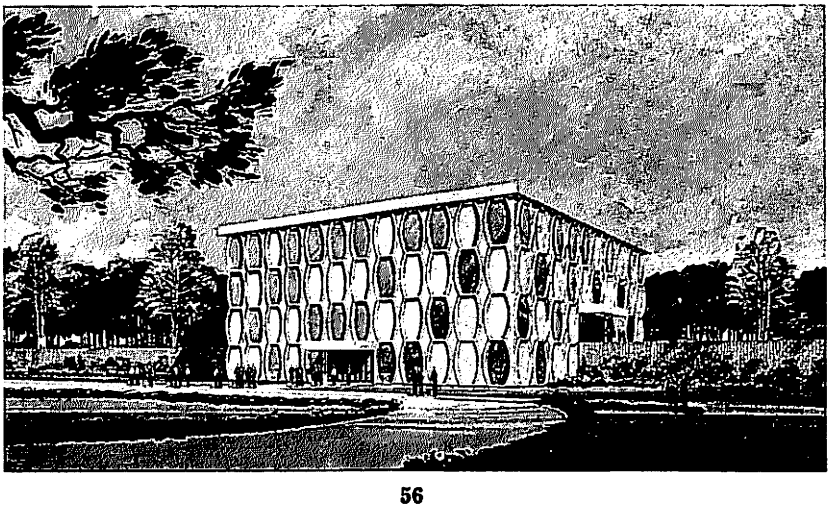
New Installations

DIAL ACCESS AT MARQUETTE UNIVERSITY

by Dale V. Lally Jr.

The recently completed dial access language laboratory facilities at Marquette University in Milwaukee, Wisconsin, represent another link in the growing chain of computer assisted learning centers at universities throughout the world. Many of these facilities here in the United States owe their existence not only to the general trend towards computer assisted instruction, but more concretely to public funds provided by the federal government and locally to the private initiative and foresight shown by progressive administrators and educators. Here one must include Dr. John J. Conley, the Chairman of the department of Classical and Modern Languages, Mr. Clarence Wilkinson, the Assistant Chairman, Dr. S. Samuel Trifilo, Professor of Spanish, Mr. Sebastion Helfer, Director of Planning and Construction, and finally, Mr. Norman Mikesell, for many years the well known language laboratory director at the University of Indiana in Bloomington, under whose able guidance the actual design of the new lab facilities was accomplished.

Using private and public funds from the Higher Facilities Act of 1963, Marquette University awarded the one quarter million dollar contract to the Rheem Califone Company of Los Angeles in the latter part of 1968. The actual installation, however, did not commence until May 1969 pending the settlement of a construction strike and the completion of the new Foreign Language Building to house the laboratory facilities. Within four months, in time for the Fall 1969 semester,



four of the five planned language laboratories, the tape/disc/film library, and the master control room complex were ready for occupancy. The fifth laboratory, a Dial Access room and the associated random access switching system, was not completed and checked out until May 1970.

As constructed, the Marquette University Foreign Language Laboratories feature a total of 169 student positions, of which 70 are audio active (phase two), 67 are audio-active-record (phase 3), and 32 are audio-active-record-remote (phase 4). Support facilities located in the master control room complex include a tape/disc/film library, two (2) recording studios, the computer controlled solid state switcher, the audiotape bank, student remote recorders, the master control console and console bay, and finally a fully equipped maintenance shop.

EQUIPMENT DESCRIPTION

Each of the 67 phase 3 positions is equipped with the Roberts LP 904T-II student recorder. This is an open reel, two speed, dual track deck which permits the student to record the master program on the upper track while simultaneously recording his own responses on the lower track. Since the record and erase heads on track 1 of the student deck may only be activated from the teacher console, the student cannot erase the master program until appropriate switching is completed at the console. The student of course may erase and re-record his own responses at will on track 2. Each of the five teacher consoles contains one record/playback unit LP 912T-II to permit the console operator to record the student responses and from two to

five playback units LP 923T-II. All console transports have half track heads. At this juncture a planned modification of the LP 923T-II playback units should be mentioned. Previously it was not possible to play a tape prepared for the dial access system on the lab room console transports, particularly when the desired program was on the lower track of the tape. Hopefully the addition of a head lead switch on both the LP 912T-II and LP 923T-II will allow the console operator to retrieve information stored on the lower track. If successful, the modification will mean a substantial savings in tape usage. No longer will it be necessary to duplicate an extra set of tape programs for use on the console decks, but rather the master copies and Dial Copies i.e. tapes made especially for the audiotape bank, will suffice.

