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TETTEMER, Clair Readen, 1920--
TESTED PROCEDURES FOR THE DEVELOPMENT
OF EFFECTIVE INSTRUCTIONAL TELEVISION
PROGRAMS.

The Ohio State University, Ph.D., 1962
Education, general

University Microfilms, Inc., Ann Arbor, Michigan
TESTED PROCEDURES FOR THE DEVELOPMENT OF EFFECTIVE
INSTRUCTIONAL TELEVISION PROGRAMS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Clair Readen Tetteemer, B. Sc., M. A.

The Ohio State University
1962

Approved by

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Adviser
Department of Education
ACKNOWLEDGMENTS

The writer wishes to express his appreciation to Dr. I. Keith Tyler for his guidance and counsel during the writing of this dissertation.

The help given by the members of the Bureau of Educational Research at The Ohio State University and the members of the staff of WLW-C in Columbus, Ohio, is gratefully acknowledged, as is the hard work and cooperation of the teachers, consultants, and assistants who made up the team producing the Ohio School of the Air programs.

The writer also wishes to extend his heartfelt thanks to the members of the excellent School Programs Department at KETC in St. Louis, Missouri. Many of the principles reported in this study were developed cooperatively with this group.
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CHAPTER I

INTRODUCTION AND PERSPECTIVE

Following World War II American educators were faced with problems of immense proportions. The specter of split sessions, temporary buildings, basement classrooms, and empty teachers' chairs returned from the limbo of the thirties. The "war babies" were hardly registered in kindergarten before school census takers began to sketch in the dimensions of the coming problem. The burgeoning birth rate indicated that school classes were going to continue to grow for many years to come. Marriages were at an all-time high. The average family was no longer average; young parents were planning families of four or more youngsters.

In addition to growth in size, families were becoming more mobile. A great exodus to the suburbs was under way. Whole new communities with recreational facilities, large park areas, shopping centers, and easy financing were luring families away from the established school systems. Many suburban school districts with one or two school buildings were needing new buildings year after year.

Many factors in addition to the expanding population were helping to complicate the situation. College enrollments were being spurred on by the G-I Bill, yet the percentage of students enrolling in education colleges remained disappointingly low. In 1956 only 69,000 new teachers
were available to fill nearly 200,000 vacancies. Each year since then the supply has continued to fall far short of the demand.

Our advancing technology has also introduced a time factor to the problem. Developments in transportation and communication have placed us in proximity to ideologies completely foreign to our beliefs. Whole new areas of learning are being opened up before we have assimilated the old ones. In addition to new areas, the established fields—the humanities, languages, mathematics, science—are being enlarged. Room has to be found in the already overcrowded curriculum for this new knowledge. Education seems to be at an impasse. It is apparent that we not only have more to teach and more young people to be taught but we must teach with fewer teachers and in less time.

Dismal as this picture is, it is not hopeless. As soon as the problem appeared, educators began to make plans to meet it. On the local level buildings were planned, financed and built. Curriculums were overhauled; teacher in-service training programs were instituted; new teaching methods and materials were sought. At the state and national levels studies were sponsored, seminars held, and scholarships set up to encourage more young people to enter the teaching profession. Philanthropic agencies set up studies and demonstrations to develop new materials and techniques. These efforts were galvanized into activity on October 4, 1957, with the announcement that the Soviet Union had placed a satellite in orbit around the earth. Overnight, the country

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1Charles A. Siepmann, TV and Our School Crisis (New York: Dodd, Mead and Company, 1958), p. 5.
was made conscious of the crisis in education. Educators found themselves running to keep up with all the suggestions being made to meet this problem. It was obvious that no one answer would solve so complex a problem. Many old beliefs had to be retested to see if they were still valid. New techniques had to be developed and evaluated. One of these, educational television, showed early promise.

Experimentation with television for instruction has been going on since 1950. Since then hundreds of experiments with instructional television have been recorded. In 1956 Kumata abstracted seventy-one reports of research in instructional television. He also listed one hundred and seventy-three additional articles or books dealing with this field.²

From these abstracts and reports, it is apparent that much is to be learned from the experience of others when devising a specific plan for the development and utilization of television in the classroom. In 1953 the schools in the Columbus, Ohio, area joined with The Ohio School of the Air to study and then to inaugurate procedures for planning and producing television programs for classroom use. During the second year of this study, the writer was responsible for carrying out this project.

The experience gained from this project was instrumental in the development of procedures used to plan, produce, and evaluate school programs in the St. Louis area schools. These procedures were tested during a four-year period from October, 1955, to June, 1959. This study

will report these developments and their results. It will identify and
clarify practical, workable techniques for the planning, production,
and evaluation of television programs for classroom use in the hope
that they can be used by others to help develop a system of instructional
television.

**Educational Television Begins**

Educational television can really be said to have started
April 13, 1952. Before that date there had been some experimental use
of television in education, but it was not until the FCC (Federal
Communications Commission) issued its Sixth Report and Order that
educational television had a chance at life. This government order
provided for the assignment of 242 (now 309) television channels for
non-commercial use. These channels were to be reserved for one year to
give educators time to collect their forces and file applications.

The reservation of these channels marked the end of a six-year
battle waged by a small nucleus of educators. This group had the vision
to see the value these channels would have for education. Many of
these same people had been in the fight to develop an educational radio
system and they were determined that the same mistakes would not be
made with television.\(^3\)

By 1948 it had become evident that the original basis of tele-
vision channel assignment was obsolete. An avalanche of applications
for commercial use of television was being received by the FCC in

\[^3\text{Harold E. Wigren, "ETV: The Story to Now," NAEB Journal, Vol.}
\text{XVIII, No. 8 (1959), pp. 3-6.}\]
Washington, and now a new problem—color television—was making itself felt. In order to extricate itself, the FCC declared a moratorium on television assignments until it had a chance to study and revise the whole picture. During this time the FCC would not even accept applications for television channels. This "freeze" lasted three and a half years and it gave the educators the time they needed to organize and marshall their forces for the campaign for non-commercial channels.°

During the preliminary hearings held by the FCC, it was apparent that it had no inclination to reserve any channels for educational use. Even among educational groups there was little interest in or concern about television. At the Institute for Education by Radio and Television in May of 1948, a meeting was called by the NAEB (National Association of Educational Broadcasters) to discuss a plan for educational reservations in the UHF (ultra high frequency) band. The feeling at that meeting was that UHF was the only hope for education since those channels were not wanted by the commercial broadcasters.5

Interest in the educational use of television began to pick up in 1949. The FCC published its tentative plans for channel assignments. In this report, education was left out completely. FCC Commissioner Frieda Hennock issued a minority report dissenting with the plan. This gave the educators new life, for they now had a legal basis upon which to build their case as well as a "champion" on the Commission. A group

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4Ibid.

of thirty educational broadcasters, meeting under the joint auspices of
the Rockefeller Foundation and the University of Illinois at Allerton
House in Monticello, Illinois, laid plans for a nation-wide educational
radio network. These functional ideas were later used in the fight for
educational television allocations, and evolved into a plan for the
Educational Television and Radio Center (now the National Educational
Television and Radio Center). 6

The FCC had set the late summer of 1949 as the deadline for
filing protests against their preliminary allocation plan. Cohn and
Marks, the Washington legal representatives of the NAEB, filed a peti-
tion with the FCC asking for educational reservations in the UHF fre-
quencies. In that same year, a meeting of representatives from seven
leading educational organizations was called by the NAEB. At this
meeting, the JCET (Joint Committee on Educational Television, later the
Joint Council) was formed. For the first time, educational forces
presented a united front in their battle for educational reservations.

JCET served several functions: (1) it represented legally
all of American education; (2) it organized educators' efforts for the allocation of channels; (3) it pleaded educa-
tion's case before the Commission; and (4) it served as a
clearinghouse of information for all educational institutions planning to file brochures with the Commission in support of
the reservation of educational channels in their localities. 7

Largely through the efforts of I. Keith Tyler, Chairman of the
JCET, and President Howard L. Bevis of The Ohio State University, several

6Ibid.

important educational organizations joined the NAEB in filing petitions calling for reservations. Among these were co-filings from the Association of Land Grant Colleges and Universities, the National Association of State Universities, and the National University Extension Association. The United States Office of Education and the National Education Association filed separate petitions asking for VHF (Very High Frequency) as well as UHF reservations.

FCC Channel Reservations

In order to test public opinion, the FCC made a tentative allocation in March 1951, proposing that 209 of the 1900 channels be reserved for education. Educators were invited to file statements indicating their intention to utilize television in the event the FCC made these allocations permanent. Under the leadership of the JCET, 338 schools responded with these statements and, at the same time, presented plans showing how they would use these channels if they were given the opportunity. On Easter Sunday, 1952, the educators received the news that they had won their fight for channel reservations.

After celebrating their victory, the next stage of the battle was launched. The FCC had reserved channels for educational use, but there were a few strings attached. Two-thirds of the reservations were in the new UHF band. Commercial broadcasting had gotten its start in the VHF band, and while it was possible to convert sets, the results

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would be marginal at best. There seemed to be little interest or initiative on the part of manufacturers to underwrite research and to design quality UHF receivers, transmitters and antennas. Several of the key population centers, such as New York, Washington and Los Angeles, where VHF was well established, were assigned UHF channels.

Another fact that took some of the luster off the educators' victory was a threatened time limit placed on these reservations. These channels had to be applied for by June 2, 1953, or they might be available for reassignment to commercial use. This threw the educators into a new furor. Many argued that education could not organize so quickly. The very nature of educational broadcasting called for joint action in planning, developing and financing. All of this would take more time than the FCC had allowed. Nevertheless the educators, who had been in the fight for six years, redoubled their efforts and mapped out a new campaign. Their goals now were to get stations on the air and to convince the FCC that the reservations should be continued indefinitely.

Now events took place in quick succession. The JCET became a permanent organization financed by the Fund for Adult Education of the Ford Foundation under a plan worked out by a special NAEB committee. National programming, engineering and planning conferences were held; a consultation service was set up; and the NCCET (National Citizens Committee on Educational Television) was organized. This committee was set up to help groups of citizens develop community interest in

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10 Siepmann, TV and Our School Crisis, p. 32.
activating channels. Their idea was that "television is a means of educating the masses and a way of building an informed citizenry as nothing else could do—a concept we may possibly have lost sight of in recent years." In May 1953, the newly formed NCCET and the JCET held a Washington conference at which they presented a progress report to the FCC. The timeliness of this report was underlined when, shortly after this meeting, the FCC denied the existence of a deadline date for applying for the reserved channels. Temporarily at least, the reservations would be continued.

First Educational Television Stations on the Air

On May 25, 1953, KUHT, at the University of Houston, went on the air and thus became the first educational television station. Even though it was to be six months before another would be in operation, the effect of having an educational station on the air was immeasurable. Now it was not just a dream but a reality. In April 1954, Pittsburgh became the first community-organized station, to be followed in quick succession by Madison, San Francisco, Cincinnati, and St. Louis.

While the legal battle was being fought, educators and broadcasters were learning to use the medium. As early as 1932, experimental educational telecasts were being made by the University of Iowa. The camera was a crude, spinning disk built by the University's department of electrical engineering; the programs transmitted over the experimental transmitter, W9XX, were educational in nature. They included lecture

\[11\]

Wigren, **NAEB Journal**, Vol. XVIII, No. 8, p. 5.
courses in art, shorthand, engineering and botany. Following World War II, several universities began using commercial station facilities to produce educational programs. At first these programs were general in content and designed merely as a public relations gesture, but many soon developed into formal and informal telescourses aimed at specific groups.

Instructional Television Begins

One of the first to offer college courses for credit on television was Western Reserve University in Cleveland, Ohio. In September 1951, this university telecast "Comparative Literature," a two-credit course, and "Psychology" for three credits, at a cost to the student of $16.00 per credit hour. One hundred and nine students enrolled for full credit and another six hundred and seventy-four paid $5.00 for the syllabus and took the course without credit. The students were required to come to the campus only for the final examination, but during the courses were given the usual number of assignments.

These courses were so successful, both in the number of students enrolled and in the excellence of their work, that by the middle of 1952 Western Reserve had added four more television courses to its curriculum, and television became a permanent adjunct to their campus. Of particular interest is an analysis of the audience and how its work compares with that done by classroom students.

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In 1952 the University estimated that slightly over 100,000 individuals had viewed these courses. Other figures indicate that 56 percent of the students came from outside of the county in which the University is located. The average age of the viewers was thirty-seven, in an age range from nineteen to sixty-eight years. As might be expected since the programs were telecast during the morning hours, the audience was predominantly female.

Even though some of the students had not been in school for over thirty years, the instructors were amazed at the excellence of the written work. The median grade of the television students was thirteen points higher than that received in regular class sections of the courses. Sixty-four percent of the students completed the courses and took the final exams. Another 19 percent indicated their intention to finish the work within the one semester limit authorized by the University. From these facts and figures, it was readily apparent that a whole new segment of the population was receiving college-level work by means of television, and doing very well with this new technique.¹⁴

In Philadelphia, twenty colleges combined to present cooperatively a regular series of adult education programs. Omaha University, the University of California, and the University of Michigan also offered courses for credit.

The latter school offered several courses during the University of Michigan Television Hour. This hour was divided into three twenty-minute periods and was presented between one and two o'clock on Sunday

¹⁴Ibid., pp. 54-55.
afternoons over WWJ-TV in Detroit, Michigan. Some of the courses were Human Biology, Living in the Latter Years—Hobbies Put to Work, and Photography. Viewers registering for these courses were not enrolled in the University for credit and paid only a $2.00 fee to cover the study material. The station estimated an audience of 100,000, and the University received a fee from 1,488 people.\(^{15}\)

One of the oldest university programs on the air and the first university-produced program to be transmitted by a network was the "Johns Hopkins Science Review." The first of this series was produced by Johns Hopkins University in 1947 in the Baltimore studios of WAAM, and was carried over the Dumont network. When that network ceased operation, the series was transferred to the American Broadcasting Company.

In a survey reported by Siepman in 1952, forty-two colleges and universities indicated they were originating programs on commercial stations. Ten of these reported that they were making use of television as part of their classroom instruction.\(^{16}\)

While the initial interest in educational television came from the colleges and universities and other groups interested in adult education, the emphasis soon shifted to the areas of formal education handled by the public schools.\(^{17}\) Although the vast potential for television in education was still its ability to reach large groups


scattered over a large area simultaneously, the value of improving the quality of education in the classroom soon became of equal importance.

Public School Use of Instructional Television

In the public schools, like the colleges, the first use made of television was through commercial channels. School officials were quick to seize on this new medium for public relations purposes. For the first time, it was possible to show parents just how much change there had been in teaching methods and materials since they were in school. Only a few school systems reported in Siepmann's survey indicated any classroom utilization of television programs.

Of the forty-one school districts surveyed, only five reported having six or more receivers in all their elementary schools, and only six as having this number in their secondary schools. In these school districts the number of sets ranges from thirty-five (in Baltimore) to 900 (in Philadelphia). In most other school districts the number of sets installed in all schools was, on average, no more than two or three. 18

As early as 1946, the Chicago public schools had telecast educational material for classroom use. These early experiments included programs in such subjects as science, art, literature, social studies, music and current events. As the commercial stations grew, the available time for school use dwindled. While the Chicago schools continued to broadcast public relations programs, they adopted a "wait and see" attitude toward classroom use of television. 19

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18 Siepmann, *Television and Education*, p. 78.
Probably the first regular use of television in classrooms was developed in Philadelphia. On February 18, 1948, the Philadelphia public schools began a series over commercial station WPTZ entitled "Young Philadelphia Presents." This series covered a wide variety of school activities such as physical fitness, agriculture, American history, art, music, dance, sewing and cooking, round table discussions, et cetera. It was telecast from 4:45 to 5:00 in the afternoons for home viewing by the youngsters. Station WCAU-TV offered the schools four periods a week during school time, and in March, 1948 telecast the first lessons for use in the Philadelphia classrooms. Stations WPTL-TV and WPTZ soon followed with offers of times during the school day.20

Other school systems, such as those in Baltimore, Detroit, New York, Minneapolis, St. Paul, Des Moines, Los Angeles, San Diego, and Atlanta, began regular series of classroom telecasts over commercial stations about the same time.21

The second educational television station to go on the air was KTHE in Los Angeles. This station was the first in the UHF band and telecast on Channel 28. It was financed by the Hancock Foundation, and when the foundation withdrew its support in a little under a year, the station went off the air. This has been the only educational television station to cease operation.

