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Tabacundo: Battery-Powered Dialogue

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TECHNICAL NOTE NO.

10

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SUMMARY: The purpose of this technical note is to describe and analyze the impact of cassette tape recorders as a feedback and programming technique in a rural radio school program. It describes their introduction into the Radio Mensaje Program in Tabacundo, Ecuador, and examines effects of their utilization.

TECHNICAL NOTES

This series of Technical Notes has been produced by staff members of the Ecuador Nonformal Education Project. Each note focuses on a particular issue or technique which has been developed and tested in Ecuador. The notes contain the information available at the time of writing and analytic comments based upon available evaluation data. However, the notes are in no way an evaluation of the project. Their purpose is to share ideas and information about new techniques as they are developed. Project staff want to encourage comments and suggestions from readers who may have had experience with similar techniques in other settings.

The project is financed by USAID and is a joint undertaking of the Ministry of Education in Ecuador and the Center for International Education at the University of Massachusetts. Ideas and materials derived from the ideas were created jointly by staff in Massachusetts and staff in Ecuador. All materials have undergone considerable change in the field as usage in various situations indicated needed modifications. The notes attempt to accurately credit the creators of each technique. In some cases, though, ideas have been modified by a variety of people and precise assignment of credit is difficult. In all cases, various members of the staff have made substantial inputs into the final version of the materials.

After three years of effort the number of people in Ecuador and in the United States who have made substantial contributions to this project is considerable. Rather than trying to enumerate the particular contributions of each, we will only note that this has been a genuine bi-national effort.

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TABACUNDO: BATTERY-POWERED DIALOGUE

BACKGROUND

The cassette experience* was generated from the introduction of cassette tape recorders as a production and feedback device for the Radio Mensaje project, a rural radio school program. Recorders were made the responsibility of auxiliares, unpaid non-professionals from the communities who, having passed through the radio school's three cycles, act as teaching assistants for subsequent generations of students. They and the students, sometimes together with other members of the community, prepare and submit program material recorded on cassettes to the radio station, where it is edited and broadcast in a weekly half-hour program called Mensaje Campesino ("Peasants' Message").

The experience began from the premise that one of the weak links in most radio education programs is the lack of adequate means to assure direct feedback from, and active participation of, the student-listeners. Available materials on radio schools of literacy programs mention little innovation in this area. Letters are generally relied upon as the only regular means of student-listener expression. There have been a few attempts to record rural discussions and opinions (notably in Senegal and India) but the recording is in large part structured by people from outside the area, and is not part of a radio school program.

Our intent was to provide the cassette recorders as a tool for the auxiliares, to be used by them in or outside of the classes, and to be kept in their possession and under their responsibility. Training was to be kept to a minimum, since the recorders are basically very simple to operate. The staffs of UMass and Radio Tabacundo were interested in what the auxiliares would decide to do with the recorders,

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*We stress the words, "cassette experience" because what we describe were the activities carried out by the participants of the Radio Mensaje Project. It required only a small investment of our team's time. Our imput was limited to 4 hours training in the beginning to show the campesino leaders how to use the equipment. Also, team members spent several weeks in the area directing administration of the evaluation questionnaires. All the "outputs",then, described in this note are the products of the creativity of the campesinos and the staff of the Radio Mensaje project.

so they wanted to leave them feeling free to use them in any way that seemed to them a good idea. The intent was to provide maximum latitude of expression with a minimum of structure. The team hoped that producing programs which would be heard on the air would lead to a detectable increase in self-esteem and feelings of efficacy among the students; that the possibility of exchanging information about community development-oriented activities would give more impetus to that important goal of the Tabacundo program; and they mentioned (with some trepediation) that the recorder might be linked with improved literacy/numeracy performance and a decreased dropout rate.

PROGRAM GOALS

A 1971 UNESCO questionnaire circulated to member nations found it encouraging that "the essential process of feed-back seems to be carried out on the whole seriously and conscientiously, and the results analysed and used in preparing future programmes."[1] We wanted to explore alternative methods of obtaining feedback.

The UMass project staff felt there was still greater potential utility for the feedback process than had previously been made use of by radio schools. Not only could the results of letters, questionnaires and surveys be used as material for executive decision-making, but the feedback process itself could and should have a larger effect on participants than is generally the case. The staff proposed to Padre Isaias Barriga, Director of the Radio Mensaje program, that free use of the tape recorders by radio school participants might produce the following three effects:

1) Heightened feelings of self-worth and efficacy

A report written by E.P. Astle for AID[2] describing a successful radio school program in Honduras credited much of its progress to the feeling participants had of "being part of an awakening group." This "groupness" is as important as the initial sense of individual accomplishment and the harnessing of unused capability that comes with learning to read. Awareness of the similar experiences of other people and centers in Honduras was undergirded by training sessions and monthly meetings of the monitors or auxiliares. The report links these factors closely with

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[1] John Maddison, "Radio and Television in Literacy" (paper, Paris: UNESCO 1971) p.30.

