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Guidelines for Designing, Equipping and Furnishing Small School Learning Laboratories.

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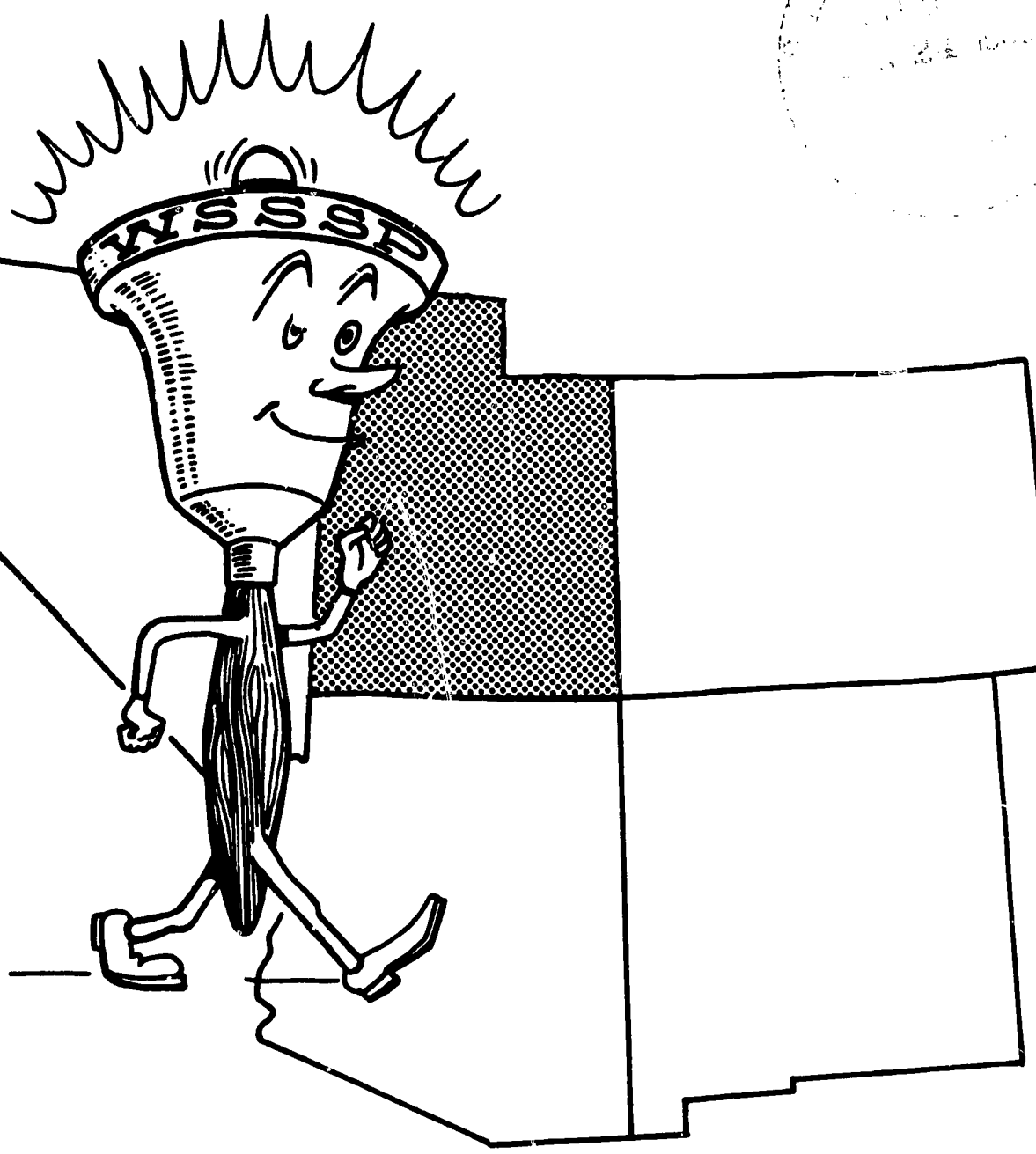
Twelve assumptions concerning learning are presented which underlie the rationale for the establishment of learning laboratories in 3 small high schools in Utah. Based on these assumptions, 12 specific recommendations are made for the improvement of education in small, rural schools through implementation of the learning laboratory concept. A description of equipment and furniture in the Utah learning laboratories is included. An evaluation of these learning laboratories is provided, along with examples of how the schools have made use of existing facilities and equipment in converting traditional classroom arrangements into learning laboratory designs. (DA)