20 Ibid., p. 87.
On April 1, 1954, the third station, WQED in Pittsburgh, began operations. This was the first station to be financed as a community project. Regular school telecasts started in the fall of that year with five weekly programs called "TV Schooltime." This was a collection of five series, each telecasting one program a week for thirty weeks. Some of the subject areas included were speech improvement, art, chemistry and literature. To secure maximum use of these programs, they were pre-recorded on film and rebroadcast five times each week. This gave the teacher a choice of times and days to use each program. The series were divided for production between the Pittsburgh schools and the schools of Allegheny County. To pay for these "enrichment" programs, the school systems in Pittsburgh and some of the suburban districts in the vicinity contributed twenty-five cents per pupil to WQED.

In addition to these series planned by the schools themselves, a three-year Television Teaching Demonstration (TTD) project was launched in September, 1955. This experiment was made possible under grants of money from the Ford Foundation's Fund for Advancement of Education and the Mellon Education and Charitable Trust. Three twenty-five minute live television lessons per day were given to 639 fifth-grade children in twenty different classes of the Pittsburgh system. Of these, 547 completed the courses; the loss in enrollment was caused by illness, transfers, and similar reasons. The daily lessons were in reading, arithmetic and French.²²

²²Siepmann, TV and Our School Crisis, pp. 51-52.
During the second year of the project a fourth subject, social studies, was added. The experimental group was broadened to include two thousand students and the experiment was extended to public schools outside of Pittsburgh and to private and parochial schools as well. In the third year, the demonstration was again expanded. "New courses included sixth-grade reading, seventh-grade English, and ninth-grade general science. There are two courses for students who took the French course on television the previous year."

The philosophy under which this experiment operated was explained by Miss Rhea Sikes, producer of the TTD project. Miss Sikes said:

We have found these things to be absolutely necessary to effective television teaching.

The teacher and the producer must have a mutual objective. Ours is to teach children, therefore the teaching comes first and the television must never dominate it. The teacher must do long range planning, for it is only at this point that a careful analysis of the medium can be made to see what it can or cannot do to assist her in her teaching.

Ways can be found to overcome its most obvious limitation, the separation of the student from the teacher. Active participation in the television lesson by the child helps to bridge this gap between him and the teacher and guards against his becoming merely a spectator.

Television is visual, and one must never be content with just teacher, text book and chalkboard. Television is flexible. Students can be transported anywhere, at any time, with any special guest, a feat impossible in the classroom.

But perhaps its greatest asset is that it creates a positive climate within which the teacher can present her lesson in her best, most interesting way without interference from extraneous or diverting influences. These are television assets, and they should be exploited wherever possible. To achieve a close and fine learning experience for children, the teacher and the producer must work constantly together. In this way they can bring television techniques and teaching skills into a successful program.  

\[23^{23}\]Tbid., p. 53.

\[24^{24}\]From the sound track of a demonstration kinescope recording of the Fifth Grade Reading Series in the TTD project (Recorded by WQED, 1955).
Several other significant firsts were scored by the Pittsburgh educators. Leland Hazard, writing in the Atlantic Monthly, said that WQED had the most success from those things they did systematically. For example he cited the experience they had in establishing a "High School of the Air." An estimated 70 percent of the eligible people in the WQED coverage area did not have high school diplomas. The first semester of their "High School of the Air" included algebra, English and American history. The teachers for these courses were drawn from the local school systems. The lessons were presented at 7:00 p.m. for nine months of the year. Students paid $5.00 per semester for each course; enrollments were in the hundreds; and 71 percent of those taking the official examinations passed.

In 1956 the schools and WQED developed and produced a complete high school physics course. This project was made possible by a grant from the Fund for Advancement of Education. The goal of the series was to present by means of television physics instruction as good as is humanly possible.

The prescription for this perfect set-up includes the following: (1) The teacher must be pre-eminent as a scholar—and pre-eminence in this particular field is confined to a small nucleus of physicists. (2) He must be outstanding as a teacher—and here again we have to recognize that scholar-teachers of the first rank are rare. (3) He must have ample time to prepare his courses, undisturbed by other academic duties and distractions. (4) Regardless of cost, he must be provided with all the technical laboratory facilities necessary to clear, effective demonstration. (5) The range of his influence must no longer be confined to the square footage of his classroom, but must embrace, as near as may be, students throughout the country.25

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25 Siepmann, TV and Our School Crisis, p. 57.
Dr. Harvey E. White was asked to take a leave of absence from his position as professor of physics at the University of California in Los Angeles, and come to Pittsburgh to present these lessons on television to the schools of that community. To extend the series to more schools, the entire year's work was filmed, in color, simultaneously with its presentation on television. The series was made available to all schools through Encyclopedia Britannica Films. It was the first time that a complete year's filmed course in any subject was made accessible to all schools. 26

In the summer of 1957 the "Summer High School of the Air" was broadcast. Five high school courses (those in which there were the greatest number of failures) were taught by television, with registration open only to those who had failed. Three half-hour lessons a week for six weeks were followed by standardized and teacher-made tests given in Pittsburgh. Grades were sent to the high schools where the decision was made as to whether credit for "make-up" should be awarded. 27

In Cincinnati, station WCET began operating as a community station on UHF Channel 48, July 26, 1954. The first programs for school use were telecast in October of that year. For the first year and a half the programs were developed primarily for enrichment. Since 1956, however, their programs have been more directly instructional, providing systematic lessons to the classroom in such areas as sixth-grade science, seventh-grade mathematics, ninth-grade biology, and tenth-grade driver education. 28

26 Ibid., pp. 53-59.
27 Ibid., pp. 53-54.
28 Robert P. Curry and James N. Jacobs, Cincinnati's Adventure into ETV (Reprint from the American School Board Journal, 1958), p. 3.
The organizations responsible for these programs are the school systems themselves in the Cincinnati area. Representatives from eight school systems, meeting under the chairmanship of the WCET Program Director, decide what lessons will be telecast, plan the programs, and act as a supervisory group for the station. The school telecast day begins at 9:40 a.m. and continues until 3:00 p.m. The costs are borne exclusively by the participating schools. In 1958 the station's yearly operating budget was $132,000, of which 65 percent came from the Cincinnati Board of Education alone.29

Telecasts for school use in the Seattle, Washington, area began in 1954 over commercial station facilities. When on December 10, 1954, KCTS-TV Channel 9, licensed as a non-commercial station to the University of Washington, began operation, these programs were transferred to it. By 1958 the schedule provided for twenty hours of school telecasts per week. From the first, emphasis was placed on programs for the elementary grades. In order to fit into the individual school's schedule, all programs are now being recorded for multiple showing.30

A television curriculum committee representing the various school districts meets monthly to plan the subject areas in which they wish to make use of television, and to decide on grade levels and the general approach to instruction. The responsibility for implementing the plans is then turned over to the school's television coordinators and the station's production staff. The Seattle public schools have accepted the responsibility of developing half of the programs and the county schools the other half. The joint


30 Ibid., pp. 16-18.
curriculum committee generally decides which school or district can best provide instruction on some particular subject area. KCTS provides two producers, whose full time is spent in working with the school programs. These producers do not make decisions on content and teaching methods, but supply television technical supervision and direction. Financing is supplied by 110 Seattle schools, who together contribute a yearly sum of $65,000.

Material for study guides is prepared either by the television coordinators or by teachers. KCTS, while providing no information for the guides, does provide the funds for their publication.31

In the spring of 1957, the Eastern Massachusetts Council for School Television came into being. The formation of this council was the result of many years of hard work on the part of a small group of Massachusetts visionaries. Station WGBH-TV, in Boston, had been operating since May 2, 1955, but the first school telecasts did not go on the air until March 28, 1958. This first pilot series, called the "21 Inch Classroom," consisted of eight thirty-minute physical science programs for use in the sixth grade. The series represented the end product of a cooperative effort involving countless agencies and individuals.32

The outstanding characteristic of the first year of operation was growth—not only in Council memberships but in the variety of subject areas explored. "But the real measure of success in this new instructional medium has been the overwhelming enthusiastic reception

31Ibid., p. 16.

accorded it by classroom teachers as well as school administrators throughout eastern Massachusetts."\(^{33}\)

There are three major administrative groups involved in the development of school programs in eastern Massachusetts.

The Eastern Massachusetts Council for School Television, representative body of all the contributing educational agencies, acts through its Administrative and Operations Committee to establish program policies; the Massachusetts Executive Committee for School Television, appointed by the State Board of Education, . . . is the legal administrative agent for all funds appropriated for school television purposes within the Commonwealth; WGBH-TV, Boston's educational Channel 2, is the production medium through which the theoretical advantages of in-school television have become actualities.\(^{34}\)

The Council has concentrated its efforts on presenting supplementary material in television lessons; it has avoided the direct teaching approach—its activities could be characterized as enriching and motivating.\(^{35}\)

As of May 1959, one hundred and nineteen educational agencies were contributing twenty-five cents per child to the operation of the television programs. During this time, they were receiving six television series, ranging from social studies in kindergarten to science in the sixth grade. Future plans called for two lessons a week of elementary French, world affairs for secondary schools, and a natural science program for elementary grades.\(^{36}\)

This by no means exhausts the list of places using classroom television, but does give the reader a general idea of the various uses

\(^{33}\text{i}b\text{id.}, \text{p. 8.}\)

\(^{34}\text{i}b\text{id.}\)

\(^{35}\text{i}b\text{id.}, \text{p. 29.}\)

\(^{36}\text{i}b\text{id.}, \text{pp. 29-31.}\)
being made of television in the schools. There are several other important developments, however, that should be mentioned before leaving the broadcast type of school programs.

**Educational Television Networks**

The first of these is the educational television network. Several states and at least one region (New England) are operating educational television networks. Some action is being considered in at least a dozen other locations. Networks are either now in operation or in the advance planning stage in Alabama, Oklahoma, Georgia, Florida, Oregon, Ohio, Minnesota, Wisconsin, Nebraska, Iowa, North and South Dakota, and North Carolina.

The first state to begin telecasting school programs on a network basis was Alabama. It has been presenting a limited school schedule since 1956. As of September 1962, the weekly schedule consisted of thirty hours of school programming. Programs are scheduled from 9:00 a.m. to 3:00 p.m. and include the following subjects: for elementary grades—citizenship, Spanish, French, spelling, music, arithmetic, science, music, and writing; for junior high school—science, music and literature; and for high school—history, speech, English, civics, literature, art, music, mathematics, physics, biology, Spanish, plane geometry, and chemistry. Other topics also are presented such as the history and geography of Alabama, home economics, baby care, driving safety, dance instruction, penmanship, and scouting.37

37TV In-school Course Descriptions (Montgomery, Alabama: State Department of Education, 1962-63).
The Alabama network has three studios and three transmitters. Although the studios and transmitters are located in the same cities they are operated independently. The transmitters located in Birmingham, Andalusia, and Munford, and the network facilities connecting these locations, are maintained and operated by the Alabama Educational Television Commission. This Commission is set up and financed by the state legislature.

The studios operate independently and are staffed, financed, and programmed on a local basis. Each studio supplies the network with programs in content areas where the studio organization is most competent. The same schedule is telecast simultaneously on all three transmitters. Several meetings a year are held to coordinate the program schedule.

Along with the development of network connections has come the second educational station within an area. In at least two cities, Pittsburgh and Oklahoma City, a second educational transmitter has been put on the air. In both cases the original station was transmitting on a VHF reserved channel and its second transmitter was licensed to operate on a UHF unreserved channel. In Pittsburgh the Metropolitan Pittsburgh Educational Television organization was the licensee for both channels. Its plan is to use the VHF channel for programs aimed at a wide audience distribution and the UHF channel for those directed toward selected or captive audiences.

The two channels in Oklahoma City are licensed to different groups. The VHF channel is operated by the Oklahoma Educational
Television Authority, while the UHF channel is operated by the Independent School District of Oklahoma County.

National Educational Broadcasting Organizations

National Association of Educational Broadcasters

Another significant development in the history of educational television is the emergence of the national educational broadcasting organizations. The National Association of Educational Broadcasters (NAEB) is the oldest of these groups. The NAEB serves three functions: it is the "trade association" of educational radio and television; it provides the educational radio station with an educational network operated by tape recording exchanges; and it is a "professional association" for individuals in the educational broadcasting field. 38

The NAEB grew out of the Association of College and University Broadcasters which was formed in 1926. This first association was a loose affiliation of the few surviving educational radio stations, and in 1934 it was reorganized into the National Association of Educational Broadcasters. The new organization began work "to secure a central professional headquarters, national program facility and exchange, and Washington representation before the Government." 39 While these efforts were ceaseless, not much was accomplished until 1952 when the Kellogg Foundation and the Fund for Adult Education gave the NAEB financial assistance.

The early involvement of the NAEB in the struggle for channels has already been reported. It also played a key role in founding several other national organizations. On October 17, 1956, the NAEB merged with the Association for Education by Ratio and Television (AERT) and, at that time, assumed all the obligations and responsibilities of the AERT. This meant that hereafter the NAEB would broaden its scope to include the concerns of the consumer as well as those of the producer.

In its more than thirty years of existence, the NAEB's service to educational broadcasting has been highly significant. Among its publications are the NAEB Newsletter, the NAEB Journal, the Engineering Newsletter, directories, research studies, fact sheets and other miscellaneous studies and reports. Other services include grants-in-aid for radio program development; research and television workshops; scholarships for advanced study by associated station staff members; workshops and seminars which have involved more than 400 educational broadcasters; national and regional meetings; consultant services including legal, management and union relations, operational, administrative and technical; engineering service; placement service; radio tape network; international exchanges of programs, publications and personnel; and many other miscellaneous public relations offices.40

Joint Council on Educational Television

One of the organizations that the NAEB was instrumental in forming was the Joint Council on Educational Television (JCET). This

Council, as was reported earlier, came into being to develop the case for educational television channel reservations. Since its birth in 1950, the JCET continued to guard and promote the use of educational frequencies in television on behalf of the "educational public."\(^{41}\)

In 1961 the JCET became the Joint Council for Educational Broadcasting (JCEB). This revised organization had six constituent organizations as its members. Many of the staff functions of the JCET were taken over by the National Educational Television and Radio Center, but the JCEB would continue as a policy making body in educational radio and television.\(^{42}\)

National Educational Television and Radio Center

The third organization, and probably the most influential in the educational television movement, is the National Educational Television and Radio Center (NETRC). The Center was made possible by a grant from the Fund for Adult Education and was organized in August, 1953. The Center, with its offices at 10 Columbus Circle, New York City, is the headquarters of the National Educational Television (NET) network.

While the Center offers many services to its affiliated educational television stations, its most outstanding is the programs with which it supplies them. At the present time (1962), the Center is providing each station with ten hours a week of programs, made up of seven hours of new

\(^{41}\)Ibid., p. 9.

material and three hours of re-runs of popular series shown in the past. A few of these are for children, but most are aimed at an adult audience.

Stations can also draw an additional two hours a week of programming out of the Center's pool without charge, and for a nominal fee they can rent still more. This pool is made up of quality educational programs which have been used in the past, but which at present are not part of the regular package. As of this writing the pool contains more than 1,000 programs.43

Over and above this basic package, the Center provides programs of outstanding educational value, either for one-time-only use or as special, short series. An example is the series of complete concerts by the Boston Symphony Orchestra made available to all stations through the Center by their affiliate, WGBH-TV, the educational television station in Boston.

Since early in 1957 the Center has worked with the National Broadcasting Company, using their combined resources to present unusual programs. These have been broadcast "live" over the NBC network "lines" at off hours to educational television stations all over the country.44

Regardless of how the future alters the Center program service, the underlying philosophy of Center programming will remain the same—that is that programs be in fact educational, that they transmit knowledge, alter attitudes, or increase understanding. The following paragraphs detail how this basic aim is translated into specific requirements for Center series.


44 Ibid.
First, N.E.T. programs must deal with the basic concepts, ideas or issues that underly our national culture. It is felt that the power of this medium should not be frittered away on trivia but should be used to enlighten the American people and equip them to live more effective lives, both as individuals and as citizens.

Material presented in N.E.T. series must be accurate and authoritative, above all. To help insure this, the Center uses the services of outstanding specialists as program consultants.

Since learning requires a repeated stimulus, Center programs ordinarily are planned in series, with the number of programs being determined by the series subject.

Authoritative content and repeated stimulus are not enough, however, if viewers do not absorb the material. Therefore, great importance is attached to the program's ability to capture audience interest.

Research is helping the Center build the interest value of N.E.T. series by defining the background and desires of ETV viewers.

In addition, the Center is conducting several long-range research projects to measure how much viewers actually learn from various ETV series.

Of course, the best programs, presenting the most authoritative content in the most fascinating way, won't be watched by the most devoted ETV fan if the television picture is fuzzy or the sound is askew. Therefore, another criterion for N.E.T. series is technical quality.