[2] E.P. Astle, "Adult Education by Radio in Honduras" (Tegucigalpa: USAID March 25, 1969) (Mimeographed)

a growth in "confidence, concern, and group awareness."

The UMass conceptualization possibly oversimplified the case by lumping changed attitudes and behaviors under the efficacy label, (discussed later in this paper). What the team essentially surmised was that heightened group awareness is important to a growing sense of confidence. By increasing the potential cross-fertilization and reinforcement provided by increased inter-village communication through locally-produced radio programs the staff felt that possibly confidence and a sense of efficacy would also grow.

2) Increased community development-related knowledge

The staff was fairly confident in predicting that if some communities reported on their development projects, people from other communities would listen -- and possibly with more real interest than they had previously shown for programs on community development (which we shall abbreviate hereafter as"CD").

A study done by OEMA in 1971 for Catholic Relief Services of Ecuador, OXFAM, and AID ahd concluded that although community development was given considerable emphasis by the station, the programs had an insignificant impact on radio listeners. Auxiliares, however, were well informed. The report suggested that auxiliares might encourage discussions of community development problems, and that broadcasts might be combined with campaigns conducted by other means, such as group meetings and visits by CD specialists.[3]

Theoretical support for this suggestion comes from Everett Rogers. He acknowledges that mass media produces less complex behavioral changes, like buying a different brand of soap. He stresses, though, that much greater effectiveness is achieved with a combination of mass media with interpersonal means for (a) transmitting knowledge, and (b) persuading people toward change.[4]

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[3]Esteban Vega, "Evaluation of the Radio Schools Program for Basic Literacy in Tabacundo, Province of Pichincha, Ecuador" (Quito: Centro de Motivacion y Asesoria, December, 1971), pp 46-47. (Mimeographed.)

[4]Everett Rogers and Floyd Shoemaker, Communication of Innovations: A Cross-Cultural Approach (New York: The Free Press, 1971), pp. 159,252.

Our belief was that cassette tape recorders could serve to combine mass media with interpersonal communication, if the radio school participants were given the opportunity to tape whatever they wanted to submit as material for a program compiled from their cassettes -- not just a one-shot porgram, but a regularly scheduled series. The programs, we hoped, would be seen by the participants as a way of talking to each other in a "technologically-assited dialogue," learning what was happening in other communities without having to rely on reports from the auxiliares. The team looked for a growing interest in CD accomplishments, leading to a knowledge of the possibilities that is the necessary precursor to action.

Growth in CD awareness was also undeniably aided in 1972-73 by the use of the above-mentioned text, "Let's Cultivate Vegetables," which proved very popular with first-cycle students, and provided a basis for much of the material submitted on cassettes to the station.

3) Improved literacy/numeracy skills

Our most softly-spoken hope was that the use of the tape recorders would help students' skill levels by providing participants the opportunity to hear themselves and through use of the recorder as a way to review the material presented in radio classes. Observers often find a disturbingly inexorable quality to the radio school format. Questions from participants often come at inconvenient times, and the radio teacher's voice is ignored while the auxiliar explains what the student has missed. If the recorders were used to pick up what was missed during the classes, there could be some observerable improvement in classroom and test performance.

As a corollary to performance, the staff thought the excitement engendered by the recorders might mean a lowered dropout rate. This was a somewhat unlikely hope, however, for the majority of those who quit coming to classes in February, March, April and May seem to be adults who leave the area to obtain temporary work in the cities. One of the major motivations ofr this exodus is the need to earn money for the important church festival of St. Peter and St. Paul in June.

INITIATION OF THE PROGRAM

The UMass decision to work with the Tabacundo radio school program was made for pragmatic reasons. There are three radio school programs in Ecuador. The director of the Chimborazo program, the country's largest, was not interested in any contact with United States institutions. Another programs was located in Sucua, in the remote Amazon jungle region of Ecuador. The team did not consider it a serious possibility since difficulty of access would be a major block; also, it serves the Shuara Indian tribe, who comprise less than one percent of the Ecuadorian population.

Radio Mensaje in Tabacundo, in addition to being the only remaining option, offered some definite advantages. Its headquarters is an hour's drive from Quito; it serves a population made up completely of mountain-dwelling campesinos with characteristics very similar to about one third the population of Ecuador; and the program was small enough to work with easily, consisting then of about 50 centers and some 1000 students in a fairly accessible area. When contacted by the UMass survey team in March, 1971, the energetic Ecuadorian director of the Radio Mensaje, Padre Isaias Barriga, was open to working with the University. UMass staff worked with Radio Mensaje until March, 1973.

The radio schools of Tabacundo are set up on the Colombian Radio Sutatenza model*, and are linked with that program in many ways. The program offers a primary school equivalency certificate at the end of three nine-month "cycles." Classes are broadcast five afternoons per week, and students gather in a centr location in each community under the tutelage of an auxiliar, who follows directions given by the broadcaster.

