APPLICATIONS OF EDUCATIONAL TECHNOLOGY TO LANGUAGE TEACHING

by George R. Graziano

Note: The following article by Fr. George Graziano, S.J. of Sophia University in Tokyo, Japan, which I first had the privilege of reading in late December 1971, is remarkable for several reasons, not the least of which is the fact that it could result in a drastic change for foreign language pedagogy. Another reason is the fact that the man and the method are almost entirely unknown outside Japan. There are woefully few educators here in the United States who are even faintly aware of this albeit obscure but radically new method of teaching foreign languages to the Japanese people which George Graziano has been carefully developing over the past decade.
In the meantime, here at Marquette University, a sister school of the Jesuit Sophia University in Tokyo, we are continuing with our plans to initiate a similar foreign language video teaching program. This then is George Graziano's article, first published in pamphlet form in Japan in 1968. — Dale V. Lally Jr., Director, Language Laboratories, Marquette University.

Books were in existence before the invention of the printing press. Laboriously copied by hand, they served both student and teacher at great expense. The printing press made books more legible, reproduced them in greater numbers, saved the scholar's time, but taxed his pocket book. No one considered them a substitute for the lectures they contained. Their main function was in the deeper assimilation they afforded of a scholar's ideas in the absence of immediate confrontation. One of the side effects was to offer a scholar a wider audience. Perhaps we might consider it one of the antidotes to the mass production evils of the medieval university. Professors learned to use this tool rapidly for educational purposes.

Instructors had a long time to experiment and develop the use of the textbook to extend the usefulness of their lectures. Pictures and charts and diagrams were added to the written word to enhance and clarify the message. Then sound came with telephone, radio, and the phonograph. Perhaps because of their nonreproducible character, telephone and the radio have never really done their share for education, whereas the phonograph, though reproducible, has never ventured far beyond the concert hall and a few poetic utterances for its educational role.

The tape recorder is another story, however. Few people recall its less faithful and less manipulatable predecessor, the wire recorder. The high fidelity, the easy operation, the portability of the tape recorder easily lent themselves to the demands of study and the classroom. The cassette-type recorder gives even greater hope in the field of education, particularly of languages, now that the fidelity has been further improved. In the hope that examination of the use of this tool might lead us to further insights into the use of even more recent technological tools, let us examine the use of the tape recorder as an educational tool in language study a little more closely.

The tape recorder may assume a variety of roles to achieve its goals as a language teaching aid. It may be used privately and individually by the student to supplement his classroom work. Such industry would be rewarded by the enrichment or extension they would afford to the normal classroom work, and would have the advantages of working according to the individual's need in rate, depth, and convenience. A library system would offer advantages to students who are unable to acquire their own equipment, but may limit the convenience of the student, and depending upon the facilities of the library materials, may also have an effect on the student's rate and depth of learning as well. On the other hand, if there is a skilled teacher available for monitoring the library system, there could be even greater advantages to this system — though the luxury of such a monitoring system is not always available. Finally, there is the language laboratory under the direction of the teacher limited by the budgets of individual schools for the degree of flexibility its equipment may offer. Various degrees of success will depend on whether the LL is a Listen-Only, a Listen-Speak, a Listen-Speak-Record, a Listen-Speak-Record-Monitor, or any other combination that may be possible or likely.

To say that any one, or several, or all of these methods are ineffective, unproductive, or useless as language aids, is a facetious and uninformed remark, no matter how kindly we may wish to evaluate such a gratuitous assertion. The same remark may be made of any textbook, or series of textbooks, with equal lack of responsibility. Any balanced intellect will admit that there are good textbooks and bad ones, that there are effective uses for bad textbooks and ineffective uses for good textbooks, but that, nevertheless, the text book has tendered an inestimable service to education, even language education, throughout its long history of use. Moreover, there have been scientific tests conducted to compare the traditional teaching methods of language teaching with more recent methods using various systems of language laboratories with various limited or extensive objectives. Such scientific tests were never deemed necessary to

justify the use of the textbook, in comparison with a class in which the teacher used no text whatsoever, even though we might imagine certain circumstances where an unusually gifted teacher may be able to get better results without such printed aids. Whether a language laboratory is effective or not as a language teaching aid may depend, therefore on a number of variables: the limitations of the equipment, the programmed materials prepared for the machines, the manner of using them by a teacher who is well acquainted with its various possibilities, assets, and defects.