Each teacher console has complete intercom capabilities. This includes not only student-teacher intercom, but also group call and all call functions. In addition, an in-house intercom system provides communications between all lab rooms, the master control room, the maintenance center, and the director's office. Finally, the ICP-1 console mounted intercom module contains a rotary dial head to access the audiotape bank and complete monitoring capability of all programs generated within or transmitted into the lab room. Three dial lines in the ICP-1 and two additional remote transmission lines from the control room give the console operator the option of five additional programs from outside of the lab room in addition to the programs originated on the console decks.

Each of the seventy audio-active (phase 2) lab positions contains the Rheem SA 30 student amplifier and the LX 857E headset/boom mike combination which is standard equipment throughout the laboratories.

The fifth and final lab room contains the student operated dial access equipment. Here each of the thirty-two phase 4 positions permits the same type of audio-active record-compare operation as in the phase 3 labs but with two significant differences. The first and obvious difference is the absence of the in-booth student recorders. In their place one will find only the SD-4 student dial control modules. The second difference is the method in which the student gains access to the information stored in the audiotape bank. Whereas in both the phase 2 and phase 3 labs the console operator originates the program either on one of the console decks or retrieves the lesson from the audiotape bank using the rotary dial head mounted in the ICP-1, in the remote or dial access lab each student may directly access the audiotape bank from his own position. Of course in order to know which programs are available and the appropriate access number, the student must consult the Dial Access Directory published bi-weekly by the foreign language labs and distributed to all remote dial locations.

In this phase 4 (remote) configuration, thirty-two (32) Roberts 360 automatic transports have been installed at one end of the master control room and correspond to the thirty-two student positions in the lab room. All of the remote control function switches and necessary volume controls are located at the student position in the above mentioned SD-4 student dial control module. When dialing into the audiotape bank from the dial access lab, the student has several options. He may listen passively to the dialed program without starting his own remote deck. He may start his remote deck and make a copy of the master program on remote deck channel 1. Or finally he may start his remote deck to make a copy of the master program on channel 1, while at the same time recording his own responses onto channel 2 of his remote deck for later playback and comparison of his own pronunciation with that of the native speaker on the recorded master program. Similar to the phase 3 configuration, the erase and record heads for channel 1 of the student remote recorder are activated only when the student or console operator dials another program.

At present there are provisions for fifty-four (54) remote dial stations all located within the language lab complex on the first floor of the Foreign Language Building. However the potential exists to widen the remote telephone access to the audiotape bank. Preliminary plans call for the extension of this service to the various dormitories throughout the campus and even to the library. But eventually, anyone using a touch tone telephone instrument will be able to directly access the audiotape bank by dialing the appropriate telephone number. However, callers dialing in from outside the language lab complex will not have the remote record capabilities.

The audiotape bank or memory function of the dial access system is comprised of fifty (50) Roberts 360 automatic decks, the same apparatus used as student remote recorders. Since each 360 deck can play both half tracks simultaneously in the same direction with no crosstalk, the memory function has a present total storage capacity of 100 programs. For the most part foreign language lessons, these programs are copies of master program sources and bear the designation Dial Copy plus appropriate catalogue annotation on both the reel and box. Because of the dial channel capability of the 360 deck, each dial copy may contain two separate programs — one program on channel 1 and another on channel 2. However, though separate, these programs are usually different lessons from the same series.