The auxiliares come from the communities in which the radio schools are located. They are unpaid. There is no certification

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*See "Colombia: A Multimedia Rural Education Program," by Stephan Brumber, in M. Ahmed & P. Coombs, eds., Education for Rural Development, New York: Praeger, 1975.

requirement: some of the auxiliares have never been inside a regular school, having received all their education through the radio schools. They are generally young, ranging in age from about 15 to 30. The majority are males, but about 1/4 are female. Two or more auxiliares are chosen each year to attend training sessions in Colombia, and Sutatenza materials and programming suggestions are received and used regularly.

Characteristics of the area

Radio Mensaje serves a basically rural population in the mountains north of Quito. Eighty-five percent of the population work in agriculture. According to government statistics, about half of them are illiterate. Radio Mensaje calculates that there are about 42,000 adult illiterates in their listening area, some 3% of whom have taken part in some organized educational activity such as adult education or in the radio school program.

Three quarters of the people in the Radio Mensaje listening area speak only Spanish; 20% speak both Spanish and Quechua, and 5% speak only Quechua. Poverty is widespread. Those who earn a wage take home between 65 and 80 cents a day, and they are the fortunate. No one knows the un and under-employment rate in rural Ecuador, but the figures would not be heartening. Many adult males have to seek temporary work every year for a few months in the cities, carrying sacks of cement or ladies' packages as cargadores, or if they have a skill they seek work on one of the many multi-story offices and apartments being constructed in Quito's building boom.

The scenery is magnificent, with snow-covered Andean peaks all around, and cultivated patchworks climbing their slopes. People live at altitudes ranging from 9,000 to 11,000 feet so the temperature drops quickly when the rains come, and when the sun goes down.

Tabacundo is a small town with mud walls and cobblestone streets. The radio studio is in a large pinks building next to the church on the main square. It is always chilly inside; the radio school director almost never takes off his car coat in the cold season.

Planning

The staff's Project was determined to preserve a non-directive stance regarding use of tape recorders. There was some early sentiment for using them as a vehicle for programmed instruction, distributing recorded cassettes as a supplement to the radio school curriculum. The team discarded this idea, at least for the first year, in favor of making the recorders a tool of the people themselves, used exclusively for their self-expression. That way the team would test whether campesinos are capable of using such a tool with imagination and effectiveness. The decision to let the auxiliares have maximum flexibility in deciding how to sue the recorders seemed to be a logical conclusion of similar experiments which had been undertaken in other programs. If the auxiliares proved unable to figure out how to use the recorders to good advantage, there would be time later to introduce programmed materials and the like. Encouraging maximum flexibility would provide, in a sense, an experience at one end of the spectrum of possibilities. Later experiments could be planned which would limit the auxiliares' latitude of operations, if that seemed desirable.

There were also other points to consider:

- How much training would be required?
- What kind of batteries should be used, and where would the money come from to buy them?
- How many cassettes should be distributed with each recorder?
- How would the cassettes be distributed and collected?
- Should the material be broadcast as received, or should it be edited into a program combining recordings from various centers?
- Who would be in charge of program preparation?
- How much time, and during what hours, should the material be broadcast?

We decided to provide only minimal training, since the cassette recorders are extremely simple to operate. All the auxiliares were accustomed to operating a radio, which is more complicated than the cassette recorders.

Training was held in early October, during the auxiliares' regular one-week training session held just before the beginning of the school year. Total training time was about four hours, although during the

rest of the week the auxiliares continued to practice using the recorders for interviews among themselves.

The initial sessions was a "hands on" laboratory, with the recorders placed in the auxiliares' hands immediately as they were taken from the packing boxes. The UMass project director gave a short demonstration and the auxiliares then began to interview each other. These interviews were played back for the entire group and comments were invited. There was almost no technical difficulty from the outset. The Craig recorder used in the experiment has a unitary control, i.e., one lever is moved right, left, or down to advance, reverse or play. This simplicity is partly responsible for the auxiliares' rapid mastery of the machine.

During the afternoon the auxiliares brainstormed possible ways in which the recorders could be used. The UMass staff did not recommend or require any specific use, and Padre Barriga promised that the station would be interested in whatever was produced. The auxiliares generated about 30 suggestions and seemed eager to begin.

Support staff at the university did a short investigarion of the possibilities for using cadmium batteries instead of regular flashlight batteries, to see if the considerably greater cost would be justified by longer life. It was decided, however, that for reasons of cost and convenience, regular "c" cells available in Ecuador would be used. Four hundred dollars was to made available from USAID -- intended originally to pay the salary of an editor, but quickly seen to be necessary for the purchase of batteries. We had originally thought that the people themselves could be responsible for supplying replacement batteries, but the crushing poverty of the region and the fairly rapid consumption rate made it necessary for Padre Barriga to provide replacements.

In the beginning the team decided to have two cassettes available for each recorder, the idea being that the blank cassette could be exchanged for the recorded cassette by the auxiliar whenever he had a full cassette to turn in to the station. Extras were also available, since it was planned to keep the programs on file. The cassettes were to be distributed and collected in three ways: at the regular monthly meetings of the auxiliares, by the three area supervisors, and by mail.