Finally, N.E.T. series must cover a wide range of subjects. Research indicates that ETV viewers are selective. They tune in specific programs because they have a special interest in the subject matter being presented. They then devote their full attention to that program.

The Ford Foundation

Another organization that has had significant influence on the development of educational television is the Ford Foundation. Early in its existence the Foundation saw in television a means of aiding

\[^{45}\text{Ibid.}\]
education. Television also had the advantage of not being pre-empted by an older, established foundation.  

The Fund for Adult Education

The first Fund in the Ford Foundation to support educational television was the Fund for Adult Education. Shortly after it was formed in 1951, the Fund took steps to help local communities start educational television stations. Through a series of matching grants, it was instrumental in the activation of stations in about thirty communities. Grants up to $150,000 were made available to stations which could meet the qualifying conditions. First, the funds had to be matched dollar for dollar by local sources; second, the money could not be used for operations and could be spent only for capital equipment; and third, the station either had to have, or must use some of the money to get, a kinescope recorder. Through other grants the Fund for Adult Education also made possible the establishment of the Joint Council on Educational Television, the National Citizens Committee for Educational Television, the National Educational Television and Radio Center, and the development of the program series, "Omnibus" on commercial television.

The Fund for the Advancement of Education

The second Fund in the Ford Foundation to take up the cause of educational television was the Fund for the Advancement of Education.

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46 I. Keith Tyler, "Instructional Television: Types and Objectives" (1957), unpublished notes on file at the Office of Radio and Television Education, The Ohio State University, Columbus, Ohio.
The Fund for the Advancement of Education took an early interest in the possibilities of the medium (television) 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, (May 1959), 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 multiplying the effectiveness of able teachers.47

In 1957 the Fund for the Advancement of Education changed its support pattern from one of financing individual projects to a National Program in the Use of Television in the Public Schools. This is an interrelated "nationwide experiment involving in 1957-58 nearly 40,000 students in more than two hundred elementary and secondary schools."48

The major objective of the National Program is ... to determine whether it is feasible, using televised instruction as a major resource, to teach large classes of students with fewer teachers and fewer classrooms than might otherwise be required, and at the same time to upgrade the quality of education.49

Midwest Program on Airborne Television Instruction

The most ambitious instructional television project so far was announced in September of 1959 by the Purdue (University) Research Foundation. Under a special project committee organized as the Midwest Council on Airborne Television Instruction, a plan was developed to

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48Ibid., p. 46. 49Ibid., p. 47.
'explore airborne television as a means of serving a great many schools and students with top quality instructional television courses.'

The plan called for some 17,000 schools and colleges in a service area of 150 to 200 miles around Montpelier, Indiana, to be served by two UHF transmitters operating from a DC-6AB airplane circling at an altitude of 23,000 feet. High quality instructional programs were to be pre-recorded on video tape and transmitted from the plane. Plans called for the simultaneous broadcasting of two program services, six hours a day, five days a week throughout the school year.

Following a test period in the spring of 1961, the Airborne program began operation with a full schedule of lessons in September 1961. Sixteen courses were scheduled for the first semester and twenty-one for the second semester of the 1961-62 school year. The project is financed by a group of twelve major contributors, foremost among which is the Ford Foundation. From September 1959 to May 1962 the project cost $8,517,000. The operators of the Airborne program estimate that it can be operated on an annual budget of $3,750,000.51

Federal Government Aid

National Defense Education Act

Following the launching of the first artificial earth satellite, Congress belatedly took notice of the problems facing American education.

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51 Midwest Program on Airborne Television Instruction, This Is Airborne, 1962.
After many days of hearings, the 85th Congress passed the Hill-Elliott bill which became the National Defense Education Act of 1958. This Act authorized some 110 million dollars a year for three years to be spent in bolstering the teaching of mathematics, science, and foreign languages. Each year the U. S. Department of Health, Education and Welfare could ask Congress for appropriations to carry out the various programs. In the closing moments of the 85th Congress, an initial appropriation of forty million dollars was made.

The Act provided money for the purchase of equipment and materials, development of new educational materials, research into new educational media, and dissemination of information about new techniques and other data. There was no doubt that Congress intended this Act to emphasize the use and development of new educational media, including radio and television.52

In April 1959, Commissioner Derthick of the U. S. Office of Education announced the approval of the first thirty-five projects under Title VII of the Act. Significantly, of the sixty-eight grants made prior to September 1, 1959, over 45 percent were for projects directly involved with educational television.

Federal Aid to Educational Television

Other proposals designed to aid in the development of educational television were introduced in both houses of the 86th Congress. Senator Magnuson (D., Wash.) introduced a bill which would give to each state

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and territory one million dollars for the acquisition and installation of educational television facilities. On April 13, 1959, the bill was passed by a voice vote.  

During this same period seven different bills affecting educational television were introduced in the House of Representatives. "Hearings on the various proposals were conducted on May 12 and 13, 1959, by the Subcommittee on Communications and Power of the House Interstate and Foreign Commerce Committee." The committee decided to defer action until the members could conduct field hearings which were scheduled for November and December of 1959.

The field hearings were held, and in general the committee was in agreement that some form of federal aid to educational television was needed. However, it was not until May 1962 that a bill was signed into law. This law provided for a total of thirty-two million dollars to be made available on a matching grant provision up until July 1, 1968. Each state could apply for grants totalling up to one million dollars. The money was to be used to assist in the construction of educational television broadcasting facilities and could not be used for non-broadcast activities other than those incidental to broadcasting.


55 Ibid.

Closed Circuit Television

So far, we have looked only at that instructional television which is transmitted over commercial or non-commercial stations. Closed circuit transmission, whose growth has been little short of phenomenal, is equally important.

Closed circuit differs from broadcast television only in its method of transmission. In broadcast television, a combined video and audio signal is transmitted to the receiving sets through the air using an assigned channel. In closed circuit television, the same combined video and audio signal is transmitted by means of a wire circuit. Basically the same equipment is used in both systems; both have advantages and disadvantages.

Advantages of Closed Circuit

Probably the greatest single advantage of a closed circuit system is its privacy. Here is a form of point-to-point communication. No matter how many receivers are hooked to the system, the reception and transmission can be controlled by the same administrative unit. This means that since the needs of the audience are known in advance, the subject matter can be "tailor-made." Privacy also allows the transmission of material not suitable for public viewing. Many such uses are made by medical, industrial and military units. For example, at the headquarters of the Strategic Air Command in Omaha, a color closed circuit television system exists to brief the staff on military matters ranging from the weather to tactical situations.
Along with privacy goes unit control. Where both ends of the circuit are under one jurisdiction, it is possible to work out time schedules that suit all concerned. For instance, if a closed circuit system is being used to teach a foreign language and it suddenly becomes desirable for the students to have an extra period for practice without the television teacher, it is a simple thing for the circuit to be turned off. Even several days can be left free in this manner for extra work, examination or review. Again, assume a school schedule requiring a class to begin at 10:38 a.m., the closed circuit can be adjusted to fit this odd starting time. Non-commercial television stations enjoy some flexibility of schedule, but not to the extent of unit-controlled closed circuit systems.

Another advantage of closed circuit is the possibility of multichannel operation. When the video and audio signals are combined and fed to a closed circuit distribution system, they are similar to a broadcast signal in every respect except power. In fact, the equipment used to feed a closed circuit is a miniature television transmitter. At the viewing end, regular television receivers are used. The coaxial cable is connected to the antenna terminals of the set and the program is received on one of the standard channels. If several closed circuit transmitters are tuned to operate on different channels, they can all be fed into one coaxial cable distribution system. Each receiver can be tuned to the desired program by selecting the channel to be viewed, as one would select a standard television station. Theoretically, the number of channels used in such a system is almost limitless, but in practice only six or seven of the VHF channels can be fed simultaneously.
Closed circuit may not enjoy this advantage for long. As has been reported, two cities already have two non-commercial channels on the air and several others either have construction permits or have requested them. The Airborne project, now using two channels, expects ultimately to have six channels on the air. The feasibility of low power multi-channel operation is being tested by KUED, the educational station in Salt Lake City, and a workable multiplexing system is also in the experimental stage.

Even though closed circuit uses television equipment, techniques, and channels, it does not need to be licensed by the government. Since the transmitted intelligence never uses the "public air," it is not necessary to have an FCC permit, maintain FCC standards of operation, or use licensed engineers.

Closed circuit as well as broadcast television has fired the imagination of educators; each has its place. Only through broadcast television can large, widely scattered audiences be served economically; and only through closed circuit can schools exert absolute control over the entire television system.

Uses of Closed Circuit Systems

At several teacher training institutions closed circuit television systems are used to observe classroom teaching. Cameras are mounted unobtrusively in a school room and by means of remote control, apparatus can be adjusted to observe the teacher, the students, or both.

The medical profession was one of the first to realize the value of closed circuit television. Practically every medical and dental
school now use such equipment. Through color television in the operating amphitheater, the student can actually see as well as the surgeon. One of the most extensive systems is located at Walter Reed Medical Center in Washington, D.C. The initial system included four color image orthicon cameras, three remote controlled vidicon cameras mounted over operating tables, one color film camera chain, and four black and white image orthicon cameras. "The major mission of the facility is to develop and use television for medical and scientific training and information."\(^57\)

The system is used for a variety of presentations, ranging from surgical demonstrations to panel discussions among medical and research personnel. Several closed circuit programs have been transmitted to medical conventions. Local universities and schools use the facilities for origination and evaluation of programs to be transmitted to classrooms over local commercial television transmitters.

In September 1959 when the Ford Motor Company was introducing a new automobile, a coast-to-coast hookup was arranged. All dealers were invited to a closed circuit showing. In a matter of minutes every Ford dealer in the country had been given a sneak preview of the new models.

At Pennsylvania State University, as part of a continuing research project, closed circuit television was used as a demonstration magnifier. The usual arrangement was to have one vidicon camera attached to four to

six receivers in the same room. The lecturer gave his normal class presentation and the television camera was only used to give a close-up of his demonstrations or other visuals.  

Three different departments taught courses on the closed circuit system—education, chemistry and engineering. All found that they could increase the size of the classes without materially affecting the amount learned by the students. The general chemistry course class size was increased from 125-150 students to 250-300. The introductory electrical engineering and introductory education courses increased their class sizes from 30-35 to 150-175 students.  

The most serious limitation existed in the chemistry course where many experiments and demonstrations depended on color and color changes for clarification. In this case the monochrome reproduction was a disadvantage.  

At Evanston Township High School in Evanston, Illinois, three separate closed circuit systems have been installed. Each consists of a control center for originating programs and a block of receiving rooms. Cross-connections are provided so that any combination of rooms can be fed from any of the originating centers. These systems are used to explore specific ways that closed circuit television can help the

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59 Ibid.

60 Ibid., pp. 57-62.
classroom teacher keep the quality of instruction high in the face of mounting enrollment. 61

Two areas of their investigation, typing and speech, are of particular interest. The typewriting project was designed to test the effectiveness of closed circuit in teaching a skill subject to large numbers of students. In the originating classroom the teacher used two vidicon cameras and a microphone which were connected to a receiver in an adjoining viewing room. While the teacher taught the class in the former room, the students in the latter learned through the closed circuit. The instructor also had a return television system which allowed him to see what was going on in the receiving classroom. In this way, he could adjust his normal work load to any problem encountered in the remote viewing room. The remote class also had an audio talk-back system through which they could ask questions or make replies. 62

The course in speech was composed of units in acting, stagecraft, discussion, oral interpretation, and public speaking. It had been taught previously to four classes by four teachers. Now each teacher taught on television those areas in which he was especially skilled to all four classes simultaneously. The other three teachers were released to give supervision, provide for individual differences, and prepare for the units which they would teach later. 63

62 Ibid., p. 19.
From these and other experiments, the people at Evanston High School concluded that television could handle large numbers of students in a skill subject such as typing, and that teachers had more time for student conferences when several sections were taught simultaneously. They also found that the showing of movies, filmstrips, and slides via television had certain advantages, i.e., the room did not need to be darkened, extra equipment was unnecessary, students could take notes, and the teacher could integrate the visual materials more effectively into the lesson. "It was further concluded that television had much to offer to the more efficient use of teacher time and talent."  

Probably the most extensive test of closed circuit television to date has been made in Washington County, Maryland. Under a grant from the Fund for Advancement of Education, a plan to interconnect the forty-nine schools in the Hagerstown and Washington County areas by a closed circuit television system was developed. The project was to run for five years beginning in September, 1956.

The plan was a marvel of cooperation. Four major organizations were involved. The Washington County Board of Education would provide the educational orientation and pay all the certified personnel used in the experiment. The Fund for Advancement of Education would underwrite the cost of designing the system, assisting with production, training personnel for operating, administering and supervising the project, and developing and carrying out the evaluation. The Electronics Industry

\[64\] Ibid.
Association, through its member companies, would supply the studio and receiving equipment. The Chesapeake and Potomac Telephone Company of Maryland would develop, install and operate the closed circuit transmission system for five years at no cost to the project.

The staff and faculty of the Washington County system viewed television as a means to an end. They could see in it a method whereby they could take a fresh look at educational problems, procedures, methods, theories and techniques. It was reassuring to find that they were re-evaluating their ideas about education and the learning process instead of looking for ways to "re-tread" old lesson plans.

As a starter they held a six weeks' summer workshop during which the teachers formulated lists of the things that television could probably handle and of those that would be difficult or impossible.

They felt that television could--

- Motivate and stimulate.
- Inform.
- Demonstrate.
- Develop ideas.
- Show application.
- Enrich backgrounds.
- Provide common experiences.
- Suggest activities.
- Challenge pupils to assume more responsibility for their own study.

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66 Closed-Circuit Television (Hagerstown, Maryland: Board of Education, 1959), pp. 1-5.
67 Ibid., p. 6.
They felt that television could not—

Handle classroom discussion.
Clear up misunderstandings.
Provide for follow-up of lesson.
Direct and supervise the activities growing out of the lesson.
Help pupils apply what has been learned. 68

As a result of this analysis, they decided to have a teaching team with the television teacher handling those areas in which he was most capable and the classroom teacher caring for those which either television or the television teacher could not handle. This team would be responsible for planning the courses and would hold frequent meetings to readjust the material to the class's progress. A feedback sheet was to be used to keep the television teacher in constant touch with classroom problems.

The telecasting of lessons began September 11, 1956, when eight schools were interconnected with the television center. During the summer of 1957, fourteen more schools were added; the center was enlarged to include six program origination studios and a film origination studio; and the number of channels in use was raised from three to six. By the opening of school in September 1958, thirty-seven schools were interconnected. 69 The remaining twelve schools in the county were included by the time school opened in the fall of 1960. To connect all forty-nine of the county schools, one hundred and thirty circuit miles of coaxial cable were needed.

68 Ibid.
69 Ibid., pp. 4-14.
The Need for Plans Develops

As educational television stations came on the air, and as educators began to see television as a new educational tool rather than a novelty, it became clear that if television was to realize its potential careful plans had to be developed and tested. For years teachers had been using audio-visual materials in their teaching, and this experience would be helpful when they started using television. In fact, early television programs for school use were produced like motion pictures and were used in the same way as motion picture films. After these initial experiences, educators saw that television was different, and the use it would be put to was also different.

It was in this exciting environment of new developments that the writer carried out his study. His experience with two interrelated classroom television projects will be covered in detail. The first is a study of television program planning procedures for the Ohio School of the Air; the second is the development of classroom television programs in the St. Louis, Missouri area schools.

The Ohio School of the Air, under the sponsorship of The Ohio State University, had broadcast radio programs to the schools of Ohio for twenty-five years. During the 1953-54 school year it began experimenting with television programs for classroom use and telecast two series over commercial station WTVN-TV in Columbus. These first telecasts were in the fields of elementary art and science and were designed to test the ability of students to learn and the changes in their attitudes brought about through television.
From the results of this project, it was apparent that a key factor in the presentation of classroom television programs was the involvement of teachers in the planning, utilization and evaluation phases. Satisfactory evaluation and planning techniques needed to be developed and, to do this, a second television study was undertaken in 1954.

Two series of twelve programs were included in this second project—a primary grade science series called Things Around Us, and an intermediate grade conservation series titled Look to the Future. The planning began in October 1954, and the programs were telecast during February, March, April, and May of 1955. They were fifteen minutes long and were telecast, one each week, over station WLW-C in Columbus, Ohio.

To plan the series and the individual programs two seminars were organized: the one for Things Around Us was composed of primary level teachers, while that for the conservation series was made up of intermediate grade teachers.

