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LANGUAGE LABORATORY SPECIFICATIONS. A PROCUREMENT GUIDE FOR THE PURCHASE OF LANGUAGE LABORATORY INSTALLATIONS IN WISCONSIN, NDEA, TITLE III.

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THE KNOWLEDGE ACCUMULATED FROM THE EXPERIENCE OF INSTALLING MANY LANGUAGE LABORATORIES UNDER THE TITLE III, NDEA PROGRAM FORMS THE BASIS FOR THE GUIDELINES PRESENTED IN THIS BULLETIN. THE DOCUMENT INCLUDES A SUMMARY OF CONDITIONS DESIRABLE PRIOR TO THE PURCHASE OF A LABORATORY, SAMPLE SPECIFICATIONS FOR EACH COMPONENT OF THE LAB, SPECIFICATIONS FOR THE OPERATION OF THE SYSTEM AS A WHOLE, AND SUGGESTED WORDING FOR OTHER PROVISIONS WHICH SHOULD BE INCLUDED IN THE BID DOCUMENT. OPTIONAL EQUIPMENT AND MATERIALS ARE GIVEN IN THE APPENDIX, ALONG WITH DESIGNS AND FLOOR PLANS FOR VARIOUS TYPES OF LABORATORIES SUITABLE FOR SECONDARY SCHOOLS. (AM)

SEPTEMBER 1964

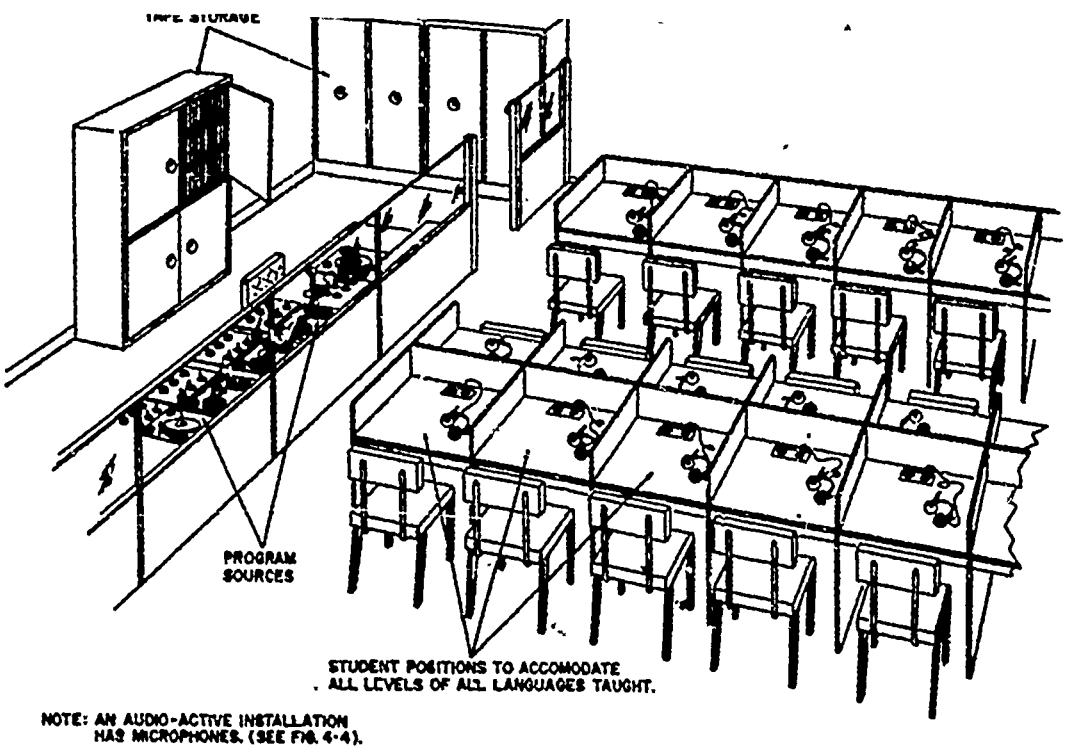
BULLETIN FL-1964-L1

Language Laboratory Specifications

Wisconsin

Department of Public Instruction

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION



Angus B. Rothwell

State Superintendent

TABLE OF CONTENTS

Alphabetical Guide to Items Specified

(All decimal numbers refer to paragraphs. Page numbers are indicated with a "p".)

PREFACE

Origin and Purpose of this Bulletin

This bulletin intends to describe the language laboratory as it exists and as is presently being used in Wisconsin. The reader should, therefore, constantly remind himself that the contentsof this section represent current majority opinion in the state and do not take into account the possibility that the majority opinion is wrong or that new technical and pedagogical findings may out-mode current thinking. On the other hand, one must also take into account the fact that the status quo is built upon inter-school consultations; that is, the more recent installations have drawn upon the successes and failures of those Wisconsin schools which pioneered the use of the language laboratory. Untold thousands of hours have been devoted to visitations, consultations, and written queries relative to "what seems to work best with high school age boys and girls?". To this extent, the basic features presented here have a sound empirical basis. With regard to testing of electronic components and the establishment of minimal electronic standards, we are indebted to Mr. Russell Pavlat of the Wisconsin Bureau of Engineering.

The Procurement Specifications for the Language Laboratory are derived from state college and high school specifications. Perhaps no school would want to use them exactly in the form presented. The usual bonding and contract clauses would have to be added and, of course, the number and type of components would vary according to local preference. However, many of the paragraphs can be used with modifications for those schools that choose to adhere to the general pattern of the language laboratory in Wisconsin. Every effort has been made to word the specifications and explanatory materials so as not to exclude any reputable dealer.

How to Use this Bulletin

The introduction provides a summary of opinions regarding conditions which should prevail before the purchase of a laboratory is considered. The specifications section is best done with the aid of a consultant who has sufficient knowledge to discuss the relative merits of changes, omissions, and additions.

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1. [illegible]

The req[illegible]
[illegible] Public [illegible]

For laboratory consultation and for information pertaining to NDEA foreign language application contact:

Frank M. Grittner, Supervisor
Modern Foreign Languages
Department of Public Instruction
147 North, Capitol
Madison, Wisconsin 53702

I N T R O D U C T I O N

A. WHAT TO CONSIDER BEFORE BUYING A LANGUAGE LABORATORY: FIVE QUESTIONS AND ANSWERS

1. Do the staff members want the lab and will they learn how best to use it?

   The lack of understanding of the function of the language laboratory may be aggravated if the equipment is not properly used. If the teacher of foreign languages is indifferent about the laboratory, this attitude quickly affects student performance and administrator's attitude. In some cases, vandalism has required excessive maintenance of electronic equipment. High cost and ineffective maintenance are causes of negative attitudes toward the language laboratory.

   There are, of course, many factors which can affect the intrinsic value of the language laboratory. Two items stand out, however, as most important in the laboratory: (a) How it is used, and (b) What type of instructional materials is used.

2. Will lab work be systematic and related to class work?

   Procedures in the laboratory cannot be haphazard. In any form of teaching organization is of the utmost importance. The time spent in the laboratory must be used for the purpose of re-inforcing previous learning. There must be a purpose behind the lab session and the students must feel that laboratory practice is a part of the over-all program. Student performance in the laboratory must be disciplined and purposeful. Procedures should be consistent and organized to the extent that every minute of the session is used profitably. This organization should, above all, be concerned with supervision, correction, and evaluation.

3. Will lab sessions include constant teacher supervision and evaluation?

   We all know that without supervision any activity in which youngsters are engaged can soon disintegrate. The presence of the teacher at the console monitoring and controlling the activity is a powerful deterrent to idleness. Continued monitoring involves correction and evaluation of student performance.

4. Will the students have adequate advanced preparation for laboratory drill work?

   Today, updated teaching materials for the language laboratory are correlated with textbooks not only in content, but also in the manner of presentation. The language laboratory thus becomes an extension of the classroom, not a supplement to it. All those who have taught languages

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*Adapted from the Foreign Language Publication of the New Mexico Department of Education, H. W. Pascual, Editor.

using the laboratory can attest to the futility of trying to present "enrichment" or "extra" materials in the laboratory, especially at the beginning level of language instruction. One cannot over-emphasize the importance of "live" presentation of material before committing the same lesson to the laboratory period.

5. Will the programmed tapes allow creative student participation or will they provide only mimic-memorization work?

Of great importance also is the manner of presentation of laboratory lessons. The idea of "review" can be deadly. Going over all elements of a recently covered unit can result in a boring and meaningless experience. The teacher has to program the taped lesson in such a way that students move from the facile to the difficult. The learner must realize that mastery comes from practice, and that in practice all aspects of language learning must be focused into performance. It is the responsibility of the teacher to keep the student alerted against rote repetition or meaningless manipulation of structure.