When educators first turned to the tape recorder as a teaching aid for languages, their first thought was to employ it for the improvement of pronunciation. It was thought that a reflective comparison of the teacher's model demonstration with the student's imperfect rendition would cause the student to mend his ways, and gradually produce an accurate facsimile of the sounds of the new language. In his book, *Language Laboratory Learning,* Fernand Marty has presented a reasonable explanation of why this hasn't, and why it is unlikely that it ever will, happen. His reasons are cogent. The student conceptualizes in terms of his native language; sounds that are clearly different to a native speaker are heard as one sound by the student. Should a student be unusually gifted to discern the difference in the native sound and his poor imitation of it, how is he to readjust his characterization without the help of a skilled teacher to tell him what he is doing wrong and the means to correct it? Even if he should hear the difference, and knows the means to correct his distortion, without professional direction how is he to know when he has produced a sufficiently accurate and habitual response? And, if he is able to do all of these things, does he really need the lengthy exercises that he will be forced to endure, rather than the simple points that have already been assimiliated in the classroom, to make him an extraordinary student? While we would not wish to say that such pronunciation drills are completely ineffective, we feel the necessity to look for a more beneficial asset in the use of the tape recorder for language learning.

Psychology brought the next development to language learning with the tape recorder. The repetitive character of the tape recorder easily suggested its strength as a tool in habit formation. Since language (spoken or written) is a skill as well as an art, this was considered an extremely important development. The major objective was transferred from pronunciation to the formation of habits that would produce fluency. The items to be practiced were dissected into minimal units and practiced according to little steps in the step-by-step procedure. Exercises and sentences within the exercises were to be graded. The sentence manipulations by the student were to be

challenging but not excessively difficult lest motivation be weakened. There were to be pauses for the student to respond to the challenges, with immediate correction or reward offered by the correct answer on the tape, another pause for the student to reinforce his habit. Certain exercises were to focus the attention of the student on one problem while at the same time exercising another, again fostering reinforcement and testing the strength of the habit through indirect learning techniques.

It took a while for this theory to be made practical in the form of exercises to develop language habits. There may be a number of scholars who feel that the exercises which have been developed are inadequate, and that a good deal of work still remains to fully take advantage of the theory. Nevertheless, exercises were developed, and produced their share of success. Habits of speaking were formed, and the habits were even potentially flexible in that the student could produce utterences which were different from those practiced by making the necessary substitutions and manipulations according to Class Word Forms and their customary slots in a sentence. Yet, even if the student performed his drills religiously, fluency didn't develop automatically as soon as a student was confronted with a real-life situation requiring a use of the target language. Apparently, the process is still incomplete. There must be some element of speaking habits that has still eluded language educators.

Examining the problem theoretically, it would seem, that although a pattern practice series of drills systematically arranged for use with an audio tape recorder could develop a habit, it did not help the student to make a value judgment which demanded that any particular habit already developed should be used in a concrete definite situation. There was no awareness or recognition of the context in which the habit was to be used, and habits for developing such an awareness or recognition were unforseen and undeveloped. This very principle has been recently recognized by the development of contemporary psychological theory in the formation of habits. Until now, the work of Dr. Skinner has caused language educators to stress the mechanical functions of habits. Recent work, notably by Mowrer, has shown that the "drive" function motivated particularly by the will in human beings may be more significant than the purely mechanical function. This brings in the element of choice among variously assimilated habits, and shows that such a choice is a habit function in itself. When both the original habits, and the "choice" habit are formulated in a context, the drive function should be increased, and the habit should be strengthened, and formed in a shorter period of time, with perhaps a single occasion in some instances. The question then arises, as to how all this is to be done

systematically with the use of a tape recorder where one merely has the spoken word to rely on?

