Teaching by Television

A Report from The Ford Foundation and

The Fund for the Advancement of Education

Teaching by Television

Preface

The beginning of a new era in American education may well be marked by the experiments described in this report.

These experiments involve the use of television—not occasionally, not as an educational "extra," but regularly, as a basic part of the daily instruction.

Supported in part by the Fund for the Advancement of Education and the Ford Foundation, the experiments represent a search for better ways to teach the nation's growing student population and to make available to these young people instruction of a higher order than they might otherwise receive.

The use of television for this purpose may still be novel. Yet the experiments described in this report involve more than twenty-five colleges and universities, 100 school systems, and, in the present academic year, more than 100,000 students and their teachers.

To be sure, the tested experience with television for regular instruction is relatively brief. Few of the experiments date back more than three years, many no more than one. This progress report will not describe in detail all the experiments supported by the Fund and the Foundation, but rather will attempt to summarize what has been done and what has been learned to date.

A list of the schools and colleges that have undertaken classroom television experiments with Fund or Foundation support is in Appendix I, together with the names of the persons who can supply further information.

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The Picture in Perspective

A distinguished professor once remarked that it took about fifty years for a new idea to gain general acceptance in American education. A few years ago not many educators would have quarreled with that assertion. During the past four or five years, however, there has been a restless stirring in the nation's schools and colleges. This ferment has taken the form of a questioning of accepted practices, a challenging of long-held concepts, and a search for new and better ways of going about the job of providing a better education for the nation's young people.

In part, this ferment has been stimulated by the unprecedented increase in the number of boys and girls to be educated. Since the end of World War II, the number of births has risen more than fifty per cent, and each year for the past five years it has hovered around the four-million mark, which is one and one-half times the level of the depression decade of the thirties. Enrollments have risen steadily at all levels of education, and as wave upon wave of new students have swept upward through the grades, educators have come to realize that this is not a temporary phenomenon, but a problem—and a challenge—that will be with us for the foreseeable future.

Coupled with the rapid rise in enrollments has been an acute shortage of able teachers. Since the end of the war, the number of new college graduates entering teaching has not kept pace with the number of teachers leaving the profession, and the number of poorly qualified teachers hired each year has remained distressingly high. This shortage of well-qualified teachers has now edged its way up to the college level, where

the number of new faculty members with a Ph.D. is declining steadily while the number of new faculty members with less than a Master's degree is rising at a corresponding rate.

The combination of a growing number of students and a shortage of able teachers has spurred many thoughtful educators to seek new ways of multiplying the effectiveness of the *good* teachers that are available at the school and college level lest a whole generation of young Americans be shortchanged in their education and, in turn, shortchange future generations when they themselves become teachers.

Two other factors that have helped to bring about a search for new approaches in education have been a dramatic increase in the range of knowledge today's students will have to acquire in order to live intelligently in the space age, and a similar increase in the complexity of the new things to be learned.

Some observers would argue that the greatest spur for improvement in American education came in the fall of 1957 when Soviet scientists launched, in quick succession, the first man-made satellite and the first passenger-carrying satellite. But actually the ferment was already under way. Sputnik and Laika merely accelerated the trend.

The past few years have brought a wave of bold and imaginative experimentation—in new ways of attracting a higher proportion of top-quality people into teaching, upgrading the teachers already on the job, extending the reach of superior teachers, making more effective use of time and space, challenging able students, and arranging the curriculum so as to put greater stress upon the new body of knowledge.

One of the most promising tools for attacking many of these problems has been television, the most powerful medium of communication yet devised by man. Commercial television burst upon the American scene shortly after the end of the war, and its growth since then has been nothing less than phenomenal. Ten years ago, there were only a few thousand receiving sets in American homes. Today there are more than fifty million. (A recent survey showed that more homes had TV sets than bathtubs.) Commercial television has done more

to influence American culture in the past decade than any other medium of communication. For better or for worse, it has also had a tremendous impact on the education of American children.

The direct educational value of the new medium was recognized early, and the Federal Communications Commission set aside some 250 channels for educational purposes. The Fund for Adult Education, established by the Ford Foundation in 1951, immediately took steps to help local communities establish educational stations. Through a series of matching grants, it was instrumental in the activation of about thirty of these stations. It also made possible the establishment of the Joint Council on Educational Television and the Educational Television and Radio Center.

