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Small Language Laboratory Design

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FOR SOME TIME I have had misgivings about the contemporary small 'package' laboratory. These misgivings come under two heads, sociological and economic.

Sociological implications

Each teaching device and method has sociological implications.

A classroom is a little community. A language laboratory is a society of non-communicating individuals, each working for himself: not an environment to promote adult co-operation.

The monitoring facility is on the way to having sociological implications too, with contemporary telephone tapping and 'bugging' devices welcomed, accepted, or resisted. When students are accustomed to being monitored without their knowledge, social acceptance of 'listening in' is furthered.

We might feel obliged to put up with the emboothing of our students and the eavesdropping, if they were unavoidable. They are not. With directional microphones attached to students' headsets, the increase of unwanted pick-up as adjacent booths are progressively dismantled is negligible. Their original function, of sound insulation, is today superfluous. And, of course, there should be no obligation to eavesdrop: one could easily monitor with the knowledge of the person being listened to. In both respects, the package deal inhibits thought and decision-making on the part of the purchaser and user.

Investment economics

The economics of investment in language laboratory equipment is worth more consideration than it usually gets.

We should distinguish between what is economical when the language laboratory is used as a mass medium, and what is economical with a small installation.

(1) Obviously it is economical to have special rooms used only for language laboratory work, if these rooms are occupied for a full working day. Equally obviously, if a small language laboratory is used for only half the working day, it is wasteful for the room to be lost to other use for the other half of the day.

(2) If laboratory sessions last for a nominal half hour, a fairly usual period, a large institution may fill each half hour, but a

small one, working inside hourly timetable periods, is likely to have the students and laboratory idle for half an hour in each timetabled hour.

(3) In a large language laboratory, where several programmes are operated simultaneously, console-student 'inter-com' facilities are necessary: for if the operator needs to speak to a group of students without disturbing others, his message must go through the equipment. In a small laboratory, with one programme in operation at a time, the teacher can speak directly to his students, and an 'inter-com' facility is a rather absurd waste of money.

(4) To get a programme on to a hundred machines, it is efficient to have console-controlled start, stop, record, rewind, play operations effected at each machine. However, the wiring and the relays required at each machine for each function account for a good deal of the cost, and complication, of a laboratory, and one should think before introducing them in a small installation. The complication is particularly unwanted in hot countries, and in areas where servicing is difficult.

In many laboratories, programmes are first worked through simultaneously by a group of students, and handled individually only after a first hearing. If a small installation has this kind of programme routine, a single line can distribute the programme to each machine, the students themselves operating their own function switches when they are told to. A great economy in capital outlay, and economy and efficiency in maintenance, can be made by the elimination of console control.

If a small installation has programmes manipulated individually from the beginning of the session, the tapes have to be prepared in advance; but the console gadgetry is still not necessary if the equipment is transistorised. The procedure is to set up each machine with the power and recording switches 'on' and the main power switch 'off'. Switching on the main power switch then starts all the machines together.

(5) Monitoring at the console is a questionable activity. Monitoring at the students' desks is 'open' and, again, cuts down initial costs and maintenance trouble.

(6) As already stated, booths are needless, and in hot countries they cause discomfort. Their cost is unnecessary.

All in all, the small 'package' language laboratory does not constitute a well-considered investment.

Exploitation economics

The more expensive a machine is, the more intensively it needs to be exploited for the exploitation to be economical.

On the other hand, it is uneconomical to have a nil return for five functions put into action every time a sixth is wanted; as it is uneconomical to use a language laboratory to do things which could be better done by other means.

Some users are so conscious of the desirability of intensive exploitation that they disregard the second kind of waste.

Let us look at some uses to which the language laboratory is put, and consider how they exploit the facilities of the 'package' laboratory.

(1) When the laboratory is used only for listening, e.g. to dictated passages, most of the laboratory functions are unused. In fact, unless the laboratory is large and only a small group of students is concerned (so that supervision is incidental), it is hard to justify incurring running costs and depreciation for such a purpose. If the class teacher prefers a recorded voice, a tape-recorder, if need be one with multiple earphone output, can be used.

(2) The language laboratory is more often used for listening and speaking. The student's participation may be straightforward imitation, or it may be responding to cues according to a model.

It is sometimes taken for granted that a student's pronunciation must improve through practice in the language laboratory. There is reason to think, however, that a person's hearing is partly dependent on the muscular control of his speech organs, so that if in fact he cannot produce a sound he does not hear it in the same way as those who can produce it, and therefore cannot imitate it. Language laboratory practice then drills and confirms an unwanted pronunciation. It should be said, too, that processed speech at its best is unlikely to be as clear as speech direct from the speaker's mouth. Many laboratories, after a few years' use, do not have a good enough reproduction of sound to provide reasonable models for imitation.