Radio drama is nothing new. Such dramas have been in existence almost from the start of radio. Music and sound effects have helped a great deal to create sound pictures and contextual images. Films, of course, present both sound and pictures at the same time, but they have various disadvantages, such as the need to be viewed in dark rooms, the control of the machinery, the difficulty of replay and repetitions (which defects are not common to the tape recorder). Like radio, there is also television, but with the same disadvantage of a one-time-only performance. The recent development of relatively inexpensive videotape recorders has now led us to expect that perhaps this may lead us to an answer to this problem of habit choice in a contextual situation. With this objective in mind, we have begun our studies in the use of a videotape recorder for language habit formation.

As was the case with audio tape recorders before them, the first thought of many language educators was to use the VTR (videotape recorders) to help the student in the formation of prounciation habits by seeing the points of articulation, and showing the student his own picture in contrast by using an active (live) camera. Upon reflection, anyone can realize that the number of sounds whose articulation (points of articulation) are visible to the camera are extremely limited. Moreover, this use completely ignores the repetitive advantage of a "recorder". If we consider the question of habit formation, and of the formation of habits of choice, our problems become immense. Will it be possible to get better results by merely adding pictures to the audio materials already developed for habit formation in languages by means of the pattern practices? Would it be better to construct a script, develop new exercises uniquely adapted to the new medium, produce one's own film series, test and evaluate the new materials, and rearrange the materials in their most effective sequence?

The amount of time, energy, and money for such an expensive enterprise would be enormous. To maintain professional standards in each of the various procedures would be an insurmountable burden for even well-endowed educational institutions. We have therefore sought for a solution in a more modest but nonetheless professional manner. Professionally produced drama materials already exist for TV film reproductions. We set ourselves the task of determining whether such films could profitably be used to achieve our purpose of developing habits in a context and developing exercises which would force the student to make a habit choice.

Our first step was to gather recorded TV films. We purchased three home-use videotape recorders equipped with a still mechanism and the possibility of after-recording of the sound track (independently of the picture). We were successful in receiving TV film from CBS, NBC, MCA and Screen Gems on an informal basis for exclusive use in our research project. We chose "The Defenders" series for our initial working material because of its high quality of English unmarred by large quantities of idiomatic or slang expressions.

Copies of the TV film sound track were made on audio tape, and from these tapes the scripts were typed. From more than 20 tapes we chose one, "The Poisoned Fruit Doctrine". as our sample specimen. From a 23-page script we isolated each of the sentences of the text and composed a minimum of three alternate expressions of a similar meaning in such a context for each of the more than one thousand sentences. This amplified our text to one hundred pages. Our overall purpose was to prepare materials that could later be organized into consistent patterns of English language skills. More immediately we felt that idioms and slang expressions, where they occurred, could be mastered with a minimum effort from their alternate expressions in the context without the need for futile recourse to a dictionary or lengthy explanations. Another by-product would be contextual vocabulary enrichment. Finally, the alternate expressions would indirectly offer the student an insight into the process of forming a variety of expressions from a single context. This latter skill is one that is possessed by most native speakers in their own language, but it is rare that a student can devise more than one way of expressing his ideas in a single context. An effort was also made in arranging the alternate expressions in the order of their politeness or formality, and expressions meant for recognition but not reproduction were marked. Japanese translations were prepared, but are being revised for greater accuracy and precision. This first stage of the project took about a year and a half.

The second stage of the project was aimed at arranging the materials in a more systematic way, and finding practical and effective ways of using the materials in a classroom or laboratory situation.