Now only about six years old (the first station, KUHT at Houston, began operations on May 25, 1953), educational television has grown almost as fast as commercial television. As of this writing, there are thirty-nine educational stations in operation and a dozen more under construction. In addition, a recent survey by the Joint Council on Educational Television and the American Council on Education indicated that there are more than 150 closed-circuit installations in schools and colleges throughout the country, and that closed-circuit television is being used for instruction and training at twenty-one military installations.

Educational television, in its broadest sense, includes all programs of an educational or cultural nature that are broadcast over educational stations. *Direct instruction by television,* with which this report is concerned, refers only to the use of television by schools and colleges to teach courses for credit. Perhaps a more concise term would be "televised instruction."

Pioneers in the use of television as a medium of instruction were a few Midwestern universities, including Western Reserve and Iowa State, which first began to offer televised courses for credit about six or seven years ago. The armed services also realized the potential of the new medium, and began to use it extensively for instruction and training purposes. Medical and

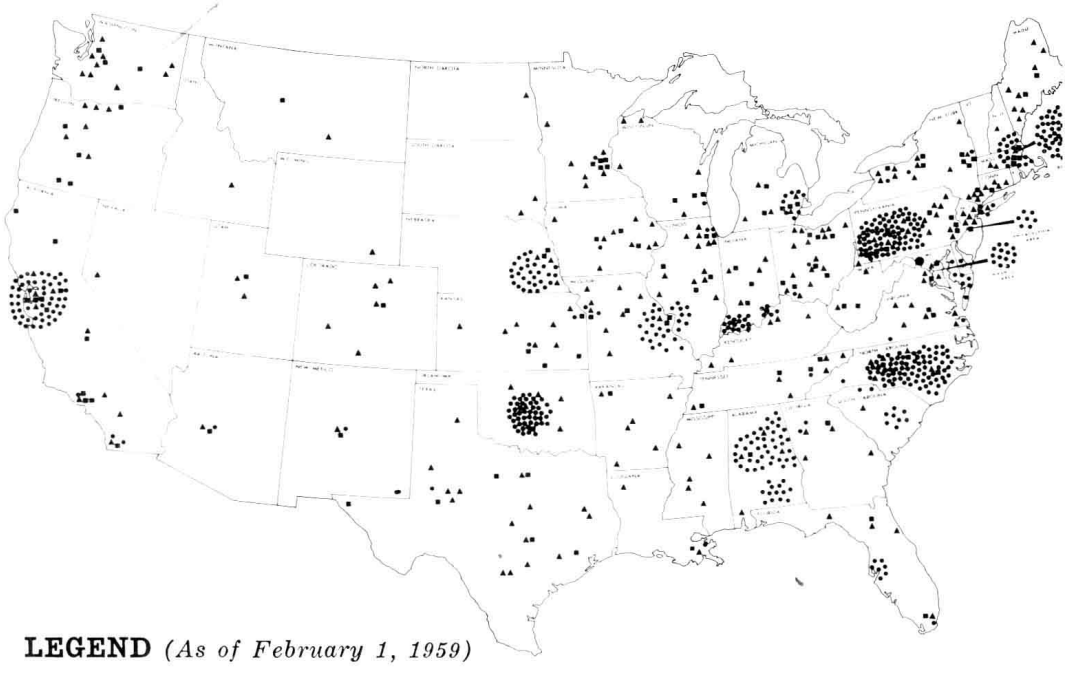
A Word About the Map

This map purports to show the status of televised instruction in schools and colleges as of February 1, 1959. Actually, it is inadequate in two respects. To begin with, no fact-gathering agency has accurate and up-to-date information about this brand new aspect of American education, so there are undoubtedly many schools and colleges currently making regular use of televised instruction that do not appear on the map. Secondly, the situation is changing so rapidly that the map probably will be out of date by the time it reaches the readers of this report.

The significance of the map lies in the fact that six years ago it would have contained only about a half-dozen widely-scattered dots.

(For a list of schools and colleges which the various dots represent, see Appendix II.)

Schools and Colleges Using Television as a Medium of Instruction



LEGEND *(As of February 1, 1959)*

■ Colleges and Universities Offering Television Courses for Credit (Total: 117)

▲ Colleges and Universities Offering Credit for "Continental Classroom" (Total: 241

● School Districts Making Regular Use of Televised Instruction (Total: 569)

dental schools in several universities soon discovered that television could provide every student a "front-row seat" in observing complicated surgical and dental operations and quickly adopted the new medium as a teaching tool. One of the earliest experiments at the school level took place in New Jersey in the spring of 1954, when fifth-grade students in the Red Bank and Long Branch public schools viewed a two-week series of televised lessons in American history that had been prepared by six teachers under the supervision of the New Jersey State Teachers College at Montclair.