Padre Barriga's initial idea was to broadcast the material exactly as he received it in order to avoid any problem of bias in editing. However, he changed his mind before the project began, since it was clear that if all the auxiliares sent in one cassette every week, or even every two weeks, there could be from 19 to 38 hours of material per week for broadcasting. This was clearly impossible, so the necessity of editing was evident. He decided to hire a part-time assistant to help with program preparation.

A decision about broadcast times was left to later, since it was contingent upon the amount of material received, and at the outset no one was able to say what the auxiliares would produce.

Initial Programs

Results did not come in immediately, however, as the pickup and exchange of the cassettes proved to be somewhat more difficult than had been imagined. Padre Barriga waited until the initial meeting of the auxiliares in early November to pick up the first recordings, and the first program was broadcast on the weekend of November 11. In the meeting with the auxiliares, the group decided that the best action would be to produce a half-hour program for airing on Saturdays at 5:00 p.m., to be free to listen at one of those times.

The first program consisted of comments about the radio schools, together with a little music produced by a group from one of the communities. The commentaries were elicited from a number of centers, as well as from a group of 18 seminary students who were working in some of the radio school communities. The general tone was as might be expected, rather solemn and self-conscious. A seminarian:

> I want to work with campesinos on both a cultural and religious plane, to help them advance. I plan to acquire a greater experience in order to be more effective as a country priest when I return to my province.

The auxiliar in the center at Chavezpamba:

> We want to send our best greetings to Padre Isaias Barriga, to our dear teachers in the radio school, and to our fellow students in the province of Pichincha, as we begin this new course.
>
> Everyone is very interested in the recorders, although they're a little afraid of talking.

> However we hope that little by little we'll be able to adapt to this new idea. As yet, it's a little strange.

All of the students interviewed professed their great happiness at being in the radio school, and their assurance that this would be the best year yet.

Content Analysis of Selected Programs

In addition to examining the first program, UMass staff randomly selected one of the weekly programs from each of the months from November, 1972, through February, 1973, for an informal analysis.

November 25: In this, the third program, there was more content of a community development nature. The community of Ucshaloma, high on the mountain behind the town of Tabacundo, recorded a meeting in which they decided to get together the following Saturday for a "minga," or community work project. They were in the process of upgrading their living conditions, having formed a co-op and by means of a group effort, building a new house for each of the members. Having recorded this meeting, they followed through and recorded the sounds of work when the minga took place. One heard hammers behind the voices of the workers as they discussed their progress and needs.

December 30: This program consisted entirely of a "Christmas Special" put together by the auxiliar and students of the center at Cananvalle. The auxiliar, a campesino farmer, preached; the students read from scripture, and gave greetings to their fellow students in the other radio schools.

January 20: This program began with a recording of the January general meeting of auxiliares. They did not discuss the recorders specifically, but there was a unanimous request for more programming time, possible just before the beginning of classes. This was acted on in February with a Monday repeat of the regular Sunday program presented at 4:30 p.m., just before the start of class.

Another effect of the recorders was obvious in the January 20 program. Musical groups presented songs in Quechua, with participation of women; members of the Simon Bolivar school read original poems, and yet another school, Cochas, presented music especially prepared for the Mensaje Campesino program. The songs in Quechua may reflect some elements of "Indian is Beautiful" thinking, although it is too early at this writing to

state that with any certainty.

February 24: Indian power was mentioned in this program, as it opened with an auxiliar interviewing the president of the new National Indigenous Movement, Jose Antonio Quinde. Quinde described the organization's aims and progress to date, including a series of meetings to learn whether it was seen as useful by the indigenous population.

More Quechua music followed, and a new element: new readers practised reading pages from the text, "Cultivemos Hortalizas," providing a possibly comforting standard of comparison for the other hundreds of students for whom reading aloud is still a painful experience.

To summarize the programs, it seemed that music would continue to be an important part of the content, and that community development emphasis was also substantial. The students seem to have a strong sense of participation, and fear of the recorders was not mentioned after the first program. There seems to be a considerable capacity of innovation in the use of the recorders as well. Padre Barriga tells the story of a group who convinced an engineer from the Hydraulic Resources Ministry to be interviewed for the Mensaje Campesino program. His answers to their questions about the possibilities and difficulties in obtaining running water provided valuable information to members of other centers.

Community Uses of Recorders

Some communities have begun to produce and record sociodramas. Taking different roles, they enact and discuss problem situations, which are then shared with other communities by means of the radio.

One community used the recorder as a way to guarantee that what they were being told by an official from another development program would not be forgotten. The recorder was kept hidden under a poncho until the meeting (which was apparently filled with promises of imminent action) was over; they then brought it out and played back the tape demonstrating to the official that his words had fallen on sensitive plastic as well as on eager ears. His reaction was not recorded.

The recorders seem to also have been integrated into the regular radio school program in ways such as the following:

- Recorders are used to inform late-comers of what has happened in the class prior to their arrival.

- Recorders provide pronunciation practice. One of the most frequent comments from the participants was that hearing themselves on tape showed them how different their pronunciation was from what they had imagined. They talk, of course, like campesinos. Their aspirations here are probably modeled on Padre Barriga as well as on commercial radio announcers.

