open space which may be committed or uncommitted. It is capable of almost instant change, highly flexible. Open space also allows for the free flow of teachers and students from place to place with a minimum of obstacles to impede this flow.

Open education is a way of thinking about children, learning and knowledge. It is characterized by openness, participation, and choice. It is a cooperative process with teacher and student working together for the ultimate learning situation.

The open classroom is perhaps described as an environment where the teacher and student work together to develop the concepts of exploration, investigation, where a wide variety of choices are available and where each student may display his strengths and develop weaknesses into strengths.

The first procedure in this study was to review related literature on open space and open education. This will be found in Chapter 2.

Chapter 2

REVIEW OF LITERATURE

A review of related literature was conducted in order to develop a basis for greater understanding of open space schools and the open education concept. The literature was surveyed for the purpose of answering the following questions:

1. What are the general problems involved in school plant planning?
2. What is the history of open space schools and open education?
3. What are the established principles of open education?
4. What are some of the obstacles to implimentation of open education?
5. What are some of the particulars to be considered in the utilization of open space?

Problems of School Plant Planning

The first step, and a continuing problem, in school plant planning is estimating student population. Estimating student population must be an on-going task for school administrators because of changing population growth and shifts in migration patterns (Morphet, Johns, Reller, 1974).

Each school district should have an established plan through

which it can continuously or frequently estimate student population for a period not to exceed ten years. School population estimates will vary from district to district. The procedure that is highly effective in the rapidly growing district may not be reliable in the rapidly decreasing district and vice versa. Estimates need to be recognized as such. It must be further recognized that all estimates are subject to error due to unpredicted changes in social and economic conditions, period of time that has elapsed, and changes that occur in district size.

Student population projections by age, grade, and ethnic composition are extremely important for facilities planning and site purchases. The need to periodically re-estimate projections at least annually cannot be stressed enough (Morphet, Johns, Reller, 1972:452).

The next phase of a school building planning process is to evaluate existing plants. This should be done periodically in all districts. This phase of school plant planning will serve the added purpose of aiding in the determination of maintenance needs, elimination of safety hazards, and for determining if maximum utilization of existing space is occurring.

The evaluation of school plants must be carried out in terms of educational needs. This is a difficult task for the school officials. It requires a thorough understanding and knowledge of the nature of a desirable learning environment. It requires an understanding of the principles of space, lighting, heating, and

ventilating needs. It requires a complete understanding of the educational program to be carried out in the plant (Morphet, Johns, Reller, 1974). It is also mandatory that capacity be evaluated when considering existing plants. As educational programs change, space requirements may change. This may dictate a need for more space.

The next phase in school plant planning is financing the building program. In general, each state has its own program for managing the capital-outlay budget which includes the building of new facilities. It is possible to generalize that all districts must determine the existing indebtedness and retirement schedule of the debt, the ability and bonding limits of the district, and state or federal grants or loans available. In many school districts, financing becomes a major hurdle (AASA, 1960).

The next phase is selecting the architect. This is to be given utmost consideration. The architect becomes a partner of the superintendent, board of education, and staff in carrying the building program through to a successful conclusion. It is not always the best policy to hire the local architect because he is local, or the well-known architect because he is well known. This procedure must be given careful attention. The architect must be well qualified and should be selected on the basis of experience as revealed by the adequacy of the staff he employs, plans developed,

bids secured, and building completed (Morphet, Johns, Reller, 1974).

The next phase is site selection. Topography, nature and type of soil, underlying rock formations, soil strata, and shape of the site will have extensive effects on the type of structure to be built. Some consideration must be given to highway locations, utility connections and expense of purchase (Engelhardt, 1970).

The next phase is the development of educational specifications and architectural plans. Morphet, et al., (1974) felt that it was imperative that educational specifications include the following:

1. A detailed description of all activities that will take place in the building.
2. A complete description of the curriculum to be provided.
3. Specific architectural characteristics desired.
4. A complete description of the facilities needed, equipment required and space relationship of these to other facilities.
5. A description of budget and other governing factors.

The final phase is equipping and utilizing the building. This entails the purchase of furniture, audio-visual equipment, books, specialized equipment, the equipment needed for special labs, special education, reading centers, media centers, physical education, and many other items.

The utilization phase may be more difficult because it does not lend itself to a solution by the expenditure of funds. This

part of the plan usually involves both the expenditure of time and money. The staff must be trained to the use of the new plant. They must be involved in the planning stages of the curriculum, purchase of materials, and, in general, in establishing the educational goals and specifications. There may be a need to provide the staff with information and knowledge of new methods and concepts that may be implemented in the new plant (Engelhardt, 1970).

History of Open Space and Open Education

Historically, it is possible to trace the origins of open education to the early 19th century. In 1816, Robert Owen is said to have established the first infant school in England. The trend toward informal education in England has developed over the last half century. The trend toward open education came about as the result of the ideas held by many primary teachers who believed that a happy child, actively involved in what he wanted to do, would get more out of his education (Silberman, 1970).

During World War II both teachers and students were removed to the English countryside in order to protect them from the bombing raids conducted against the urban industrial centers. This forced many of these teachers to improvise and rethink their former teaching methods. Upon returning to the more traditional surroundings of their old schools and the urban centers, the students exhibited

different skill levels. Many could read fluently, some poorly and some not at all (Silberman, 1970). This unequal background forced the teacher to further improvise. From this point it was mandatory to examine the basic theories of how a child learns. One such theory examined was that of Jean Piaget.

Piaget's most important contribution has been his demonstration that the child is the principal agent in his own education and mental development. But the critical factor is the child's own activity in assimilating his experiences and accommodating to them . . . (Silberman, 1970: 215).

Open education is a recent development in American education. Barth (1972) stated that American educators began to investigate open education in the 1960's. This was prompted by the suspicion that the traditional elementary schools were not meeting the desired standards of effectiveness. Silberman (1970) expressed great concern for the growing crisis in American schools. Crisis In The Classroom was Silberman's attempt to make the American public and educators aware of the problems existing in this country's educational system. He contrasted the unbending rigidity and lack of joy present in American schools with the child centered learning of the English infant school.

During the 1960's the Education Development Center (EDC) was the foremost contributor to the growth of open education in this country. The Elementary Science Study was developed by EDC. The

Elementary Science Study (ESS) brought about a sharing of ideas between American educators and English educators. These educators shared people, ideas, and materials. The ESS staff helped to develop many elementary classrooms which would serve as models of a more open program of education (Barth, 1972).

With the advent of the open education concept in the 1960's in the United States, many educators felt that the spotlight in education had been focused on the learner. The open education concept was dictating changes in the basic methods of instruction. No longer was the standard lecture-discussion method of teaching acceptable. It became imperative that space be provided for more activity, greater student participation, and the use of teams of teachers and students cooperating in the learning process. This child centered learning has dictated a new type of school plant be built. This plant is the open space school (AASA, 1971).

Definition of open space. In its most basic definition, the open space school is no more or no less than the term implies. It is a physical plant designed to have large open areas of space that are flexible and adaptable to many different learning situations. This open space does not demand that a program of open education be adopted. It does not guarantee that instruction will become more child centered. Open space is large areas of flexible space which may be utilized to develop programs of open education (AASA, 1971).