GUIDELINES FOR DESIGNING, EQUIPPING, AND FURNISHING SMALL SCHOOL LEARNING LABORATORIES



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GUIDELINES FOR DESIGNING, EQUIPPING AND FURNISHING SMALL SCHOOL LEARNING LABORATORIES

by
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A Diverse Capacity Project of the
Western States Small Schools Project
for Utah

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SUGGESTED GUIDELINES FOR DESIGNING, EQUIPPING AND FURNISHING SMALL SCHOOL LEARNING LABORATORIES

INTRODUCTION

The Western States Small Schools Project was first organized and became operational under the auspices of the state educational agencies of Arizona, Colorado, New Mexico, Nevada and Utah in January 1962. It was made possible by a grant from the Ford Foundation for a three year period with the general objective of improving instruction in small, rural schools in those states. A small high school was defined as a school with 50 or less pupils per class. This is the definition of smallness used in this paper. The work of WSSSP toward this end during that period is reported elsewhere (1). It should be noted here that the major thrust of the projects in the years 1962-1965 was toward individualization of instruction in project schools with wide use being made of such supportive techniques as continuous progress curriculum, nongrading, team teaching, and flexible scheduling. Intensive efforts were made to increase student involvement and responsibility in learning and to redefine the role of the teacher.

These efforts led to general dissatisfaction with the traditional "egg crate" facilities in which these new programs were, of necessity, operating. In Utah there emerged a new type of facility originally called "The Learning Barn." This was a large open area where up to 150 students with several teachers, aides and material resources could interact in a wide variety of situations. With the emergence of the "Learning Barn" questions arose as to the effectiveness of such a facility, the optimum arrangement of equipment, space, furniture and material resources in the facility, and the role of the human resources and student in such an area.

When WSSSP made a new proposal to the Ford Foundation in 1965, provision was made in the proposal for the several states to engage in some projects

peculiar to the individual state. Among these diverse capacity projects in Utah was one designed to answer some of the questions raised in connection with the use of the "Learning Barn" or large learning laboratory. The objectives of this project, which was funded by the Ford Foundation for a three year period beginning September 1965, stated that it would:

1. Develop demonstration centers where the effect of a "prepared" learning environment might be observed.
2. Develop and publish guidelines for equipping and furnishing small school learning laboratories.

It is in fulfillment of the commitment in the second objective that this report is made.

The Instructional Program

The design of the physical environment for learning is, of course, a function of the notions the designer has about how learning takes place. It is from these notions that an instructional program is developed, and to support this program an environment is shaped. Often portions of the environment so constructed, particularly the school plant and much of the equipment, outlast the instructional program they were designed to support. Thus obsolete notions about learning and resultant ineffective instructional programs are perpetuated, in part, by the rigidity of the plant that houses them. This problem is compounded by the prevailing practice of turning to those who are currently operating the school for the development of educational specifications for new construction. The instructional program developed in this way is often basically the same as that carried on in the old facility. As a result the new plant is a reincarnation of the old with wider halls, additional teacher storage space and a larger gymnasium.

It would seem desirable, then, when designing persistent aspects of the learning environment, such as school plants, that the design provide for a maximum of flexibility allowing for some change in the program. The learning

laboratory provides such flexibility. However, it must be remembered that it was developed to meet the needs of an instructional program based on certain notions about learning as well as some notions about what should be learned. Some of these are:

1. Every student is a unique individual and should be valued as such. He learns best when this is understood and the instructional program reflects this fact. Each student will make his own response to a given school situation. Individual differences are real and complex and though students may be coerced into apparent conformity, inner reactions always vary, and human diversity is to be valued. Conformity aims toward but one product, whereas diversity provides the richness of human life. So, since pupils differ in heredity, maturity, intelligence, motor skills, experiences, etc., and since such differences are of greatest value to the individual and to society, these differences must be recognized in the instructional program and diversity must be nurtured and encouraged. This means the instructional program of the school must focus on the individual child, not on a group. It must provide for continual diagnosis and prescription and the prescription shelf must be long and varied. The learning facility must provide sufficient flexibility to meet this fact of diversity in students.
2. Much of a student's learning takes place through interaction with peers. The effectiveness of such interaction may differ from student to student, but such interaction is essential to some learning and helpful to most. A learning environment, then, will provide for this.
3. Most, perhaps all, students some of the time and some students much of the time need to work, create, and interact with materials

by themselves. The complete learning facility will provide opportunities for students to work in isolation when this is desirable.

