

IMMEDIATE, REPETITIVE PLAYBACK/RECORD - A PRACTICAL SOLUTION

by H. F. Aikens and A. J. Ross

A few years ago¹ we described the construction of a device for the language lab which fulfilled the *desiderata* expressed in an article by Prof. F. Marty², author of *Elements for Self-Expression in French* ("ESEF")³, a basic method in which the techniques possible with such a device would be useful.

The apparatus envisaged by Prof. Marty in his 1963 article would consist of:

- (a) A single-channel tape playback, to play the teacher's tape, which has been prerecorded without blank pauses for student repetition. The student stops the tape after every question, gives his answer, then starts the tape again to check his answer;
- (b) A separate tape transport with a five-second loop. The transport is connected to the teacher's tape playback and to the student's microphone so that the loop holds always in storage, for **immediate** and **repetitive** playback, whatever took place during the previous five seconds — whether it was the teacher speaking, the student recording or a combination of both.

The advantage of such a system (other than economy in the preparation of the teacher's tape - or, as we prefer to call it, the lesson tape) is that the student is not obliged to practice **every** sentence he hears. If he judges his answer to be correct, he can proceed to the next problem. Only if he has difficulty in understanding will he choose to hear the lesson tape phrase again, and only if he is in doubt concerning his ability to reproduce an answer orally will he choose to record his voice and compare it with the lesson tape.

In fact, we doubt the value of self-recording as a learning technique⁴ and find that our own students record their voices infrequently once the initial novelty has worn off; and yet are able to improve their performance up to expectations. Thus, the immediate repetitive replay seems to us to be the most valuable feature of a basic language laboratory device. Beside its use in structural drills, immediate playback has other applications (e.g., in memorizing a text, in exercises in phonetic transcription). Still, the recording facility remains a desirable feature since some teachers and students do find it useful, and others may wish to experiment with it.

In the system we described in 1968, in case he did decide to listen to a phrase from the lesson tape again, the student could hear the phrase repeated as many times as he wished simply by operating a single switch, and without rewinding the lesson tape. Similarly, he could record his own voice and listen to it as many times as he wished, switching from his own version to the lesson tape version for comparison at will.

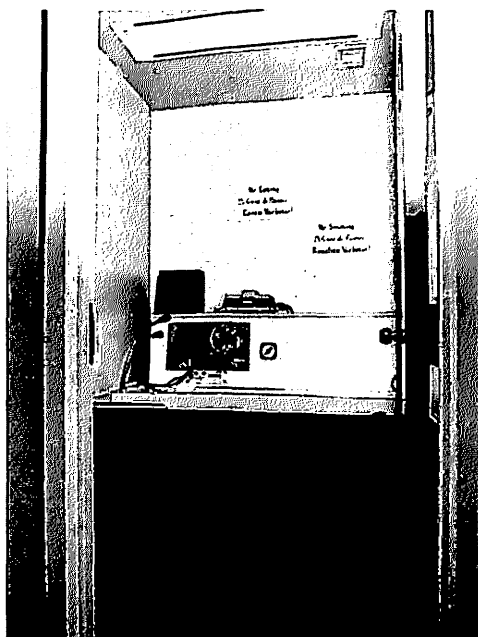
The disadvantage of the system, as we worked it out, lay in the limits imposed by the five-second loop. Although five seconds represented an average length for the practice sentences we were using, sentences of shorter length (or lesser segments of the speech chain, such as vocabulary items, which a student might wish to hear repeated by themselves) did occur, and presented a problem. What we needed was a variable-length memory loop with a playback time that could be matched to the length of any segment of the lesson that we judged eligible for repetition. The only solutions we have seen to the problems in machines commercially produced involve a choice of loops of different lengths. But we were looking for something better.