During the duplication process, the audio from the master programs is positioned on channels 1 and 2 of the dial copy to start almost simultaneously and with a minimum wait time. However, should one of the dial copy programs be of a different length than the other (usually the case), then an end-of-program signal is recorded onto the track of the shorter program. This signal, a high pitched warble

produced in a modified busy tone generator, indicates to whomever is listening that the program has ended and will rewind and restart as soon as the other program terminates.

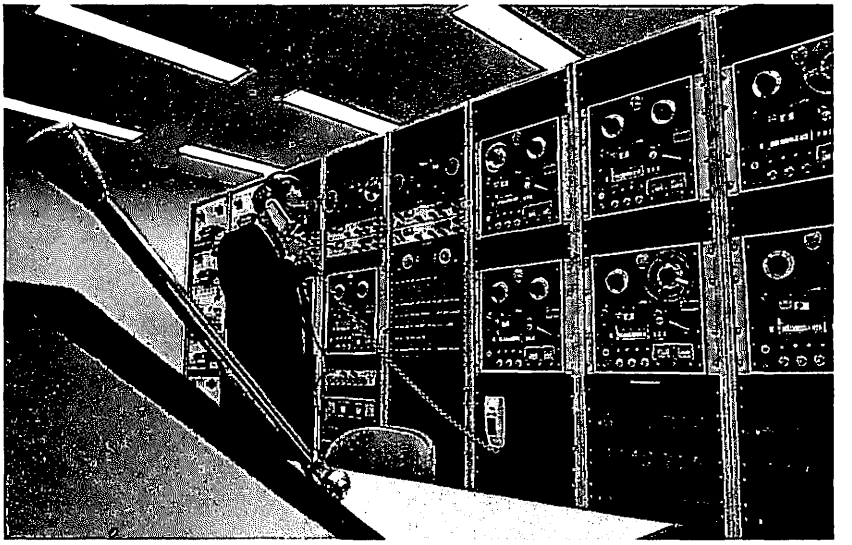
As with the student remote recorders, the high wind and cue functions of the audiotape bank 360 decks are accomplished with ten foot lengths of clear leader tape spliced onto both ends of the tape. At the end of the program twin optic calls detect the clear leader and order the deck to rewind. Upon detecting the clear leader tape at the beginning of the tape, the deck will stop, recue, and wait for the next demand. Should no demand be present the deck will shut down leaving only the solid state amplifiers turned on. Similarly, if during the program all demands cease, the deck will rewind, recue, and shut down. All of the 360 decks have performed extremely well and a recent modification to the logic cards has even further increased reliability.

MASTER CONTROL ROOM CONSOLE AND ASSOCIATED EQUIPMENT

The master control room console and the associated console bay form the main interconnection point for all systems in the lab complex and thus provide monitor and control functions for programs originating therein. The console itself has dual controls, an arrangement which permits one operator to monitor specialized activities such as live recording sessions in one of the two recording studios, while a second operator takes care of more routine activities such as tape and disc duplications, live off-the-air recording, program transmission, or intercom monitoring. For communication, two separate in-house intercom systems and an outside telephone line terminate at the console. One such system together with a remote line network provides intercom and program transmission into every classroom in the building. The second system, already mentioned in connection with the console equipment, provides voice contact among all language lab facilities. Finally the outside telephone link, brought out at the master program patch bay, gives the capability of either sending or receiving programs via Bell System voice grade trunks.

Located directly behind the master console, the eight rack master console bay includes two Magnecord duplicators (one quarter track and one half track), three (3) Ampex AG 600 recorders, eight (8) Roberts 400 automatic recorders, the Sherwood AM/FM S 2300 receiver, a Hammerlund HQ 100 MF/HF receiver, one Roberts dual record/playback cassette, the master patch bay, and the program distribution bay. In addition to the recording, duplication, and transmission work mentioned above, all splicing, leadering, and editing work is performed at this location.

Finally, two Thorens TD 150 AB turntables each with its own Dynaco PAT-4 preamp rounds out the equipment description.