4. All students learn from adults. Students will differ greatly in their needs for interaction with adults, but the adult resource must be available when needed and in sufficient variety that the student has some choice. The security and approval provided by the adult should be a constant part of the learning environment.
5. The best planned learning provides for a cumulative sequence of successful behaviors. Behaviors that are reinforced with the reward clearly connected with that behavior in the mind of the learner are the behaviors that will reoccur. Success is the most potent of such reinforcers and has the greatest transfer value to other life situations. Opportunity for a fresh and stimulating experience is also a powerful reward effective in learning. Effort without reward, study without success, dull, routine tasks offer little to learning, but in fact, will hinder the learning process.
6. Students learn best when they have freedom in and responsibility for their own learning. They will undertake with enthusiasm a project in which they themselves have participated in the selection and planning. This full participation will increase motivation and speed of learning. Excessive direction by others, particularly adults, will often lead to apathetic conformity, defiance, or escape. Over-strict discipline is associated with conformity, shyness, and anxiety. An environment for learning, then, will provide for such freedom and participation and reduce adult imposed activities.
7. The way a child perceives of himself is important to his learning. This "self-image" is enhanced by success and by a feeling of control

over his own destiny. Items 5 and 6, above, are important to the child's self-image. Pupils may experience so much criticism, failure and discouragement in school, that their self-confidence, self-respect, sense of worth and level of aspirations are damaged. With too much failure, too much frustration, the child may react only with anger toward self and society and positive learning ceases. The school must provide an environment in which the child develops a healthy self-image. He must have things to do in which he can gain success and satisfaction. He needs to have ways of expressing his unique self.

8. That which a child learns is most likely to be available for use if it is learned in a situation like that in which it is to be used. Learning is more effective if that which is to be learned has relevancy to the learner.

9. It is more important that the child learn process than product. It is more valuable to know how to acquire and use knowledge than to commit bodies of facts to memory.

10. Children should develop self-respect and learn to value their fellows. The great problems facing man today are those involving man's relation to man. The gap between technological excellence and humanness is the gap that threatens life on earth. This gap demands the attention of the schools.

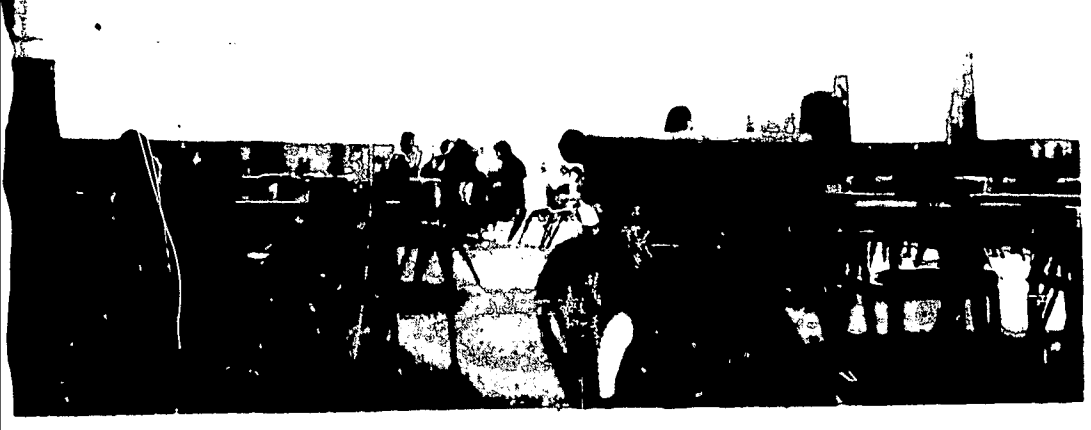
11. Children must learn to live in a democracy, must learn to be responsible, must learn to make wise decisions. Such learnings depend more upon the atmosphere, and the environment for learning, than upon content.

12. Children must master the tool skills (reading, writing, arithmetic and the processes of learning) and develop capacity for self-instruction and self-responsibility for learning.

These ideas about learning led some Utah project schools toward new instructional programs. New organizational patterns (nongrading, continuous progress, flexible scheduling, team teaching), new instructional techniques (individualization, small group work, independent study), and new applications of technology (amplified telephone, television and video tapes, audio-recording, films and film strips) all were involved. The central theme of the new programs was toward focus on the individual child. Details of these attempts have been reported for all WSSSP schools, including those in Utah, in the publication, Individualizing Instruction in Small Schools (2); hence no attempt will be made here to describe them. All of these changes demanded different facilities, however, and in Utah the instructional laboratory was the answer to this demand.