(3) The laboratory is often used for 'structural drills', which usually involve rephrasing sentences according to a model, or effecting substitutions. Tape-recorders will fulfil all the functions required for this use of the language laboratory, if the console monitoring facility is dispensed with; and if the tapes are well designed, monitoring this kind of programme should not be necessary.

(4) The language laboratory is often used for oral comprehension exercises and tests. Here too, we find that a tape-recorder does all that is required.

(5) The great merit of the tape-recorder is that it makes the spoken word almost as readily available as a book does the written word. A student with a tape-recorder can make his teacher

stop when he wants, can make his teacher repeat his words as often as he wishes, can work at his own pace. Some language laboratory users exploit this great potential for individual tuition but it is the potential of the tape-recorder, not of the 'package' laboratory.

The above-listed uses of the language laboratory fall into two groups: (a) the 'lesson' use, where the same material is presented at the same time to a whole group of students, and (b) the 'library' use, where each student selects his own material and uses it as he wishes.

Both types need means of duplicating tapes. Only the first, and then only in large installations and with some uses, requires console control of the students' machines.

I have tried to show that in most uses of the laboratory many functions are redundant, and that exploitation of the facilities is uneconomical.

A professional language laboratory design

I will now describe a language laboratory module which is thought out from the professional, not the technologist's, point of view, in which fixed functions and orderly arrangements have no priority. Here are its features:

(1) It has sixteen to twenty places; and four spare machines.

(2) The students' desks are arranged in a horseshoe shape, facing three walls of a room. There are no larger than ordinary students' desks.

(3) At the 'open' end of the horseshoe, there is a blackboard and a screen for rear projection.

(4) On the walls, opposite each student's desk, there is a flannel-board. The central area of the floor is also available for displays.

(5) There is enough space to walk between the desks and the walls.

(6) The desks are in pairs, there being a somewhat smaller space between the units of each pair than between the pairs.

(7) Each desk is equipped with a tape-recorder with all normal operations. The tape-recorder is inset so that spools and controls are just short of flush with the desk edges. All tape-recorders lift out and are replaced with one movement, and are interchangeable, a single plug connection having to be broken or made. Along the right edge of each desk, there is a hinged lid, made of light, sound insulating material, with a harder veneer on the outer surface. With the lid closed, the desk has the appearance and use of a normal flat-topped desk; and the room is a small study or classroom. With the lid raised 90° and slotted to stay in this position, the tape deck is exposed and the room is a language laboratory. Towards the middle of the left edge of the lid when it is closed, i.e. towards the top of the lid when it serves as a partition, there is an individual electric light for the desk.

(8) The students' chair seats, forming an inner 'horseshoe', can rotate, and are adjustable for height. Once the height is set, stops are inserted so that the seats can swivel within an arc of 270°. Each chair has one arm with a pad rest (left or right fixing). With the seat rotated to one stop, the pad rest almost touches the desk top, so that the student can read or write during the lab. programmes. With the chairs swivelled, so that the students face the blackboard or screen, the room is a tutorial room. The microphone-headset lead plugs into a socket on the central tube of the chair.

(9) Let us call the units of each pair of desks and the corresponding students 'A' and 'B'. On the right side of desk A, as the student sees it, there are two sockets, and on the right side of B one. The sockets parallel the microphone input and the earphone output for each tape-recorder. Their functions are as follows:

(a) When the students are using individual tape-recorders, a teacher or monitor (with a light chair—rubber-tipped legs) can insert his mike-headset plug into any socket and monitor without interrupting the student. He can speak to the student if he wishes.

(b) Student B can plug his mike-headset plug into one of A's socket. Then A and B can monitor each other, or participate in a tape-guided conversation programme with three parts, including the tape. In this mode, the teacher-monitor can insert his plug into the second socket at A.

(10) Other features are: tape cassettes, tape-loop cassettes, film strip, moving film, and overhead projectors. The blackboard has a ground glass surface cleaned with a damp cloth. The teacher's desk has a tape-recorder with a loud-speaker output, and a tape repeater.

It will be clear that the room is available at any time for lesson, individual study, tutorial, or discussion group work, and is convertible to a language laboratory at any moment.

In the language laboratory mode, the students can work individually, or in pairs—the only natural conversation situation. Tape programmes can be associated with visual aids on the flannelboards, for individual work or work in pairs, or on the blackboard or screen for group work.

Such a language laboratory is designed for work with students who, at all times, remain human beings.