In the development of open education programs, many advantages have been found for expanding the instructional environment into larger spaces than the normal-sized classroom. This has progressed beyond the use of demountable walls and movable partitions to the completely open plan. By its physical nature, the open plan encourages movement of pupils; and in doing this and causing other environmental changes, it alters the usual teaching program. The most discernible change in existing programs is the direction of the teacher as a diagnostician. The teacher must necessarily determine individual needs for assignment of activities and for the formation of subgroups. This requires observing a continuum of curriculum rather than segments of it (Engelhardt, 1970).

Particulars of Open Space Planning

Individualized learning, the changing role of the teacher, large and small group instruction and the increased use of audio-visual aids have affected the need and the function of school furniture. What was once considered standard equipment designed to "fill-up" a school building has now become a significant part of the educational process. Furniture and equipment should be primarily flexible, easily movable and compact multi-usable. It should define space for the current activity, make students comfortable and help provide the acoustical and aesthetic environments necessary for learning.

The following are principles of furniture selection:

1. It must be durable, have easily cleaned surfaces, easy to repair and where needed have surfaces that are heat, chemical and water resistant.
2. It should be simple, beware of the furniture that has thousands of uses and thousands of parts.
3. Useful is a key factor in selection. Is it going to be used a great deal or is it going to be used on rare occasions?
4. Is it usable? Is it too large or small for the students to use? Is it too complicated?
5. It should be movable. Attention should be given to moving the furniture. The floor surface should be considered. Watch for weight, skiddable types, or wheels (Educational Facilities Laboratories, Experimental Schools, 1972).
6. Compact furniture is desirable. Space is important and should not be used to accommodate large bulky furniture when the same purpose can be achieved with more compact units (Engelhardt, 1970).

One report makes the following statement:

In response to the demands of educators and the needs of the open plan school, some furniture buyers are mixing the furniture from traditional manufacturers with a large variety of items not specifically designed for the school market. It is called the eclectic approach, and the choice of the right piece depends on individual needs. The result is a mixture of furniture which becomes exciting, variable, and lends itself to daily change (Educational Facilities Laboratories, Inc. and Experimental Schools, 1972:48).

Principles of Open Education

There are certain basic principles by which one can recognize an open education system. Silberman (1970) and Barth (1972) proposed the principles which are generally followed in open education systems:

1. Teachers and administrators will display knowledge and understanding of the nature of children and how they learn (Barth, 1972).
2. Teachers will help the student to learn from his experiences (Barth, 1972).
3. The teacher will observe the student while he is active to determine where his interests lie. The teacher will also talk with the student regularly to further develop this understanding (Silberman, 1970).
4. The student will be actively involved in the learning process (Barth, 1972).
5. The student and teacher will have a variety of choices in the learning process (Silberman, 1970).
6. A learning environment will be provided that will assist the student in developing initiative, competence, and an ability to think for themselves (Silberman, 1970).
7. The curriculum will provide for the teaching of the basic skills in reading, communication, mathematics, study skills, and the area of social development (Silberman, 1970).

8. Teaching practices will reflect the diversities among children (Barth, 1972).

9. Flexibility of space, time, physical arrangements, and patterns of grouping are present (Barth, 1972).

10. The teacher-student relationship will be one of mutual respect and understanding. Student to student relationships will reflect cooperation and acceptance of the rights of others (Barth, 1972).

11. There will be an atmosphere of freedom in the learning situation, however, there will also be positive direction provided by the teacher (Silberman, 1973).

Obstacles to Implementation

There are several obstacles to the implementation of a program of open education. This is not to say that it is impossible to overcome them; however, it is important to be aware of them and to plan specifically to minimize their effect.

Community acceptance may comprise an obstacle to implementation of a program of open education. It is of importance to develop a program which will provide the community with information about the plans to implement a program of open education. The time and effort spent in this area will produce a commodity as important as money to the program which is of course community support. It is imperative that the community understand and approve of any program in a

school (Sloan, 1974).

Teacher resistance can be an obstacle to the implementation of open education. The teacher who does not understand or believe in the effectiveness of open education will not work well in the open classroom (Barth, 1972). One means of overcoming this obstacle is to exercise extreme care in staff selection for new programs. Teachers who are not committed to open education will probably experience failure in such an assignment (Barth, 1972).

The selection of a principal is just as important as the selection of teachers. The role of the principal is one of direction and support. The principal who is not committed to open education will prove to be an almost insurmountable obstacle. The principal is a key figure in implementation of the open education program (Sloan, 1974).

A model to aid teachers and administrators in implementing and maintaining programs in open education can be found in the doctoral thesis of Dr. Thomas L. Crumbaugh. Dr. Crumbaugh has offered probable solutions to many of the implementation problems stated in this study (Crumbaugh, 1973).

Display space. Display space is of great importance in open education. Displaying student projects, items or materials which provoke thought and investigation on the part of the student are basic to the open classroom (Barth, 1972).

The use of cork board for bulletin boards is one method of supplying display space for charts, papers, maps, art work and other flat surface projects. The use of vinyl covered wall panels can extend this type of display space to all wall surfaces (Engelhardt, 1970).

Wheel mounted space dividers are available with detachable display units. These dividers come with panels that are thirty inches in height. They may be stacked to form dividers of varying height. Glass fronted cabinets are available to display and store breakable or fragile projects. Magazine display units are also available to be mounted on these units (Educational Facilities Laboratories, Experimental Schools, 1972).

Storage space. Storage space may be of two types. Fixed storage space is that provided by built-in cabinets, counter space, closets, and special rooms built for this purpose. Moveable storage space is provided by cabinets, shelves, bins, drawers, tote trays, detachable units that mount on moveable space dividers, and wire book racks. Student storage space may be provided by the use of lockers, tote trays, special project storage rooms, and student use of units which mount on the space dividers. Special storage space must be provided in science areas for storing chemicals, equipment, plants, and animals. The storage space for these items is usually provided in special rooms attached to the science area (Educational

Facilities Laboratories, Experimental Schools, 1972).

Activities. In this section of space planning the activities that will be covered are those that are considered to be classroom oriented. Howes (1974) divides classroom activities into four categories as follows:

1. Quiet but messy activities
2. Quiet but clean activities
3. Noisy but messy activities
4. Noisy but clean activities

Those areas that are to accommodate activities that are considered to be messy should have floor surfaces that are easily cleaned. Special attention should also be given to the possibility of staining the floor and, therefore, the floor covering should be chemical resistant. A sink with hot and cold water is another desirable feature in messy areas. The noisy and messy areas should have the same features as the quite messy areas but with the added feature of some form of isolation. These areas should be isolated as much as possible with special attention given to accoustics. The quiet and clean areas should be carpeted, well lighted, and provide individual work areas. The noisy and clean areas should have carpeting, good lighting, and some consideration should be given to wall and ceiling coverings. It is important in all the noisy areas to give careful attention to accoustics. In the messy areas special

attention should be given to ensure ease of cleaning. This should allow for student cleaning.

Physical education. Physical education is a vital part of the school curriculum. The skills learned in physical education should lead to a continuous interest in activity for physical fitness throughout the adult years of life. The emphasis here is on the needs of the individual. An effective program of physical education must provide a wide variety of activities to allow for the needs of the natural athlete, the nonathletic student, and the overweight and the underweight. The essential parts of the program are body mechanics, weight control and physical development (Engelhardt, 1970).

