

MAKING THE CONNECTION II: DESIGNING THE LANGUAGE LAB TO MEET EDUCATIONAL OBJECTIVES

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Introduction

The design of the Language Learning and Resource Center (LLARC) at the Massachusetts Institute of Technology (M.I.T.) was based upon the instructional needs of our foreign language faculty. Through numerous consultations with faculty we identified problems in their current instructional environment, introduced them to new technologies and ideas for lab design, and gathered their opinions on how they would like to teach with technology in the future. By first identifying the needs that had to be met in our language center we feel that we were able to create a facility that enhances both the teaching and learning of foreign languages at M.I.T. In this article I will discuss four of the objectives that guided the design of the teaching and learning areas in the LLARC. I will then describe some of the features in these areas that demonstrate how our design choices help faculty meet their instructional needs.

FOUR OBJECTIVES

Classrooms Contiguous to the Language Lab

Our students had easy access to a variety of technology in the language lab, which operates like a library where students use audio, video and computer materials independently. But to incorporate these media into classroom instruction, our faculty had

to transport both the materials and the equipment to the classroom, which discouraged many from using the media. The problems involved in transporting computers and interactive video systems made teaching with these materials very difficult. To encourage faculty to use new instructional materials, foreign language classrooms needed to be adjacent to the language lab where the materials, equipment and technical expertise would be easily accessible to faculty as well as students.

Accommodate Small-Group Work

Faculty wanted students to work in small groups both in the classroom and in the language lab. They frequently did small-group work in the classroom, so they needed furniture that could be easily rearranged or a separate space where they could send one or more of the groups to work alone. To encourage collaborative learning, they also wanted students to work in groups of 2 – 3 on some of their language lab assignments. Our old language lab was used almost exclusively for independent study, so planning for group work was essential.

Flexible Facility

While several of our faculty were quickly adopting computers and interactive video materials, many others continued to use the familiar audio- and videotapes, pictures and maps. This facility needed to accommodate old, new and even future technologies. During our planning the personal computer changed from two 360 KB floppy drives with 158 KB of memory to a machine with a 40 – 80 MB hard disk, 4 – 8 MB of memory, and sound recording capabilities. It became clear to us that this trend would continue.

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Equipment would continue to change as would the instructional methods of the faculty using new technology, since it offered them new opportunities. The new center had to be flexible enough to change over time, meeting both current and future needs.

Access to the Outside World

Foreign language television programs and electronic communications such as electronic mail and computer databases were becoming readily available. Though our faculty had not been able to use these resources, we felt that both students and faculty should have access to these sources of current information.

These were the principle objectives that guided our choices when planning the teaching and learning area of our new language center. In the next section I describe some of the features of the LLARC that allow us to meet these objectives. Illustration 1 shows the floor plan of the LLARC. I will refer to the various areas shown on the floor plan throughout this discussion.

DESIGN FEATURES

Two Classrooms (For each room)

Capacity: 24 people
 Size: 450 sq. ft.
 Equipment: Audio- and videotape decks, a multi-scan monitor/projector, laserdisc and CD player, amplifier, and speakers

Two classrooms (Illustration 1 A), equipped with the technology faculty use most frequently, are an integral part of the LLARC. Their location just across the hall from the front desk, materials' library and technicians' office allows teachers easy access to materials, technical expertise, and

additional equipment such as a video camera, slide projector, or overhead projector. Live foreign language television programming is available through our satellite reception system. In the classrooms phone lines provide access, via a modem, to electronic mail and databases. A computer reserved for classroom use is rolled in on a cart and connected to the projection system on request.