The extent to which the use of television for direct instruction of school and college students has grown in the past six or seven years is shown on the accompanying map.

Although no accurate figures are available as to the number of school and college students receiving part of their instruction over television this year, a conservative estimate would place the number at well over half a million. Practically every course in the school and college curriculum, from first-grade arithmetic to college zoology, is being taught somewhere over television.

Television's unique advantages as a medium of instruction are: first, it can vastly extend the reach of the nation's best teachers; and second, it can bring to students educational experiences that are quite beyond the potential of conventional means of instruction. Not long ago, for example, fifth-graders in the Pittsburgh public and parochial schools had an opportunity to see and hear Robert Frost read some of his poems over television. The experience these youngsters had was quite different from the experience they might have had in a conventional poetry class. They were not reading Robert Frost's poems from a book, nor were they listening to their teacher read them. They were seeing and hearing the poet himself. This difference in experience might not show up on a standardized achievement test, which is designed to measure the subject-matter content mastered by a student in a given course, but it was nevertheless real.

When television first began to be used for direct classroom instruction, many questions were raised about its role in education. There were some who took a dim view of its potential. It was argued, for example, that television was essentially a one-way medium of communication and that its use for instruction would deprive the student of valuable contact with the teacher. As one critic put it, "an electronic tube cannot understand a child." It was also argued that learning would be reduced to a passive experience in which the student merely soaked up what was presented by way of a flickering image on a screen. Finally, of course, it was argued that "television will never replace the teacher."

What most of these arguments overlooked was that television is not a teacher, but merely a conveyer of teaching, and that a good teacher on television can be much more effective in stimulating *learning* than a mediocre teacher in the intimate environment of a classroom.

As teachers became more familiar with television as a medium of instruction, much of the early opposition evaporated. It soon became evident that television, far from being a threat to the status and prestige of the classroom teacher, was actually a powerful new tool for enhancing the art and prestige of teaching and for bringing to the student richer, broader, and deeper learning experiences.

The Fund for the Advancement of Education took an early interest in the possibilities of the medium for helping to meet important educational problems, and particularly the problem posed by the growing number of students and the continuing shortage of able teachers. During the past five years, the Fund and the Ford Foundation have provided financial support amounting to more than ten million dollars for more than fifty different experiments at the school and college level involving the use of television as a medium of instruction. Each of these experiments has been aimed at exploring the potential role of television as an instrument for improving the quality of education.

The primary focus of these experiments has been on multi-

plying the effectiveness of able teachers. Following are a few illustrative examples:

☐ At Pennsylvania State University and at Miami University, in Oxford, Ohio, closed-circuit television is being used successfully in the required freshman and sophomore courses, which traditionally enroll the largest number of students. At both institutions, it has been found that this method of handling large classes is not only educationally sound but also economically feasible.

☐ At the University of Detroit and Chicago Junior College, open-circuit television is being used to bring the major portion of the freshman and sophomore curricula to students off campus.

☐ At San Francisco State College, and at other institutions, college-level courses are being televised to able high-school students for credit.

☐ In Oregon, four colleges and universities have been joined together in a closed-circuit television network, and outstanding teachers from each campus have been made available to the students at all four institutions.

☐ At the University of Minnesota, closed-circuit television is being used to enable student teachers, without being physically present, to observe teaching and learning situations in a classroom.

☐ In Texas, the facilities of a state-wide network of commercial stations have been made available to the state department of education for reaching beginning teachers with a series of lecture-demonstrations designed to start them on the road to permanent certification.

☐ In Nebraska and Oklahoma, open-circuit television is being used to bring to students in small rural high schools college preparatory courses that otherwise would not be available to them because of the lack of qualified teachers.

☐ In Alabama, an educational-television network is being used to bring high-quality instruction to 16,000 students in 222 elementary and secondary schools throughout the state.

☐ In southwestern Indiana, sixteen school systems center-

ing around Evansville have banded together to form an educational-television council, which, financed out of a common treasury, makes available to students in each school system the combined teaching resources of all.

☐ In Washington County, Maryland, a closed-circuit television network that eventually will link up all forty-eight schools in the county is being used to bring daily instruction in thirty-nine courses—at all grade levels—to nearly 18,000 students.