In order to meet the above state goals, it is necessary that adequate facilities be included in the school plant. In planning the physical education plant the types of activities must be considered. Basketball requires the greatest amount of space, therefore, a gymnasium of adequate size to accommodate this sport will also house many other activities. The physical education plant should include locker and shower facilities for boys and girls. Office space for each instructor should be provided. This office space should allow the instructor to visually supervise the shower and locker areas. Storage space is a must for the physical education area (Engelhardt, 1970).

Individual study and small group activities. Individual study plays a primary role in open education. This requires that proper facilities be provided for the students use as basis for individual study. These may be located in the instructional media center or throughout the instructional areas. In many instances individual study carrels are placed throughout the school plant. The study carrel provides the student with an isolated study space. They may be equipped with localized lighting, electric outlets, and in some carrels rear-view projector screens are present. If individual study units require larger spaces than that provided by a study carrel, large tables may be utilized (Engelhardt, 1970).

Small groups are common to open education. The formation of these small groups may be on a formal basis where the teacher selects the students to participate. This type of small group is usually formed to accomplish a specific task. A second type of small group is formed by the students. This type of group may become involved in the study of formal course work, or may simply become a useful means of solving a common problem. The effective school plant should provide space for these small groups.

The space provided may be in the form of small conference rooms, large round or rectangular tables, or areas isolated by the use of room dividers (Engelhardt, 1970).

Instructional media center. The instructional media center is the instructional heart of the open education school. The traditional library has been replaced by the instructional media center (IMC). This area of the school plant should be designed to accommodate open stacks, audio-visual equipment and materials, periodical display and storage, and microfilm readers. These tools of learning should be made attractive to the students and must be readily available for student use. The IMC must provide support for the student's work in the subject areas (Barth, 1972).

Summary

It was the writer's purpose in this chapter to provide the basis for later development of a space utilization plan to aid in the better utilization of space in the Browning Junior High School. The writer attempted to aid the development of the space utilization plan by answering the following questions:

1. What are the general problems involved in school plant planning?
2. What is the history of open space schools and open education?
3. What are the established principles of open education?
4. What are some of the obstacles to implementation of open education?

5. What are some of the particulars to be considered in the utilization of open space?

School plant planning is divided into seven phases. In phase one the primary concern is the estimation of future school populations. Phase two is evaluation of existing school plants. Phase three covers financing the building program. Phase four covers the selection of an architect. The fifth phase is site selection. Phase six involves the development of educational specifications which will dictate the type of educational facility that will be needed. The seventh and final phase is the equipping and utilization of the building.

Concerning the historical development of open space and open education, it may be traced back to the early 19th century. Open education was developed in England over the last half century. It developed as a result of the belief that a happy child, actively involved in what he wanted to do, would get more out of his education. World War II brought about much change in the growth of open education in England. Open education caused many educators to examine the ways in which children learn and this led to consideration of the learning theories advanced by Jean Piaget.

Open education is a recent development in American educational systems. The writings of Charles E. Silberman, and Roland S. Barth did much to influence American educators' views of open education.

During the 1960's the Education Development Center was the foremost contributor to the growth of open education through the development of the Elementary Science Study. With the growing concern for open education in the United States several educators began to give consideration to a type of school facility that would be more adaptable to student centered learning and developed the open space school plant.

The open space school is basically one which has large areas of open space that are flexible and adaptable to many different types of learning situations. The open space school allows the free movement that is present in open education. The open space school does not dictate that a program of open education be adopted. In planning open space facilities one must consider the type of furniture to be used, the principles of open education, the obstacles to implementation, the need for display space, the types of storage space needed, the wide variety of learning activities taking place, physical education needs, provisions needed for small group activities and individual study, and the development of an instructional media center.

A description of the existing space utilization at Browning Junior High School will be found in the next chapter.

Chapter 3

EXISTING SPACE UTILIZATION AT BROWNING JUNIOR HIGH SCHOOL

In this chapter the writer has provided the reader with a description of space utilization in the Browning Junior High School as it existed at the time of this study.

General Design of the Building

The Browning Junior High School was built with a large octagonal central core. Three octagonal pods of smaller dimensions were attached to the central core. The central core was designed to house an instructional media center, guidance center, administrative offices, food service, student lockers, and rest room facilities. (See Appendix A.)

Instructional media center. The instructional media center combines an open stack library, audio-visual center, and individual student study carrels. The writer observed that the open stack system made all books readily available to the students. The library had a dual card catalog and all books were shelved according to the Dewey Decimal System. Periodicals were displayed in a slant shelf periodical case. The number of back issues of periodicals available was minimal. The periodicals that were available in back issues were on microfilm. A microfilm reader was provided to read microfilm and was capable of reading microfisch and provided an

instant printout of desired material. The writer observed that the school had instituted a program to acquire several national magazines on microfilm. The microfilm reader was located in the library work room, thus, providing only limited access to the students. This did, however, allow for total supervision of students using this costly piece of equipment. The library work room provided the librarian with an area where books could be processed and stored until they were ready to be shelved. The audio-visual center was located in the central core and was adjacent to the library area. The audio-visual center was equipped with tape recorders and players, video tape equipment (for teacher use only), duplication equipment, and a wide variety of program materials to be used with the aforementioned equipment. At the time of the writer's observations a full time aid was employed to work in the audio-visual center. All equipment could be checked out by teachers or students with the exception of the video tape equipment which was limited to teacher use only (see Appendix B).

Guidance center. The guidance center had two offices which were enclosed for privacy. They were small but seemed to meet the needs of the counselor.

Administrative offices. The administrative offices, a nurse's station, teachers lounge, and staff rest rooms occupied a large rectangular area that was built along the side of the science

math pod and opened directly to the central core. Two offices were provided, one for the principal and one for the vice-principal. The school clerk's area was open, but separated from the visitor reception area by an "L" shaped counter. The visitor reception area was provided with two couches and several cushioned chairs.

Food service. The food services area had a large enclosed kitchen, food preparation area, a separate area for washing and clean up, and a large storage area complete with walk-in coolers. The students were served by passing through a line and then taking their trays to the central core where large round tables with chairs were provided. The tables folded in the middle and could be moved as they were mounted on wheels. All chairs could be stacked. This allowed the eating area to be used as open space for class work or student study areas.

Student lockers. Individual storage for students was provided by the use of free standing locker banks. The lockers were placed throughout the central core. The lockers were full length with combination locks mounted in the doors.

Rest rooms. The rest rooms were large, well ventilated, and were equipped with four counter mounted sinks. In the girls rest room eight stools with individual stalls were provided. The boys rest room was provided with five stools and five urinals. The boys and girls restrooms were located in the central core where they

were central to all areas.

Music, Shop, and Home Economics Pod

Committed space. This pod was divided into three areas. Each of these areas was closed off from the other two. Each area opened by door to a shared hall in the center of the pod. This pod did not contain open space. The areas in this pod were committed to a specific use and were not flexible.

Music. This area of the pod had a large room with a terraced floor for use in instrumental and vocal music. There were an instructor's office, storage rooms, and eight student practice rooms located in this area.

Home economics. This area was closed space. There were eight complete cooking stations with stoves, refrigerators, and double sinks. Each cooking station had a complete set of cabinets. A second area in the home economics room was used for independent study and was furnished with tables. The third area was equipped for sewing instruction.