From this experience with the Ohio School of the Air, the writer devised a plan for developing, producing, and evaluating classroom television programs. This plan was carried out and tested over the next four years in the St. Louis area schools. The major purpose of this study is to outline this plan, tell how it was developed, and how well it worked.
CHAPTER II

VALUES, LIMITATIONS, AND OBSTACLES TO SCHOOL USE OF TELEVISION

Two basic reasons for the use of television in the classroom are its capacity to reach many learners simultaneously and the opportunity to improve the quality of education. It is the only medium that can transmit the sight and sound of an event as it occurs.

Improving the quality of education is certainly not innate to television. Television is a communication channel and the quality of the resultant program is only equal to the quality of the instruction put into it. It is unrealistic to expect it to change mediocre teaching into anything except mediocre mass education.

With the present shortage of educational facilities, the need for television in teaching is great, and the preponderance of research shows that it can be used for this purpose. Study after study has shown "no significant difference" when television teaching has been compared with classroom teaching. Most of these studies were designed to compare normal classroom instruction with a controlled version of this instruction on television, and thus failed to take into account the many opportunities television offers to improve instruction.¹


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Values of Instructional Television

From the beginning television was seen as a means of distributing raw materials to the schools and at first was thought of merely as a new system of audio-visual presentation. Many of the early lessons were nothing more than illustrated lectures. Unfortunately, this concept still exists with many educators. Such a narrow view of television's potential delays its development "toward the true service of education in those unique ways in which it may contribute."

Intimacy

Critics speak of television in terms of its being cold, hard, remote and insensitive. "In spite of all that may be said against it television has a peculiar capacity for intimacy. Paradoxically this capacity stems from a mechanical limitation of the television tube itself." A television picture is made up of many fine dots of light, and the more dots, the better the quality of the picture. Due to the early commercial growth of television in America, it was necessary to adopt technical standards while the number of dots appearing on a screen were still relatively limited: unfortunately this, in turn, limits the "definition" of the picture. Television directors have learned to compensate for this loss in quality through the use of the close-up. Visuals, materials, and scenes are composed and reproduced to limit

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the amount of detail in any one shot. This has worked to bring the teacher and the audience closer together.

Another apparent limitation to the television system which actually contributes to its quality of intimacy is its monocular vision. Since real perspective is not possible on present day television, each person in the audience can have a one-to-one relationship with the picture, and through this, to the performer. Thus, when the teacher looks directly into the lens of the camera, he is looking into the eyes of every viewer, and conversely, when he is looking away from the lens, he is not looking into anyone's eyes. We are all familiar with the basic speech technique of glancing from right to left when talking to a group in order to include everyone in the conversation. When this is done in television, it only serves to remind the viewer that he is not being addressed individually. On television as in real life it is far better to look a person in the eye when you want him to pay attention to what you are saying. Since you can do this on television by looking directly into the lens, every student can have a one-to-one relationship with the teacher all the time.

The television director has learned to use these shortcomings to good advantage. Utilizing close-up shots and special visuals and materials, scenes are composed so as to reduce the amount of detail on the screen at any one time. By selecting his production techniques, the director can bring the teacher and student into close contact.

\[4\] Ibid.
No longer is the pupil seated at a desk 30 feet away from his . . . teacher; he is taken up and seated on the teacher's lap, and she speaks into his ear with the soft voice of understanding. Now, for the first time, he catches the twinkle in her eye, senses the lines about her mouth as she speaks, hears the overtones of gentleness in what she has to say. No longer is the blackboard a shiny black expanse on the far side of the room; instead, what he is expected to examine is brought up to reading distance and set down before him at the center of his attention.5

In the book, *The Role and Function of Television in the French Educational System*, Henry Dieuzeide speaks of the confidence which is developed between the teacher and child through television.

For the first time the problems of the outside world take on human images and visages. The magic walls of the classroom fall; the child is placed in immediate contact—if not in direct contact—with the effort and suffering of men, with the grandeur of work, with national problems of importance placed in human perspective.6

**Close-up View**

Of all the strengths of television, probably the one most often cited is the close-up view. It is obvious that the larger an object the easier it is to see, and television can enlarge the smallest detail to almost unbelievable proportions. Demonstrations can be viewed by every member of a class as if they were all leaning over the laboratory table. But the effect of the close-up is more than that of magnifier—it helps develop a feeling of intimacy between people. We have discussed earlier how television can bring the teacher and student together; this same feeling can be established between the student and the great people of

5 Ibid.

our time. In Pittsburgh during a recent instructional television
demonstration:

The reading teacher brought a number of guests to her
program, including the author of one of the stories in the
reading text, a major league ball player, the illustrator
of many of the stories in the reader, an explorer and his
son, a folk singer, the managing editor of a local daily
newspaper. . . . The high point was probably reached in a
visit by Robert Frost. . . . Mr. Frost would have needed a
week to visit all twenty of the classrooms participating
in the demonstration. Thanks to television, each had a
forty minute session with him in one morning.?

Relationships

The television camera can be used to give the large view as well
as the close-up. Sometimes it is necessary to stand off and see the
material or problem from afar. Television excels at showing relation-
ships. The camera's ability to switch immediately from close-up to
long-shot allows the teacher to show relationships between the parts of
an object and the whole and between object and object.

By using superimposition, matched dissolve, split screen and
other electronic effects, these relationships can be shown simultaneously
on the screen. Some closed circuit installations permit the viewing of
two or more separate pictures at the same time. The Armed Forces have
been quick to use multiple channel systems for such purpose. For
instance, in a course on electronics at the Lowery Air Force Base the
relationship between the circuit diagram and the equipment was shown by
putting a close-up of the part in question on one set and a close-up of
the corresponding symbol on the diagram on another set in the room.

7Siepmann, TV and Our School Crisis, p. 55.
Flexibility

Television is also flexible. It not only can pick up on-the-spot live information, but it readily uses every other kind of audio-visual material. Through the use of motion picture film, slides, opaques, charts, graphs, still pictures, models, and video-tape recordings, it is possible to jump through time and space to bring the classroom the right experience at the right time. By assembling any or all of these techniques in each lesson, the possibilities open to the television teacher are infinite.

To bring all of these features into the classroom is not simple. Even the most casual observer comes away from a trip through a television studio impressed with the amount of organization necessary to put on the simplest program—and that necessary to bring a television lesson into the classroom is even more complex. The teacher must be concerned not only with the production in the studio, but also with the utilization in the classroom. These problems, coupled with the relatively high cost of television presentations, have led schools and school systems into a cooperative approach to the use of educational television. For the first time, educators are looking at their curriculums as something more than local oddities. The opportunity for re-examination of the curriculum may in the long run be the most significant achievement of television.
Making the Better Teacher Available to More Students

Up to now instructional television's most singularly significant achievement has been extending the talents of a superior teacher to many classrooms. When a television lesson is judged as outstanding, whether by students, teachers or research, the ability of the teacher is usually pointed out as the most important factor. Research is lacking as to what makes for a superior teacher. "The great television teachers have not yet developed; there has been insufficient time for their development. ... Teachers will have to grow with the medium."³

What is it about a good teacher? One teacher is good because she carries around in her head a crystal-clear picture of everything she is expected to explain. Her presentations are lucid. Another is a good teacher because she can make the facts and characters of history or contemporary thought spring to life, another because she can picture the day's lesson through the eyes of a puzzled child, another because she understands how differently the various children in the room approach the learning task, and still another because of her tenderness and sympathy for schoolroom distresses.⁹

The qualities in each potential teacher must be isolated and adapted to television. Only then can television be expected to produce the superior results of which it is capable. In addition, it must be realized that some of these qualities cannot be adapted to the television system. This may help to explain why some teachers who are eminently successful in the classroom fail to "come over" on television. The


task remains to find the gifted teachers, study their peculiar talents, and capture them with the television camera.

**Team Teaching**

There is also the possibility of using the composite teacher. Considerable emphasis has been placed on the team-teaching approach, both on and off television. This is merely a method of assigning several teachers, each with a special talent, to teach cooperatively. It was reported earlier how Evanston Township High School used television and the team system in a speech arts course.

This method is naturally suited to television. For many years educators have been urging the reorganization of schools to make the maximum use of the individual teacher's competencies. Up to now this program has grown slowly because of the fear of increasing costs. Television makes it possible without additional expense.

So far we have discussed only the team concept as it applies to the television teacher. The classroom teacher is an equally important member of the team who does much of the pre-planning, development and evaluation of the programs.

Regardless of the particular technique used, one element must be constantly present: the teacher. The advantage of face-to-face communication, the ability to modify constantly the approach to fit changing circumstances and to adapt it to the individual—these are characteristics too valuable to be sacrificed in any methodology.¹⁰

In most instances segments of the lesson are taught in the classroom before and after the television presentation. Careful planning

¹⁰*NEA, Mass Communication and Education*, p. 92.
and communication are necessary to make sure that the various elements of the learning situation are well integrated. The way the classroom teachers utilize the programs is an important factor in the outcome of the lessons and cannot be left to chance. The utilization must be built into each program from its beginning.

The team approach also brings the skills of many non-teaching specialists, such as producers, directors, artists, and technicians, to the lesson. In early television teaching situations there was a depreciation of the value of the non-teaching specialist. However, as a better understanding of the medium developed, their contributions were recognized.

**Additional Experiences Introduced into the Classroom**

Television is unsurpassed in its ability to bring a wide range of materials and experiences into the classroom. In attempting to bring exhibits before the class, the regular teacher is limited by their size, danger, scarcity, value and complexity, or by her lack of training or time.

Yet this need is increasing. Mass communication and advanced technology have not only expanded the field of knowledge but have removed a great many things from the American scene. A youngster growing up today has little opportunity to gain certain basic experiences. For instance, "industrialization and job specialization have reduced
the opportunity to watch a man work with hot metal; the blacksmith shop simply isn't available anymore.\textsuperscript{11}

In one elementary social studies series telecast in St. Louis, the children took nine field trips by means of television. They rode on a train, visited a modern passenger airplane, watched the handling of mail, saw the feeding of birds at the zoo, visited the produce wholesale market at 2:00 a.m., saw hot dogs made, compared life on a farm in winter and summer, and rode on a river towboat. No one claimed that any one of these experiences was replacing the real field trip, but such a range of community activities could not be duplicated in several years. Many of the viewing classes decided actually to visit one of two of these places; others confined their trips to ones not taken by television. Some teachers felt that the actual field trip was much more meaningful after an introduction through television. To a large number of classes in the St. Louis area this was the only kind of field trip possible.

Variety

Through television the classroom teacher can introduce variety into the learning experience. "The introduction of a new face and personality into the classroom provides a welcome change and stimulus to children. Variant approaches to a subject, moreover, enlarge its interest."\textsuperscript{12} Closely related to variety is the authority that television brings—the teacher takes on almost heroic stature.

\textsuperscript{11} Ibid., pp. 63-64.

\textsuperscript{12} Charles A. Siepmann, \textit{TV and Our School Crisis}, pp. 79-80.
particularly to younger children. "If there are contradictory messages from the mass media and the teacher, it is likely that the media messages will be accepted... the media communicator is a figure of great importance."\(^{13}\) It should be remembered that television does not have to be viewed in school to compete with the teacher.

**Timeliness**

Another of the often cited values of television is its timeliness. Besides being a medium that transmits an actual scene instantaneously, there are at least two other characteristics which contribute to its timeliness. First, lesson material peculiar to a local situation can be readily developed. Shortly after World War II a flood of states passed laws requiring the study of the state's history, geography, constitution, etc. Most of these laws required study but made no provision for the training of teachers or the development of materials. A typical example was Missouri. Here the state legislature passed a law requiring the continuing study of the Federal and State Constitutions.

A large amount of commercially prepared material was available on the Federal Constitution, but nothing was to be found on the Missouri Constitution. Some local school systems had developed units on the subject, but most schools had left the teacher to develop the unit on her own. Even textbooks were lacking. Commercial publishers and film producers did not enter the market because the sales potential was small.

\(^{13}\)NEA, *Mass Communication and Education*, p. 81.
Working with teachers who had taught the Missouri Constitution, a series of television lessons was developed and broadcast to the St. Louis area with a good deal of utilization success. Similar experiences have been reported in a number of states. The same need was met in Oklahoma City through a series called "Oklahoma O.K.," and in Minneapolis with "Your Minnesota."

A second characteristic that contributes to television's timeliness is the chance to keep up with rapidly changing fields. Today's schools are faced with the impossible task of keeping up with the growth in knowledge. To do this by old methods is impossible. Even if the material and information could be made available fast enough, the problem of training teachers would still be there. New methods of teaching and training teachers must be used.

Television is an excellent medium through which schools can conduct in-service education. In large school systems it is difficult to get all the teachers assembled for an in-service meeting. When such a meeting was scheduled for the St. Louis teachers, it was necessary for the school system to rent the municipal auditorium or, as an alternative, to hold ten to twelve regional meetings. Television could be used to do this same job at far less cost and inconvenience to the schools and teachers. As an illustration, the curriculum director of the St. Louis Public Schools had a new lesson guide for elementary social studies which was to be introduced into the classroom. He devised a plan whereby television could be used and still an opportunity could be provided for the teachers to ask questions and discuss the new material.
First, the curriculum director would have a meeting with the elementary principals to present and discuss the new guide. The upcoming television presentation would be outlined and the role of the principal as building discussion leader would be emphasized. Following this, a series of regular telecasts would be scheduled to take place either during or immediately following school hours. All of the teachers involved in the change would view the program as a group in their own buildings. After the telecasts, the principal would continue the meeting to give the teachers an opportunity to discuss the material. Unanswered questions would be forwarded to the curriculum director for inclusion in the next telecast or in a follow-up bulletin.

There are several advantages to this plan. First, the same presentation is made to all the teachers; second, they all receive the information at the same time; third, they do not have to leave their own building; fourth, the teachers are in the natural discussion groups in which they are used to working; and, fifth, the plan involves the principal in the presentation and in the curriculum revision, a step necessary for any successful school change.

Many other significant uses of television in the in-service education program can be mentioned. Among these are demonstration teaching (most teachers have little opportunity to observe another teacher teaching); introduction of new printed and audio-visual material with illustrations of its use; and the showing of new concepts and good teaching practices. Special resource people on a limited time schedule can be brought to the teachers through television. With the cooperation
of colleges and universities, formal credit courses to help the teachers improve their certification can be offered.  

**Limitations of Instructional Television**

In addition to its values, instructional television has certain limitations. Some of these are inherent in the medium and some are only temporary. The effect of these limitations can be minimized if they are recognized as limitations and taken into account when instructional television materials are being prepared.

**One-way Communication**

It is paradoxical that one of television's most serious limitations is in its communication ability. Television is essentially a one-way communication process. Some attempts have been made to evaluate this factor. In general, educators have considered this a limitation of the medium since they see learning as taking place through intercommunication. Kelly and Conrad felt that before a generalization could be made as to the seriousness of the television one-wayness, it was necessary to study further the role of intercommunication in learning and how television relates to it. They listed four basic questions for consideration:

1. It might be smart to ask ourselves just how much verbal intercommunication actually does take place in the modern classroom. How often does Johnny, who is one of forty pupils, talk to his teacher; what does he say, and what response does he get?

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14 *Teaching by Television*, pp. 21-22.
2. Does the extensive use of television in the classroom diminish the intercommunication aspects of what goes on there? May not television, instead, give both teachers and pupils more fascinating things to talk to each other about, and hence enrich the intercommunicative aspects of learning? May it not take the teacher away from her blackboard and seat her at her pupils' elbows?

3. Just how does intercommunication function in learning? Is it an integral part of all phases of the learning process or does it play a primary role at certain stages only? Are all types of learning equally dependent upon it?

4. What measures may one employ, both in studio production and in classroom utilization, to preserve the learning values which are presumed to be inherent in intercommunication? There are exciting possibilities here. For example, viewers of educational television sometimes claim that they feel themselves to be in more intimate communication with the televised teacher than with the one who stands at the front of their classroom.15

Several approaches have been made to overcoming television's one-way quality. Kelly and Conrad tested eleven studio techniques designed to preserve the intercommunication values in learning. These ranged from mind reading to hog fattening. They concluded that:

Educational television need not destroy the intercommunication values of teaching and learning if proper ingenuity is used in the studio and good sense is used in the classroom. But it could destroy them, particularly if it is used merely as a "medium of mass education," or as an inexpensive substitute for cooperative learning.16

Another approach has been through the use of return communication circuits from the classroom. In most cases, these have been audio circuits only, but in a few cases the television teacher has been able

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16 Ibid., p. 59.
to see the viewing audience through a return television system. At
Penn State, the problem was approached through the use of two-way
audio communication between television classrooms and the originating
room. In one air science course a comparison was made between the
achievement of students in two rooms equipped with microphones and the
achievement of students in two rooms not so equipped.