Summary.

Gadget or tool? The answer depends on the teacher. The language laboratory is the most promising tool in language learning. Intelligent use of this medium can tremendously increase student competence in understanding and speaking a foreign language. It can also increase teacher competence by becoming a partner in the process of foreign language teaching.

3 IF PROPERLY USED, WHAT SPECIFIC ADVANTAGES CAN BE PROVIDED BY THE LANGUAGE LABORATORY?

Alfred S. Hayes in his recent USOE bulletin titled Language Laboratory Facilities lists the following:

1. In a language laboratory all students present can practice aloud simultaneously, yet individually. In a class of 30 students, 29 are not id · while one is busy.

2. The teacher is free to focus his attention on the individual student's performance without interrupting the work of the group.

3. Certain language laboratory facilities can provide for differences in learning rates.

4. The language laboratory provides authentic, consistent, untiring, models of speech for imitation and drill.

5. The use of headphones gives a sense of isolation, intimate contact with the language, equal clarity of sound to all students, and facilitates complete concentration.

6. Recordings provide many native voices. Without such variety it is common for students to be able to understand only the teacher.

7. The language laboratory facilitates testing of each student for listening comprehension. It has generally been impracticable for the unaided teacher to test this skill.

8. The language laboratory facilitates testing of the speaking ability of each student in a class. It has generally been impracticable for the unaided teacher to test this skill.

9. Some teachers, for reasons beyond their control, do not themselves have sufficient preparation in understanding and speaking the foreign language. The language laboratory provides these teachers with an opportunity to improve their own proficiency.

10. The language laboratory makes it possible to divide the class into teacher-directed and machine-directed groups.

11. Certain language-laboratory facilities can enhance the student's potential for evaluating his own performance.

12. Given specially-designed instructional materials, the language laboratory can provide technical facilities for efficient self-instruction. (See Section 11.12 A. for full title of the book.)

C. TAPES AND TEXT SELECTION: WHAT TO WATCH OUT FOR.

1. The lab is only as good as the materials used with it. Like all machines from typewriters to TV to giant mechanical "brains," the language laboratory is effective only if the human beings in charge of it "feed" it a good program. A tape recorder can be a means of entertainment, a dictating machine, a toy; it becomes a teaching machine only by virtue of its programming.

2. Tapes must provide for creative student participation and must give the correct response after each student attempt. The experience of the past few years of intensified experimentation with the language laboratory has proved that the four phase "anticipation" mode is most practical, and that aside from elementary pronunciation and reading drills, mere repetition is less desirable than drills forcing the student to be creative in his response. We have learned that utterances must be kept short, that manipulations must generally be limited to one thing at a time, that sufficient repetitions of a pattern must be made to ensure the formation of linguistic habit; we know that the correct answer should be furnished for the purpose of reinforcement.

3. Teacher time and the language lab. The language laboratory requires more teacher time. A teacher should be allowed free time for preparation of laboratory materials. The laboratory does not supplant classroom work, but does facilitate rapid progress in the classroom by preparing the students in the routine habitual patterns of the language.

4. Tapes must be specially designed. The language laboratory is a mechanical device. Response can be evoked only by audio (and sometimes visual) stimuli. Patterns must be firmly established. Methods must be specially devised for the laboratory, since the infinite flexibility of a human teacher is temporarily absent.

5. Much of the pre-recorded materials is of no value for the lab. Traditional textbook exercises do not adhere sufficiently to the patterned structural format needed to channel student responses in the laboratory. Since this is true, it is also true that recorded tapes which reproduce the material of typical traditional text will not serve adequately in a laboratory.

6. Evaluate all tapes carefully. Publishers have recently adopted the practice of taping drills verbatim from old textbooks, and then calling the text "modern" because there are tapes. Teachers will find it advisable to ask for rather complete samples of tapes from such books considered for adoption. These should be carefully evaluated to see whether they are usable in the laboratory. Unless the material has been reorganized and presented in a new way, most of these tapes will cause the teacher much trouble. If adopted, the teacher will then have to do what the publishers should have done, i.e., organize the material into pattern drills of a consistent nature. If the text you are considering is over two or three years old, check the tapes with extreme care; if the text is newer, this is still no guarantee that the tapes are good. Advice for the moment: Evaluate tapes and books together with equal care, and don't go by the advertising alone.

7. For criteria of evaluation request a "Pattern Drill Evaluation Sheet" from Frank M. Grittner, Supervisor of Modern Foreign Languages, Department of Public Instruction, 147 North, Capitol, Madison, Wisconsin 53702.

D. OVERSCHEDULING --A PROBLEM IN THE LARGE HIGH SCHOOL.

How many installations are needed in a given school?

A formula:

$$\frac{\text{Number of Sections of Modern Foreign Language per Period}}{\text{Divided by Two}}$$

In abbreviated form:

$$\frac{\text{MFL per Hour}}{2} = \text{Number of Labs Needed}$$

For example, one large high school found that it had six sections of foreign language meeting every hour. Obviously, one conventional laboratory would not serve. Accordingly, the school chose to install a boothless laboratory in each of three language rooms thus making it possible to schedule language for a half period every day.

LANGUAGE LABORATORY SPECIFICATIONS

A Procurement Guide for the Purchase of Language Laboratory Installations in Wisconsin, NDEA, Title III

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Published By

THE DEPARTMENT OF PUBLIC INSTRUCTION
147 North, Capitol
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LANGUAGE LABORATORY SPECIFICATIONS

STATE OF WISCONSIN

DEPARTMENT OF PUBLIC INSTRUCTION

NDEA, TITLE III, 1964 REVISION

The following specifications are based upon experiences with 130 language laboratory installations in the high schools of Wisconsin. This is the fourth revision and expansion to be made since the beginning of NDEA in Wisconsin. The purpose of this set of specifications is to assure that all functions which are essential to the laboratory are listed by the prospective purchaser, along with a technically correct designation of minimal sound quality required to reproduce European languages without undue distortion. Parentheses indicate the need to specify quantity of a given item.

NOTE: Some items are optional (i.e., the boothless lab would not require both specifications). Optional items are indicated by an asterisk (*). Also, the items in boxes should not be included in the final specifications sheet for bid.

1.0 SCOPE OF WORK

The intent of these specifications is to have the successful bidder furnish, deliver, and install (one or more) complete and satisfactorily operating ( ) position language laboratory for ( ) School, ( ), Wisconsin. It is understood that one language laboratory will be installed in ( ).

2.0 GENERAL

All equipment and funiture (chairs not included) required to provide such systems shall be furnished by the successful bidder whether or not specifically called for herein. In addition, he shall provide all required raceways and wiring to the wall outlets. Each bidder shall submit an itemized list of all equipment he proposes to furnish including technical data and specification sheets on each item. Also included shall be a detail drawing of the console cabinetry showing layout of all components and provision for future expansion. Bidder will submit with the bid a list of recent laboratory installations of equivalent size and scope in the State of Wisconsin or surrounding area where this equipment can be viewed in operation.

The equipment herein specified shall be the product of a manufacturer of established reputation and in good standing, having plant and organization and having produced similar systems for at least ( ) years.

3.0 MATERIALS AND WORKMANSHIP

All materials shall be new and of good quality. All labor shall be performed in a thorough and workmanlike manner by experienced craftsmen versed in the work required. All work at the building shall be performed in a thorough and skillful manner and shall be done at such time as may be for the best interest of the project as a whole and properly correlated with the work of others.

Installation shall be in accordance with all applicable codes. The contractor shall provide a competent superintendent to supervise the installation of the equipment furnished by him and must be ready at all times to give any other trades and contractors such information necessary for the completion of the installation.

4.0 FOREIGN PARTS

All foreign parts must be noted together with a statement of their availability.

5.0 WIRING, SETUP AND INSTALLATION

All electronic wiring shall be done by qualified technicians under the supervision of factory-trained engineers. The equipment should be set up and checked in order that the laboratory can function as a whole unit. All components must match electronically and mechanically with each other to form a properly functioning language laboratory.

All necessary wires, terminal points, etc., for the installation are to be included in the laboratory cost figures. All 110V AC wiring to the language laboratory room will be done by others. Bidder shall be responsible for 110 wiring within the system.

5.1 All audio-circuit wires shall be 22 gauge or larger with 80% electrostatic shielding or better. All cables shall be continuous and free of splices. All wires shall be checked for shorts to shields before shields are grounded.