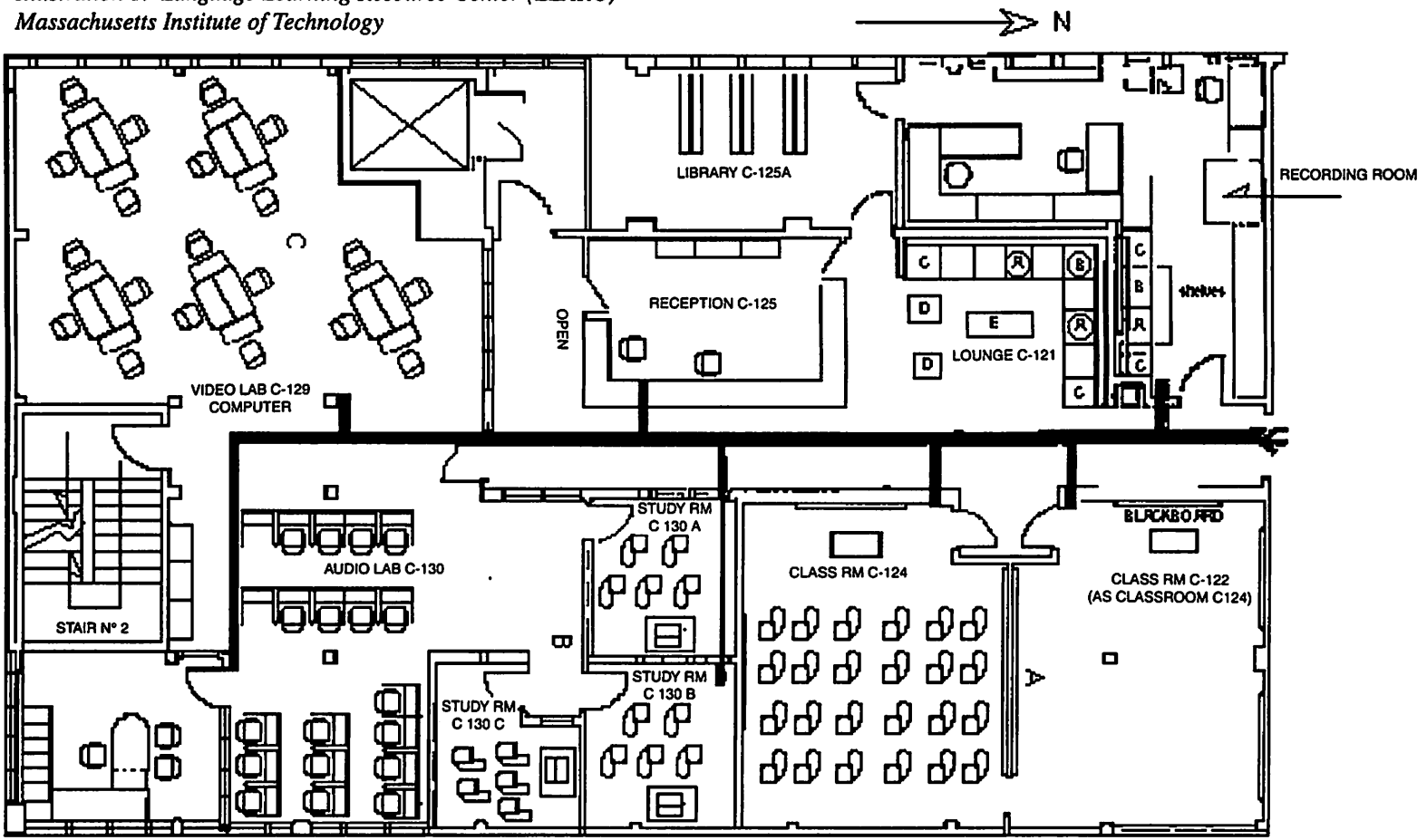
We selected equipment storage cabinets with adjustable shelving and wheels so we can change the classroom equipment as needs change, and we can move the equipment out of the way or to another room when necessary.

To accommodate student seating for small-group work, we selected tablet arm chairs that can easily be moved and stacked. Instructors can also send groups to any of the three study rooms (Illustration 1 B) just down the hall. Because the classrooms are monitored by the LLARC staff, they can also be used by groups in the evening without an instructor being present. Film study courses have found this particularly useful.

Wiring

The need for computer and video wiring in an area changes just as materials and equipment change. Rather than burying our cables in the walls, we had an open, overhead raceway installed through the center of the LLARC, plus easily accessible conduits in every room (Illustration 1—solid black line). This allows us to change and adapt our computer and video network systems as needed. We also requested that wherever possible each wall of a room contain an electrical outlet since we did not want our equipment restricted to just one location within a room.