Guidelines

The Guidelines in equipping and furnishing small school learning laboratories that follow, are based on five years of experience in the use of learning laboratories in small schools. Reports and suggestions of students who have used the facilities; reaction of teachers who were involved in the design and use of the facilities; observations by visitors to the facilities; and a formal student-teacher time utilization study in the learning laboratories (3), furnish the data from which these guidelines were developed.



1. The learning laboratory in a small high school (200 students or less in grades 9 through 12) should be a large open area. It should accommodate the entire student body or a major portion of it at one time. Space should be allowed in a ratio of 35 to 50 square feet per pupil.

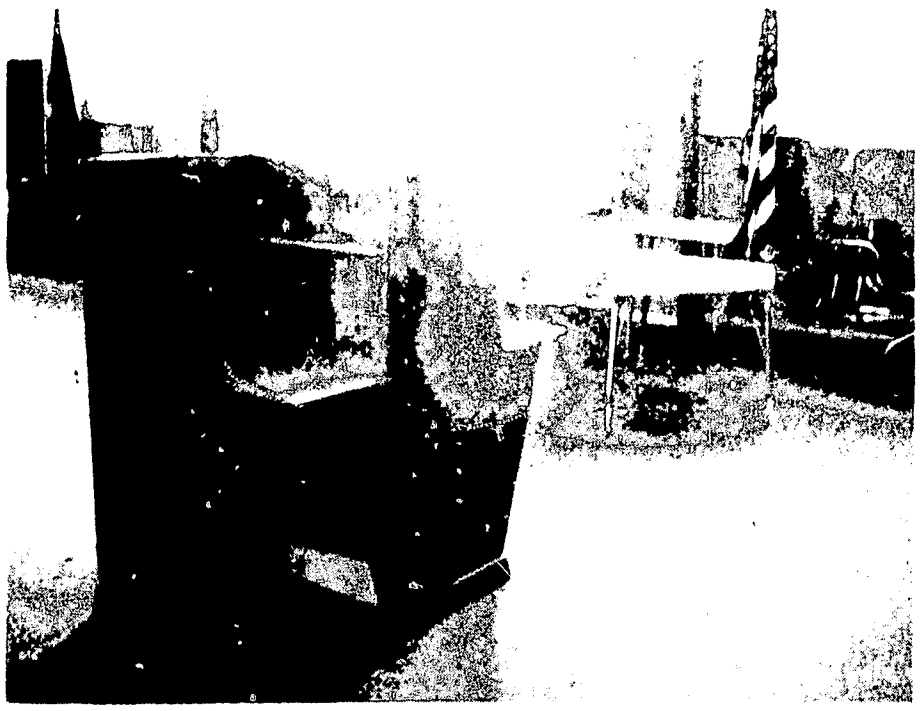
2. The learning laboratory should house all resources of the school, human and material, available to the student in learning. This should include all those resources commonly found in the media center or library as well as those commonly found in the classroom.

3. The learning laboratory should be open; that is, it should provide for visual access to all areas. One person standing at any point in the lab should be able to see all of the area.

4. The learning laboratory should be treated accoustically to deaden sound. This is important, since the versatility of the facility depends in large measure on its accoustical properties. The floor should be carpeted, walls and ceiling should be treated to absorb sound.

5. The learning laboratory should be equipped with mobile furnishings. Such furnishings make possible immediate definition of space for a particular activity thus adding to the flexibility of the total area. The optimum arrangement of furnishings and space will be that which is best for the particular situation at a given time. Thus the arrangement will change as the situation changes and mobility of furniture is essential. Four foot high bookcases mounted on large castors for easy movement are very effective in this respect. Tables, chairs, chalkboards, even study carrols should be easily moved. In one school chalkboards hinged to the wall at intervals around the laboratory capable of being used when flush against the wall or when swung out into the room, were found to be valuable.

6. The learning laboratory should provide for individual as well as group use of all media including audio-visual materials. In this connection, equipment designed for individual use should be emphasized.



7. The learning laboratory should provide facilities for private study. The WSSSP for Utah study (2) indicated that as many as twenty-five percent of the students may have need for study carrols at one time. However, this same study showed that most students spend the majority of their independent study time in the open areas, not in carrols.

8. The learning laboratory should be supplemented with peripheral special use areas or laboratories for activities involving excessive sound, physical activity or objectionable odors. Separate areas should be considered for science experiments, music, physical education, vocational and industrial arts shop, home economics laboratory, speech and drama facilities, and office practice. Some of these, i.e., science labs, home economics, office practice, might be separated from the learning lab by window walls to still provide visual control from the lab.