Shop. The shop was divided into three sections: the wood shop where students were given instruction in the use of hand tools, the small engine area, and a drafting room. All areas of the shop were closed, committed space.

Math and Science Pod

This pod was an open space pod. The pod was divided into two equal parts by open office and storage space. The office space was separated from the learning areas by full length fixed walls. A plant and an animal room was located in this center area. The plant room was equipped with an emergency shower for student or instructor use in the event of chemical contamination.

The science area had a complete wet lab. The wet lab units had a sink and gas outlets at the center with three student work surfaces branching off from the centers. There were three more teaching stations in addition to the wet lab in the science area. These were equipped with trapizoidal tables and chairs providing a great deal of flexibility. These stations were separated by movable room dividers (see Appendix C).

The math area was completely open space. The area accommodated four teaching stations. At the time of the writer's observations, individual student desks were being used.

Social Studies, Language Arts,
and Art Pod

This was the only pod with two floors. The art area occupied the complete second floor. This was closed committed space. It was equipped with individual student desks and several tables. Storage space was provided by the use of counters, which were built-in, and

two storage rooms. The second floor was reached by one of the two circular stairways located at each end of the stage and leading up to the art area.

The social studies area was open space and occupied half the first floor. This area was equipped with tables and chairs, student study carrels, and some student desks. The social studies area had two room dividers which were movable. The language arts area was equipped almost identically. The stage located in this pod was raised ten inches above the floor level of the pod. The stage could be completely closed off by means of folding walls (see Appendices D, E).

Physical Education

At the time of this study no facilities for physical education existed.

Summary

The Browning Junior High School had a large central core with three attached pods. The central core contained the IMC, guidance center, administrative offices, food service, student lockers, and rest room facilities. This area was a large area of open space which was flexible in its use. The music, shop, and home economics area was closed committed space and could not be considered open space. With the exception of the wet lab the math and science pod was open space. The math area was being used in a traditional manner with

rows of individual student desks. The science area was more open with a combination of tables and chairs.

The art area occupied the second floor of the social studies, language arts, art pod. The art area was closed space committed to one function. The language arts and social studies areas were open space. They were equipped almost identically. They employed tables and chairs with some student study carrels.

Chapter 4

PROPOSED SPACE UTILIZATION

In this chapter, the writer has proposed a plan for the utilization of open space in the Browning Junior High School.

Central Core

The central core housed the instructional media center, audiovisual center, guidance center, administrative offices, food service, student lockers, and rest room facilities (see Appendix B).

Instructional media center. The basic space utilization in the instructional media center (IMC) followed the recommended criteria. The IMC was carpeted, well lighted, had open stacks, periodical display space, provisions for individual and small group study, and was readily accessible to all areas of the school.

The following additions to the IMC were proposed:

1. The open stacks should be expanded to provide greater space for reference volumes.
2. A listening center with multiple earphone outlets and with multiple program selection capabilities should be provided (see Appendix F).
3. Existing study carrells should be modified to provide the students with viewing stations for filmstrips (see Appendix F).

Audiovisual center. The audiovisual center (AV) was well equipped with the basic materials needed. The AV center did not provide the teacher or student with facilities for photographic production. A photographic production area should be added to the AV center. This should include a dark room and the needed cameras and accessories. The AV center should provide the teacher or student with the facilities to produce filmstrips and slides to be used in instructional or project presentations.

The AV center should be provided with a cassette reproduction machine.

Guidance center. No change is recommended for this area, as the utilization of space provided was adequate for the program.

Administrative offices. This area was well designed and provided excellent utilization of the space provided.

Food service. The carpeting should be removed from the floor in the food service area. This would allow the area to be more easily cleaned and would provide space which could be used as a commons area. This commons area should be covered with a tile floor covering. The area would then become a more usable space for student dances and other such activities.

Student lockers. The lockers provided adequate storage for the students' personal belongings and school materials.

Restrooms. The restrooms were committed space and provided

for the needs of the school population.

Music, Shop, and Home
Economics Pod

This pod is totally committed space. Each area of this pod is committed to use as an instructional area for the specific subject being taught. Fixed walls were constructed to divide this pod into three parts, and the resulting area was provided with fixed facilities.

Math and Science Pod

This pod was designed as an open-space pod. It was constructed to house the math-science instructional areas.

Math. The math area was an open-space area. The flexibility was limited by the use of rows of student desks. The writer proposes that these desks be removed and tables and chairs be provided. This would allow greater flexibility. The chalk board space provided was not sufficient for math instruction. More chalk board should be provided. Sections of the chalk board should be ruled with grids to provide for graph construction. The math area should be provided with overhead projectors and permanently installed projection screens, flat storage drawers for large charts and drawings, and either pegboards or magnets on a steel board for graphing points and lines. This area should be provided with additional bulletin board space per teaching station.

Science. The science area was well equipped, and the space was utilized in an efficient manner with the possible exception of the use of fixed wet lab stations. Greater flexibility could be achieved by removing the fixed wet lab stations and substituting movable wet labs. The movable wet labs are equipped with quick connect-disconnect attachments. These allow the instructor to connect or disconnect the labs to water, gas, and electrical sources. The water, gas, and electrical sources were present at floor level in the existing fixed wet labs, and the only modification that would be required would be the connectors and a cover plate to be used when the wet labs were not in place.

Social Studies, Language Arts,
and Art Pod

This pod was designed as an open-space area for the language arts and the social studies. The art area was located on the second floor and is specific committed space.

Social studies. This area was equipped for basic open-space and open-education activities. Tables and chairs were used providing more flexible use of space. Adequate storage space was provided.

In the social studies area, the following changes should be made:

1. More bulletin board space should be provided for each teaching station.

2. One large projection screen should be mounted permanently. This should be located in the center of the area next to the edge of the stage in order to make visible from any point in the area.
3. A listening center should be provided for use in the social studies area.
4. Greater display space should be provided for maps.
5. Space should be provided for work with constructions, models, and geographic chart work.

Language arts. The language arts area was open space and had followed the basic principles of space utilization. The major change needed in the language arts area was to provide a language console and to make provisions for working with students with reading problems. Most of the equipment needed to establish this reading lab was available in the school but was not placed in a specific area. The development of a reading lab utilizing a language console and the available reading programs and machines could be invaluable to the language arts program and in helping to eliminate many of the reading problems of students.

Summary

The existing space utilization should be modified by providing greater flexibility in the use of the existing space. In the IMC, the open stacks should be expanded to accommodate greater numbers of volumes; a listening center should be made possible with the study

carrells. The audiovisual center should have greater photographic facilities added, and provisions should be provided for tape reproduction. The food service area could be improved by removing the carpeting and replacing it with tile. In the math area, tables and chairs should be used to replace the student desks and greater chalk board space was needed. The math area should also have facilities for greater storage, display space, and use of audiovisual equipment. The major change to the science area would be the replacement of fixed wet labs with movable wet labs. In the social studies area, greater display space was needed. Provisions should be made for greater use of audiovisual equipment. Some facilities should be provided for work in constructions, model building, and chart, graph, and map work. The language arts area needed a reading lab.

The final chapter will present the summary, conclusions, and recommendations for the study.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The Browning Public Schools' new junior high school opened in the Fall of 1974 as an open-space school. It had a central core with three attached pods.