A solution suggested itself in the Sound Teacher⁵, a machine designed to present the LISTEN/RECORD/COMPARE sequence automatically by the manipulation of a single switch. The Sound Teacher combines in the same machine (somewhat on the same principle as in our original apparatus) a reel-to-reel tape transport and a continuous loop. Lessons are prepared and placed on the standard three-inch reels. A one-second silence is left between each sentence (or other repeatable segment) on the lesson tape. When the student raises a lever switch (the REPEAT/RECORD lever) the three-inch reels stop and rewind to the nearest silent spot on the tape of one second's duration (or longer). Rewind time is one-half of the playing time for the segment just heard; replay follows rewind automatically. When the student lowers and holds down the same REPEAT/RECORD switch, a separate tape, in the form of a long loop, is set in motion⁶. Speaking into the microphone of his headset, the student records his voice on this loop. When he releases the lever, he hears his voice played back within half a second. By manipulating the lever, the student may hear the previous segment of the lesson tape — of whatever length (from one second to twenty seconds) — repeated as many times as he wishes. He may similarly record and hear his own voice as many times as he wishes, and may compare the voice on the lesson tape with his own. (The student's recorded voice is erased automatically after each attempt, so as to avoid any danger of reinforcing errors). The Sound Teacher therefore performed all the functions we required, and did so with acceptable standards of sound fidelity and response time.

However, all of the lesson materials at Dalhousie University are recorded on seven-inch reels of tape (each reel containing a unit of work in ESEF of 30-90 minutes) to be played at 3 ¾ ips on a Telex 230 tape

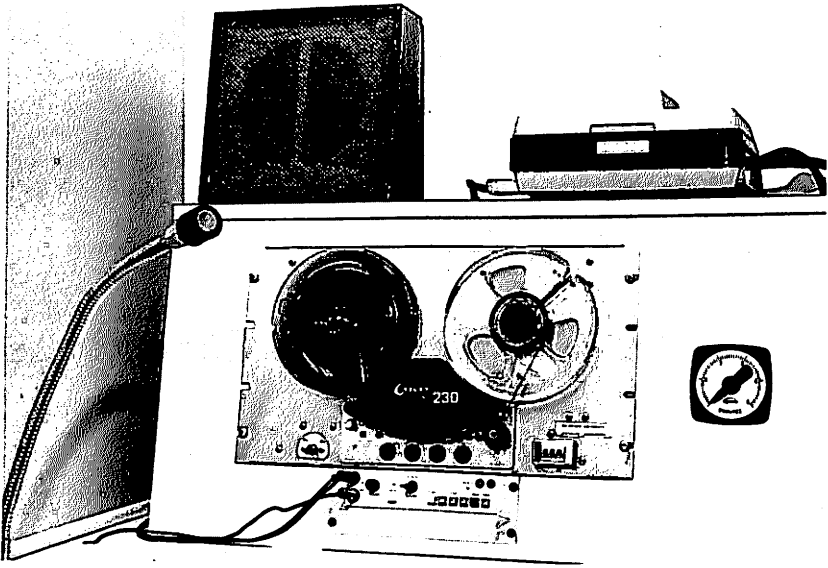
Repetitive

deck, which is basic equipment in our lab. The problem was to wed the Sound Teacher to the Telex 230 and to provide the results we wanted with minimum cost and bother in the change-over from our earlier memory-unit attachment. We presented the problem to Educational Sound Systems ("ESS"), who worked out the combination that has become standard in our learning lab and has proved itself useful pedagogically and technically sound.