- Recorders also serve as a review device -- the class, or those who feel the need, can hear the lesson as many times as they wish. There is some indication that this idea is fairly common among the centers.

A Tape's Progress

Blank tapes are provided to the auxiliares at their monthly meetings; their responsibility is to get them back to the station in Tabacundo as soon as they have some material they wish to be used on "Mensaje Campesino." During the first year, once a tape was received in the station, it was reviewed by Padre Barriga and occasionally by an assistant. They used two cassette recorders to edit the material and compile a half-hour program each week. The program cassette is put on tape for the files, and the cassettes are sent back to the communities. By 1975, Padre Barriga had ceased editing. Everything submitted is aired, because people have found that more satisfying.

The programming was expanded for a time. At first a half-hour program was made and played both Saturday and Sunday. After the first couple of months Padre Barriga decided to produce different programs for the two days. Then following the meeting of auxiliares mentioned above the station began to rebroadcast the Sunday program on Monday afternoons at 4:30, just before the beginning of the first cycle class. Short segments of campesino music have been intoduced between classes on weekday afternoons. By 1975, the routine had settled into one half-hour program per week, broadcast at 5:00 p.m. Saturdays and Sundays.

A variety of procedures are employed to distribute and collect the cassettes. Mail service has not proved satisfactory because it is too unreliable. Personal delivery service is provided by 1) the supervisors of the three areas; 2) young priests who are working in the area and cooperating with the Radio Mensaje program; and 3) through exchange of cassettes at monthly auxiliar meetings.

RESEARCH PLAN

Several means were to be used to ascertain whether the recorders were having any effect on the radio school program.

To determine whether there was any change in dropout rate, the simplest means was to rely on available data concerning attendance ("desertion,").

Second, it was decided to repeat an extensive questionnaire devised and administered originally by another AID contractor, Hayes Keeler. It had originally been administered in March, 1971. The project decided to repeat it (with minor changes) in March, 1972, before the recorders arrived in Ecuador, and again in March, 1973, when the recorders would have been in use for about six months. This design was planned to follow approximately Campbell and Stanley's "time series" quasi-experimental design.[1]

The Keeler questionnarie, consisting of 31 questions (see Appendix A) covered performance on reading, writing, and math tests, as well as feelings of self-worth and efficacy, knowledge of community development information, and behavior oriented toward development. The 1973 questionnaire included seven additional questions to obtain an idea of what percentage of students actually used the recorders, and how they felt about them.

The research team in 1971 was composed of university students from Quito. In 1972, only one of the original team was available, and the project staff had only limited university contacts. To replace the remaining team members, the projects field coordinator recruited campesinos from his home community, who administered the questionnaires in 1972 and 1973. One unanticipated effect was that the number of non-responses dropped dramatically, especially on the attitude questions. More than 20% of the group surveyed in 1971 had not responded to questions concerning efficacy. In 1972 and 1973, non-responses accounted for 3% and 2%, respectively. A disparity of this size poses a considerable caution to attempts at direct comparison. Accordingly, in this paper I tread lightly in comparing or contrasting 1971 with the following two years.[2]

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[1] Campbell, Donald T. and Stanley, Julian C., Experimental and Quasi-Experimental Designs for Research. _____ _____. See Design #7.

[2] The situation carries a seemingly obvious message for interviewers of minority or "different" populations. Further investigation is currently being carried out in that area by the University of South Carolina.

RESULTS

Objective 1: Increased self-esteem and feelings of efficacy

The questionnaire produced no discernible trend in this area, although some specific changes merit comment. In 1972, 5% thought people's own efforts were most important for a community to progress, while 80% selected "the help of God". In 1973, 17% selected the former, 50% the latter.

Question 19 asked, "Are you satisfied with the production of your labor now?"

	No, wants other work	No, wants more production	Yes, satisfied
1972	4.5%	2%	93.5%
1973	25%	20%	55%

On another question there was a trend away from being happy with earnings, house, food and clothes, and toward more dissatisfaction.

Question #22 asked the participants, "Which man would you prefer to work for: one who says, 'Let's try something new to produce more,' or one who says, 'Our production is alright now, if we try something new we might lose'." 56 percent chose the former in 1972 while 44 percent chose the latter. In 1973, 84 percent chose the risk-taker while 16 percent preferred the conservative.

More tangible evidences of self-worth have developed since the questionnaire was last administered. After the auxiliares decided they needed new materials relating to agriculture, a committee of three campesinos was named to adapt a Chilean brochure series to Tabacundo's dialect and setting. Their first adaptation, called "Erosion," is now ready for printing.

An agronomist recently volunteered to produce a series of radio classes. He prepared the scripts and broadcast them himself. People soon reacted, however, saying "We're sure he knows what he's talking about, but the way he says it, nothing stays in our heads." The upshot is that now a Tabacundo campesino sits down with the agronomist, goes over the script until he is satisfied he understands it, and reads the script on the air.