This open space was considered a desirable attribute, because it seemed to offer the best type of plant for the implementation of the open-education concept. The open-education concept was adopted by the Board of Trustees and the local administration as the best alternative educational system leading to the improvement of instruction and learning. Substantiation for the afore-mentioned adoption may be found in the writings of Silberman (1970) and Barth (1972). This change of educational approach was not viewed as a panacea, but rather as an effective alternative to a system that was not meeting the needs of the students.

The purpose of this study was to develop a plan for more effective utilization of open space in the existing Browning Junior High School. Substantiation for recommendations on space utilization in this study was established by reference to the writings of authorities who have stated principles on the subject.

Problems dealing with finance and inflation made a reduction in the size of the school plant necessary. This reduction generated

a pressing problem for the effective utilization of the existing space.

This study attempted to answer several questions relating to open space plans and open education. The writer sought to provide an overview of the history and development of the open-space concept. An attempt to determine the differences between open space and open education was made. The general principles underlying effective use of open-space facilities were considered. Other areas of exploration were:

1. Types of school furniture best suited to open space.
2. Types of display space needed.
3. Storage space needed.
4. The kinds of activities individual areas must support.
5. Provisions to accommodate physical education.
6. Provisions for individual study and small group activities.
7. The location of resource centers for individual subject areas.

General procedures for the study were to review related literature in the fields of open space and open education, conduct an examination of the present space utilization in the Browning Junior High School, and to propose an alternative plan for space utilization.

The open-space school is defined as having large areas of open space which may be committed or uncommitted. It is capable of almost instant change and is highly flexible. Open space also allows

for the free flow of teachers and students from place to place with a minimum of obstacles to impede this flow.

Open education is a way of thinking about children, learning, and knowledge. It is characterized by openness, participation, and choice. It is a cooperative process with teacher and student working together for the ultimate learning situation.

The open classroom is described as an environment where the teacher and student work together while developing the concepts of exploration and investigation. In the open classroom, a wide variety of choices are available to the student. The teacher must strive to develop an environment in which each student may display his strengths and be able to improve any weaknesses he might have.

The purpose of the review of literature was to provide the basis for later development of a space utilization plan to aid in evaluating space utilization in the Browning Junior High School. The writer attempted to aid the development of the space utilization plan by answering the following questions:

1. What are the general problems involved in school plant planning?
2. What is the history of open-space schools and open education?
3. What are the established principles of open education?
4. What are some of the obstacles to implementation of open

education?

5. What are some of the particulars to be considered in the utilization of open space?

School plant planning is divided into seven phases. In phase one, the primary concern is the estimation of future school populations. Phase two is evaluation of existing school plans. Phase three covers financing the building program. Phase four covers the selection of an architect. The fifth phase is site selection. Phase six involves the development of educational specifications which will dictate the type of educational facility that will be needed. The seventh and final phase is the equipping and utilization of the building.

The historical development of open space and open education was traced back to the early nineteenth century. Open education was developed in England over the last half century. It developed as a result of the belief that a happy child, actively involved in what he wanted to do, would get more out of his education. World War II brought about much change in the growth of open education in England. Open education caused many educators to examine the ways in which children learn and this led to consideration of the learning theories advanced by Jean Piaget.

Open education is a recent development in American educational systems. The writings of Charles E. Silberman and Roland S. Barth

did much to influence American educators' views of open education. During the 1960's, the Education Development Center was the foremost contributor to the growth of open education through the development of the Elementary Science Study. With the growing concern for open education in the United States, several educators began to give consideration to a type of school facility that would be more adaptable to student-centered learning and developed the open-space school plant.

The open-space school is basically one which has large areas of open space that are flexible and adaptable to many different types of learning situations. The open-space school allows the free movement that is present in open education. The open-space school does not dictate that a program of open education be adopted. In planning open-space facilities, one must consider the type of furniture to be used, the principles of open education, the obstacles to implementation, the need for display space, the types of storage space needed, the wide variety of learning activities taking place, physical education needs, provisions needed for small group activities and individual study, and the development of an instructional media center.

The Browning Junior High School had a large central core with three attached pods. The central core contained the IMC, guidance center, and restroom facilities, food service, administration offices, and student lockers. The central core was a large area of open space

which was flexible in its use. The music, shop, and home economics area was closed, committed space and could not be considered open space. With the exception of the wet lab, the math-science pod was open space. The math area was being used in a traditional manner with rows of individual student desks. The science area was more open with a combination of tables and chairs.

The art area occupied the second floor of the social studies, language arts, and art pod. The art area was closed space committed to one function. The language arts and social studies areas were open space. They were equipped almost identically. They employed tables and chairs with some student study carrells.

The existing space utilization should be modified by providing greater flexibility in the use of the existing space. In the IMC, the open stacks should be expanded to accommodate greater numbers of volumes, a listening center should be provided, and greater use of audiovisual materials should be made possible with the addition of study carrells. The audiovisual center should have greater photographic facilities added, and provisions should be provided for tape reproduction. The food service area could be of greater use if the carpeting was removed and replaced with tile. In the math area, tables and chairs should be used to replace the student desks and greater chalk board space was needed. The math area should also have facilities for greater storage, display, and use of audiovisual

equipment. The major change to be made in the science area is replacement of the fixed wet labs with movable wet labs. In the social studies area, greater display space is needed. Provisions should be made for greater use of audiovisual equipment. Some facilities should be provided for work in constructions, model building, chart, graph, and map work. The language arts area should be provided with a reading lab.

Conclusions

Based upon this study, the following conclusions were reached:

1. Space utilization in the Browning Junior High School followed the basic principles described by most authorities.
2. Minor changes in the type of furniture could provide greater flexibility.
3. Flexibility was a key concept in open-space utilization.
4. Free flow of teachers and students was important to the effective use of the open space.
5. Open space does not dictate a program of open education.

Recommendations

This study showed that no facility for physical education had been constructed. It was recommended that specific facilities be provided for physical education. A gym capable of housing at least 500 students should be provided at the earliest possible time. It

was further recommended that a continuous evaluation be carried on to insure the effective utilization of open space.

It was recommended that the following additions be made to the IMC:

1. The open stacks should be expanded to provide greater space for reference volumes.
2. A listening center with multiple earphone outlets and multiple program selection capabilities should be provided.
3. Existing study carrells should be modified to provide the students with viewing stations for filmstrips.

A photographic production center should be added to the audiovisual center. This photographic center should be fully equipped with cameras and dark room.

The carpeting should be removed from the food service area and a tile floor covering used to replace the carpet.

Tables and chairs should be used in the math area. This area should also have more storage space, more chalk board, and better audiovisual equipment.

The fixed wet labs in the science area should be replaced by movable wet labs.