LANGUAGE LAB UTILIZATION

During this first year of operation, the Marquette University foreign language labs have witnessed a significant increase in the numbers of student and faculty members using the facilities. Though data is incomplete, the enrollment falls between 1,200 and 1,500 students per week. This represents a doubling of student lab utilization and also reflects added language lab requirements. Whereas formerly only the first and second semester students were scheduled into the labs, now the third and fourth semester students are required to attend. The classes are scheduled by section into a particular lab room and attendance is taken. The instructors often accompany their classes to monitor and evaluate performance from the teacher console. Eventually the practice of scheduled classes in the labs will be liberalized to permit voluntary attendance and a library type operation.

The problem of audio-visual materials has focused additional attention on the lab facilities. When the building was first occupied, the language labs received the custody of and responsibility for all of the audio-visual equipment and realia owned by the department. The increased storage space, additional student help, and the general electronic capabilities combined to make the language laboratories the ideal agency to control and maintain the equipment. Finally, language lab personnel take the time to instruct potential A-V equipment users in the proper operation of the various projectors, recorders, and record players. Should there be insufficient time for instruction, then the language lab director will even provide an operator. In this manner the language laboratories have become a true audio and visual center.

LESSONS LEARNED

One year of operation has brought to light several facts of life — a few pleasant and a few not so pleasant. On the pleasant side, Marquette University now possesses one of the finest completely operational dial access learning centers at the university level in the state of Wisconsin. Now that is quite a trick for a private university competing against the excellent state universities here in Wisconsin. Hopefully these facilities will play a significant role in attracting better students and faculty members. They have already improved the quality and depth of foreign language pedagogy, particularly with the increased availability of portable A-V equipment for classroom use. However the greatest advantage of these facilities lies in a challenge that they represent — the challenge to further improve, to improvise, or even to manufacture entirely new programs. Unfortunately this challenge leads to the unpleasant facts of life. Ultramodern, high quality language lab facilities are absolutely merciless in bringing out the glaring mistakes and unsuitability of many cherished programs and ideas. For instance, most of the tape recorded language series produced for audio-passive (phase 1) or audio-active (phase 2) are not only completely useless but even frustrating for students and teachers using phase 3 or phase 4 labs. Furthermore, even if educators and administrators agree on the necessity for new tape series custom made for phase 3 and phase 4 installations, they are going to find out that the number of appropriate programs is startlingly small. And whatever is available certainly cannot be used in the format as delivered by the publishing companies, but rather must be edited rather extensively — a long and costly process. It seems that publishing companies seldom ask for the cooperation or advice from operational A-V centers, but instead play on the uncertainties of many educators. How often does it occur that a teacher, trying to select a new text for a course, will choose a text that features accompanying tapes without ever listening to the demo tape or even consulting the A-V center. Later when the tapes arrive, everyone discovers that only through extensive editing will the series become usable. That same teacher, with help from the A-V center, could probably have made his own programs as easily and as economically. Finally the problem of economics leads to another unpleasant fact of life.

An installation of this size (one quarter of a million dollars) requires an operating budget several times larger than previous budgets for older facilities. One small example is the type of tape used. Formerly it would have been possible for the language labs to get by with a single master copy of a program on fairly inexpensive acetate back recording tape for use with slow, manually operated transports. Now however the introduction of new transports featur-

ing very fast high wind modes and automatic cuing requires the use of more expensive, self-lubricating polyester tape. In addition more copies must be made to accommodate the increasing demands.

SUMMARIZATION

The new dial access facilities have certainly changed the life style not only of the foreign language faculty here at Marquette, but also of the administrators grappling with the skyrocketing costs of installation and maintenance. On the pleasant side, the facilities cannot help but to attract more talented students, faculty, and staff. On the unpleasant side, one must realize that sophisticated electronic gadgetry will not of itself provide the panacea for all that ails university level training. It is the people — the educators, the students, and the administrators who must provide the new ideas, techniques, and programs. The teaching machines will provide the challenge and the tool. That is a good task for a one year old.

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