5.2 In a laboratory equipped with 20 tape recorders or more, 40 ampere service will normally be required.

5.3 The installation will be guaranteed against "crosstalk," "hum," and "noise."

Crosstalk, hum, and noise can result from poor cable characteristics, poor or improper shield grounding, or by placing the audio cabling close to AC power cabling. Good design requires AC power cabling and audio cabling in separate conduits.

5.4 All student equipment and console components shall be quick-disconnect. Soldered connections shall not be used to connect components. This shall make it possible for a non-technical person to remove a non-functioning unit and replace it with a usable spare.

5.5 The installation shall be in accordance with all applicable codes.

Applicable codes require care in cabling and classroom codes are generally rigid. To avoid ground loops and trouble due to differences in potential among various available grounding points, shielding should be grounded at one point only, preferably at the control-console amplififer grounding point.

5.6 Expansion of laboratory.

A. Installations which include student booths shall be so wired as to accommodate tape recorders without necessitating rebuilding of booths or removal of existing wiring or insertion of additional wiring.

B. Installations which do not include student booths shall be expandable as follows:

(1) All headsets, microphones, student amplifiers, and console components shall be adaptable to an expanded installation which includes booths.

(2) Only the wiring from console to the student position shall be obsoleted.

C. Each bidder shall list any provisions for trading in listen-respond amplifiers in the event that the purchaser should choose to add recording facilities to the student position.

D. Expansion without obsoleting equipment shall be guaranteed in all other instances.

6.0 CONSULTANT SERVICES

Successful bidder shall provide complete sets of operating instructions including circuit diagrams and other information necessary for proper operation and service maintenance. In addition, a full wiring diagram of said language lab shall be provided including complete inter-connections of all components. All wires shall be coded for future identification.

Successful bidder shall furnish free consultation service on all matters pertaining to the laboratory layout, electrical and audio details, functional setups, etc. This service is to be provided free of charge.

Successful bidder shall provide a competent supervisor to demonstrate and instruct all language teachers and supervisors in the operations and use of the above equipment prior to the month of _____, 19__.

7.0 MODERN SYSTEMS GUARANTEE

Should any basic developments occur within one year from date of installation regarding improvement of equipment, design, or application which would enhance the teaching process, such changes are to be made available at cost if desired by the school.

8.0 SERVICE AND MAINTENANCE

8.1 Successful bidder shall assure (forty-eight) hour service and sooner if possible.

(Explanatory note--do not include in written specifications.)

Experience over the past four years has shown that some laboratories have deteriorated badly since the date of installation. One of the chief reasons for this loss of quality sound reproduction is lack of proper attention to certain simple maintenance procedures. Hence, the addition of the statements below are given.

8.2 Service beyond the warranty period.

A. Each bidder shall furnish a statement regarding the following:

(1) The service organization or person who will be available to provide the services and repairs listed under "B" below.

(2) The yearly cost of a service contract if the purchaser desires to contract for the services listed under "B."

B. In the opinion of the Consulting Engineer of the Wisconsin State Bureau of Engineering, the following maintenance procedures are essential to the continued usability of the language laboratory beyond the first year of installation. The services listed below should be performed annually. This maintenance may best be accomplished during the summer when classes are not in session.

(1) Head demagnetization

(2) Head cleaning

(3) Head alignment

(4) Pressure-pad adjustments and replacement

(5) Brake and tension adjustments

(6) Lubrication of motors, bearings, idlers, sliding parts, and operating controls (avoid over-lubrication)

(7) Replacement of rubber drives which have developed bumps or flat spots

(8) Belt adjustments and replacement

(9) Adjustment of erase bias and recording bias for best signal-to-noise ratio

(10) Adjustment of tape lifters and breakage controls

(11) Checks of wiring, switching, plugs, sockets, and grounding

(12) Cut-offs in case of tape breakage should be carefully checked and adjusted to avoid the introduction of flutter and wow by the cut-off during normal operation.

(13) If heads are replaced, aligrments and bias adjustments should be made according to manufacturer's instructions. In case separate bias oscillators are used on a dual-track unit, oscillator synchronization is required to avoid beat notes.

(14) Dual-track portable tape units for instructor use or for making master tapes may be included in a laboratory. In electrically braked and tensioned tape units, switches should be cleaned and adjusted and any rectifier outputs should be checked to assure sufficient voltage for braking action.

9.0 WARRANTY

All equipment and component parts shall be guaranteed free of defects in material and workmanship for a period of one year after the installation has been completed. Guarantee shall include all parts, tubes, transitors, and labor required. Also, the equipment supplier shall make available to the owner at owner's option, a service contract for continued maintenance of equipment after expiration of original warranty.

The bidder shall designate the person or organization that will provide service and maintenance during the warranty period. (See 8 above.)

10.0 EQUIPMENT SPECIFICATIONS

10.1 Complete six or more channel desk console with three tape decks, one record player, plus two non-amplified auxiliary inputs and adequate switching for all ( ) student positions.

10.2 Inter-communication system with monitoring and "all call" provisions.

10.3 ( ) student positions each with microphone, head set, and storage for head set at each student position.

The microphone may be:

A. Attached to head set

B. Permanently mounted to student booth

[Choose (A) or (B) if lab has booths. Choose (A) only if lab is boothless.]

10.4 ( ) student positions are to be listen-respond, and ( ) listen-respond-compare (with tape recorders).

10.5 No AC-DC amplifiers will be acceptable. Chassis shall be isolated to prevent student contact with AC potentials.

10.6 All operating controls and switches shall be as follows:

A. No decals or stick-ons shall be used.

B. Custom labels shall be engraved plastic or silk screen with transparent protection of labels.

10.7 Additional console equipment shall include (one) master microphone and (two) headsets. There shall be a minimum of two outputs for headsets.

10.8 There shall be a master switch with pilot light which turns off the power to all components in the student position and console.

10.9 Microphones

A. Student (also teacher non-recording use)

Microphones should be dynamic, variable reluctance, with frequency response of 80-8000, plus or minus 3 db.

B. Teacher-recording (console) microphone. (Recommended where microphone will be used for making master tapes.*)

Type: dynamic. Frequency response: 40-15,000 cps listed, 100-10,000 cps plus or minus 5 db, generally rising characteristic. Distributional characteristics: cardioid or non-directional.

Impedance and output level shall be chosen to match the amplifier with which it is to be used. Performance shall be that of (brand name, model number), or equal.

10.10 Headphones

Headphones should be at least equal to Brush ED-300, and with frequency response 80-9000 plus or minus 3 db or better with volume control. The following headsets have met specifications as tested by the Wisconsin Bureau of Engineering:

A. Brush BA 206, BA 220, ED 300, ED 400

B. Plastic Mold LT-300 (Dynamic), LT 300-8

C. A-263

D. R. Columbia Type A3H

E. Telex HDP & ST

F. _____

NO OTHER HEADSETS HAVE AS YET MET SPECIFICATIONS.

"Testing" means that the above units can meet specifications. All units supplied must meet specifications on an individual basis.

10.11 Component Parts

The completed laboratory including all wiring and all component parts (amplifiers, recorders, etc.) shall have a frequency response comparable to the above specifications. Impedance should match throughout the entire range of operation.

10.12 Tape Recorders - Student

A. Specifications for all types: Tape speeds shall be 7 1/2 and 3 3/4 ips. With a tape speed of 7 1/2 ips (recommended for normal use), and the frequency response of this unit shall be from 75-9000 cps within a plus or minus 2 db; it shall have a signal-to-noise ratio of at least 45 db; flutter and wow shall not exceed 0.2%. Harmonic distortion shallnot exceed 3.0% at the normal operating level.

B. Recorders shall be standard 2-track (or 4-track). Fast forward and fast rewind shall be provided, as well as positive braking action. Controls should be kept to a minimum, and shall be clearly labeled as to function.

Recorder shall be equipped with VU-meter for determining sound level.* Master track erasure shall be controlled by the teacher either from the console (this is preferred) or at the booth by locking mechanism which is not available to the student. Each recorder should have a tape-index counter of at least 3 digits.

C. Additional recorder specifications. (Student and teacher)

(1) Tape disengages from play and record heads on fast rewind and forward. Tape lifters should preferably be of stainless steel rather than brass.

(2) There shall be a digital-tape counter on all decks (console and booth) of at least 3 digits.

(3) Each recorder shall have a silent pause button.