Padre Barriga sees the recorders as instruments for raising self-esteem. He notes two major effects:

The "power of the word." A campesino's voice expressing his thoughts has much more impact than a letter read in a cultured announcer's tones. "Even if the announcer attempts to read with a campesino accent," says Padre Barriga, "it only sounds as if he's trying to make a joke out of it."

Direct expression gives voice to something he calls the "mystique of the campo." Although difficult to pin down, it connotes active interest in country life, with goals and satisfactions different from those of the city.

2) Increased CD-related knowledge

Prima facie evidence of progress in this area can be obtained from the content of some of the campesino-produced programs (see pp 12 & 13). As communities describe and dramatize their experiences, their neighbors sit up and take notice. With the Mensaje Campesino program at or near the top in popularity, the station's listeners have been exposed to numerous tangible examples of activities into which they can also enter. (The Community Associations mentioned later under "Spinoffs" are an example of CD knowledge put to use, as one community set an example which has been followed by some 27 others.)

Although the Keeler questionnaire in 1971 had used 18 items related to CD, ten items did not discriminate and were omitted in 1972 and 1973. Direct comparison is possible only between the latter two years, during which time average correct responses increased from 50% to 62.5%.

Interesting differences between the 1972 population sample and 1973 sample surfaced in responses to CD-related question. In 1972, 72 percent thought erosion was a "good thing", while 26 percent indicated that it was a "bad thing." In 1973, 43 percent said erosion was a "good thing" while 58 percent labeled it a "bad thing." More people knew that planting trees would decrease erosion in 1973 (31 %) than in 1972 (4%).

In 1972, 77 percent thought polluted water could give typhoid, dysenteria or worms. In 1973, 88 percent responded correctly to the question.

On the definition of a cooperative, the population responded in the following manner:

	Religious Organization	An Organization to help members	A Sports Club	A Union	More than One answer	No Respons
1972	5%	31%	2%	40%	2%	20%
1973	2%	53%	9%	9%	6%	21%

As mentioned earlier, the introduction of a new text prepared by Padre Barriga, Cultivemos Hortalizas, in the 1972-73 school year undoubtedly had some impact on CD awareness -- even though the station had over the years attempted to transmit information of that nature through studio-prepared programs. Keeler's 18 questions were taken from those programs.

Objective 3: Improved literacy/numeracy skills

The questionnaire included 65 items covering reading, writing, and arithmetic. Those results were compared over the three years. Details of changes in each cycle are shown in the table below, by percentages of students in each category.

First Cycle				Second Cycle				Third Cycle			
1971	72	73		1971	72	73		1971	72	73	
2%	--	7%	High	21%	10%	45%		81%	91%	83%	
14%	6	21	Medium	52	65	41		19	9	17	
84	94	72	Low	27	25	14		--	--	--	

(High = 55-65 items correct, Medium= 32-54 items correct, Low= 0-31 items correct)
(Figures are reported in this manner because this is the way data were reported in 1971, and raw data were unavailable for that year.)

Second Cycle shows the most improvements in 1973 over the previous years. First cycle also seems somewhat better. Possible third cycle improvements may have been dampened out by a ceiling effect; the test did not seem to provide a serious challenge for a large percentage of that group.

How much of the above improvement can be attributed to the recorders is open to question, although as mentioned earlier, they did serve to alleviate somewhat the inexorable nature of the radio classes. That additional flexibility in the format may have been of sufficient benefit to account for at least part of the improved scores.

Finally, contrary to expectation, desertion rates increased abruptly from 26% in the 1971-72 school year to 45% in 1972-73. Padre Barriga felt that the high rate was caused primarily by a large exodus of the population to other areas in search of work. 1973 brought severe weather conditions which damaged crops so critically that the usual field work was unavailable.

4) General information on use of the recorders

A short questionnarie appended to the 1973 test asked how many of those interviewed had actually taken part in use of the recorders, and how they felt about them some six months after they had been introduced. Thirty-seven of the 49 interviewees had participated in recording sessions, and 31 had listened to the Mensaje Campesino program. Ninety percent who had participated in recordings were happy with their "performance." Two dozen different ways in which recorders had been used were reported. Local musical groups were the most commonly-recorded activity, with Cultivemos Hortalizas discussions in second place.

FEASIBILITY CONSIDERATIONS

Costs

Initial unit cost of the recorders was about $35, so the 38 recorders cost a total of $1330, or about $1.30 per student. Amortizing over the program's current four-year life cuts that cost to about 40¢ per student, taking into consideration the radio schools' growth on the one hand, and battery costs on the other. Maintenance costs - mainly repair of the recording heads and patching of microphone cords - have been subsumed under the regular maintenance arrangements of the station at no noticeable extra cost. One year after initiation, all but six recorders were operational. By January of 1976, 12 to 15 of the recorders were in operation in an average week. Arrangements are being made now to provide replacement heads and microphones to make the remainder operational. After the first year, when the UMass project provided $400 to help defray costs, all battery and maintenance expenses have been borne by the station and the radio school participants themselves. There has been no UMass participation since the spring of 1973.