The first exercise attempted was one which utilized the pictures of the TV film itself. The objective was to practice the use of prepositional phrases (or, "p-groups") in the context of the taped film. When a wall clock appeared in the film, the VTR was turned to the "still" position to hold the picture, and the question was asked, "What time is it?" to elicit an answer with the preposition for time expressions. When a man approached a newsstand, the controls were again turned to "still" position, and the question was asked, "Next to what does he stop?" to elicit, once again, the use of a preposition. In this

manner, previous habits in the use of prepositions practiced in an audio-only language laboratory, were now put to use in the context of the film. Sometimes the nature of the question required the student to make a judgment in his choice of a preposition, sometimes the nature of the question suggested the choice to be made. In the textbook constructed for use with the film, the questions were put in a programmed form, so that the students could answer the questions without the film as a homework assignment previous to the classroom drill in preparation for the exercise. The programmed questions took on the following form:

As our story opens, the clock on the wall of the hotel lobby shows the big hand on the 11, and the small hand on the 3. What time is it?

A newsstand sells newspapers and sometimes, cigars. Mr. Wilson approaches the newsstand. Next to what does he stop?

A wrist watch tells him the time. He is in a hurry, so what does he look at?

Such programmed questions make it possible to use the materials even without the videotape. They also point up the economy of the use of a picture image as a context one. Such questions were developed in units of five to ten minute sequences.

Each small film sequence was then replayed and questions were asked about the content or understanding of the events in the sequence. It was intended that when the content questions were asked, the part of the film sequence that was pertinent to the answer would be reshown, but our home-use machinery was not up to the task.

The alternate expressions for each line of the text were the next items to be practiced. Here, again, our efforts were limited by the shortcomings of our equipment. The Japanese translation for one of the alternate expressions was given, and the student was asked to give its closest English equivalent. The exercise, based on refined distinctions between expressions which were roughly equivalent, could be considered an elementary preparation for simultaneous translation. Eventually, we dubbed in the Japanese on the picture sequence, and then re-ran the same silent picture sequence for the student to insert his response.

Grammar questions were also prepared for each line of the sound track, and an effort was made to relate the questions to the context. Unfortunately, our equipment again put limitations on our capabilities, as did the time available to prepare charts and dub in repetitions

of the sound track. A similar technique could eventually be applied to teaching intonation, stress, and pronunciation. It will be important for us to utilize the unique value of the picture as well as the sound to achieve the greatest pedagogical dividends. In the textbook prepared for this section, we used the programmed technique to elicit quick responses from the students.

Audio tapes were developed for use in the language laboratory while the previously described drills were used in the classroom. On the tapes the emphasis was placed on the imitation of the sound track, taking each line from the sound track. In this way, even though the sentence was isolated, the pronunciation, stress, and intonation remained as it existed in the original context. This heightened the changes which the speaker was forced to add as an ordinary sentence to suit it to a context. The alternate expressions were also practiced in their relation to each line of the sound track to help the student to increase his ability to vary his expression, and to bring a fullness to his capabilities.

The sound tapes also were a notable aid to the next exercise tested in the classroom. Students were selected at random from the class to take the parts of the characters in the TV film sequence. Then, the students, without recourse to the text, acted out the scene, using either the exact lines of the text, or the alternate expressions which they had practiced in the classroom and in the laboratory.

Another, similar exercise had the students dub in the sound track while the film was being shown. They would go to a microphone isolated from the class by a glass booth in the rear of the classroom. The mike was connected to speakers behind the TV screen. The volume of the sound track was turned down, and the students' voices were substituted for those on the sound track. Because of the timing, it was found necessary for the students to use their scripts.

Several other exercises of a similar nature were tried. The circumstances of the film scene were slightly changed, and the students were asked to re-enact the scene under the changed circumstances, making the necessary changes in the dialogue to suit the new situation. These latter exercises gave promise of unique possibilities, which are still open to development.

From the work we have done so far, it is difficult to accurately evaluate the effectiveness of our techniques at this early stage. If the enthusiasm of the students is any measure, the project is already a success. Obviously, means will have to be devised to test the materials according to more scientific procedures, and plans are being made to do this. First, however, there will be a need to develop the

raw materials that are to be tested, and this should take us some time yet. Fortunately some of the inadequacies of our equipment will be removed as a result of the generous support we have received from the Japanese Ministry of Education.

Though we have proceeded a certain distance in the use of technological instruments for language learning, there is still a long way to go before we arrive at our destination.

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