From time to time during his presentation the instructor
would pause and ask for questions. Students in the rooms
with microphones would then ask questions which would be
repeated and answered by the instructor so that everyone
could hear them. Students asked a number of questions but
comparisons of achievement scores of the groups showed no
significant differences; nor were there differences in
general attitude towards the course as a result of oppor-
tunities for two-way communication.17

Holmes' report on research indicated that students in some dis-
cussion type classes show higher achievement and information gain than
those viewing one-way television. One-way television classes show
higher achievement than large lecture-type classes. Some discussion type
classes are greatly favored over television with two-way audio com-
munication, and some discussion type classes held in television
originating rooms are about equal to the television receiving rooms with
audio feedback.

Even though students express preferences for talkback facilities
in television conditions, only a small percentage of the students use
them to ask questions of the instructor. All in all, students' attitudes

17L. P. Greenhill, C. R. Carpenter, and W. S. Ray, "Further
Studies of the Use of Television for University Teaching," Audio-Visual
towards television and their achievement are more closely related to other elements involved in the teaching-learning process than television, e.g., the instructor, the situation, and the content. 18

Without a doubt, the one-way feature of television is a limitation if we use conventional classroom teaching techniques on television. However, there is, as indicated above, a great deal to be learned about the place of intercommunication in the learning process. It may be that because of television's ability to communicate with many people simultaneously, the classroom teacher will be relieved of some of his burdensome chores, and he will have more time to plan classroom activities dependent on intercommunication.

Technical Limitations

One of the many technical limitations to television is the limited screen size. In the early days of television development, picture standards were set which were based on the assumption that the maximum screen size would be twelve inches. Therefore, a 3 x 4 aspect ratio and a picture broken down into 525 lines were established as standard. By now, with millions of dollars invested in television stations and receiving sets, it is unlikely that these standards will be changed, although today most sets use twenty-one, twenty-four or thirty inch picture tubes.

Large screen and projection type receivers at present are very expensive and have limited use. They simply spread the 525 lines of the

picture farther apart, resulting in a picture with the graininess of a photograph which has been over-enlarged. In order to view this larger picture, it is necessary to sit farther from it. This makes it possible for a large audience to use one screen, but it tends to destroy the intimate quality of the small group viewing.

For all practical purposes, a receiver with a twenty-one or twenty-four inch screen is the largest set possible under our present day standards. Fortunately, a receiver of this size is ideal for a group of thirty or thirty-five people, the average size of most classes.

Perhaps this size screen is not a limitation at all. It discourages large group viewing and tends to keep the receivers in the individual classrooms. It also requires the directors and teachers to prepare television lesson material for simple close-up viewing.

In the early days of instructional television, the typical pattern of use was to move a class into the television viewing room. This was a practice inherited from the audio-visual field where it was necessary to darken rooms to see projected materials. Since television viewing does not need darkened rooms, and the television receiver is less cumbersome to set up than a projector, screen and speaker, the practice of moving the set instead of the class has become more widely accepted. The use of television in the rooms usually requires more television sets than projectors. However, the cost of an adequate set is between one-fourth and one-third that of a motion picture projector.

In recent years, several things have been done to help schools obtain sets. The National Defense Education Act of 1958 provided federal matching funds for the purchase of sets to be used in the teaching of
mathematics, science and foreign language. About this same time, the General Electric Company announced its school purchase plan for television sets which provided for the exchange of sets on a yearly basis, much like its major appliance plan for school home economics laboratories.

In spite of the improvement in both transmitter and receiver circuits, some reception problems remain. Many of the problems experienced in the classroom relate to the type of antenna used. Most sets either have built-in antennas or use a "rabbit ear" type of antenna. These are low in efficiency and work well only in very strong signal areas. They are subject to "ghosting" and other reflected signal problems. School buildings usually contain structural steel or metal lathing, either of which can cause a serious decrease in signal strength. This is particularly noticeable in metropolitan or industrial areas. The most satisfactory solution to reception problems is to have an outside antenna which may be wired to a single classroom or through a distribution system to several or all rooms in a building. Systems such as these are expensive, but they are also the most satisfactory.

The problem of reception in the UHF channels is greater because these frequencies are more sensitive to interference and reflection than the VHF channels. UHF receiver circuits and components are not as highly developed as those for the lower frequency VHF channels. It is more difficult to obtain a satisfactory receiver of the all-channel type within the same price range as a VHF-only receiver. Most present day manufacturers advertise that their sets can be converted for UHF operation, but this is usually a compromise arrangement since the circuits are not basically designed for UHF reception.
In order to stimulate the receiver manufacturers to design and market a competitively priced all-channel receiver, the FCC requested Congress to amend the Communications Act to require that all television receivers shipped in interstate commerce be capable of receiving adequately the seventy UHF as well as the twelve VHF channels. This bill was passed by the 87th Congress and signed into law by President Kennedy on July 10, 1962. This law is extremely important to educational television because it enhances the value of the UHF frequencies. Two-thirds of the channels reserved for educational television are UHF, and therefore future growth in educational television will be in this portion of the spectrum.

In addition to the specific improvement in the reception of UHF signals, it is reasonable to expect improvements to be made in the overall picture quality. Some of this will result in part from improved transmitting and receiving systems and in part from better production techniques. With the lowered manufacturing costs made possible by miniaturization, printed circuits, transistors and automation, it is expected that receiver designers will include circuit elements, such as a D.C. restorer, which have been left out to reduce manufacturing costs.

Typical of the improvements to be made at the originating end is the development of the four and one-half inch image orthicon camera tube and its use in the Marconi Mark IV camera. This tube produces a picture with finer detail, largely brought about by a better gray scale rendition.

Nothing has been said about the sound quality of television. Television uses a Frequency Modulated audio system and is capable of
nearly natural sound. Designers need to plan the studios and receivers to take advantage of FM's inherent quality.

The most significant improvement, however, will be in the studio production techniques employed. Television is basically a close-up medium. The rule of three—long shot, medium shot and close-up—is left over from motion picture production. Both the producer and the television teacher need to remember and take advantage of television's intimate quality. In Kelly and Conrad's study, they reported eleven techniques used to motivate student learning. Six of these were developed to take advantage of this intimate quality.19

Individual Differences

When teachers plan to use television they find it difficult to make appropriate adjustments for their students' different abilities. As a mass medium television deals with averages and compromises—this is to say it cannot by itself adjust to individual differences in the class group. Instead, the class must adjust to the medium. This, however, does not need to be a serious limitation. The effect of this limitation can be reduced through proper planning and use. First, television teachers can exercise great care in determining the content, pace, and level of the material included in order to reach a wide range of individual differences. Second, the lesson can be presented in a truly interesting and motivating manner. Third, the classroom teacher can learn how, in using the lessons, to make adjustments for individual

differences. Fourth, supplementary materials can be furnished so that the television experience does not have to stand alone. Fifth, television lessons can be geared for groups with specific ability levels. The Cincinnati public schools found that television instruction was more effective than conventional instruction when directed toward a specific ability level. Sixth, television can take over certain repetitive instructional chores so that the teacher can spend more time working with each student, or with small groups of students.

Trump, in his plan for the secondary school, proposes that the mass media be used to instruct large classes for about forty percent of the time. This would save enough time and teachers to permit the teacher and student "... to see each other as individuals or members of small groups. The student will be able to develop a closer rapport with the teacher when he consults him as an individual than he would when he sees the teacher in a standard classroom situation." 21

The above problems are all limitations of television. Most of them are inherent in the medium, but through proper care and planning their effect can be ameliorated. Many of these limitations are not peculiar to television, but are just emphasized by it. The problem of individual differences is general throughout education. Television on

the one hand amplifies the problem, and on the other gives us a tool
with which to overcome it.

**Obstacles to Be Overcome**

In addition to the natural limitations of television, there are
certain obstacles to be overcome in its use for education.

**Different School Schedules**

An early problem to be faced by administrators, teachers, and
television lesson planners was the one of scheduling. This has generally
taken two forms.

First, there is the problem of each school having a different
bell schedule. Sometimes these schedules are dictated by limited cafeteria, transportation, or other space requirements, but often these are
imagined difficulties based on precedent. Experience has shown that
these problems can be solved where there is a desire to do so. In Denver, when the school principals had been sufficiently motivated, they
were able to work out a city-wide bell schedule. In St. Louis a group
of high school principals agreed that they all could adjust their bell
schedules ten to fifteen minutes a day. By making this slight adjustment
either through a change in starting time or a change in the passing
time, they were able to bring all of their schedules into conformity for
four thirty-minute periods each day.

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Another approach to this problem is the repeat telecasting of the lesson. Closed circuit systems can televise up to eleven programs simultaneously, but open circuit or broadcast television, at the present time at least, can only telecast one program at a time over a channel. Developments are under way which promise to alleviate this by some form of multiplexing. Of course, multiple channels can be used, but the supply of channels, even UHF, is not inexhaustible. At Salt Lake City, the University of Utah is using low power UHF translator equipment to demonstrate the feasibility of multi-channel operation. Several communities—Pittsburgh, Oklahoma City, and Milwaukee—are currently operating two channels for educational service. A group of educators and business leaders in Cleveland are talking about using six UHF channels to serve the schools of the Cleveland, Akron, Youngstown area with multiple instructional television.

The second part of this scheduling problem is brought about because there are multiple sections of a course. For instance, there may be as many as seven periods within a single school when ninth grade English is taught. When television is extended to several schools, this problem is magnified. Three solutions to this problem have been attempted.

Multi-Channel Television Systems

The multi-channel television system, repeating a lesson for each section, as mentioned above, has been the most frequent method. This approach has been most successful in closed circuit systems such as the
one in Washington County, Maryland, where all schools were tied together with a six channel system.

Large Class Viewing

A second approach has been with large class viewing such as that used by the schools participating in the Ford Foundation's National Program in the Use of Television in the public schools. These schools have used auditoriums and other large areas for television viewing rooms. This solution overcomes the multi-section schedule problem, but creates another by introducing a horizontal block of time in an otherwise vertical schedule. But it can be made to work as dozens of schools in the program will attest.

Ability Grouping

The third solution is through the ability grouping of students. Here television is not for everyone, but is reserved for a specific purpose with selected students. If classes are arranged in homogenous groups, certain ones can be scheduled to use television. If the classes are not arranged along ability lines, then segments of several classes can be pulled out and put together for television viewing. This arrangement calls for close and constant work between the teacher on television and the teacher in the classroom.

Attitudes Held toward Television Teaching

Another obstacle to the development of television instruction is the attitude held toward television teaching by students, teachers and administrators.
Student Attitudes

At Penn State the opinions and attitudes of students were studied with almost every course taught. These studies pointed out that there has been a gradual change to a somewhat higher level of acceptance of televised instruction. As students become accustomed to television, and as the institution tends to accept the television instruction, reactions to television as such are becoming fewer and less intense.

Students appear to be discriminating more clearly than formerly between televised presentations and other more central factors in their instruction. For example, the quality and characteristics of the instructor, the quality of the presentation and the significance of the course material become more meaningful. Television as used in instruction appears to be assuming the value, as set by students, of an instrument like a telephone or radio. It is a means by which course instruction is presented to them, and television itself is not that instruction. Furthermore, television relates only peripherally to their learning. It appears that student opinions and evaluations of televised instruction are beginning to agree with what research has already shown, namely, "Television as such doesn't make much difference" in the students' achievement in the course.22

While the main concern of the student is the quality of the teaching, this unfortunately is not always the case with the teacher.

Teachers' Attitudes

Some teachers look on television as an invasion of their privacy. "Most of the opposition, however, comes from those who see in television the threat of technological unemployment, the degradation of the teacher's status and role, or the dehumanizing of the teacher-pupil relationship."23

22 Carpenter and Greenhill, Report Number Two, p. 83.
When a teacher is first asked to use televised lessons, she is likely to be apprehensive. Will the TV lesson fit in with the objectives of her particular classroom? Will the youngsters actually be encouraged to learn, to do their homework? Will her own efforts appear to be drab and uninteresting in comparison with the glamorized television presentations? Will the pupils wish they had the studio teacher instead of the one they now have? These are the thoughts that actually run through teachers' minds when regular classroom telecasts are first proposed. ²⁴

The fear that teachers will be replaced by television is unfounded. Education is more than the facts, principles and motor skills—which can be learned through television.

It is also guidance in social and emotional development, in growth in maturity, in the acquisition of healthy ways of dealing with the problems of living, in the clarification of ideas about the word, in commitment to values. All this takes place in interpersonal relationships, in which good teachers always must play a critical role. The farther down in the educational process we go, the truer this is. Moreover, the impending shortage of teachers promises to be so great that, television or no television, there will be need for every competent teacher available. ²⁵

Even if teachers accept the idea that they will not be replaced by television, there is the nagging fear that their role and status will be down-graded. Their role will change, but actually it can be up-graded. "Television can and should take over most of the blackboard and lecture job, thus freeing the teacher's time for the more intimate and psychological task of teaching." ²⁶

Getting the teacher to accept the change in his role is not easy; it calls for a new kind of teacher training. This will take a long time

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to develop. Colleges and universities have been slow to change their curriculums to accept the mass media as respectable means of education. They will need to put more stress on those areas that will help the teacher understand the child psychologically and help him develop his capabilities. The teacher will also need a better understanding of the limitations and values of the mass media.

However, a great deal can be done on the local level to win acceptance for the use of television. Studies have demonstrated that as knowledge and understanding of the medium grow, so does the acceptance. At Penn State as experience with and knowledge about instructional television grew, more and more teachers responded favorably to putting their courses on television. Local teacher in-service meetings can be arranged to demonstrate the use of educational television; the changing role of the teacher can be studied and evaluated; and above all, lessons can be prepared and presented on television to give the classroom teacher first-hand knowledge of the medium.

Administrators' Attitudes

The attitudes of the administrators follow those of the teachers. Many of the fears expressed by teachers are echoed by principals and supervisors; after all, they were teachers once themselves, and they still identify with them. However, the administrators are more likely to be involved in the problems of scheduling, and this aspect of

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27 Ibid.

28 Carpenter and Greenhill, Report Number Two, pp. 72-73.
television use assumes huge importance. The problem of how to adjust the television schedule to the bus, cafeteria, music, art and physical education schedules when many of these depend on part-time teachers is exhausting. The administrator also has to look at the effect television is having on the total curriculum. Whole new areas can be introduced and old areas can be revised because of television.

Superintendents and boards of education have in addition the problems of finance. Initially television is expensive, but ultimately it is possible to effect savings. To do this, however, it is necessary to commit a major part of the school curriculum to television instruction. With the administrators as well as the students and teachers, acceptance grows as knowledge, understanding and experience with the medium are increased. In a study made by the National Educational Television and Radio Center of the opinions and attitudes of superintendents, it was reported that "the best informed (superintendents) express the strongest confidence in the medium. And, conversely, their apprehensions are less pronounced."29

**Installation and Operation Costs**

Another obstacle to the use of television in the school is the cost of installing and operating a television system. This, of course, will be reduced as new equipment is developed. The vidicon camera has made it practical and economical for the large school to install its own

closed-circuit system. The use of low power UHF transmitters will permit these schools to telemcast over limited distances. Within the past year (1962) a video tape recorder costing approximately fifteen thousand dollars has been developed which offers a practical method for recording and re-using off-the-air telemcasts or a school's own local productions.

All of the initial costs are high, but when these are equated with the pupil enrollment served, they are small indeed. For instance, in the Twin City area of Minnesota, some 151 schools are receiving three years of Spanish language instruction at the rate of one dollar and eighty-two cents per student. This is for 160 fifteen-minute lessons comprising each year's offerings. All of this is accomplished through the use of an educational television station using professional broadcast equipment, and not the more recently developed economical equipment.

Shortage of Specialized Educational Broadcasting Personnel

The introduction of federal aid to educational television has accentuated the difficulty of obtaining the specialized personnel required to staff the new stations. The most critical shortage is in the supply of television teachers. The success of instructional television, as well as all instruction, rests largely with the teacher. No other single factor is as influential. Colleges and universities, up to now (1962), have not undertaken to train television teachers. Each instructional television organization has devised procedures and techniques for the selection and training of television teachers, but
most of these have been of a type of on-the-job training after a
teacher is committed to a television series.

The teacher we are looking for must, of course, be thoroughly
grounded in the subject matter of his field. He must also be
an artist, have an outgoing personality of which each viewer
is unconsciously aware, and be a master of motivation who
knows how to develop his lessons in terms of the interests
and previous experiences of his unseen audience.30

Teachers possessing these attributes are scarce. Television
teaching as a profession is only a little more than ten years old; even
if we had an inexhaustible pool of excellent teachers, they would not be
skilled in the use of television. "Locating them and getting them in
front of the television camera is today's number one priority."31

In addition to the problem of locating and training teachers,
there is the necessity of training producers, directors, artists, and
other members of the production team. You cannot put a teacher in a
studio and just turn on the camera, nor can you surround the teacher
with production impedimenta and expect the magic to happen. Everyone
involved in the production of a television lesson must be trained care­
fully to do his job in light of the expected outcome. Educational televi­
sion is vastly different from commercial television. The goals and
objectives are entirely different, and these differences must be known
and understood by everyone connected with the lesson.