D. Hub-to-hub cartridge recorders (student position only) shall comply with student recorder specifications with the following permitted omissions:

(1) Single tape speed

(2) Tape lifters

(3) Three-digital tape counter

Any such omissions shall be listed by the bidder.

10.13 Tape Recorders - Teacher

A. At least one tape deck shall allow for the recording of student's voice at the console in accordance with 11.11 below. Other console transport mechanisms may have playback function only if so specified by the bidder.

B. Specifications: Tape speeds shall be 7 1/2 ips (recommended for normal use) and 3 3/4. The frequency response of this unit shall be from 50-1200 cps within a plus or minus 2 db at 7 1/2 ips, it shall have a signal-to-noise ratio of at least 45 db, preferably 50 db; flutter and wow shall not exceed 0.3% preferably 0.2%. Harmonic distortion shall not exceed 2.0% preferably 1.0% at the normal operating level. Recording shall be standard on 2 (or 4) track. Fast forward and fast reverse shall be provided, as well as positive braking action. The unit shall also

(1) Permit monitoring during recording

(2) Be equipped with a VU-meter for determining volume

(3) Have a tape index counter of at least 3 digits

All controls shall be clearly labeled as to function.

C. Input impedances and levels shall be consistent with other components of the system. Output impedances should provide for either headphones or power amplifiers, as required by the particular installation.

D. Each recorder shall be equipped with a silent pause button.

10.14 Record Player (One required per installation)

A. Specifications: It shall be of the manual, monaural type and provide for use of standard and microgroove recordings, including the speeds of 78,45, and 33 1/3 rpm; provisions of 16 2/3 rpm is optional. It should accommodate disks up to 12 inches in diameter. A diamond stylus of 0.003 inch radius should be provided for standard recordings and a diamond stylus of 0.0007-0.001 inch radius should be provided for microgroove recordings. The tracking force (stylus pressure) should not exceed 8 g. The player should have an over-all frequency response of 80-10,000 cps, plus or minus 2 db. The player shall have a 45 rpm adapter and have a 4-pole or 2-pole motor.

B. Turntable assembly shall have spring mounting, or other suitable means of isolation from external vibration.

C. Flutter and wow shall not exceed 0.2% RMS. Rumble shall not be more than 1.8%.

D. Cartridge type shall be magnetic or ceramic (each requires proper pre-amplification).

E. Stylus (needle) shall be 1-mil (or less) diamond for 33 1/3 and 45 rpm disks; 3-mil sapphire for 78 rpm disks.

10.15 Console Platform and Location (For labs which include student booths)

A. Location of console shall be in (front, rear) of the lab. (Choose one. Current thinking favors the rear location for high school labs.)

B. Bidder shall supply a suitable size raised platform for console. (15 inches or more is considered desirable.) All necessary steps shall be supplied by the bidder.

C. Audio line for sound-track of projection equipment shall be provided if location of console requires it.

D. Glassed-in console room. (See Appendix p. 16)

(Explanatory note--do not include in written specifications.)

CAUTION: The school may want to select one (or more) of the options given below under 10.16 C. If 10.16 (boothless installation) is used, then 10.17 will normally be omitted unless the school is including a few booths along with the non-booth positions.

10.16 The Student Position (installations without booths--option #1)

Laboratory installations which do not include booth dividers shall comply with basic electronic specifications. Exceptions to operations and equipment specifications are permissable only as described below.

A. The console may have as few as three program sources, although the console as described under section 11.1 is to be preferred. Sections 11.2, 11.3, 11.4, 11.5, 11.6, 11.10, 11.11, and 11.12 shall apply here.

B. A combination headphone-microphone shall be used.

C. Wiring from console to headphone-microphone output shall be in ducts and be permanently installed. The following possibilities are suggested:

(1) Perimeter, in which the student moves from conventional desk to wall position.

(2) Overhead, in which the student stands up at conventional desk, obtains the headphone-microphone from an overhead location, and sits back down at the conventional desk.

(3) Student tables without dividers, in which the student obtains the headphone-microphone without moving from his seat.

The latter arrangement is described in NEWER MEDIA FOR INSTRUCTION 4, (see "Other Specifications," Section 11.12).

Student positions shall be installed without dividing partitions at rows of tables, each of which shall be fitted with a plastic laminated top. Each table shall be of normal desk height, with positions installed at 30-inch intervals. Each one shall be anchored to the floor to prevent shifting.

(Explanatory note--do not include in written specifications.)

BOOTH SELECTION: Recent technological developments in microphones have prompted changes in attitude toward the semi-isolated booth. If a combination microphone-headset is used, the booth may be omitted providing all other specifications are met.

There are still a number of advantages in having dividing partitions between students. However, research indicates that these advantages are often negated by infrequent use of the installation (i.e., once a week or less). Therefore, if enrollments do not allow more than once-a-week attendance in the lab by each language class, then it may be better to omit the booths and apply the savings in furniture cost to the purchase of a second or third installation without booths.

Such installations carry the added advantages of not removing a classroom from regular use and of providing the students with ready access to the equipment. This permits the students to engage in language drills whenever they are ready for them rather than when the schedule dictates.

10.17 The Student Position (Installations with Booths--Option #2)

A. Booths (student position; enclosed on sides and in front). Choose one of the following three:

Front shall

(1) Fold forward on piano hinge

(2) Fold backward to form desk top

(3) Be of safety plate glass on the top half of front panel above the desk top

Other booth specifications:

(1) Panels shall be of rigid construction.

(2) Panels shall contain tightly-packed fiber glass or comparable acoustical material.

(3) Exposed sections of panels shall be of durable materials.

(4) Wiring and electronic components shall be protected.

(5) Booths shall be of wood or metal construction.

(6) Booths must be guaranteed against vibrations.

B. A sample booth description is given below for NEWER MEDIA FOR INSTRUCTION 4, pp. 113-114.

Physical Description.

Student positions shall consist of rows of booths 30" wide, 24" deep, with a plastic laminate work surface 29 to 30 inches high. There shall be sufficient space between rows so that a student seated in normal working position does not prevent easy passage behind him. Acoustic barriers shall be provided between booths, 18" above the work surface, consisting of rigid perforated metal on both sides. The core of the acoustic barrier shall be of suitable solid material. A layer of acoustic fiber glass shall cover each side of the core. The legs of the booths shall be adjustable for leveling pruposes, and each row shall be anchored to the floor in such a manner as to prevent shifting. The front of the booths shall be fitted with clear 1/4" safety glass for the full height between the work surface and the barriers. There shall be no sharp edges, burrs, or protruding screws on any part of the booths with which a person could come in contact in normal usage.

11.0 OPERATION SPECIFICATIONS

11.1 The system shall be capable of transmitting simultaneously as many as six programs from the console to the student positions. (This item does not apply to installations which do not have student booths. See Section 10.16 for boothless laboratories.)

(Explanatory note--do not include in written specifications.)

NOTE: On Section 11.2 the school may wish to allow only one of the options A, B, or C. B is the most flexible. C. does not permit individual student positions to receive a given program. The program must be sent to an entire row thus making it impossible for the remaining positions to receive any other program. To clarify these functions in a rough manner, we could say that C is similar to a four-party telephone line; A, to a private line; B to a private line which can be converted to a party line at the flick of a switch. C is less expensive and is acceptable where students work in groups or as a total class.

11.2 Each bidder shall list the following three programming arrangements along with the cost differences for each:

A. Programming distribution with one switch for each student position. This allows any student or group of students to receive any one program from the console regardless of seating arrangement.

B. Row distribution combined with individualization. This allows the instructor to distribute the program by rows (or banks) or to individual positions.

C. Row distribution only This permits programs to be sent to rows (or banks) of student positions. All students in a given row (or bank) receive the same program.

D. (Optional) A master program switch which simultaneously changes all students to one program.*

11.3 Program transmission (choose one). "A" is most often selected.

A. Teacher assigns the program from the console.

B. Student selects the program from the booth.*

11.4 Monitoring of individual students must be silent and undetectable by the monitored student, who must not hear any clicks, pops, or change of volume.

The instructor shall be able to monitor each student position from the console.

11.5 The instructor shall be able to carry on private simultaneous two-way communication with any student without interference from the master programs. Interference would constitute "intercom crosstalk." (See 5.5 above) In addition, the intercommunication function shall enable the teacher to select any group.

11.6 The system shall provide immediate hearback for each student during his own transmission, whether or not the student is recording the transmission. (Exceptions possible under 9 C below must be specified.)

11.7 Students whose booths are equipped with recorders shall be able to record transmissions from the teacher's console. This recording shall produce a master tape suitable for library use.

