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9. ABSTRACT

A non-technical description of the Research and Evaluation Program connected with El Salvador's Educational Reform. This report was written after evaluations of the first year (1969) of the Reform were made; however, it is concerned with what is being studied and why, rather than with the evaluation results themselves.

The report lists the various evaluative measures and tests used, describes them, and explains why they are being used. These are measures of: 1) ability; 2) academic achievement; 3) other kinds of learning; 4) attitude; 5) attendance records; 6) career aspirations; 7) classroom interaction; 8) administrative policy and problems; and 9) special problems.

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RESEARCH AND EVALUATION  
IN THE EL SALVADOR PROJECT OF EDUCATIONAL REFORM:  
What Is Being Tested, and Why?

Research Memorandum No. 4

This is one of a series of reports of research on the Educational Reform Program of El Salvador, and especially its use of instructional television. This report has been prepared by members of the Institute for Communication Research, Stanford University, on behalf of the Academy for Educational Development, under contract with the U.S. Agency for International Development.

January, 1970

This memorandum is written in response to requests for non-technical descriptions of the Research and Evaluation Program that is operating in connection with the El Salvador project of educational reform. At this writing, measurements have just been completed on the first full year of the new curriculum, and the instructional television which is an important component in teaching it. These results and others will be reported fully. The following pages are concerned not with research results, but with what is being studied and for what reasons. Because so many different measures and tests are being used, the memorandum is organized around these measures.

#### Ability Tests

What. The seventh-grade school population of El Salvador was tested widely during 1970, using tests of ability to read and ability to learn, standardized on some Spanish-speaking populations. Both seventh and eighth grades will be tested similarly in 1970, using slightly more advanced versions of the same instruments.

Why. It is important for curriculum and program planners to know how these abilities are distributed among the El Salvador school population. For example, do rural children read less well or learn less readily (as preliminary results suggest) than do urban children; and are these differences significant enough that they should be reflected in teaching and learning materials? Are there significant differences by sex, parental education, father's occupation, socio-economic position, the availability of mass media in the home, and

so forth? Are these differences sufficient to suggest special treatment or special materials for one group or other? Are the new curriculum and the televised classes effective for all ability groups, or pitched too low or too high, and serving some children better than others? As these tests are repeated in subsequent years it should be possible to find whether the new curriculum can raise ability levels generally, and whether it will help to equalize the ability scores which at present favor urban and male pupils.

#### Tests of Academic Achievement

What. The Educational Testing Service, of Princeton, New Jersey, has constructed tests to measure learning of the concepts and skills that the new curriculum is intended to teach. These were given at the beginning and end of the 1969 school year in three seventh-grade subjects: science, mathematics, and social studies. They were administered (a) to all the classes being taught the new curriculum with the aid of television; (b) to a control group of four classes being taught the new curriculum by teachers with the same training as those in television classrooms, but without the aid of television; and (c) to a large sample of classes being taught without either television or the new curriculum -- in other words, as seventh-grade pupils in El Salvador had traditionally been taught. In 1970, revised tests will be given in these same subjects for seventh-grade pupils, and the same three subjects will be tested also in the eighth grade, retaining the same comparison groups as

before. It is hoped to be able to add tests in one other subject, probably English.

Why. The question which El Salvador educators most want answered is whether pupils are learning what they are expected to learn from the new curriculum and television. Inasmuch as there are no standardized tests of academic achievement in El Salvador, one cannot determine at present whether students are gaining a year, or more or less than a year, from a year of school based on the new curriculum and television. The tests used in the research program were built on the intended objectives of the courses, and it will be possible therefore to say what order of gain is being made in one year in achieving curricular goals. It will be possible also to do something toward separating out the effect of television: Randomly assigned students are being taught the same curriculum by comparably prepared teachers, but some with and some without television, and we should expect that any significant differences between the performance of these groups might be due to television. It will be possible, also, to compare the performance of television and control vs. traditional classes. This, of course, is not an easy comparison, because the curricula are not identical. It should be possible, however, to compare on a sub-set of questions which are representative of both the old and the new subject matter. Finally, because some of the best private schools in El Salvador are represented in the sample, it should be possible to compare the performance of private school with that of public school pupils.

Throughout all these measures and comparisons, the question can be asked: Who learns? Do the students with high ability scores learn significantly more than those with low scores, urban pupils more than rural, boys more than girls? And if so what are the implications for the curriculum and the teaching method? Are the gains in one subject notably greater than those in others? Therefore, all the achievement scores will be examined in relation to ability scores and demographic and social indicators.

As the research program is extended into 1970 and beyond, it will be possible to say whether there is a cumulative effect on performance. To the extent that content and measures are comparable from one year to the next, it will be possible to ascertain whether courses are operating more effectively or less effectively than before. And over several years we shall look for any apparent effects of the new educational program in changing the relative achievement levels among ability groups. For example, does the addition of television help to equalize the achievement of rural and urban schools? Lower ability and higher ability students? In other words, what evidence is there (a) that the new curriculum is equalizing educational opportunity, (b) that it is raising achievement levels?

#### Other Kinds of Learning

What. Three tests of cognitive learning -- chiefly of the ability to form concepts and perceive and discriminate relationships -- were administered in 1969 to pupils in grades 2, 3, 6, and 7.

Groups studied included upper-class private students, an urban poor group, rural students, and illiterates without schooling for the various age/class levels. These tests will be given again during 1970, and one cognitive test of another kind will probably be added. In addition, six classes in the seventh and eighth grades will be studied intensively, using all the measures employed in other classrooms, and such additional measures and close observation as may indicate more fully the total effect of being taught by television.