30 Tracy F. Tyler, "The Search for TV Teachers," NAEB Journal,
Vol. XVIII, No. 9 (1959), p. 3.

31 Ibid.
In this chapter we have discussed the values, limitations, and obstacles to instructional television. Some advocates see in television the answer to all of education's problems, but it is not that simple. Television as claimed by some may prove to be the most significant development for education since movable type, but to realize this potential, schools will have to be drastically reorganized. It seems implied that if the things discussed in this chapter are to be accepted, many of the sacred cows in education such as the curriculum, class size, self-contained classrooms, etc., will have to be re-examined.
CHAPTER III

INSTRUCTIONAL TELEVISION

Instructional television is a term used to delineate that area of educational television dealing with formal, organized, sequential education. It relates to the purpose and use being made of television, and not to the method of transmission, the educational status of the television station, or the level of learning. Instructional television involves a sequential presentation, each step or lesson following in logical order. It is normally employed by a recognized educational organization, but this is not a necessity.

Instructional television has suffered at the hands of those who would like to see it categorized by type into neat packages labeled "total teaching," "direct teaching," and "supplemental or enrichment teaching." So many factors combine to produce a successful learning experience, with or without television, that it is impossible to isolate one single technique which will work in all areas at all levels. Television's great potential lies in its flexibility. It can be used to reinforce the curriculum to almost any degree.

For instance, the large school system with adequate science laboratories, competent, well-trained teachers, might look to television

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1 I. Keith Tyler, "Instructional Television: Types and Objectives" (Speech, San Jose College, 1957).
to furnish experiences above and beyond those possible in the local school—the dangerous, costly, rare or unique experiences. Television, when used in this manner, is in direct competition with films, filmstrips, slides, and other audio-visual materials.

On the other hand, a small school with limited facilities and a marginally trained science teacher might expect television to furnish the basic structure of a science course with the local teacher supplementing the television teacher's efforts. In extreme cases a school might be totally lacking in science facilities and teachers, and thus would look to television to carry the entire teaching burden.

If you change the subject matter in the illustration to elementary foreign language, you will find even the large schools accepting television for the bulk of the instruction.

Types of Instructional Television

For the purpose of this study three types of instructional television are identified—supplemental-enrichment uses, supplemented television teaching, and total television teaching.

Supplemental-enrichment

Supplemental-enrichment teaching places the emphasis in the classroom and on the classroom teacher. Presentations of this type are generally offered once a week, and great responsibility is placed on the classroom activities to achieve the lesson's objectives. Planning remains in the classroom teacher's hands. The telecasts follow, in a broad way, a course of study "that adds to it the kind of fruitful experiences which individual teachers find difficult if not impossible
to provide." Televisio n is being used in this manner in thousands of classrooms throughout the country. "However, telev isio n educators today are becoming more and more convinced that enrichment is not now its most important use."3

Supplemented Television Teaching

Whereas the television presentation is used to reinforce the regular classroom lesson in the above example, the emphasis is shifted to the television lesson in supplemented television teaching. Here the major part of the lesson is presented through television which is then supplemented by other learning experiences such as laboratory, discussion, drill sections, etc. These latter are directed and supervised by the classroom teacher. The principal feature of this type of instructional television is the use of a particularly gifted teacher. It is necessary that the curriculum and the course of study be centrally planned and administered. The intent is not to replace the classroom teacher, but without a doubt his role is greatly changed.

It is foolish and beside the point to argue that this kind of teaching can never replace normal teacher-student relations in the classroom. Obviously it cannot, will not, should not. No one ever said it could. This is argument by irrelevance. The proper and pertinent question is what place such teaching has in the over-all experience of students at school.4

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4Charles A. Siepmann, TV and Our School Crisis, p. 93.
At the present time, it appears that the most effective use of television is in combination with classroom activities. "It is not a question of television or the classroom teacher, it is television and the classroom teacher. It is quite possible that television will allow some realignment of responsibilities between a classroom teacher and a television teacher."

Total Teaching

There are instances where television is used to provide all of the instruction. This is most often found in courses organized for adults. However, some high schools and elementary schools report using television in this manner. Total teaching by television requires the student to be highly motivated to want to learn, and to be sufficiently mature to carry out the discipline necessarily required by the course. Some areas report considerable success in the teaching of modern foreign languages by television with little or no help from the classroom teacher. Several high schools in areas such as Oklahoma and Nebraska are using advanced courses in mathematics and science taught exclusively on television. "The type employed, in each case, is what makes sense in a particular situation, in view of curriculum needs, teacher competencies, pupil enrollments, and television facilities."

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5 Curry and Jacobs, Cincinnati's Adventure into ETV.
6 Campion and Lanagan, And TV Tool, p. 16.
Organizing the School to Use Television

The educator is faced with two possibilities when he considers using television in the school. He can assume that the curriculum and teaching practices in present use are inviolable, or he can think of television as a tool through which these previous convictions can be challenged and tested.\(^7\)

Education is moving into a time when substantial changes in such matters as curriculum content, the concept of grouping into classes, and the ways of rating the learner's ability are indicated. The development of the modern era of mass communication and of communication devices has deep implications in each of these areas.\(^8\)

Considerable research exists which points the finger of suspicion toward the present class grouping practices. In the Miami University studies of large class instruction, it was found that the learning of subject-matter was not adversely affected by the assignment of students to a large class taught either through television or in person. The same was generally true when achievement was defined as the ability to solve problems and think critically. The study pointed out that while students in large classes, particularly when taught by television, tend to dislike the instruction, their achievement was not affected. The ability of the instructor was the major determinant of student attitudes toward television and face-to-face large class instruction.\(^9\)


\(^8\)NEA, *Mass Communication and Education*, p. 103.

In Hagerstown, Maryland, two groups of students with an average I.Q. of 108 studied geometry. One group received its instruction from classroom teachers in classes averaging twenty students, and the other studied via television in classes averaging forty-nine students. The larger television group made an average of six scaled points higher score. To test this further, the experiment was replicated with matched groups having an I.Q. of 113, and again the difference was six scaled points in favor of the large television classes. On the Cooperative Plane Geometry Test this difference represents twenty-two percentile points.  

The Pennsylvania State University studies have explored the class size question most thoroughly. "They found that varying the size of the class from fourteen students to 200 students in television receiving rooms did not have any effect on the amount learned."  

Holmes concluded that "there are no significant differences in information gains attributable to the size of the receiving room when the total of students per receiver approximately equals in number the screen size in inches." He also concluded that as long as the students' viewing conditions are good, their positions (front, middle or back) in the viewing room makes no difference in their achievement.  

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10 Closed-Circuit Television, pp. 30-31.  
11 Kumata, An Inventory of Instructional Television Research, pp. 13-14.  
12 Holmes, Television Research in the Teaching-Learning Process, pp. 75-76.  
13 Ibid.
Since 1955 the Fund for the Advancement of Education has supported many experiments to test the feasibility of using television to teach very large classes. Their objectives were to demonstrate that savings could be made in classroom space and teaching positions while at the same time improving the quality of education. At the end of the first year of the project, the Fund tentatively suggested that "the test results clearly showed that students who received part of their instruction over television in large classes did as well as, and in many cases significantly better than, students who were taught by conventional methods in small classes."\(^{14}\)

Another encouraging result emerging from the first year's experience was the many instances where a re-thinking of the curriculum and course objectives came about because of the use of television as a medium of instruction.\(^{15}\)

Any social change is difficult to accomplish, and the social curriculum is probably one of the more rigid structures in society. Fortunately, television came along at a time when educators needed a new tool around which elements of the curriculum could be organized.

"The need for 'basic changes' and 'bold experimentation'--particularly at the high school level--"\(^{16}\) was the major theme of the 1960 convention of the American Association of School Administrators.


\(^{15}\) Ibid., p. 25.

\(^{16}\) The Minneapolis Star, February 17, 1960, p. 60.
J. Lloyd Trump, Associate Secretary of the National Association of Secondary School Principals, addressing the administrators, suggested that:

Large group instruction should be used to save funds and teacher time when purposes can be achieved as well or better than in present standard-sized classes.
At the same time, students should spend six or more hours per week as members of small discussion groups with no more than fifteen students each.
Possibly the most important change of all requires that students be scheduled twelve or more hours per week to work independently in laboratories, shops and resource centers in and outside the school building.
Teaching many classes simultaneously by television is one of the techniques of large group instruction that seems to be finding increasing favor with school administrators.\(^{17}\)

It is important to remember that these suggestions are not being offered merely for the sake of change, but as a means of improving the learning situation. Television is a way to meet the enrollment problem and, at the same time, an instrument through which educators can upgrade the quality of instruction. It is pertinent to ask what are some of the ways in which television can be used to improve education.

The growth of mass communication is changing the role of the teacher. With its rise he is no longer the unimpeachable source of information, culture and values. A new set of prestige figures is growing up in American life. The teacher has been forced to compete with a "dazzling assortment of outside stimuli originating with the media. . . . More than ever, today's teacher cannot afford to be dull; the challenge to his inventiveness and enthusiasm is very great."\(^{18}\)

\(^{17}\)Ibid.

The enrollment explosion and advancing technology have contributed to the teacher's problem of adjustment. In addition to being faced with an ever increasing class size, he finds himself in the middle of an overwhelming growth in the field of knowledge. Curriculums are bursting with things that "just have to be included." Teaching, once a haven for the incompetent, is becoming a highly skilled profession. Salary scales and teaching conditions are improving and, as they do, so will the quality of education.

Some educators are advocating the division of the teaching responsibility among specialists, general teachers, instructional assistants, clerks, general aides, etc. They feel that the job is too complex for one person to handle all the activities in today's schools. An illustration can be drawn from the medical profession: The doctor has a nurse who takes care of the routine chores such as taking temperatures and medical histories, giving shots, etc. In a similar way the teacher can delegate to assistants such duties as collecting for the Red Cross drive, grading papers, and supervising projects.

Besides creating the problem, the twentieth century has given the schools the means to solve the problem. Since it is obvious that television can be used to reach many people simultaneously, there is a tendency to think of this medium only in terms of large groups. Actually, it has great potential for reducing class size. "Communication devices

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19 Trump, Images of the Future, p. 15.
can to some extent convey the masses of rote material which must be
taught and free the teacher for the material which requires individual
instruction."20

The Stoddard Plan

The Fund for Advancement of Education has been testing the idea
of using television to free the teacher for work with smaller groups.
The Stoddard Plan for reorganizing the elementary school calls for half
of the students to spend the morning in large groups utilizing television
programs and other mass communication aids to instruction. This group
would be supervised by one teacher and a teacher's aide. In the mean-
time, the other half of the student body would be meeting with regular
teachers in classes smaller than normal. During the afternoon the groups
would be reversed and the same procedure would be followed.21

In 1957 some ten school systems adopted this plan and tried it
out under grants from the Fund for Advancement of Education.

Despite the newness of television as a medium of instruc-
tion, all sorts of technical difficulties, and the makeshift
arrangements required to convert auditoriums, cafeterias,
large study halls, and portable buildings into classrooms, the
test results clearly showed that students who received part of
their instruction over television in large classes did as
well as—and in many cases significantly better—than
students who were taught by conventional methods in small
classes.

The result of 110 comparisons . . . are . . . here:
sixty-eight comparisons favored the TV students and forty-two


21Alexander J. Stoddard, Schools for Tomorrow (New York: The Fund
favored the control students. There were thirty-eight cases where the difference in achievement was statistically significant; in twenty-nine of these the difference was in favor of the TV classes, and in nine it was in favor of the control classes.22

Reports from the participating school systems indicated other encouraging results along with several difficult problems. All of the systems except one continued the program into the second year and most of them expanded to include more schools and students. While one system dropped out of the National Program, two new experiments were added.23

The Trump Plan

Variations of the Stoddard Plan have been suggested. One of these is a plan for secondary schools proposed by the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School whereby the teaching-learning experiences would be divided among large group instruction, individual study, and small group discussion. The amount of time to be spent in each sequence would depend on the difference in individuals, groups and subjects. As a start the following division is suggested:

Each student would spend about forty percent of his time in large group instruction—100 or more students meeting in auditoriums and other large rooms. Another twenty percent of the time would be taken up by small discussion groups of twelve to fifteen students. The remaining

22 *Teaching by Television*, p. 54.

forty percent would be for individual study, or groups of two or three, with a minimum of constant supervision.  

Such a plan calls for extensive use of mass instructional materials such as television, teaching assistants and general classroom aides. The time saved by this reorganization would make it possible for the professional teacher to spend eighteen hours a week with student groups. Nine and one-half hours would be spent in large-group instruction and eight and one-half hours with small discussion groups. The eighteen hours a week that the teacher-specialist spends before student groups is a great deal less than the twenty-six to twenty-seven hours spent by today's teacher.  

The rest of the teacher's time would be spent in preparation and meetings with individual students.

Small School Uses

This reorganization pattern can be effective in upgrading education in large communities, but quite a different phase of the problem exists in small and very poor districts. Large areas of the country are so sparsely populated that consolidation is difficult. High schools with less than fifty students are common and their curriculums are extremely limited.

Educators have asked if there aren't ways of enriching the curriculums of these rural schools.

Two of the experiments in the National Program (The National Program in the Use of Television in the Public Schools) are seeking answers to this question. In Nebraska,  

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24 Trump, Images of the Future, pp. 7-11.

25 Ibid., p. 23.
where the median-size high school has only five teachers and sixty-five students, teachers from the University of Nebraska are reaching out with a combination of televised instruction and correspondence materials to bring classes in algebra, geometry, physics, English, and Spanish to students in some twenty-five small rural high schools within a forty mile radius of KUON-TV, the educational television station in Lincoln. Last year (school year 1958-59), for example, six students in the high school at Beaver Crossing were taking physics from one of the best physics teachers in the country—Dr. Harvey White. Eight more were taking the same course at the high school in Wahoo Luther, while eleven students were taking Spanish and art over television at the high school in Weeping Water.

The same effort to bring high quality instruction to rural students is being made in the State of Oklahoma, except that correspondence course materials are not being used to supplement the televised instruction. Courses taught in the Oklahoma experiment during the first year were second year algebra, chemistry, geology, physics, and solid geometry. The televised instruction in these courses originated in Oklahoma City and was also received by students in five Oklahoma City high schools. This meant, for example, that students in the rural high schools of Mustang and Crooked Oak received the same televised instruction as the students in Capitol Hill High School in Oklahoma City.26

The writer visited several of the rural high schools participating in this experiment. In one, with a graduating class of twenty-three, four boys were taking physics, chemistry, advanced algebra and solid geometry exclusively by television. This was the first time that any of these courses had been available to the students in this district. Another school, with a graduating class of seventeen, had one boy who was taking solid geometry and geology.

To help the students with their science courses special laboratory kits, much like the chemistry sets sold as toys, were made available to the schools. Laboratory manuals gave directions for small scale

26 Teaching by Television, pp. 48-49.
experiments which were correlated with the televised lessons and which the students could perform with the kits.

In several states where there are many districts with very low incomes, educators are using television for a "great leap forward." Stations and whole networks financed from state funds are being used to enrich curriculums as well as to teach many of the basic subjects.

**Special Class Groupings**

Even within the normal school curriculum there are opportunities for special groupings. Students from several classes who need special help can be grouped either for a special television lesson or to meet with a teacher while the rest of the class has a television lesson. Programs for both the gifted and the slow learner can be scheduled in this way.

An example of this kind of grouping was observed in a St. Louis suburban school. Through the television station a daily series of Beginning Spelling lessons was presented. Since many of the schools in the area promoted at mid-year, the lessons were scheduled so that a teacher could start using the series at the beginning of either semester. While most teachers were satisfied to use the series as it was presented with their entire class, a few tried to make some adjustments in their class grouping to take greater advantage of the series.

One teacher in particular divided her class into two sections depending on ability. While one-half viewed the daily television lesson in one room, she worked with the other half in a second room. This pattern
was reversed later in the day. Since one of the daily spelling presentations was more advanced than the other, it was possible for her to take advantage of both presentations by making ability groupings in her class.