The social studies area should be provided with the following:

1. More bulletin board space
2. A large projection screen

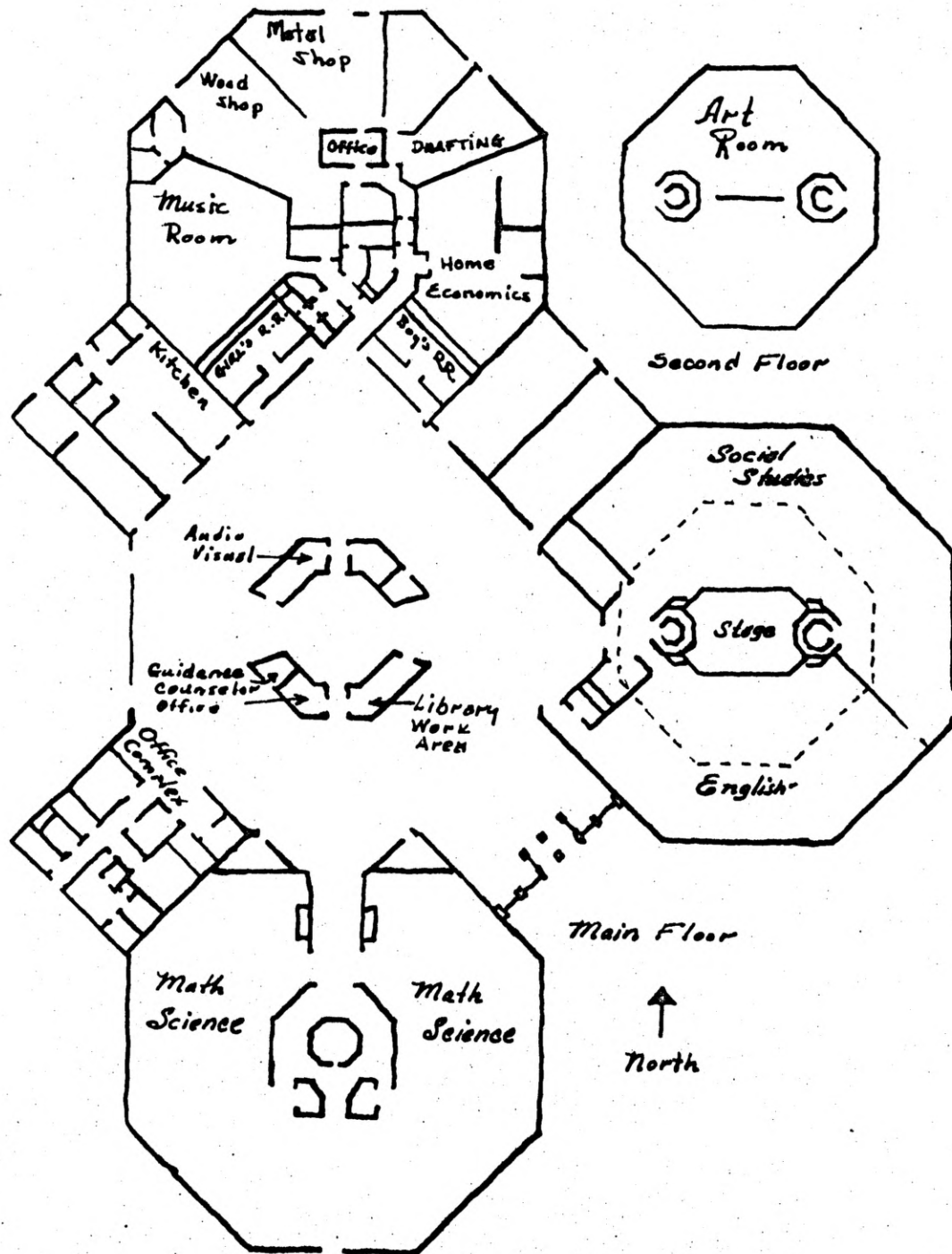
3. A listening center
4. More display space
5. A work area for building models, constructions, and geographic chart work

The language arts area should be provided with a complete language lab. This area should also have a complete reading lab.