Why. It is generally agreed that achievement tests are by no means the only desirable measure, and some educators would say they are not even the most important measure, of what a student gains from school. There is no complete inventory of education effects, and therefore an attempt is being made to identify as many as possible of the effects of the new curriculum, in addition to the effect of being able to pass achievement tests. The cognitive tests were given throughout the primary school, as well as the seventh grade, to get some idea when and how El Salvador children learn to form concepts and perceive relationships of different kinds. This was intended not only to furnish useful information to the revisers of the primary school curriculum, but also to give the Plan Basico teachers and curriculum makers a better idea of the experience and abilities their students are bringing with them. If it should be found, for example, that rural children are much slower than urban in learning to make functional relationships (as preliminary results suggest), and both are somewhat slower in doing so than children of

another country where these cognitive skills have been studied, then this has implications for the kind of teaching that should go on in the primary grades. If it is found that the experience of being taught by television seems to increase a pupil's ability to understand and learn from pictorial materials, then this is one of the significant results of the use of television in classrooms. If pupils in the new curriculum are found to gain significantly more than students in the old curriculum, in their ability to handle new concepts, then this is an indication that the new system is working. In addition to all these, however, it is important to find out what the nonobvious effects of televised teaching are (the obvious effects being, say, achievement scores, attitudes and attendance). This is why the six classes are being studied intensively, providing an opportunity to know the students and their background well, and to observe in greater detail the activities within the classroom.

#### Attitude Measures

What. Tests of attitudes toward the new curriculum, toward teaching with television, and toward various aspects of the school system were administered to seventh-grade teachers at the beginning and end of their training courses, and at the beginning and end of the first full year of their use of the new curriculum and television. Similar tests will be given during the 1970 school year, adding in the eighth grade. Attitude measures were also given to seventh-grade pupils in both the new and old curricula, at the beginning and end of

the school year; and similar measures will be given both seventh- and eighth-grade pupils at the beginning and end of the 1970 school year. One small sample study has been made of the attitudes of parents toward having their children taught by television.

Why. School administrators want to know how their teachers perceive the new curriculum, how they respond to the prospect of using television, and how these perceptions and attitudes change with experience. Similarly, it is useful to know the attitudes and expectations that pupils bring to the new methods, how these change during the first year, and what judgment of ITV they make after several years of experience with it. It will be interesting to find out how their attitudes toward teaching with television are related to their ability levels, their social backgrounds, and their academic performance. In the case of both teachers and students, it may be helpful to find out what it is they chiefly like and dislike about television as a component of instruction. In the case of parents, the intention has been to find out what they know of the educational reform, what expectations they have of it, what they hear from their children about ITV, and in general what sources of information they have for finding out about the new methods in the schools.

#### Attendance Records

What. Daily attendance records and numbers of pupils dropping out of school are being collected for the 1969 school year, and will be collected again for 1970.

Why. One of the effects of the new curriculum and of teaching with television may be on class attendance and on the proportion of pupils who continue on in school. These figures for pupils in the new curriculum with television are being compared with figures for the classes where the new curriculum was taught without television, and for classes using the old curriculum. Trends will be observed over several years to see whether a different kind of education may motivate parents and students not to miss classes and/or drop out of school.

#### Career Aspirations

What. Questions on career aspirations have been asked of a large sample of seventh-grade children and, for future comparison, a sample of ninth graders. Comparable information will be obtained from seventh and eighth graders in 1970.

Why. Career aspirations relate to what young people will be seeking in school and how long they will try to continue in school; consequently they are important for curriculum making and planning of educational facilities. If these aspirations are not realistic in terms of employment opportunities likely to be available, then counseling is indicated. By collecting ninth-grade information in 1969, and following a group of pupils until they themselves become ninth graders, it will be possible to identify the trends in career goals and educational plans.

### Classroom Interaction

What. The utilization supervisors have been testing an observers' outline for reporting reliably the important features of what happens in the classroom. When this outline has been perfected, it will be applied at regular intervals to new curriculum and control classrooms during the 1970 school year.

Why. What actually happens in the classroom is, of course, one of the most needed items of feedback to the program and planning staffs. It would be expected that one result of the modernized curriculum and the teacher training related to it would be to encourage modern methods in teaching. It is also a matter of considerable interest how the relatively unfamiliar role of teaching around television develops.

### Administrative Policy and Problems

What. As a contribution toward recording the history and experience of this project, for the guidance of others, an administrative record of the first 18 months of the project is being compiled. This includes the timetable for providing facilities and staff, for general planning, training, curriculum making, materials preparation, and program making. The chief administrative problems that arose during the introduction of the new curriculum and methods are being studied by means of administrative records and by a collection of "critical incidents" reported by the staff of the project. A preliminary study of costs -- capital investments,

operating costs, and unit distributions -- will be undertaken during 1970.

Why. The record of this project will be useful to other countries planning to modernize their school system or to make use of ITV. Furthermore, the record of administrative problems and unit costs will help, as the educational reform moves along, to guide policy in El Salvador.

#### Special Problems

What. The Research and Evaluation team made a special study during 1969 of the reasons behind an unusually high proportion of failures in the second term mathematics test. A second special study was conducted at the end of the 1969 school year: Questionnaire interviews were administered to all the teachers who had taught in television classrooms during the year, endeavoring to find out what were the chief problems encountered with the new method, and what suggestions for improvement the teachers had.

Why. Studies of this kind are oriented to policy and necessary changes in practice. The reasons for the mathematics failures had to be evaluated in order to know what changes to make during the last term of 1969, and during 1970. Results of the study helped to change program content and method and also provided for considerable revision of seventh-grade math curriculum for 1970. The end of the year provided an opportunity for the teachers to review the first extensive experience with ITV in El Salvador, and to contribute suggestions and recommendations, which should help supervisors and ministry officials in their tasks.