This grouping was possible because this teacher worked with the same class through both the first and second grades, and because there was a spare room available for viewing the television lesson. Even without a special viewing room, it would be possible for two teachers to cooperate by grouping part of their classes in one of their rooms for a special televised lesson and the remaining part in the second room for some other experience. The school building of the future could very well have a materials center associated with each two or three rooms where television programs could be seen. Even today a portion of a room could be screened off for small group viewing or study.

The Cost of Television Teaching

Actual figures comparing costs between television teaching and normal classroom teaching are scarce. However, some preliminary cost estimates can be made from the accumulated experience with television teaching.

Hagerstown school officials believe that if the total cost of operations and transmission can be held below $350,000 per year, it may be possible to meet the costs of their new method of instruction through savings in the teaching staff, in instructional equipment, and in the more efficient use of classroom space.

So far, the clearest saving in staff time has been in the junior high schools, where seven fewer teachers than should otherwise be needed have been used with the 1,500 boys and girls enrolled in the large classes. This saving in staff time has been used to reduce the student-teacher ratio in other classes. A different kind of saving has been effected in the elementary school program, where art and music were added to
the curriculum through the use of only three teachers and the half time of a fourth. To have done this without television would have required thirty-four teachers. In terms of teacher salaries, $171,600 in instructional benefits was obtained for $17,680.27

The figures reported on the research at The Pennsylvania State University^28 are probably the most detailed and helpful to date. Unfortunately, they apply only to college lecture and lecture-demonstration courses. While it is difficult to interpolate these findings to the elementary and secondary level, it is reasonable to expect that similar results might be found in some areas. For instance, the figures should be directly applicable in those high school subjects presented by the lecture-demonstration method.

The Penn State studies compared the costs of conventional instruction with those using closed-circuit television. Using open-circuit or broadcast television transmission would require a different set of base figures, but the results should be similar. With broadcast television, the costs of establishing and operating a facility are greater, but this is offset by the fact that much larger and more widely dispersed audiences are possible.

Four different year-long courses were selected for the cost study at Penn State—General Psychology, Introduction to Accounting, Introductory Sociology, and Air Science. Conventionally, these courses were taught in sections of about forty-five students. In the case of the

^27 Ibid., p. 45.

^28 Carpenter and Greenhill, Report Number Two.
conventional instruction, only the salary of the instructional staff was counted. In the television instruction, the instructional staff's salary, room proctors, and television operating costs were used. In both cases, the cost of space and utilities and other costs auxiliary to the instruction were not included in the comparison.  

The study pointed out several facts:

1. That a professional vidicon television system can be so used as to reduce instructional costs significantly when compared with the net costs of teaching the same courses by procedures previously used at Penn State. The total difference gain (saving) for the four courses during the academic year, as calculated, amounted to $38,713.30.

2. The cost per student-credit-unit can be reduced correspondingly. For the courses studied the average reduction was $4.04 and the range of savings was from $.76 in Accounting to $8.47 in Air Science.

3. Costs are very sensitive to the patterns of course management, staffing and, especially, to the number of students involved in televised instruction.

In both types of instruction there are basic cost factors which must be met no matter how many students are taught. Although initial basic costs for television instruction are higher than those for conventional instruction, after these costs are met the cost of adding more students to the television type of instruction is considerably lower than adding to conventionally taught sections. There is some enrollment break-even point where television and conventional instruction cost the same. For the Penn State experiment this was found to be 190 students. A lower enrollment economically favored the conventionally taught classes.

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29Ibid., pp. 102-106.  
30Ibid., p. 103.
and one higher than 190 favored the television class. This led the researchers to say, "Other things being equal, the course with the largest number of students should be scheduled over television."\textsuperscript{31}

San Francisco State College, through the facilities of Station KQED, telecast five college courses as a part of a research project sponsored by the Fund for the Advancement of Education. This project differed from the Penn State studies in that it used open-circuit television. One of the objectives was to compare the costs of televised and conventional teaching. They found that in a course such as psychology, which was largely a lecture-discussion presentation, the enrollment break-even point was about 825 students. In a more complicated course such as science, the break-even point was 1120 students.\textsuperscript{32}

These costs are considerably higher than those reported for closed-circuit television, but the two studies are not directly comparable. In the figures for the San Francisco study, items such as administration, room depreciation, and university overhead charges were used. Also, a television station charge of $304.55 per hour was made.\textsuperscript{33} This appears to be considerably higher than the charges made by other educational stations. It is evident that both closed-circuit and open-circuit television teaching are economically feasible in colleges. When

\textsuperscript{31}Ibid., p. 105.

\textsuperscript{32}Albert R. Lepore \textit{et al.}, \textit{An Experimental Study of College Instruction Using Broadcast Television} (San Francisco: San Francisco State College, 1958), pp. 54-57.

\textsuperscript{33}Ibid., p. 54.
the instruction is presented to a large enough base the college can effect savings in its instructional costs. In both these studies there were no significant differences in the course results between conventional and television classes.

As a last example of economies brought about through the use of television, let us look at Dade County, Florida. The schools in and around Miami participated in the Fund for Advancement's three-year television large class teaching demonstration project. In the first year they involved three elementary schools, three junior high schools and three high schools. In the second year these numbers were increased to ten, twelve and six, respectively. In the third year the project was extended to fifteen elementary schools, fourteen junior high schools and ten senior high schools. Superintendent Joe Hall of the Dade County Schools, testifying before the Subcommittee of the Committee on Interstate and Foreign Commerce of the House of Representatives, described the program as follows:

Basically, the program called for a student to be in an auditorium in a group of 300 to 400 with a classroom teacher in charge of the group and another classroom teacher assisting the person in charge. These teachers were also given a special aid for clerical items. One-half of the fifty-five minute net period was the responsibility of the classroom teacher in charge. The other half of the period was utilized by a television presentation of the subject matter for the day. The television teacher had as a full assignment the presentation of this twenty-eight minute telecast. No pupil had more than one class (one-sixth of his daily load) presented in this manner. Careful testing was conducted on the academic achievement at the beginning and at the end of the school year for the television groups and similar groups taking the courses in established patterns of thirty pupils to the class. Differences in achievement were not greatly significant, though they slightly favored the television groups. Detailed reports for the first two years of the experiment
are available. Since this was the first time that we had utilized this method of providing instruction as contrasted with the long history of experience in teaching with established patterns, and since achievement was somewhat superior for the television groups, it is felt that we have a method which will improve the quality of instruction provided.34

The Committee asked, "Is it possible to conduct a quality educational program with a fewer number of teaching positions and thus make money available to pay better salaries for the positions which we must have?") Superintendant Hall answered:

We have not explored this question fully. We have utilized the savings in teaching personnel to pay the full operating cost of the television station and the special television teachers. Additional savings in teaching personnel we have utilized . . . to provide additional services in terms of special personnel to the schools in which the program is being conducted.36

A further inquiry from the Subcommittee asked for clarification as to savings realized in building construction brought about through the use of television. Superintendent Hall explained that through the combination of large class television instruction and extending the school day, the Dade County Schools had been able to make better use of their existing buildings. He reported that a study made by the Dade County Board of Education indicated a need for three senior high schools in the next three to five year period. The final recommendation stated that by utilizing the extended day and large class television


36Ibid., p. 15.
instruction, these schools would not need to be constructed in that period. This was a saving of $6,000,000. A similar situation exists at the junior high school level and the school board has not built three new junior high schools which would have been needed if the above plan was not in use. The saving at this level was $3,600,000. 37

Superintendent Hall summarized this point by saying:

If one were starting a construction program in a newly established population area where no schools were in existence, then the number of elementary classrooms needed could be reduced by ten per cent with the educational television program which we now operate. The number of junior high school and the number of senior high school classrooms could be reduced by one-fourth.

In a practical situation, where school buildings already exist, the savings can be made only as the population increase in a particular area makes it possible and desirable. We do anticipate from our present rate of growth that the savings in capital construction over the next five year period will amount to about $12,000,000. 38

From these cases it seems that the cost of television teaching is lower than comparable classroom teaching. It is significant that in the four cases which have been reported, not only were economies demonstrated but they were accomplished with either no loss in learning or an increase in learning. This underscores two basic reasons for the use of television in the classroom—its ability to reach many people simultaneously, and the opportunity it gives educators to improve the quality of education. Positive evidence exists that both of these objectives can be reached, and some evidence exists that they can be reached together.

37 Ibid., p. 19.

38 Ibid., pp. 19-20.
CHAPTER IV

THE OHIO SCHOOL OF THE AIR PROJECT

Typical of the experiments in classroom television are those made at The Ohio State University during the 1953-54 and 1954-55 school years. The Ohio School of the Air, which had been presenting instructional programs over radio since 1929, began a two-year developmental program designed to test planning and production procedures for classroom television programs.

In 1953-54 television lessons in two subject areas for the intermediate grades were presented over a Columbus, Ohio, commercial television station. These programs were presented the first year in order to investigate:

1. Whether classroom telecasts can modify the interests and attitudes of intermediate grade children and their teachers.
2. Whether television can make a contribution to teaching art and science in the intermediate grades.
3. Whether intermediate grade teachers can be instrumental parts of classroom television program planning and production.
4. Whether the production of classroom telecasts was feasible in the Columbus, Ohio, area.¹

¹Ottmer Schlaak, "The Planning, Production and Evaluation of Two Experimental Series of Classroom Telecasts for Use in the Intermediate Grades in the Columbus, Ohio Area" (unpublished Abstract of Ph.D. dissertation, Department of Speech, The Ohio State University, 1955).
The procedure followed the first year involved the planning, production and evaluation of two series of thirty-minute classroom television programs, one in art and one in science. The study included an evaluation and criticism of each of the twenty-two programs telecast, an assessment of teacher and pupil attitudes and interest toward the two subjects, and the effect these lessons had on these attitudes and interests, and finally, an evaluation of each series as a whole. Information was obtained through the use of questionnaires, discussions and observations.²

On the basis of the observation of the teachers and the children who were involved in the study, the following conclusions seem justified:

Classroom telecasts can have an observable effect on the attitudes and interests of the pupils and teachers who use them. There was a tendency toward a more favorable attitude toward both art and science after the series on the part of both pupils and teachers examined. The activity, reactions, and comments of the pupils and teachers indicated that the telecasts influenced the attitudes and interests of the intermediate grade children toward their class subjects in a favorable manner.

The telecasts in art and science provided effective motivation for outside activity and additional research, and provided assistance to the pupils and teachers in the intermediate grades as useful, specific education and background enrichment. It was found that both teachers and pupils derived value from some part of each of the programs in art and science.

Classroom telecasts were found to be feasible in Columbus, Ohio, and it was found that a group of classroom teachers, formed into a production and planning group, under the guidance of a trained television producer can contribute to the planning of classroom telecasts for the enrichment of the intermediate grades' curriculum.³

It was decided to continue experimentation for a second year. The purpose was to test the feasibility of telecasting instructional

²Ibid. ³Ibid.
programs in primary level science and intermediate level conservation. The two series of telecasts were produced by the present writer during the 1954-55 school year. This second year differed from the first in the schools and classes which were involved, the length of the program, the subject matter areas, the broadcast station involved, the increased teacher involvement in planning and production, and the extension of the science area into the primary grades.

A plan was evolved which would use a group of classroom teachers in the production and evaluation of the lessons. Two seminar classes were organized, one for teachers using the science series and one for teachers using the conservation series. The seminars carried graduate credit in the Department of Education of The Ohio State University. Several stipulations were made, however, for enrollment. A seminar teacher had to be teaching a class which would use the entire series. This meant having a television set available and permission from the school administration to participate in the experiment. They also had to agree to attend the seminar and to carry out all the evaluation procedures.

Science consultants, principals, and superintendents were asked to suggest teachers for the seminars. Letters of invitation were sent to these teachers, and twenty-eight enrolled in the science seminar and twenty-seven enrolled in the conservation seminar.

The first meetings of the seminars were held two months before the first programs and regular weekly meetings began one month before the first telecasts. At these preliminary meetings the series objectives, titles and content were developed.
One of the weaknesses noted from the previous year's experience was the limited involvement of the planning group. The first year's programs were completely planned by the television teacher, while a group of using teachers reviewed and evaluated them. To correct this, a highly structured plan of program development was undertaken the following year.

The seminar group was divided into four planning teams, each of which would work on one program for a period of four weeks. Since there were twelve programs in each series, each team would plan three complete programs during the experimental period.

**Program Planning Procedures**

The planning procedures were divided into four steps. At each of the weekly seminar meetings there would be a team work-session at which each team would work on a different step and on a different program. The timetable was staggered so that one program was completed each week. A chart of this schedule is shown in Table 1.

To help these teams work out the details of their programs a specialist, either in content or in production, would meet with them at each step.

A series of forms was also developed to help these teams organize their work. The completed forms were given each week to the program producer and the television teacher to keep them informed about the planning procedures. A set of completed forms comprises Appendix A.
A brief description of each planning step is given below:

**Step 1.**—This step began four weeks before the telecasts. The team met with a content adviser and developed the specific objectives of the program, wrote a brief description of the program, and listed any special film or recording that would be needed. This information was entered on Form A (see Appendix A).

**Step 2.**—The following week the team wrote the detailed program outline, discussed and listed the properties, art work and slides which would be needed. They made suggestions as to where properties or demonstration materials might be obtained, and gave suggested layouts for any required artwork. The series producer met with them to work...
out these production details. The resulting decisions were recorded on Form B (see Appendix A).

**Step 3.**—Two weeks before the telecast the team met with a utilization specialist to plan and write the Guide Sheet information. A Teachers' Manual, containing general information, had been developed for each series. The Guide Sheets, containing more detailed program information, were sent to each using teacher a week before each program. The Guide Sheet is shown in Appendix B. The adviser for this step had a broad background in audio-visual materials and experience in working with teachers. The material for the Guide Sheet was outlined on Form C (see Appendix A).

**Step 4.**—At this last seminar meeting before the program, the assistant producer and the television teacher met with the planning team. The teacher had received a copy of the script before this meeting. The program was outlined and discussed. Last minute changes were incorporated into the script (Appendix C) which had been developed from the program outline on Form B. The properties, slides, artwork, film, recordings, and other materials to be used on the program had been collected. After discussing the plan and script with the team, the teacher practised using the materials and rehearsed the program. Whenever possible, the person who would be directing the program for the television station met with the group during this step. A critique sheet (Form D, Appendix A) was filled out by the team, noting any changes that should be made.

On the day of the telecast the television teacher, producer, and assistant producer met with the program director an hour and a half
before the program. While the assistant producer and the station floor manager assembled the properties and dressed the setting, the teacher, producer, and director went through the script and had a walk-through rehearsal without facilities. Following this, there was a complete facilities rehearsal to acquaint the cameramen and floor manager with the program.

These programs were produced in order to study (1) the development of an effective feedback system in the production of school telecasts; and (2) the development of techniques to elicit student response to school telecasts. A plan for this study was developed and the data were gathered; however, on June 14, 1957, the writer's house was flooded and the partially summarized data were destroyed. The study had to be reorganized. The available data are used later in this thesis.

Evaluation Procedures

To collect these data two groups were set up. The classes represented by the seminar teachers made up the experimental group for the feedback study, and a random sample of classes selected from others viewing the program were a control group. The remaining teachers viewing the program were organized into a general category group and were also invited to respond to the questionnaire. Data received from all three groups were used in the response study.

Several methods of collecting data were used. Three questionnaires were developed (see samples in Appendix D). An information questionnaire was sent to all of the teachers who had requested teachers' manuals for either series. The control group was selected from those
teachers who answered it. This group was then sent a program evaluation sheet for each of the twelve programs and a final report form.

Information from the seminar teachers was collected in three ways: (1) They completed the questionnaires; (2) they filled out a program evaluation sheet each week; and (3) they participated in a thirty-minute discussion at the beginning of each seminar period. These discussions were tape recorded and after being transcribed became the main type of feedback used. Since the planning teams, program producers, and television teacher all participated, these suggestions and criticisms could have an immediate effect on the programs.

In order to relate the data to specific sections of the program, it was necessary to make some kind of recording of the program. A thirty-five millimeter motion picture camera which would make single frame pictures was mounted in front of a television monitor. An operator took a picture every five seconds or at each change of scene, whichever came first. At the same time the audio portion of the program and the director's commands were tape recorded.

By using the transcript of the audio tape, the notes on the director's actions, and selected pictures from the video, a story board for each program was developed (see Appendix E). The story board form of recording appears to be more useful in research than a kinescope recording or an audio tape recording. It is easier to handle and considerably cheaper to produce.

The original intention had been to compare the response to the programs of the seminar teachers' classes with that from the control classes to see what effect, if any, could be attributed to the teachers'
participation in the production. It was also planned to trace by means of the discussion tapes the development of specific techniques which produced more response on the part of the viewing students. All of these data, unfortunately, were destroyed by a flood in the writer's home before this analysis had been made.