APPENDICES

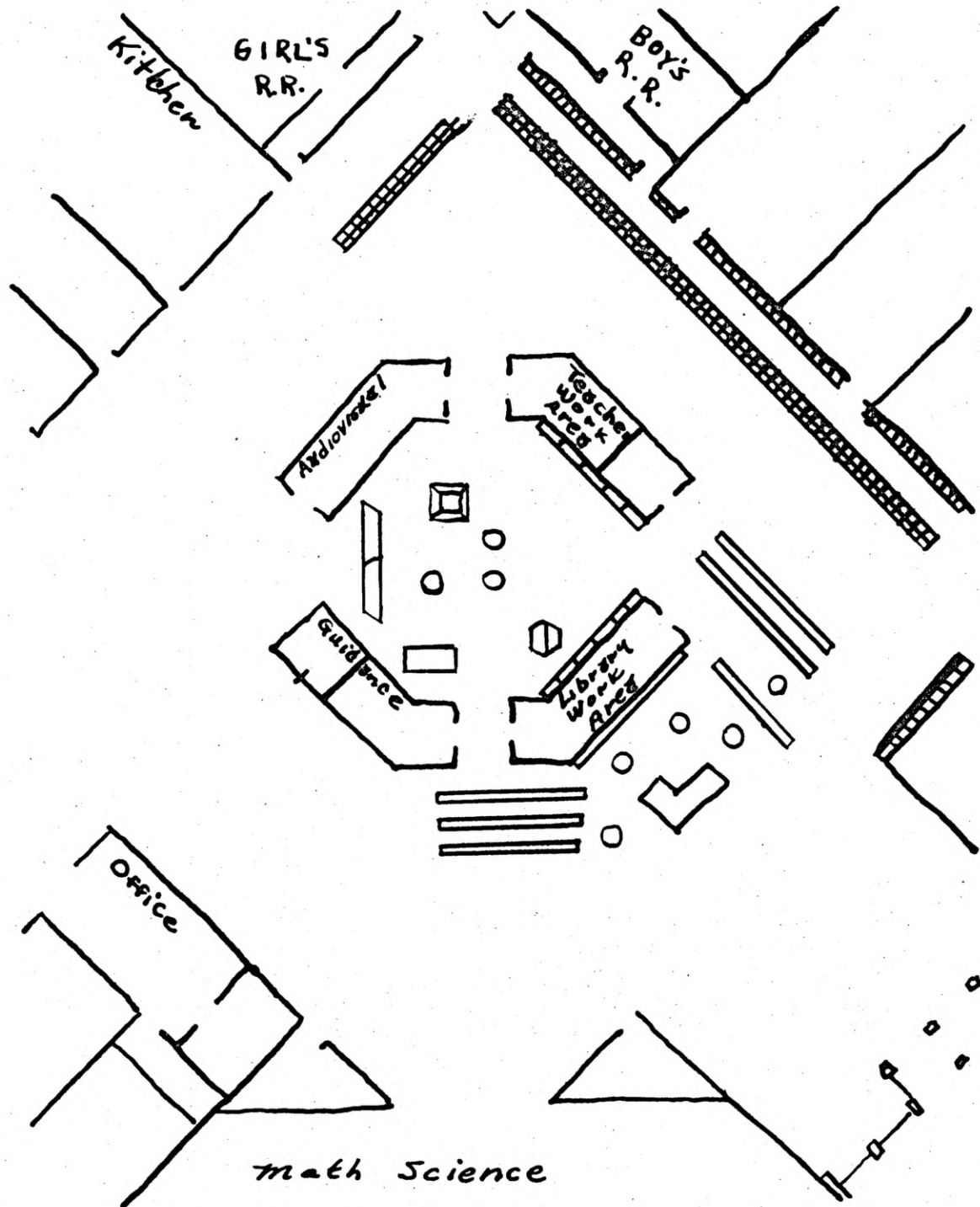
APPENDIX A

Basic Floor Plan



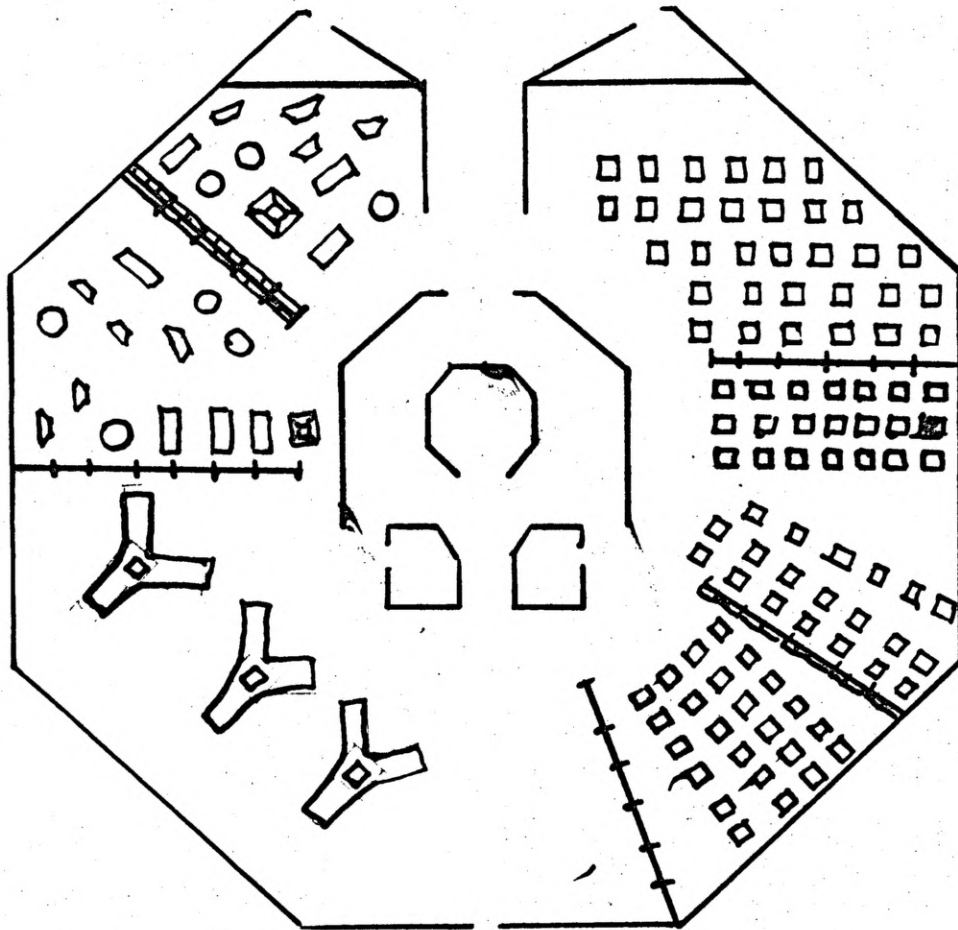
APPENDIX B

Instructional Media Center



APPENDIX C

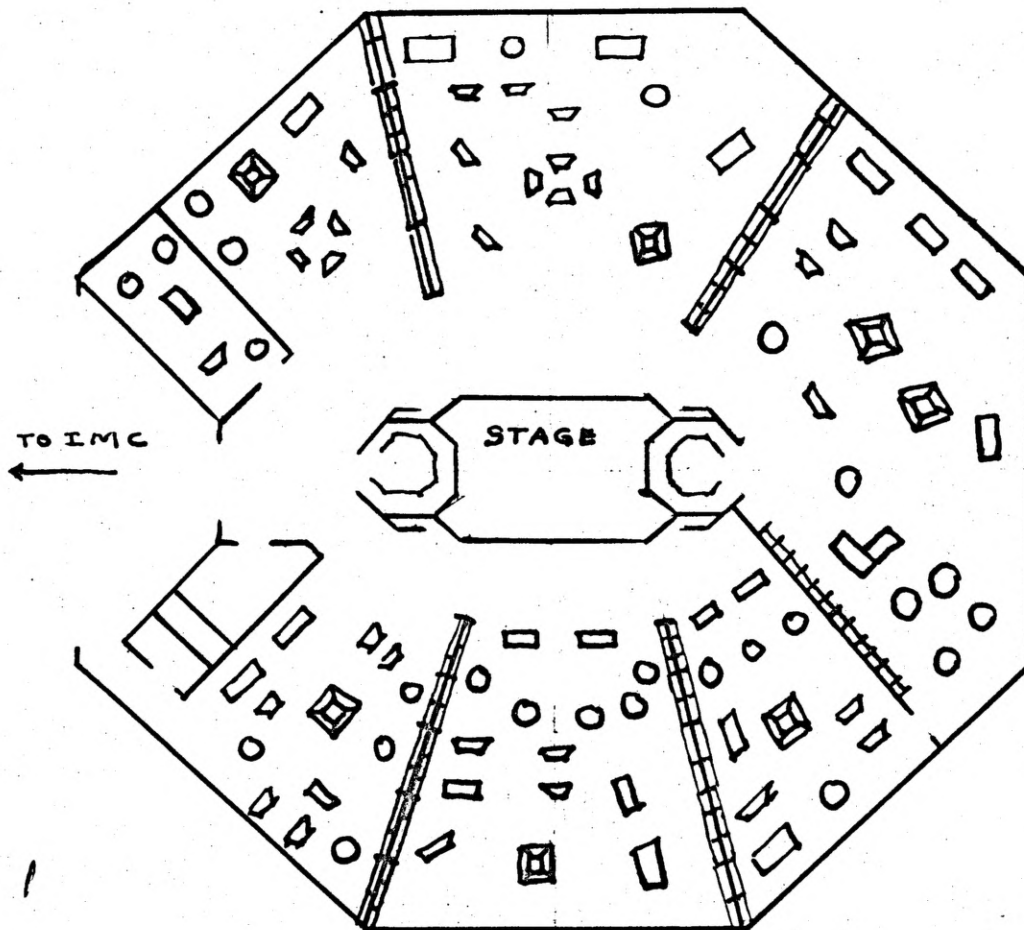
Math-Science Pod



MATH - SCIENCE POD

APPENDIX D

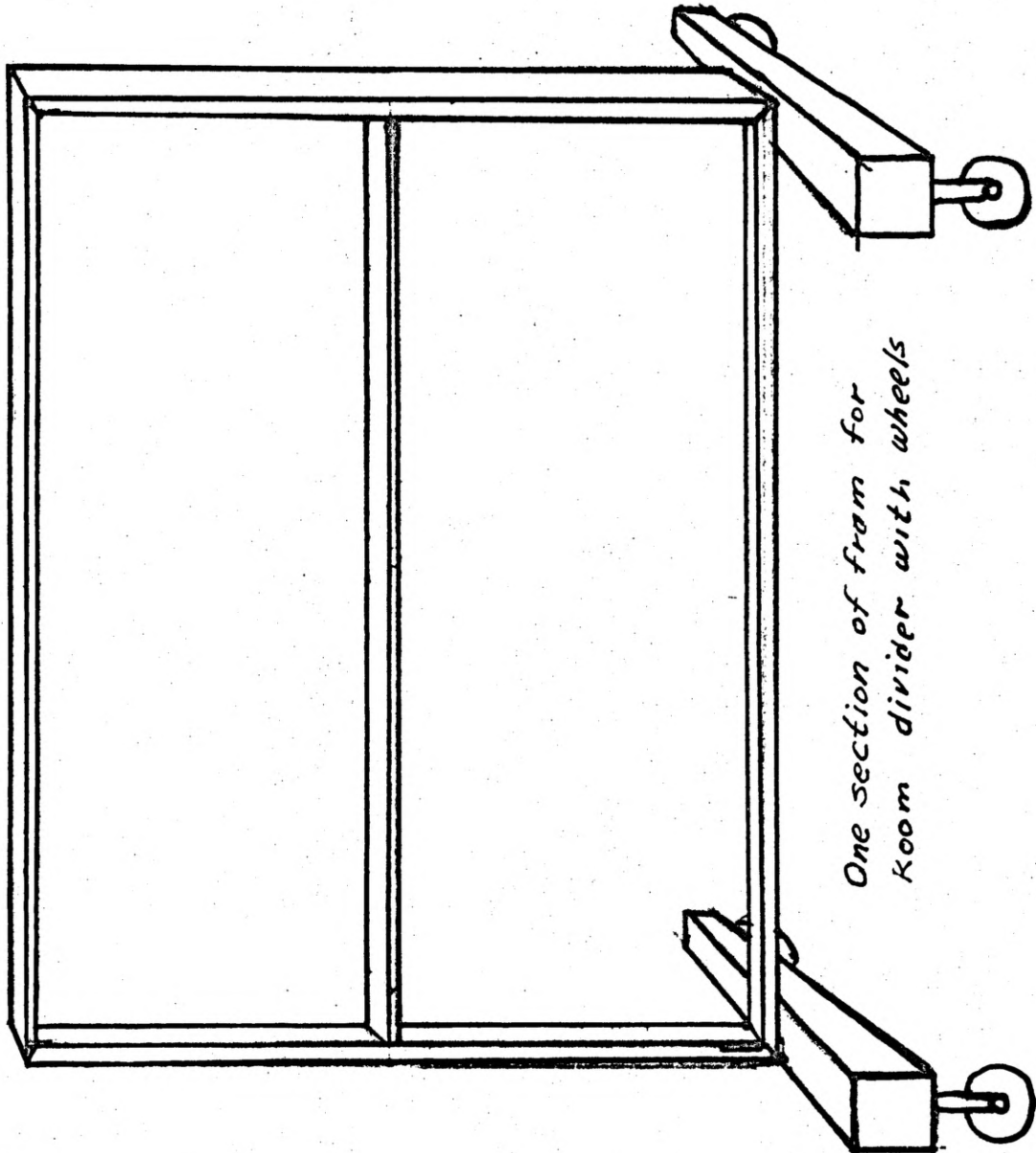
Social Studies, Language Arts, Art Pod