11.8 Pupils authorized to do so shall be able to use their recorders independently even while the remainder of the laboratory machines are being used for other programs.

(Explanatory note--do not include in written specifications.)

NOTE: On 11.9, the school may wish to select one option and exclude all others from the specifications. B is somewhat less expensive and C is much less expensive than A. The school must weigh loss of simultaneous recording (B and C) against the cost of the more elaborate function.

11.9 Each bidder shall specify which of the following student-record facilities he is able to offer along with cost differentials.

A. Full Dual Channel--Student can listen, respond, and record during master record.

Dual-channel capable of recording a master program on master track from the console while simultaneously recording student responses on student track. This shall make possible subsequent erasure and re-recording of student track without erasure of master track. Recorders must be dual-channel or provide comparable function.

B. Dual Channel--Student can listen and respond during master record.

Dual-channel capable of recording a master program on master track from the console. Student track is not recorded at this time. Student hears program and hears his own voice through the student amplifier. This shall make possible subsequent erasure and re-recording of student track without erasure of master track.

C. Two-Track Without Dual Channel Amplifiers--Student can listen only during master record.

This is the same as "B" above except that the student cannot hear his own voice while his recorder is in the master-record mode. The student microphone is "dead" in this mode. The student can listen passively to the transmission from the console as it is recorded onto the master track of the student tape. However, the student shall hear his voice in the student-record mode when he subsequently listens to the master recording while recording on the student track. He can also hear his voice when the student position is used for listening and responding only without recording.

11.10 Student units with listen-respond equipment at the booth will be capable of listening to any of (six) channels as selected at the console. These positions can respond and listen to their response, objectively, as it would sound if recorded. They shall be able to communicate with the instructor. Wiring for these positions should be such that they can be converted to student recorders. In addition, all booths shall be uniformly designed to accept either listen-respond or listen-respond-compare equipment.

11.11 Teacher shall have the facility to record at the console from any individual student position (or group of positions).

11.12 Additional specifications.

A. All items in Section 3, pp. 109-111 of NEWER MEDIA FOR INSTRUCTION 4, shall apply here. (See Section 12.0, "Other Specifications," for full title.) A copy of this publication should be in the hands of each bidder.

B. The following items from Section 4, pp. 112-113 shall also apply: 4.3.2, 4.3.3, 4.3.5, 4.3.13.

C. Sections 6 and 7 are considered desirable and should be included as bid alternates.

12.0 OTHER SPECIFICATIONS

All previous specifications for language laboratory equipment are superseded by the present document. Where questions arise between bidder and purchaser, both parties shall be held to the definitions contained in the following publications:

12.1 NEWER MEDIA FOR INSTRUCTION 4.

Language Laboratory Facilities, Technical Guide for the Selection, Purchase, Use, and Maintenance, OE-21024, Bulletin 1963, No. 37, U. S. Office of Education, U.S. Government Printing Office, Washington 25, D. C. For sale by the Superintendent of Documents, U. S. Governement Printing Office, Washington 25, D. C. Price 50¢.

12.2 The Purchase Guide and Supplement to Purchase Guide, Ginn & Company, 205 West Wacker Drive, Chicago 6, Illinois. Price $3.95; $1.25.

13.0 TESTS

(The local school system may request such tests if a field check indicates that the above specifications have not been met.)

Upon the request of the ( ) Public Schools, the bidder must submit his equipment to be examined and tested to see if the specifications are met. These tests are to be made at the bidder's expense. Tests shall be made prior to final payment. If the bidder or his service agency is unable to meet specifications within the warranty period, qualified technicians must be employed to complete proper installation.

(See Field-Check Manual--Language Laboratories published by the Department of Public Instruction for ways to conduct preliminary tests of language laboratory equipment.)

14.0 INSTALLATION COMPLETION DATE

The installation shall be fully completed 60-90 days after contract is awarded. (Specify day) A penalty of ($) per day shall be assessed for failure to install as specified above.

15.0 BIDS

Address all bids to ( )
( ), Wisconsin.

Bids are due in the office of above address on or before ( ).

Public opening shall be at ( ).

16.0 JUDGMENT RESERVATION

The ( ) Board of Education reserves the right to accept or reject any or all bids or let the contract to the bidder offering a language laboratory deemed most advantageous to the Public Schools.

17.0 LAYOUT OF LABORATORY ROOM

The bidder shall include at least one diagram of the proposed room layout for the language laboratory installation, including location of student positions, placement of the console and storage areas, and location of windows and doorways. (See Appendix "E" for sample layouts.) A scale drawing 1/4" or 1/2" to the foot shall indicate position and relationship of console, student positions, and all other items of equipment and furniture.

8.0 ADDITIONAL FEATURES

8.1 The bidder shall attach a list of additional functic..s provided as standard features of the bidder's laboratory system.

8.2 The bidder may attach a list of optional features along with the cost of each.

8.3 The following items from the attached Appendix shall apply.

9.0 EXCEPTIONS TO THE SPECIFICATIONS

9.1 Any departure from the above specifications shall be noted by each bidder. Failure to do so obligates the bidder to comply with all specifications above.

9.2 Innovations.* (Omit this section from the written specifications. Applicable sections may be quoted if equipment of an exceptional nature is being considered for approval.)

NOTE: The above specifications apply to those types of equipment most often selected by the local schools. It is not feasible to attempt specifications for equipment of an exceptional nature which might conceivably meet certain unique local needs or which might be developed in the future. In such cases the school system should submit a statement explaining how the special laboratory equipment contributes to improving the local program in modern foreign languages.

Samples of possible exceptions would be:

A. Wireless equipment

B. Certain types of mobile equipment .

C. Remotely-controlled equipment

D. Battery-powered equipment

E. Student-recorder innovations

Experience in many of the above areas has been limited. At the time of publication there was not enough data upon which to base specifications.

APPENDIX TO LANGUAGE LABORATORY SPECIFICATIONS

OPTIONAL EQUIPMENT AND MATERIALS

A. ACOUSTIC TILE (To be included under "Minor Remodeling" of NDEA Form.)

Acoustic tile shall be furnished and installed on the ceiling and to the top of the moulding on the three inside walls.

The tile shall be 3/4 inch X 12 inches X 12 inches, wood fiber acoustical tile, white paint finish, to be applied with adhesive, centered with the panels on ceiling.

The tile shall be applied with adhesive; the adhesive shall be a type expressly for this purpose. It shall not be water soluble, and shall not contain ingredients which react chemically with oil paint, or will not contain a solvent which has a stronger solvent action on oil paint than naptha, and shall not contain alcohol.

B. AUTOMATIC TEST CORRECTION FEATURE.

The teacher shall be able to perform the following functions from the console by means of a remote pause device:

1. Stop and start all student recorders simultaneously by activating a single switch while student recorders are in the record mode.

2. Stop and start each student recorder separately in the playback mode.

This shall permit the instructor to administer a speech production test in which only the student responses are recorded. Further, the instructor shall be able to playback and monitor the student tape at the console from the booth without rethreading or removing the tape from the student recorder.

These functions shall be so coordinated with the entire system as to permit the following functions at the console:

1. Playing test questions from a program source to each student position.

2. Stopping all student recorders remotely while the test questions are playing.

3. Starting student recorders remotely to record student responses.

4. Monitoring the test questions at the console as they are played through the line.

5. Monitoring the student responses from the tape in the playback mode (one booth at a time).

The student shall perform the following functions:

1. Putting the tape deck into the record mode at the beginning of the testing period.

2. Rewinding tapes at end of testing period.

3. Putting tape deck into playback mode at the end of the testing period.

C. ANNUNCIATOR LIGHT.

The student shall have the facility to call the instructor at the console by means of an annunciator light which remains lighted until the instructor responds.

D. GLASSED-IN CONSOLE ROOM.

(Explanatory note--do not include in written specificiations.)
This arrangement has much to commend it in laboratories which include booths. A few advantages are:

1. Ambient noise is greatly reduced by keeping the instructor's comments, machine noises, and the like contained in the enclosed space.

2. An area for equipment and materials storage can be established to which only teachers and other qualified persons have access.

Some rooms have small adjacent rooms which may with slight modification be converted into console rooms. In other cases, major construction is involved. The former case is generally covered by NDEA under the minor remodeling provisions. (See NDEA Procedures and Standards.) Since the console room will vary in size, shape, and location with each building, blanket specifications can be written only by those who are familiar with the local situation. Therefore, the following are merely suggestive of what might be included.