☐ In more than a dozen large cities throughout the country, television is being used as a major resource in the teaching of classes several times the size of conventional classes.

☐ In New York City, closed-circuit television is being used in a low-income housing project to bring the school and the community closer together and to help overcome the language barrier between English-speaking and Spanish-speaking children.

☐ Over the nationwide network of the National Broadcasting Company, a course in modern physics is being taught each weekday morning to what may well be the largest "class" in the history of American education, numbering nearly 270,000 high-school teachers, school and college students, engineers, housewives, and others to whom education represents a continuing process. Since the experiment marks the first time that a full college course is being televised on a nationwide basis, this course is appropriately called "Continental Classroom."

Although it is much too early to draw any final conclusions about television's ultimate role in education, the results of the experimentation to date have been very encouraging. These results show, among other things, that students at both the school and college level learn as much—and in some cases significantly more—from televised instruction as from conventional instruction. The usual finding from most of the experiments has been that there is no significant difference in achievement between students in television classes and comparable students in regular classes. This finding is in itself remarkable, in view of the newness of television as a medium of instruction, the relative inexperience of those who have been using it, and the fact that existing school and college classrooms as well as

existing television equipment were not designed for televised instruction.

Results from two of the most extensive school experiments—although still tentative—indicate that superior teaching over television stimulates much better learning on the part of the student than ordinary teaching in the classroom. This has been particularly true when the "team" approach to teaching has been employed—when studio teachers and classroom teachers have pooled their skills and each has undertaken that particular part of the total teaching job to which the individual teacher is best suited by interest, ability, and temperament.

The two experiments where this method of teaching is producing results superior to conventional methods are the Washington County, Maryland, project, involving some 18,000 students in the county schools, and the National Program in the Use of Television in the Public Schools, a nationwide project involving in its first year nearly 40,000 students in more than 100 public-school systems throughout the country.

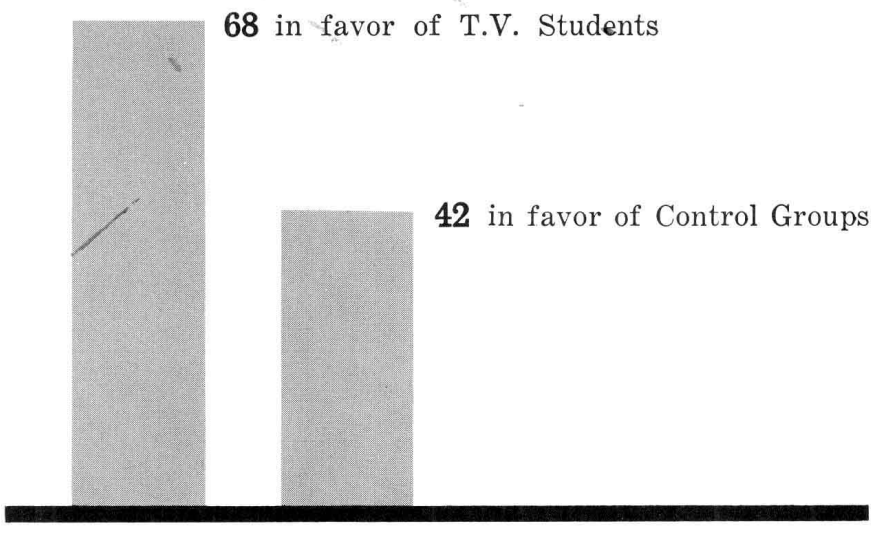
The test results from Washington County, based on a two-year comparison of the achievement of students in television classes with that of students in conventional classes, have not yet been fully analyzed, but preliminary indications are that they will show an impressive margin of superiority in favor of the students in the television classes.