SOCIAL STUDIES, LANGUAGE ARTS, ART POD

APPENDIX E

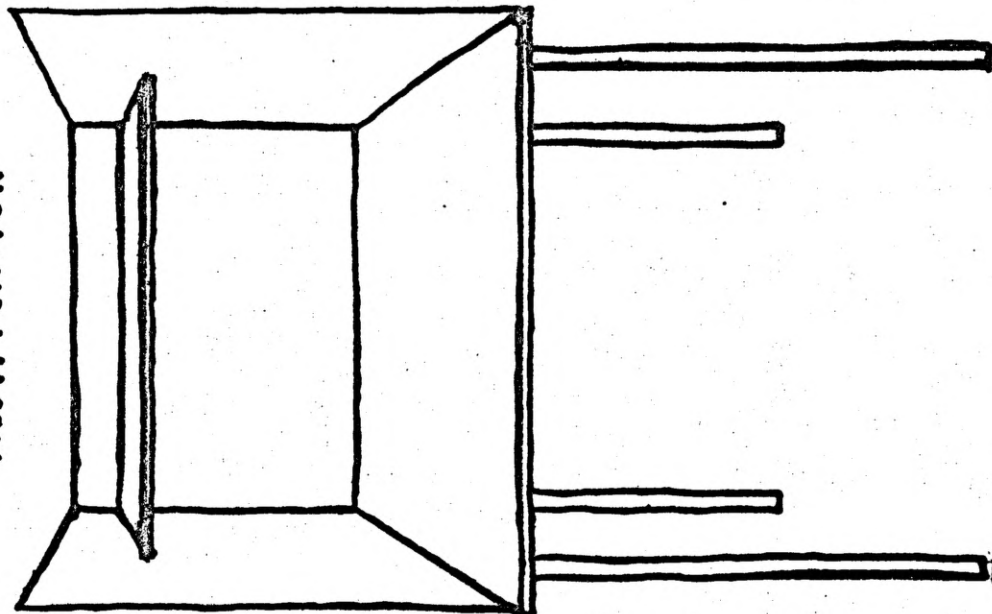
Room Divider



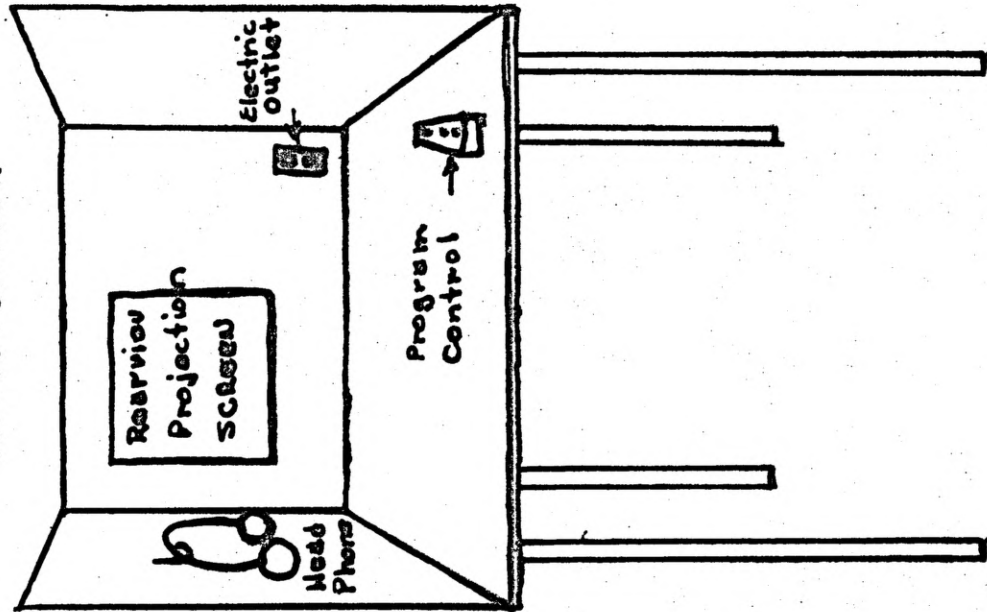
APPENDIX F

Listening Center and Individual Viewing Stations

STUDY CARREL BEFORE
MODIFICATION



STUDY CARREL AFTER
MODIFICATION



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