The console equipment shall be housed in an enclosure _____ by _____. The instructor shall have unobstructed view of all student positions through glass partitions in the enclosure while operating the controls at the console. The floor of the console room shall be elevated _____ feet above the floor level of the laboratory room.

E. SAMPLE ROOM LAYOUTS FOR LANGUAGE LABORATORIES. (See Section 17.0 of the Specifications)

The possible layout arrangements of language labs are clearly infinite. However, in practice they can be divided into three main categories on the basis of how the student position is set up. Each arrangement has its own unique advantages and disadvantages. We will define the three concepts as follows:

1. The conventional laboratory (student booths--no conventional seating in the laboratory room.)

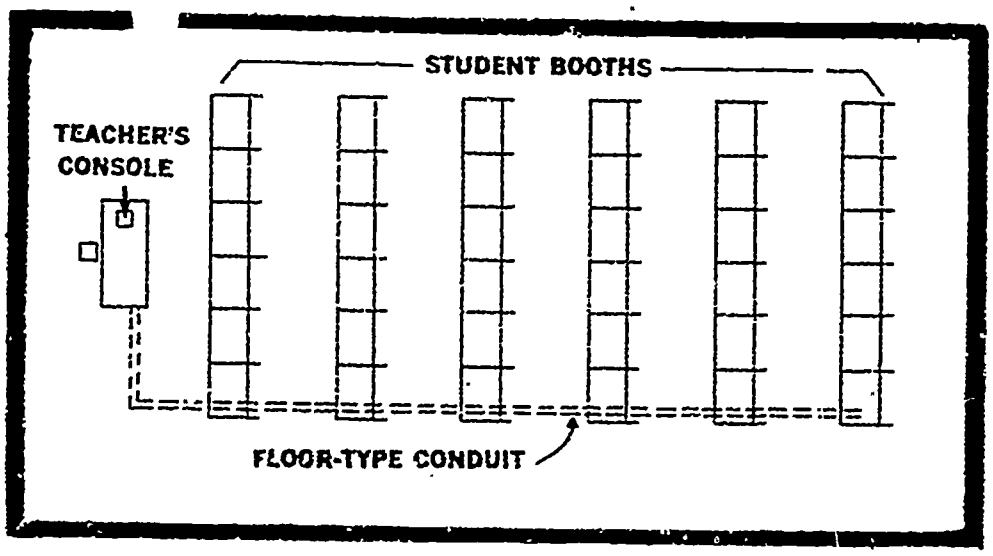
2. The combination laboratory (student booths with conventional seating in the laboratory room.)

3. The boothless laboratory (no dividers between students; the laboratory room can function as a conventional classroom.)

The representative samples below are adapted from Switchcraft Form LL-415, June 1963.

1. Conventional Laboratory Layout.

a. Checkerboard



Comments:

(1) The console is frequently placed in the rear. (See VOICE, Vol. 4, No. 6, December, 1963, p. 41, for a discussion of the rear location.)

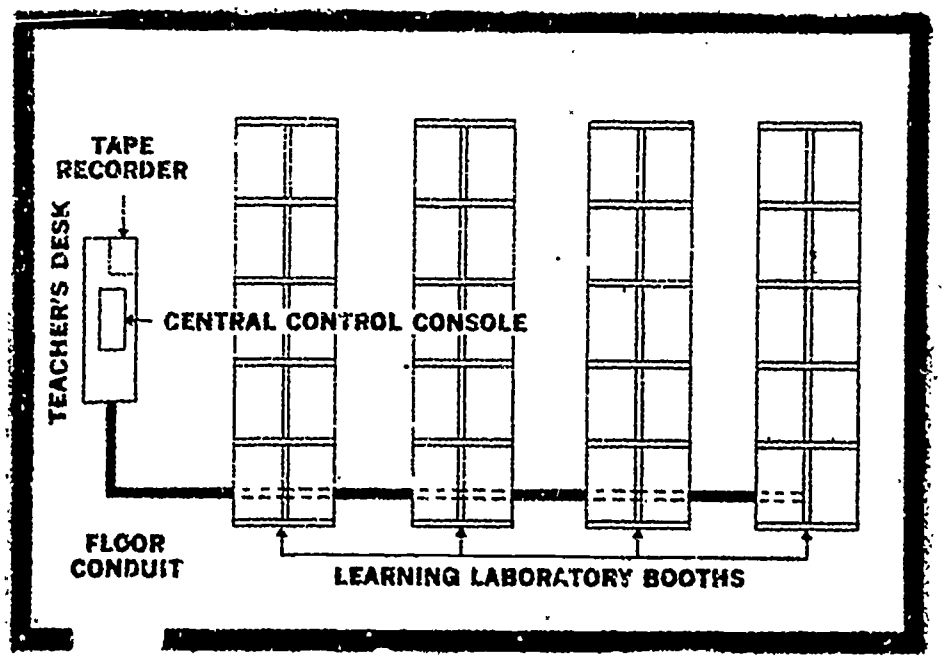
(2) The conduit need not be in the floor. Often it is run in or along the wall.

(3) If room space is limited, one end of each row may be placed flush against the wall.

(4) The console should be on a platform which is sufficiently high to enable the teacher to see every student.

(5) Students can see visuals and listen to soundtrack through headsets.

b. Face-To-Face Layout



Comments:

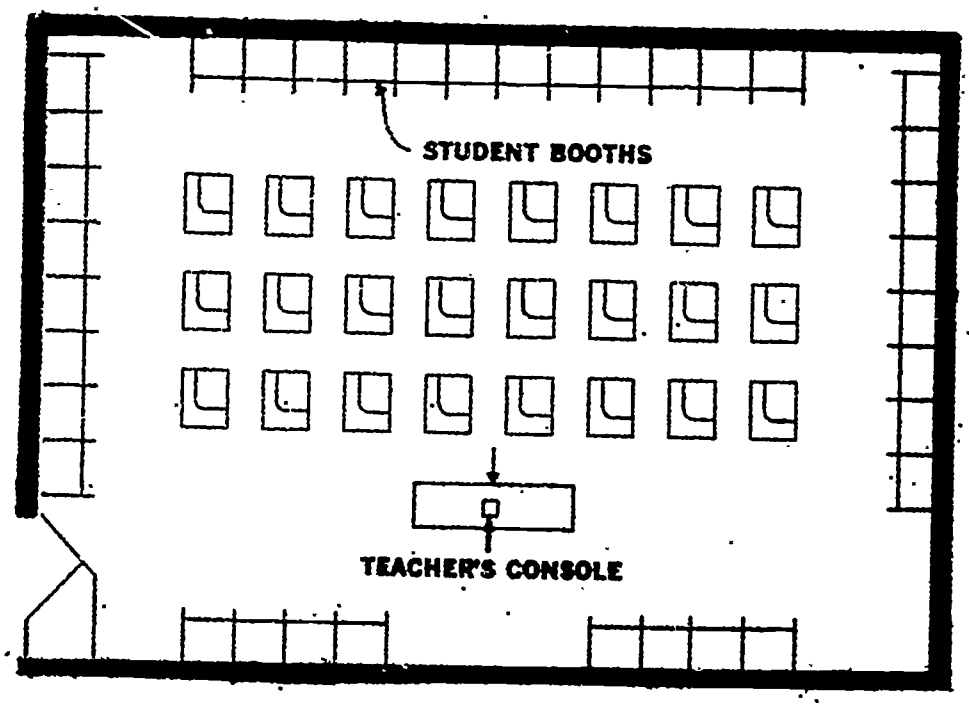
(1) The remarks for the checkerboard layout would apply except that there is no front and rear console location; half the students are facing one way; half, the other.

(2) For that reason, visuals cannot be used in the laboratory.

(3) The installation will fit into a smaller room than with type "a".

2. Combination Laboratory Layout.

a. Perimeter booths with conventional seating in the center.



Comments:

(1) Students can go from classroom activity to laboratory drillwork without changing rooms.