Cassettes were purchased in the United States at $1 each for the initial year. The cost of these 60 minute tapes in Ecuador was much higher, up to

six times that amount. Twenty more cassettes were added during the year, but the number was barely sufficient. Through personal connections in the U.S., Padre Barriga has since obtained 200 more cassettes of a much cheaper variety (three for $1), which have also proved reliable and satisfactory. (In 1976, cassettes in Ecuador still cost $1.50 to $2.50 each). The fine care taken by the auxiliares must be given appropriate credit for the long life of both machines and cassettes. They have kept the recorders in plastic bags to keep out dust, carried them gently over rough roads, and impressed upon others who used them the necessity of good treatment - with the result that the inexpensive recorders have lasted longer in the harsh climatic surroundings of the Andean mountains than they generally do in the developed countries. There have been no losses from theft or sale of the equipment.

Editing time initially amounted to one afternoon per week, but for the past year or more no editing has been done. Cassettes are broadcast exactly as received. Slightly more than one program per week is received at the station. Padre Barriga usually has two or three programs on hand awaiting broadcast. One week when there was no program available, a musical program was substituted. People were distrubed, and suggested that Padre Barriga should have rebroadcast a previous program, but he replied, "No, - it's your program, and if you don't send in material, there's nothing to be said." Since then, programs have come in regularly. One group without a recorder even rented a car to come to the studio and give their program live on Saturday afternoon.

Summing up, the recorders have proved to be an extremely low-cost mechanism for developing and maintaining dialogue in a radio format. With the benefit of hindsight it is apparent that when one sets up a project of this sort, extra recording heads and microphones should be included in the initial appropriation. Sufficient cassettes should be provided from the outset. Given gentle treatement, both machines and cassettes seem to be acceptably reliable.

Spinoffs

Quechua translations: A group in nearby Otavalo is comprised of Indians whose first language is Quechua. They are recording the regular radio school lessions in Spanish, translating them into Quechua, recording

them on cassettes, and providing them to a listening group which stays one week behind the regular radio school schedule.

Community Associations: Twenty -eight communities in the Tabacundo area have recently organized Associations which are vehicles for CD. Next year they plan to set up a federation. One of the communities led the action by building 12 houses, using a small revolving fund which they set up about threee years ago. Padre Barriga credits the inter-community communication made possible by the recorders with helping to disseminate this idea.

Indigenous music: From the beginning there was a recrudescenoe of locally-produced music. Groups were organized in a number of communities and all-but-forgotten songs were heard on the radio again.

PROJECTIONS

This has been from the outset a modes' undertaking. Less than $2000 was invested initially, and running costs have been minimal. Perhaps surprisingly, the recorders have continued to be used over a period of nearly four years with no outside intervention, but with continuing tinkering to keep them operational. Mensaje Campesino remains a much-listened-to program, but the volume of program material produced seems to have struck a plateau at about 30 minutes per week. Campesinos are clearly able to produce radio programs on their own, and are interested in listening to each other's productions even though they are not of studio quality. They have shown inventiveness in using the recorders in ways no one has taught them, and for ends they define as desirable. As the average number of operational recorders has declined, they have tacitly been used by larger numbers of people.

Unscientific analysis indicates that the project's hypotheses have at least to some extent been borne out. Campesinos have something to say and are willing to listen to each other. Feelings of self-worth and efficacy have been demonstrated by actions if not reflected in the questionnaire. CD awareness and literacy/ numeracy showed improvement in 1973. Various community undertakings have demonstrated willingness to enter into new, somewhat risky activities.

What will happen now? All indications are that the recorders are viewed as a regular part of the station's activities. Campesino programs have become somewhat routinized, but interest in them is still substantial. People are growing accustomed to hearing campesino accents on their radios, and they like the sound of them. In a small way, the project may have helped, as Paulo Freire characterized it, people to learn to be instead of to be like. Padre Barriga sums up his feelings about the program this way: "What we first saw as entertainment, something to fill a space, has become indispensable."

APPENDIX A

Content of the Keeler Questionnaire

The following is a breakdown of what each quesiton asked of the participant:

1. Sex (male/female)
2. Years old (age group)
3. In what do you work (provides breakdown of types of work)
4. Cycle (1st, 2nd, or 3rd year of study)
5. Years of schooling (0 to six)
6. Marital Status
7. Asked the participant to respond to 17 basic math problems, ranging from simple addition, subtraction, division, multiplication to recognition of geometric figures.

8.- 15. Asked questions regarding community development; erosion, vacination, health, and cooperatives

16. Asked the participant six reading questions; each called for the participant to read words or phrases and underline or answer the appropriate answer.

17 -22. Asked questions regarding aspirations and efficacy; asking for answers from a choice of multiple answers in the areas of education, community development, work production, death, wages, willingness to experiment with crops.

23. Asked the participant to respond to five questions in the area of writing; each question either gave the participant directions or the activity was dictated.

24-31. Asked questions regarding participation and interactive behaviors; about belonging to a group, planting crops, reading sources, cooperative work, selling crops, and working in distant areas.