Illustration 1. Language Learning Resource Center (LLARC)
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Student Study Labs

Capacity: 50 people
 Size: 1,525 sq. ft.
 Equipment: 20 listen/record cassette decks, 8 Macintosh computers with laserdisc players and 13" monitors, 8 IBM PS/2 model 70 computers, and 4 VHS decks with 13" monitors

To make small-group work and collaborative learning possible in our computer/video area (Illustration 1 C), we designed an audio box for these workstations that accommodates 1 – 3 students. This box allows students to hear the audio portion of a program and to communicate with each other via a microphone on their headset (Illustration 2). Because they don't have to remove their headsets to hear each other, students are encouraged to discuss the material they are viewing. Controlling sound through the use of headsets allows us to accommodate activities utilizing videotapes, computers and interactive video in a relatively small space.

We selected flexible workstations to meet changing needs. The computer table is height adjustable so it is appropriate for keyboard use (low position) or video viewing (high position). Because the equipment is not built into the table top or in specialized racks, we can easily change the equipment offered here, which we have frequently done in our two years of operation. To provide visual separation between the stand-alone computer tables, we selected standard, cloth-covered office partitions that can be moved or reassembled in a new formation if necessary. We also located the computer/video study area adjacent to the audio lab. If digitized audio becomes feasible in the future, we can replace sections of the audio lab with additional computer workstations. And, because we are using a well-established office supplier for our

computer furniture, we should be able to add matching pieces even five years from now.

Three Study Rooms

Capacity: 5 – 6 people per room
 Size: 120 sq. ft. per room
 Equipment: 1 with Macintosh computer and laserdisc player
 2 with tri-standard VHS decks and 19" monitors

As mentioned previously, small groups from the classrooms use these study rooms (Illustration 1 B). But a variety of other activities take place here for two reasons. We are willing to set up whatever equipment is requested by faculty in these rooms, and here students or faculty can talk or listen to material without using headsets. These rooms are frequently used for student-teacher review of audio or video assignments, oral testing, practicing material under development, and more. Each room has an equipment table, multiple electrical outlets, and access to foreign language TV programming. The equipment listed above currently resides in these rooms, but changes frequently to meet changing needs.

CONCLUSION

When planning a language lab, it is important to consider both current and future instructional needs. With the rapid change in technology, we must expect modifications in instructional methods and build flexibility into the design of a language lab. By being able to adapt to change, we can encourage faculty's efforts to integrate new technology into the curriculum. At M.I.T. we designed the LLARC with this flexibility as one of our priorities, so we can continue to meet the needs of our foreign language teachers and students.



Illustration 2

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- Our fully-equipped classrooms proved so successful that in 1992 nearly 50% of all foreign language classes were requesting use of these rooms—a scheduling nightmare. As a result of this demonstrated need, last summer M.I.T. equipped four more classrooms after our model.
- Two doors have been added to classroom 124, leading to the two contiguous study rooms. This allows faculty direct access to the interactive video workstations in these rooms. In retrospect, considering our objective of accommodating small-group work, the need for this ease of access is obvious. I believe this original oversight reflects our entrenched view of how a classroom should look—in our many reviews, no one suggested this change. Our realization of the problem reflects a growing change in teaching methodology. Faculty using interactive video eventually complained that having one interactive set-up directly available in the classroom enforced a “presentation” style of interaction—whether it was faculty or students presenting. By offering them access to a minimum of three systems, their style of teaching can now encompass group learning situations.
- Another change we hope to make is to move my office (currently by the audio lab) next to the technician’s area, which is really our AV and computer production area. Again this reflects a change—the lines between administration, computer production and AV production are becoming blurred. For example, I advise faculty on design of their software; our computer specialist develops administrative software; and our AV specialist works with digital audio and video resources. Often all three of us have input into any one project. We hope to create a central development and resource area surrounded by our offices. This will provide all of us with access to expensive development equipment; will allow us to share resources (expensive software, journals, reference books, operating manuals, etc.); and will further encourage an integrated team approach to LLARC projects—the best way for us to ensure quality.