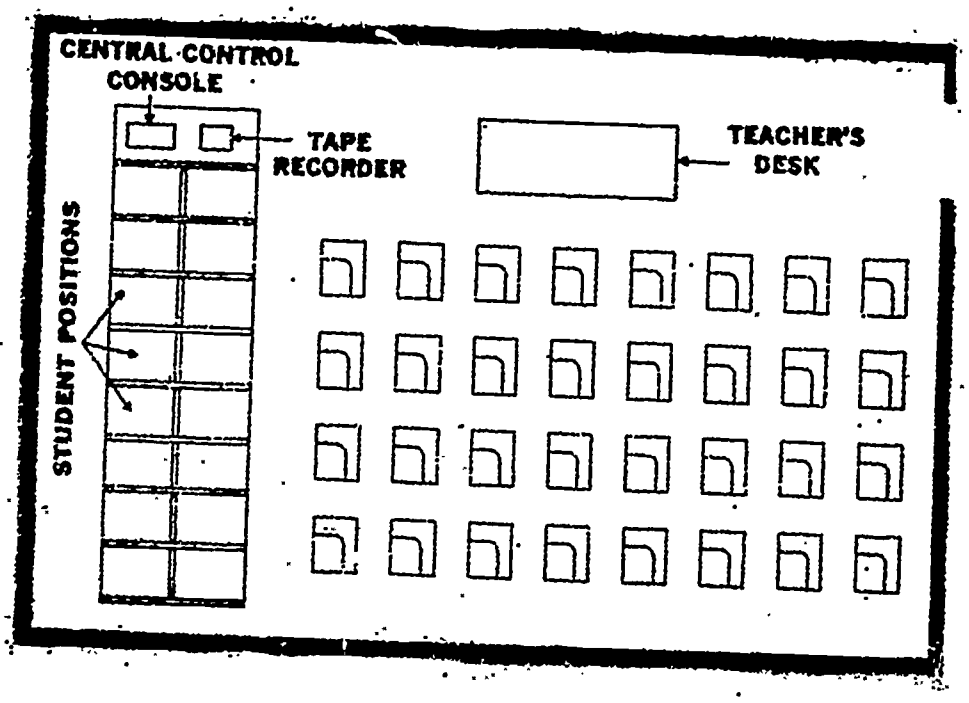
(2) Teacher cannot see all students at any given time.

(3) Visuals cannot be combined with laboratory drill.

(4) The room is usable as a regular teaching station and can thus be scheduled any period of the day and for most academic subjects.

(5) Glass fronts should not be used with this arrangement.

b. Face-to-face row of booths with conventional seating.

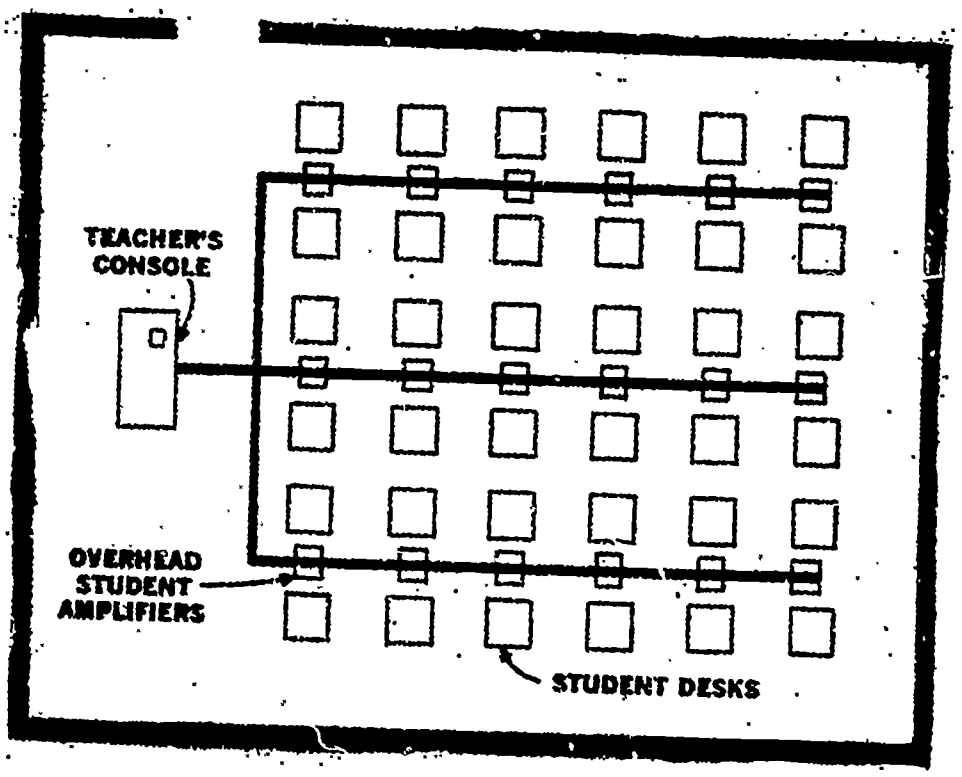


Comments:

(Remarks under 2.a. above apply here.)

3. Boothless Laboratory Layout.

a. Overhead installation with conventional seating.



Comments:

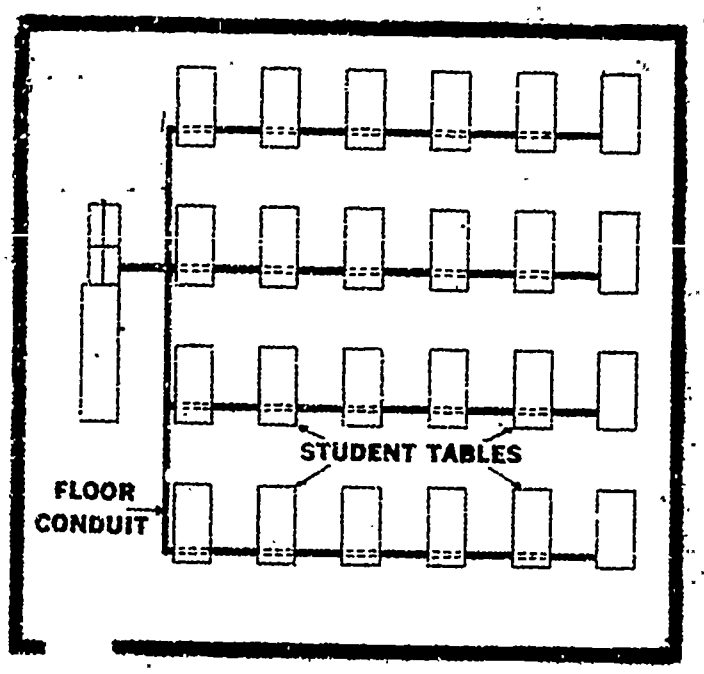
(1) Student stands up and obtains headset-microphone from an overhead hook.

(2) Volume controls may be on headset or on overhead amplifier.

(3) Conventional classroom seating is used.

(4) Conversion from laboratory to classroom situation can be done in a matter of seconds.

b. Student tables containing housing for electronic components; floor conduit used for wiring; no student dividers.



Comments:

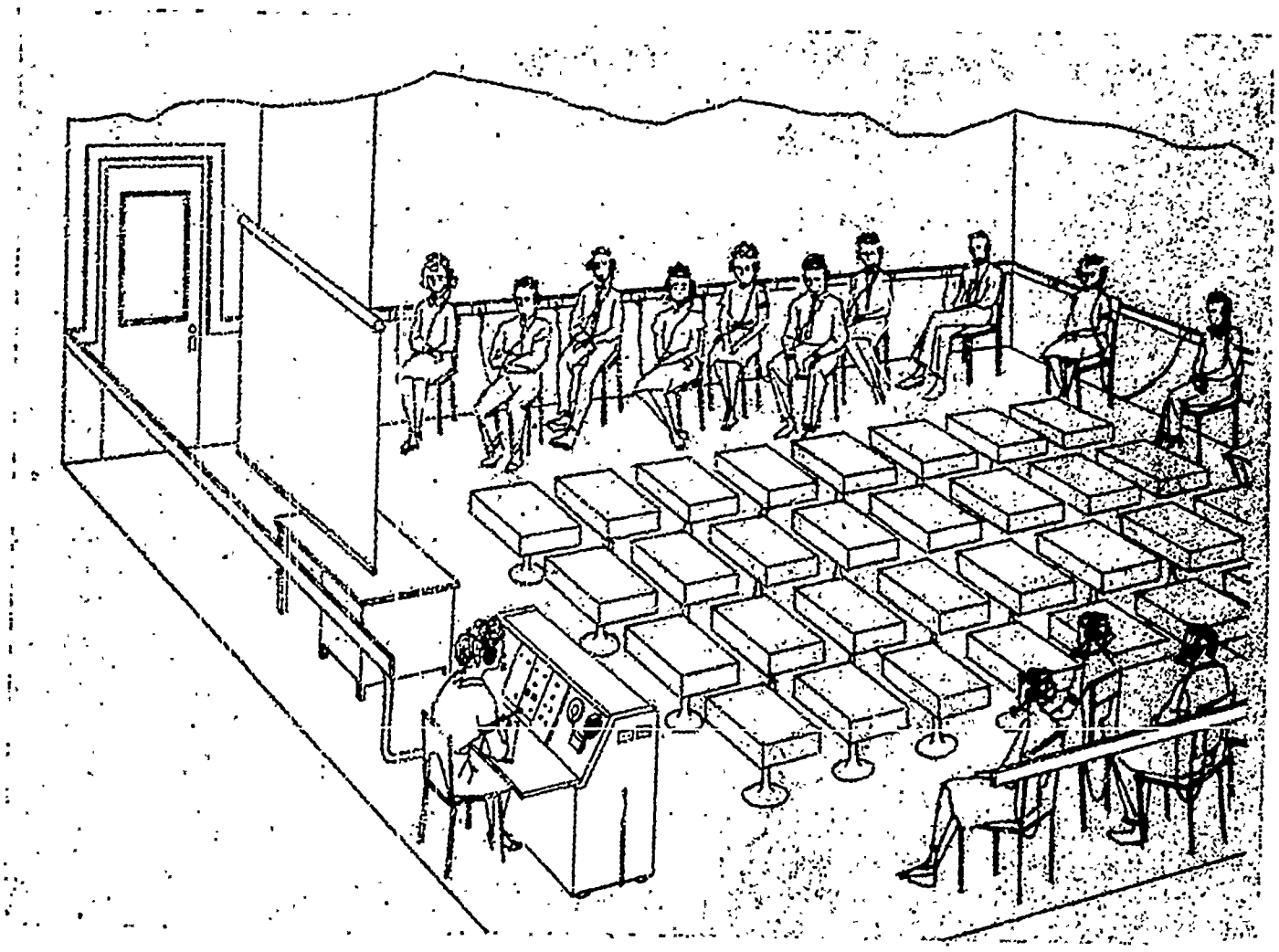
(1) Headset-microphone can be housed inside table compartment; the esthetics are better than with the overhead installation.