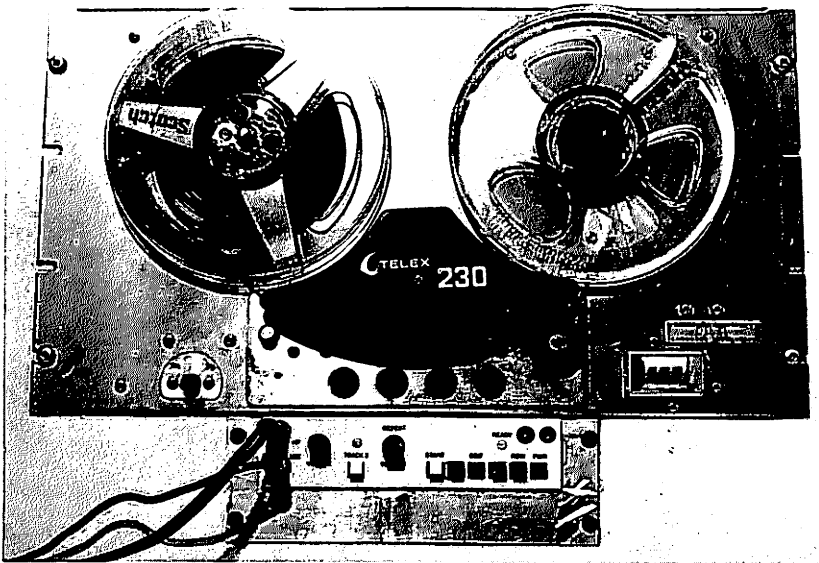


1. Interior of study carrel.

The lesson tape, on a seven-inch reel, is played on a Telex 230 tape deck. As it is played, the sound is copied by the (slightly modified) Sound Teacher and recorded on a three-inch transport system. When the student wishes to hear a phrase repeated he raises the ESS REPEAT/RECORD lever which stops the Telex reels and causes the ESS machine to perform its repeat operation. If the student wishes to record his voice, lowering the ESS REPEAT/RECORD lever also stops the lesson tape (if it is not stopped already for repetition) and transfers him to the ESS memory loop. (The three-inch reels of the Sound Teacher contain enough tape for one hour's recording. When the ESS feeder reel is completely unwound, the student, alerted by a signal light, must wait about one minute while the three-inch reels automatically rewind the tape. However, if he remembers to push a REWIND button at the beginning of his lab study session he is unlikely to



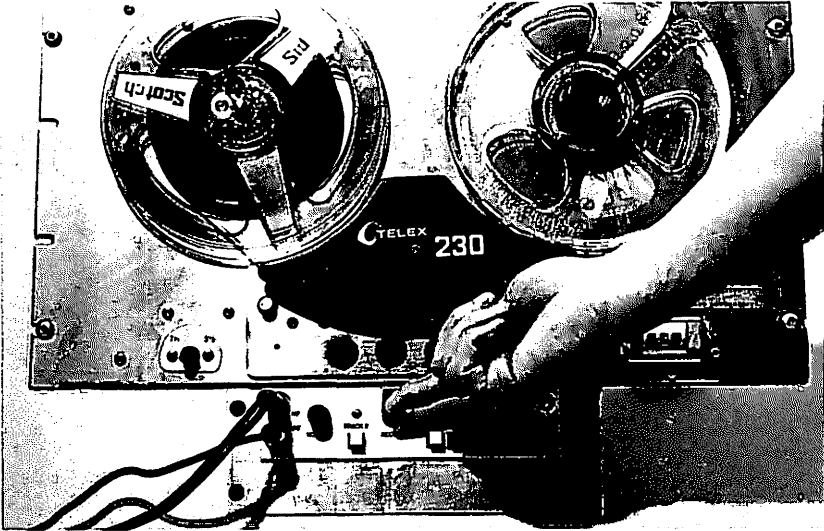
2. Telex/Sound Teacher combination, with microphone and speaker (timer is for special timed exercises).



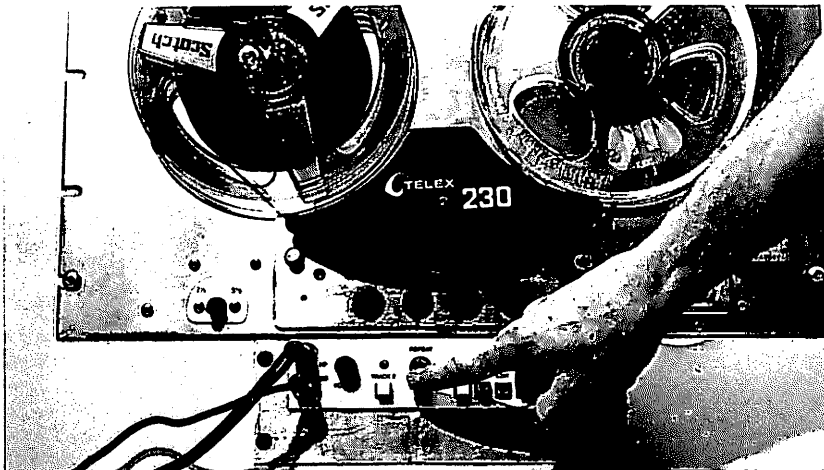
3. Close-up of Telex 230 deck and Sound Teacher control panel.