In the 1973 questionnaire seven additional questions were added regarding the effect of tape recorders on the communties mentioned previously. The question were:

1. Have you participated in recordings?

2a. Did you listen to yourself?

b. What did you feel?

3. To what use has the tape recorder been in your community?

4a. Have you listened to the program Mensaje Campesino?

b. What have you fel in listening to the program?

5. In "Mensaje Campesino" what have you liked best?

6. What would you like to listen to in the program?

7a. Has the program been of some influence in your community?

b. In your work?

c. In your life?

d. In the interactions among you?

e. In what other way?

APPENDIX B*

Demographic Variables

The total numbers of students participating in the study in each year (1972 and 1973) are indicated below, along with the three chronological levels in the radio school classes: primary for beginners, secondary for the second year and the third level for those in their third year.

1971	Total Students Interviewed	Primary Cycle	Second Cycle	Third Cycle
1971	206	117 (57%)	63 (30%)	26 (13%)
1972	49	17 (35%)	20 (41%)	12 (24%)
1973	49	14 (29%)	17 (35%)	18 (36%)

This would indicate some bias in favor of 1973 since there are more students in the third level and fewer in the primary level in 1973 than previously.

With reference to participants' sex and age, the years compare as follows:

	Male	Female	Under 20 years	Over 20 years
1971	59%	41%	54%	46%
1972	43%	57%	84%	16%
1973	65%	35%	74%	26%

	Farmers	Domestic Workers Housewives	Craftsmen Merchants Laborers	Other
1971	44%	36%	6%	14%
1972	41%	21%	3%	35%
1973	29%	21%	27%	23%

More of the people questioned in this study indicated that they were farmers than indicated other occupations (41% in 1972, 29% in 1973). About 21% indicated that they were domestic workers both years; while the rest were craftsmen, merchants, day laborers, employees or other. The "other" category accounted for 35% of the population in 1972 and 23% in 1973.

*Analysis done by Arlen Etling

APPENDIX C

The possible range of scores in mathematics, reading, writing combined (the three areas) were:

Mathematics	33 Problems	Level of Proficiency
	addition (0-8)	
	subtraction (0-6)	Low (0-16)
	multiplication (0-7)	intermediate (17-26)
	division (0-4)	high (27-33)
	knowledge of numbers (0-3)	
	geometric figures (0-5)	
Reading	17 Problems	Level of Proficiency
	reading written words (0-8)	low (0-8)
	reading typed words (0-3)	intermediate (9-15)
	comprehension (0-17)	high (16-17)
Writing	15 Problems	Level of Proficiency
	vowels (0-5)	
	drawing (0-4)	low(0-5)
	names (0-2)	intermediate (6-11)
	dictation #1 (0-2)	high (12-15)
	dictation #2 (0-2)	
Combined (literacy)	65 Problems	Level of Proficiency
		low (0-31)
		intermediate (32-54)
		high (55-65)

Math Scores

	Mean	Standard Deviation	Range of Possible Scores
1972	14.837	10.967	0-33
1973	20.939	11.069	0-33

Reading Scores

	Mean	Standard Deviation	Range of Possible Scores
1972	10.633	7.432	0-17
1973	12.837	6.226	0-17

Writing Scores

	Mean	Standard Deviation	Range of Possible Scores
1972	9.265	6.143	0-15
1973	11.796	4.495	0-15

Combined Scores
(Math, Reading, Writing)

	Mean	Standard Deviation	Range of Possible Scores
1972	34.735	22.902	0-65
1973	35.571	20.784	9-65

Mean average scores for the Math, Reading, Writing and combined test by cycle by date year.

Cycle/Skill Area	Math Scale	Read Scale	Write Scale	Combined Literacy Scal
Primary Cycle 1	6.45*	3.9*	3.84	14.26*
1972	4.59	3.29	1.82	9.71
1973	8.71	4.79	6.29	19.79
Second Cycle 2	18.22*	14.39*	12.92*	45.53*
1972	14.65	13.15	12.25	40.05
1973	22.69	15.94	13.75	52.38
Third Cycle 3	29.37*	16.60*	14.57*	60.53*
1972	29.67	16.83	14.83	61.33
1973	29.17	16.44	14.39	60.00

*represents mean between the 1972 and 1973 mean average scores

Table 1:

When controlling for cycle, there is a clear difference between means of the cycles. On the math tests the average score increases from 6.5 for the primary cycle to 18.2 for the second cycle, to 29.4 for the third cycle.

Within cycles there is a substantial difference between years for the primary cycle (4.6 - 8.7) and the second cycle (14.6 - 22.7); for the third cycle there is no significant difference.

intermediate (32-54)
high (55-65)

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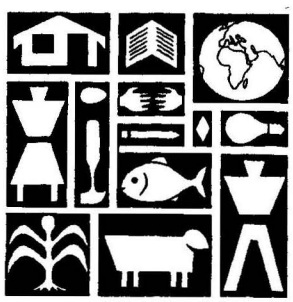

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