   It should be noted that with a continuous progress, nongraded program flexibly scheduled, such supportive areas can receive constant use all day long. This means that such areas in the small school can be considerably smaller than where a conventional program makes use of them only part of the day.

9. All resources, human and material, should be immediately available to each student. Control devices, such as book checkout or equipment inspection, should be minimized or even eliminated.

10. Provision should be made in the lab itself for storage of records and forms related to the program.

11. Space for teacher planning, material construction and duplication, should be adjacent to, or a part of the lab.

12. Secretarial work space, related to this program, should be a part of the lab.

Effectiveness of the Learning Laboratory

It has been pointed out that the learning laboratory was developed in Utah to serve an instructional program based on certain ideas about learning. An evaluation of the facility should be made in terms of how well it does in fact serve such a program, how well it compliments those notions about learning. No formal evaluation has been made of learning laboratory in this respect. However, data from the same sources from which data for the guidelines were obtained have a bearing on the effectiveness of the learning laboratory. These data also give some indication of the role of the student and teacher in such a facility.

1. The learning laboratory appears to be an excellent facility in which to operate a program focused on the individual student. The inter-

accessibility of teachers, students, materials and spaces strengthens such a program. Students have ready access to any material available in the school as well as the human resources in the form of teachers, aides or other students.

Teachers can make immediate contact with any student or group of students, and instructional groups of various sizes may be organized on demand by teachers or students. Many diverse activities can be carried on simultaneously without mutual interference. Small group discussions, small task oriented groups, a group watching a video tape or 16mm film, a teacher directed group, individual students studying, students conferring with a teacher or an aide, students working in carrols, a student listening to a tape recording, all can be observed in a learning lab at a given time. Such versitility gives real support to an individualized instructional program.

2. Diagnosis is facilitated since the lab provides for a team of teachers to do the job. The prescription shelf can be long since all the resources of the school are concentrated here. As students needs are diverse, so are the materials, spaces, and resources of the lab.
3. Interaction with peers and with adults is easy in the lab and such interaction can be tailored to needs of the individual student. At the same time areas for isolated, private study are also available as the student needs them.
4. The lab can provide an atmosphere of freedom, of self-direction for the student that is difficult to duplicate in a regular classroom. The fact that behavior is observable by peers and teachers alike is all the control normally needed in this facility. This is reported over and over by those who have worked in learning laboratories. The tyranny of multitudenous rules and regulations can thus be dispensed with and

the student can be freed of constant adult supervision. In such an atmosphere a program which stresses student responsibility for planning and implementing learning is encouraged.

5. The degree to which a student is successful in his school efforts is dependent upon the instructional program. The facility can support such a program by providing the physical environment where the student has an optimum chance for success and self-expression. The lab with its versatility, its concentration of resources, can provide such an environment.
6. The laboratory can provide a good physical setting for "humanizing" the environment. Students must work with other students, must learn to understand and accommodate others, since they will be working directly with others without the teacher as intermediary. All the resources are present to help students develop skills and attitudes of cooperation and practice effective interaction with others. It also provides a setting in which the adult can work directly with the student, providing the approval and support needed by the student.
7. The learning laboratory concept makes it possible for a small high school to organize instruction in new and possibly more effective ways. It allows sufficient numbers of students to be housed together to permit a more efficient student-teacher ratio. It allows the school to look at possible differentiation of staff roles including the use of aides and clerks. It makes possible innovation in programs which are very difficult or impossible to achieve in regular classrooms. It opens many possibilities and alternatives in programs usually believed impossible in the small school.

Some Miscellaneous Advantages of Learning Laboratories

There are several advantages of the learning laboratory that are not directly associated with instructional programs. A few of these are:

1. The learning laboratory is flexible enough to serve many programs. How well it can serve an individualized, team taught program was discussed above. It has also proved successful in support of a traditional self-contained classroom program in one small Utah elementary school.
2. The learning laboratory provides effective, efficient space utilization that results in lower construction costs. Such a facility needs no hall space or, when supporting facilities are considered, very little hall space. Since the media center or library is included in the lab, the space receives, in effect, double use. The total area is a learning area, and, as such, the total area for learning can be somewhat less than in the traditional school. It should be noted that even the supporting areas, where a flexible scheduled, continuous progress program is in effect, can be smaller, thus reducing costs.
3. Remodeling to make a learning laboratory in most older buildings is relatively simple and inexpensive. One school made use of an abandoned gymnasium, another removed classroom walls, joining several classrooms into one large area. One school covered an existing open court area between classrooms. Imagination is a more decisive factor than cost.

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