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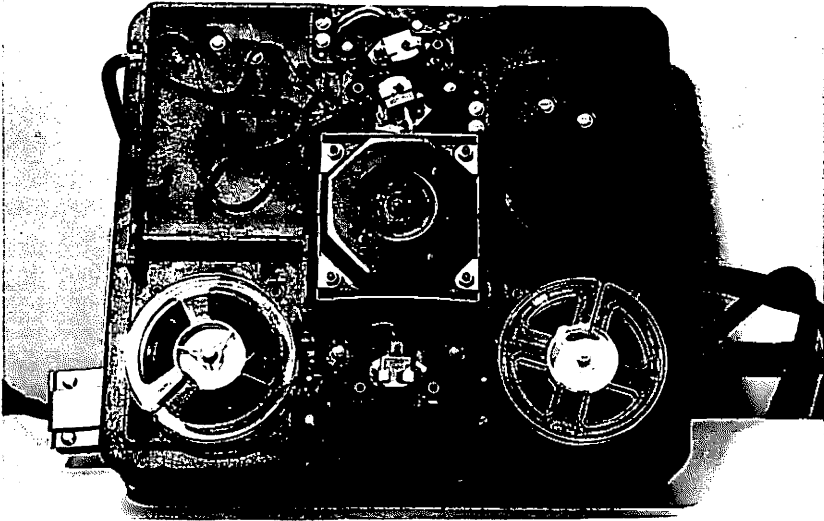
be interrupted by the rewind signal light, since the study sessions rarely exceed 45 minutes). In our lab, the Telex/Sound Teacher combination is installed both in open booths where the student has a headphone/microphone headset, or in small individual rooms ("study carrels"), in which case the student speaks into a microphone and sound is reproduced through a loudspeaker.



4. Lifting REPEAT/RECORD lever stops Telex transport and causes Sound Teacher to repeat previous section of recording.



5. Lowering REPEAT/RECORD lever sets Sound Teacher loop in motion to record student's voice.



- 6. ESS Sound Teacher with top removed to show 3-in. reel tape transport in lower section, student's recording loop assembly in upper section (buffer bin is to the left of the centrally located motor, holding bin is to the right).**

Of course, our ESEF lesson tapes had to be re-processed in order to assure the minimum one-minute silences between repeatable segments. To facilitate recopying the tapes, we prepared a simple pausing device to insert the desired blanks in a copy made from the original lesson tape. First the text of the lesson tape was edited by a member of the teaching staff, with boundaries of repeatable segments being marked in pencil. Then a lab technician acquainted with French copied the original lessons, inserting one-second pauses at the designated places and producing a sub-master tape containing the required pauses in the desired places. From the sub-master, enough copies were run off on our tape duplicator to provide for the needs of the lab (20-50 copies).

We think that we have found a system that is efficient, versatile and not too expensive⁷, considering its overall quality, and a good answer to present-day needs, at least until computer-assisted instruction takes over.

FOOTNOTES

- ¹Aikens, H. F. and Taylor, D., "A Memory-Bank Device for the Language Laboratory" in **The Catholic Education**, Vol. XXXVIII, No. 7 (March 1968), p. 84-91.
- ²Marty, F. "A-V for Self-Instructional Language Courses" in **Educational Screen and Audiovisual Guide**, May 1963, p. 266.
- ³Successor to Marty's well-known **Active French**, and published (1975) by Audio-Visual Publications, Box 2576, Station A, Champaign, Illinois 61820.
- ⁴In this we are in agreement with Prof. Marty: see his **Teaching French** (Audio-Visual Publications, 1968), pp. 13-14.
- ⁵Manufactured by Educational Sound Systems, Inc., P.O. Box 1419, Melbourne, Florida 32901.
- ⁶This loop is an important characteristic of the Sound Teacher. It is described in the manufacturer's literature in the following terms:
The instant, automatic replays of the student's response are made possible by a separate record/playback tape in a unique self-metering, instant-replay device.
Initially, all of the student record tape except that required for a circuit of the track is in a supply bin. There is no information on the tape between the record and playback stations, and the buffer loop is taut against the sensor. In RECORD, tape is pulled from the supply bin, passed over the erase/record head, and looped into the buffer bin. Any random length can be recorded, up to the capacity of the tape. After releasing the record lever, the tape continues into the buffer bin for a predetermined interval to assure complete playback of the student response. During PLAYBACK, the tape in the buffer bin is pulled out and passed over the playback head, and returned to the supply bin. Rewind is not required for playback. At the tape position where the recording ends, the buffer tape will be pulled tight against the sensor to stop the tape automatically.
- ⁷Costs vary greatly according to local conditions. We estimate that we can equip 60 lab positions with our system at about \$1500 per position for equipment.