The results of the first year of testing in the National Program are shown on the chart on page 10. Out of 110 different kinds of comparisons involving a combined total of 14,326 television students and 12,666 control students of equal ability, sixty-eight comparisons favored the television students and forty-two favored the control students. In thirty-eight of these cases, there was a statistically significant difference in the achievement of students in the two groups—that is, a difference that could not reasonably be attributed to chance. Of these statistically significant differences, twenty-nine were in favor of the television classes and nine were in favor of the control groups. According to the laws of probability, the chances of

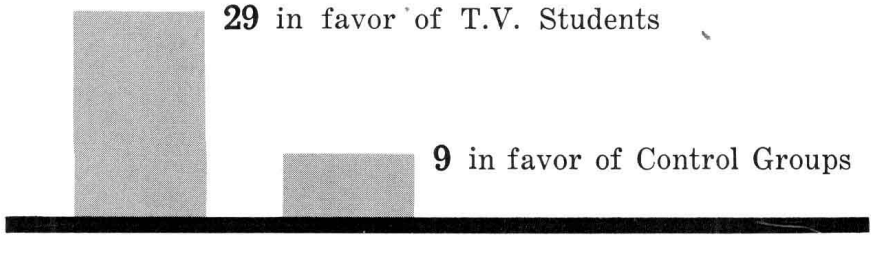
THE NATIONAL PROGRAM IN THE USE OF TELEVISION IN THE PUBLIC SCHOOLS

Test Results For The First Year

Number of Comparisons Favoring T.V. Students and Number Favoring Control Groups



Significant Differences in Achievement



such a result happening purely by accident are only five in a thousand.

Other encouraging results have emerged from the experimentation. For example, it has been found that televised instruction requires the student to accept more responsibility for his own learning than is the case with conventional methods of instruction. Also, students in television classes at the elementary and secondary level make more extensive use of the school library than students in regular classes.

In addition, experience to date has shown that the "team" approach to teaching, particularly at the elementary and secondary levels, opens up exciting new possibilities for capitalizing on the varying teaching skills among teachers in any given school system. Televised courses have been much more carefully planned and organized than conventional courses, and the combination of the skills of the studio teacher and of the classroom teacher has made possible a cooperative teaching effort far better than either teacher could achieve alone. At the elementary and secondary levels, for example, the usual practice has been for the studio teacher to "meet" only one class a day, generally for twenty or thirty minutes. The teacher then has the rest of the day to plan tomorrow's lesson. This opportunity to plan carefully, combined with the unique possibilities that television affords in the presentation of visual materials that reinforce learning, has stimulated the studio teachers to do a much better job of teaching than they had done in their conventional classes. In the meantime, the classroom teachers, relieved of the burden of planning and presenting the principal material in several different subjects during the course of a day, are free to concentrate on other important aspects of teaching—such as eliciting student participation, answering questions, leading discussions, reinforcing when necessary the main concepts presented in the telecast, providing individual help where needed, and stimulating the students to do something with what they have learned. Studio teachers and classroom teachers who have mastered the techniques of the "team"

TEAM TEACHING IN TELEVISION CLASSES

1

The studio teacher, classroom teachers, and curriculum specialists cooperatively plan the course in advance and prepare teacher guides.

2

The studio teacher presents, explains, and demonstrates the major points of the lesson, raises questions, and stimulates student interest.

3

The classroom teacher prepares students for the telecast part of the lesson, answers questions, clarifies points, leads discussion, makes assignments, gives individual help, and supervises testing.

4

The studio teacher and classroom teachers confer regularly to evaluate the lessons and make improvements.

approach say they greatly prefer it to the conventional method of teaching.

One other important result of the experimentation to date has been a more effective use of teaching time and classroom space. This has been especially true in the elementary and secondary schools, where the shortage of teachers and classrooms is most acute. Several school systems, notably those of Dade County, Florida, and Washington County, Maryland, have found that the use of television in teaching large classes has enabled them to serve more students with the able teachers already on their staffs and to get along with fewer new teachers than they otherwise might need. This means that they can be much more selective in hiring new teachers. The use of auditoriums, cafeterias, and other large rooms for certain television courses also has meant a substantial saving in classroom space.

Several other school systems have used the teacher time saved by the use of television in large classes to establish much smaller classes than usual for slow learners and for rapid learners, and to provide overworked classroom teachers with one or more free periods during the school day.

Finally, the use of superior teachers on television has proved an important means of upgrading the quality of other teachers, particularly beginning teachers. Several superintendents have reported that television has brought a system-wide improvement in teaching, and that even some of their best teachers have learned new techniques by observing the studio teachers.

There also have been problems.

One of the biggest single problems at the elementary and secondary level has been that today's schools were not designed for instruction by television, especially in large classes.

Another major problem at the elementary and secondary level—particularly in those school systems using open-circuit telecasts originating from educational-television stations—has been the matter of scheduling. This has taken two principal forms. First, there has been the difficulty of timing the telecasts to fit the schedules of as many schools as possible. (For example, fifth-grade arithmetic is not usually taught in all