(2) Student dividers may be added later to certain expandable tables.

(3) With new construction (where conventional seating is not on hand) the cost of specialized tables may not be excessive; the schools would have to purchase student seating in any case.

(4) The laboratory room can function as a conventional classroom.

c. Perimeter wiring without booths; students move to wall. (Adapted from Monitor Bulletin.)

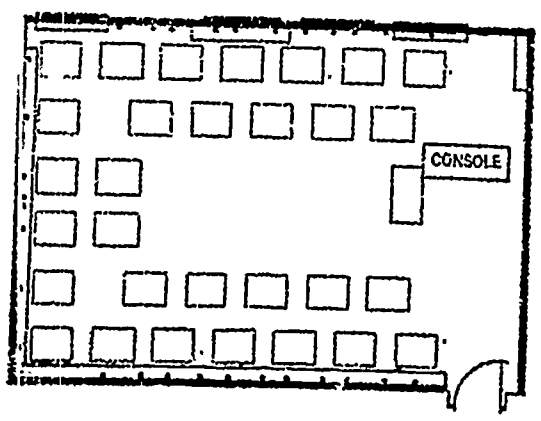


Comments:

(1) Some confusion may result as students move to lab positions; however usual set-up time is less than two minutes.

(2) Headset-microphone hangs on wall hook ready for use.

d. Perimeter wiring -- U-shaped classroom. (Adapted from School Management.)



Comments:

(1) Students can remain seated; headset-microphone is passed to student in the inside row by those in outside row; headset-microphone is attached to hook on wall.

(2) Volume controls should be installed in headset.

(3) Quick conversion to classroom situation is possible.

(4) Classroom available for other subject areas.

* * * * * * * * * * * *

NOTE: A more detailed and up-to-date discussion of the matters outlined in the appendix is to be found on pages 1-43 of the following publication by Alfred Hayes:

Language Laboratory Facilities, OE-21024, 50¢

Order through:

Superintendent of Documents
Government Printing Office
Washington 25, D. C.

This section of Hayes's bulletin is written clearly and simply and contains excellent line drawings of equipment functions and room layouts.

* * * * * * * * * * * *

Opportunities in Foreign Language Careers by Dr. Theodore Huebener is a detailed picutre of the wide range of career opportunities open to those with training in foreign language--from foreign trade to the U. N. to many other real opportunties. Published by Universal Publishing and Distributing Corporation, 800 Second Avenue, New York 17, New York, $1.45.

F. Listening Installations.

1. Installation for Listening Only (secondary). This consists of equipment used for student earphone listening only, often in a corner or at the end of a quiet room such as a library or study hall (see figure below). While it is very useful for enrichment and practice in listening comprehension, its effectiveness in teaching the foreign language for use in communication is limited by the attention and interest span of the listener.

Equipment: A diac and/or tape playback, earphones, jacks, jack boxes or other terminals, more or less permanently located on a counter or table.

NOTE: a. Wires are concealed.
b. No student amplifiers or microphones are included.
c. The installation can be adapted to any of the boothless layouts under "E" above.
d. No booths are needed; students do not speak.

2. Electronic Practice Room (Elementary and Secondary). This is a classroom or other room in which students hear a program coming from a loudspeaker or mobile unit and practice in chorus with it. This installation does not give the immediacy of contact for the individual student that is provided by the earphone listening of the language laboratory.

Equipment: A simple control center for the teacher, consisting of disc player and/or tape recorder and playback, amplifier, loudspeaker, teacher's earphones, and microphone. (Purchase Guide, p. 267)

NOTE: (a) Many people consider this to be the absolute minimum in acceptable equipment for a language classroom.

(b) Often the regular tape recorder or record player will not produce a quality signal which is loud enough to be heard in all parts of the room. An amplifier and/or loudspeaker may be necessary if all students are to hear the foreign language correctly.

G. Maintenance Items, Tools and Supplies.

NOTE: The items listed under 1 and 2 below, inasmuch as they are for maintenance purposes, are not reimbursable under NDEA. Nevertheless, many of them are essential and should be considered for purchase.

1. Suggested list of basic tools and equipment.

Set of small Allen wrenches
Set of standard and Phillips screwdrivers
Set of nut drivers
Pliers and wire cutters
Small-tip soldering iron
Head demagnetizer
Tube tester
Volt-ohm meter
Spare equipment and accessories

2. Suggested list of supplies.

Spare parts: vacuum tubes, record and erase heads, switches, fuses, pilot lights, capacitors, pads, belts, and other small working parts subject to wear or deterioration.

Head cleaning fluid, cotton swabs, alignment test tape, solder.

H. Production and Storage.

NOTE: The items under 1 and 2, if intended for production or storage of foreign language materials, are reimbursable under NDEA. (See Section VII, C. Planning Guide and Standards, Title III, NDEA.)

1. Essential equipment.

   (a) Tape splicer ($10 to $12 for splicer with tape dispenser attached).

   (b) Bulk eraser shall reduce background noise levels to tape from 3--6 decibels below normal erase head levels. Bulk tape erasers shall be equal to or better than the Robins ME--99. (Price range: $25 to $50)

2. Essential materials and furniture.

   (a) Blank tapes--quality and price.

   Polyester or mylar base tapes 1 1/2 mil thick are recommended for laboratory use. They have great tensil strength, do not get brittle under dry conditions, do not stick together, and leave very little residue on recorder heads. They can usually be purchased for $2.55 or less (7" reel) in lots over 12.

   (b) Tape reels with boxes.

   Reels of 5" and 7" may be used. (However, for uniformity of storage many schools with laboratories have found it convenient to put shorter amounts of tape on the 7" reel.) Also, many teachers have found it convenient to use colored reels; a different color for each language. (Reels in boxes can usually be purchased for 50¢ each, 7" size.)

   (c) Tape storage cabinets.

   These may be with or without doors, but should be specialized to accommodate tapes 7 inches and smaller.

   (d) Leader tape.

   (e) Gummed labels.

   (f) Card file on index of tapes.

I. Recording Room for Master Tape Preparation.

A recording room that is properly located, treated, and equipped is essential for the making of good master tapes. This room should be of adequate size to make multiple as well as single-voiced recordings.

A teacher's recording room should be as far removed as possible from outside noise and interference. It should have a sound-resistant door, and acoustical treatment inside. Quiet and fully adequate forced ventilation and/or air conditioning is a necessity.

It is usually advisable to have a sign reading "QUIET--RECORDING" that can be turned on or displayed on the outside of the room when recording is in progress.

Most of the recording equipment should be located outside of the room where it can be observed through a double glass panel. All that is needed in the room is the microphone and two or three switches or controls having noiseless operation. (Purchase Guide, p. 277)