**Results from the Science Series**

Prior to the loss of the data some tentative observations about the science series (Things Around Us) had been made. One hundred twenty-two Teacher Information Sheets were returned. From these it was ascertained that the greatest single factor which would determine whether or not a teacher used the program was suitability; the next was availability of television sets; and the third was the appropriateness of the topic. Neither quality of presentation nor scheduling seemed to pose much of a problem in the teacher's mind. The final report indicated that the only significant reason reported for not viewing a lesson was the unavailability of a television set. Inspection of the individual program reports and an analysis of the seminar tapes reinforced this observation. In two-thirds of the cases where a teacher reported not using a particular program, the shortage of sets was given as the reason; the rest indicated a time conflict with other school activities.

Over seventy-six percent of the teachers indicated that this would be their first experience in using television in their classes. Those who reported previous use listed programs of the "Ding Dong School" and "Romper Room" variety. In response to a question as to the feasibility of classroom television on the primary level, one hundred eight out of one hundred thirteen teachers replied in the affirmative.
The most interesting information obtained from this sheet was that relating to what the teachers expected to get from the programs and what they expected the children to get. In general, they thought the programs would be most helpful in demonstrating teaching techniques, suggesting classroom activities, and bringing resources to the class which the teacher could not provide.

After the series was over, the teachers were asked how the lessons had helped them. By comparing the results of the initial and final questionnaires, it is apparent that the series more than lived up to the teachers' expectations. They felt the series had been particularly helpful in suggesting activities they could use in class. The comparison showed, however, that the series had not been as rich in resources not available otherwise to the classes as it could have been. These figures and comparisons are shown in Table 2.

The teachers expected the series to be helpful for the children, although not to the same degree as for themselves. In the post-telecast questionnaire, however, they reported that the value of the programs for the children had exceeded their expectations even more so than for themselves. The series was much more successful than they expected in stimulating the children's curiosity about their environment and in giving them background information in science. On the other hand, they didn't expect the programs to show the children how to solve problems scientifically and, while the series did a little better than they had predicted, it never achieved this goal. These figures and comparisons are shown on Table 3.
TABLE 2
VALUES EXPECTED AND REALIZED BY TEACHERS FROM THE
"THINGS AROUND US" SERIES

| Demonstrate some helpful teaching techniques. | 52 | 65 |
| Suggest activities teacher could use in class. | 67 | 86 |
| Provide teacher with broader background in science. | 43 | 61 |
| Provide resources not available to teacher. | 55 | 59 |
| Help teacher organize science activities in class. | 37 | 50 |
| Help teacher fit science into the whole curriculum. | 32 | 50 |

KEY:
--- Expectations (from pre-telecast questionnaire)
--- Realized (from post-telecast questionnaire)

0 10 30 50 70 90 100

The series had five main objectives. They were---

1. To stimulate in the child curiosity about his environs.
2. To demonstrate some special techniques and approaches to science suitable for the primary level.
3. To demonstrate and stimulate science activity at home and at school on the part of the children.
4. To develop an attitude of scientific thinking in the primary level child.
5. To help the teacher clarify the role of science in the total primary curriculum.

---

TABLE 3
VALUES EXPECTED AND REALIZED FOR THE CHILDREN FROM THE "THINGS AROUND US" SERIES

<table>
<thead>
<tr>
<th>Objective</th>
<th>Expectations</th>
<th>Realized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give children background information in science.</td>
<td>46</td>
<td>73</td>
</tr>
<tr>
<td>Stimulate children to further experimentation.</td>
<td>49</td>
<td>65</td>
</tr>
<tr>
<td>Stimulate curiosity in children about their environment.</td>
<td>50</td>
<td>83</td>
</tr>
<tr>
<td>Show children how to solve problems scientifically.</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>Stimulate science activities at home.</td>
<td>44</td>
<td>62</td>
</tr>
</tbody>
</table>

KEY:
- Expectations (from pre-telecast questionnaire)
- Realized (from post-telecast questionnaire)

From the comparisons made earlier, it can be seen that all of these objectives were achieved. However, the children did not develop an attitude of scientific thinking to the degree desired. If the story boards of the programs were available for analysis, it might be possible to trace the techniques and materials responsible for success or failure in reaching these goals.

The Final Report, in which the teachers were asked to rate the programs, yielded additional information. From this report each program was ranked according to three values—interest, education, and activity producing. The value scores were combined to give each program an
overall ranking as to acceptability. Table 4 shows the twelve programs in this series as they were ranked from the Final Report.

Teachers were asked to score the twelve programs as to the ones they liked most and the ones they liked least. These scores were combined and an interest value for each program was then obtained. For instance, the program about "Animals That Live in the Woods" was selected as the one liked best by 48 percent of those watching, and was the program liked least by only 5 percent. Since this was the best liked program, and at the same time had the fewest votes as the least liked program, it was given a ranking of one on the scale.

"Staying Healthy" was selected as the best liked program by 1 percent of those watching and was chosen as the least liked program by 31 percent. Since this made this program the least popular, it was given a ranking of twelve on the scale.

Similarly each program was given an educational value score and an activity producing score. These three value scores were combined, and the programs in the series were then ranked as to their overall acceptability.

From an inspection of the table it can be seen that programs ranking high in one value also rank high in the other two; similarly, those low on one value scale are low on the other two.

It was planned that the programs would be analyzed to see what, if any, common factors could be isolated which would account for this ranking. Without the individual program data this is not possible. However, some observations can be made from the available data and from
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>How We Grow New Plants</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Starting an Aquarium</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Animals That Live in the Woods</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Caring for Our Pets</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>How Our Toys Work</td>
<td>10</td>
<td>4</td>
<td>6</td>
<td>9</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>Doing Things Safely</td>
<td>12</td>
<td>7</td>
<td>4</td>
<td>10</td>
<td>21</td>
<td>6</td>
</tr>
<tr>
<td>Hearing Sounds</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>22</td>
<td>7</td>
</tr>
<tr>
<td>How Weather Changes in Spring</td>
<td>5</td>
<td>10</td>
<td>11</td>
<td>3</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>Things That Live in the Water</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>12</td>
<td>26</td>
<td>9</td>
</tr>
<tr>
<td>Looking at the Night Sky</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>6</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>How Planes Fly</td>
<td>1</td>
<td>9</td>
<td>12</td>
<td>8</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>Staying Healthy</td>
<td>8</td>
<td>12</td>
<td>9</td>
<td>11</td>
<td>31</td>
<td>12</td>
</tr>
</tbody>
</table>
the summary notes which were recovered from the flood. These are listed below.

1. There appeared to be no correlation between the presentation sequence and the program value.

2. The audience tended to remain constant throughout the entire series; it neither grew nor shrunk significantly. The one program having an unusually small audience can be explained by the fact that it was telecast on Washington's Birthday when some schools were dismissed.

3. Those programs which rated high were all about things which live or grow. They were subjects in the natural sciences. There was a tendency for the programs dealing with the physical sciences to be ranked toward the bottom of the list.

4. Those programs which had guests or considerable activity were grouped toward the high end of the scale.

5. The teachers selected those subjects which they normally taught in class as the ones which had the most educational value. Those programs which attempted to bring into the classroom things which the teacher found difficult to do were ranked lower in educational value by the teacher.

6. The programs which were produced open-ended--having experiments or activities to be completed--led to the most continuing activity in the classroom. It was also found that those programs which depended on the classroom teacher to stimulate follow-up activity ranked lowest on the activity value scale in Table 4. As an illustration, one can see that the program on "How Weather Changes in the Spring" ranked low on the interest and educational value scales, but high on the activity follow-up scale. In this program, the viewers were told to keep a chart on all the things they observed relating to weather and spring. The same follow-up chart idea was used on the program, "Looking at the Night Sky," with the same result. The follow-up activity was left entirely up to the teachers on the programs, "How Our Toys Work" and "Things That Live in the Water." In both of these, the programs were found to have fairly high interest and educational values, but the follow-up was weak.

When the teachers were asked to list those elements of the programs which were most responsible for the interest of their classes in the telecasts, three in particular stood out--the visuals used on the
programs, the demonstrations and experiments used, and the topics presented. On the other hand, such things as the personalities of the participants on the programs, questions asked and activities suggested by the television teacher, before and after telecast activities suggested in the weekly guide sheets, scored low as interest producing elements. In general, the same elements accounted for the programs' educational value. However, the activities carried on in the classroom after the programs and the suggestions in the weekly guide sheets were also responsible for some of the educational value.

In regard to the weekly Guide Sheet, a question was asked as to the value of each of its seven sections (see sample in Appendix C). The teachers ranked the sections in their order of value as follows:

1. Listing of ideas to be covered
2. Suggestions of things to do before the program
3. Suggestions of things to do after the program
4. Listing of questions to be brought up on the program
5. Listing of related teaching aids
6. Synopsis of program
7. Resources

The teachers were asked to evaluate the series as a whole in the light of what use they made of it with their classes. They were asked to rate the series on a four-point scale ranging from "Very Valuable" to "Of No Value." Their answers were given a numerical score of from one to four, with the four points representing the "Very Valuable." The results are shown on Table 5.

Several observations seem to have some significance in regard to the answers to this question. All of the teachers felt that there was some value to the series; not one felt that the series was of no value.
TABLE 5
OVERALL VALUE OF "THINGS AROUND US" SERIES

<table>
<thead>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>Sample group of teachers</td>
<td></td>
<td></td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Seminar group of teachers</td>
<td></td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General group of teachers</td>
<td></td>
<td></td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>Average of all teachers</td>
<td></td>
<td></td>
<td>3.1</td>
<td></td>
</tr>
</tbody>
</table>

All the answers (101) indicated the series was "Of Some Value" or higher. The average for all the answers was 3.1 on the four-point scale. The seminar teachers rated the series considerably higher as a group than did any others, and a larger proportion of their answers (59 percent) rated the series as "Very Valuable" than did those of the other two teacher groups (Sample--24 percent; General--25 percent). This result might be due to a more positive attitude on the part of the seminar teachers; their more complete knowledge about the purposes of the series; their own ego involvement; or they may have joined the seminar because they felt that television could be a valuable adjunct to the curriculum.

When these teachers were asked how this experience might be made more valuable, the two comments mentioned most often were, "each room
should have its own television set," and "don't use the series over a three grade spread."

This project pointed the way to a pattern of program development that depended on teacher involvement. However, this method, the teacher planning seminar, is time consuming. By the time the group had learned how to produce programs, the project was over. If the seminar had been continued for another series of twelve programs, it could be expected that the planning procedures would result in many new ideas being injected into the programs, and the programs being produced quite efficiently.

The feedback afforded by the seminar critique did not appear to be particularly important. It was hypothesized that the programs would improve throughout the series. The data in Table 4 indicates that both class interest and the programs' educational value did improve slightly throughout the series, but the class activity resulting from the lessons dropped off significantly. This can be partially explained by the fact that the latter subjects in the series did not readily lend themselves to much class participation. They were placed late in the series in order to give the seminar an opportunity to learn how to produce programs which would lead to class activities.

All of the data from the Conservation Series were destroyed. However, from the notes which are available and the results as observed at the time of production, it is felt that this data would have enforced that from the Science Series. The planning procedures which were the
same as for the Science Series worked a little better, partially because the production staff was more familiar with them, and partially because many of the seminar teachers had just completed a summer workshop in the teaching of conservation and were used to working together.
CHAPTER V

SOME PRINCIPLES DERIVED FROM THE OHIO SCHOOL
OF THE AIR PROJECT

There is no magic about television. As a technical system it is passive; as a communications device used for education it is new and powerful. Its power, however, does not come from its newness or its electronic systems, but through its use. When this use is to educate, the task is to see that the aims and objectives of education are served by the programs which are transmitted. The age level, the subject matter, the time of day, and even the viewing location are not important as long as the content of the program "broadens or stretches an individual, ... excites his aspirations, and extends his capabilities, and ... better equips him to achieve his ultimate potential, whatever that may be."¹

Objectives of Education

Since television serves the aims of education, it is necessary to look briefly at these aims. A great many definitions have been given for education. Most of the modern philosophies of the Western World describe it as the process that prepares individuals to live in and contribute to the democratic society.

¹Weiss, NAEB Journal, XVII, No. 5, p. 10.
Weiss says education is "any experience which enables a person to approach more nearly his potential contribution to himself and society."² Wells Foshay says this in another way. He says that "the ultimate aim of education is to make a man."³

The operation of a school dictates that these broad objectives be articulated into some convenient pattern. This might be thought of "as the orderly development of a set of skills, a set of understandings, and a set of attitudes."⁴

In 1944, the Educational Policies Commission outlined four major objectives of education. These were "the development of the learner; the improvement of home, family, and community life; fulfillment of economic needs; and performance of civic and social duties."⁵

Charles Siepmann in TV and Our School Crisis says that education in a democracy is supposed to equip us for three roles—to earn a living, to be partners in the vast enterprise of government, and to be an individual. He also says that this expects too much of education; instead, education must get back to the essential tasks which it, uniquely, can perform. "It has two main functions. It must instill

²Ibid.


⁴Ibid., p. 15.

those disciplines of mind that enable us to handle all knowledge that we come by. . . . And education must inspire loyalty and love."

These objectives are given in broad, general terms, but at the learner-teacher level they must be broken down into specific desired outcomes. We want the individual to develop knowledge and understanding, skills and competence, attitudes and interests, and action patterns.

The Role of Television in Education

We began this chapter with the idea that educational television should be used to serve the aim of education, that the content and the way it is presented are important, and that television itself is merely the vehicle through which this content is presented. It is not that simple, however, and there are many complicating factors. This division of responsibility would be valid if there were unlimited resources. The implications for the educational broadcasters are closely allied to the supply of excellent teachers, number of classrooms, amount of material to be presented, and length of time available.

Television does not modify the recognized goals of education; nor does it require the elimination of the classroom, even as the advent of the book did not mean the elimination of the teacher. Rather, it suggests alternative and possibly better techniques for reaching the same goals. Alert educators have always experimented with and learned to use new teaching methods and devices. Television holds promise of improving the effectiveness of the educational process.

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6 Siepmann, TV and Our School Crisis, pp. 165-166.

To evaluate the role of television in education, we have to consider what we want to do, where we are starting from, and the material we have to work with. A television program, above all, must be appropriate. However, it must be remembered that what was appropriate yesterday may not be today. We must keep an open mind about educational television and see it as a valuable tool for the educator.

The potential value of television in the instructional program must be sought in terms of its contributions to the learning process, in the light of its appropriateness to the basic characteristics of an effective learning situation and its usefulness at the various stages of learning. When one asks, "What subjects can best be taught by television?" the answer seems clear. Television cannot be evaluated in terms of "subjects"—history and science, reading and art. To do so would be to misrepresent both the learning process and television as a means of communication. Of course the particular purpose television can serve in one subject area may be different from that which it serves in another. But fundamentally the frame of reference should be the broad elements of learning, regardless of the subject being taught. Television can bring to the classroom a variety of learning situations in every subject area.8

Tentative Generalizations

During the time that the writer was producing the Ohio School of the Air television series several tentative generalizations were developed. These were either derived directly from the Ohio School of the Air project or came out of the experience of other people during that same period. Even though it was not possible to complete the evaluation

of these series, the production experience and observations provided a basis for these tentative generalizations.

1. **Television when used for instruction must make a significant contribution to the learning process.**

There are many ways that television can contribute. It can be used as a springboard to worthwhile opportunities. A great deal has been written about the use of television to motivate learning, either by providing background, challenges, or developing a readiness for class experiences.\(^9\) One of the most obvious contributions is making available to the viewing classrooms resources otherwise unavailable or difficult to secure. A less obvious contribution is television's role as an organizer of the elements in a learning situation.

Television's unique ability to magnify demonstration has been evidenced through the use of close-up shots. By means of the proper shot selection, the students' attention can be concentrated on the step-by-step procedures, screening out the extraneous and confusing elements. Likewise, television can be used to show relationships—stepping back to see the whole of something rather than its individual parts. Television can, through its immediacy and its personal quality, provide the concrete experiences which help mold attitudes. Finally, television challenges pupils to assume more responsibility for their own learning.\(^10\)

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2. **An instructional television program must be based on real class needs.**

The important word here is "real," and these are not always easy to determine. The teacher, students, curriculum director, and principal are all likely to have a different idea about the class needs. Generally speaking, the teacher who is responsible for making most of the educational decisions for the room, will have the most accurate assessment of these needs. Teachers, like other human beings, have various degrees of ability and are not infallible. Then, too, most teachers know the needs only as reflected by their own classes. Very few teachers have the opportunity to observe other classes, and only rarely can they even discuss needs with teachers from other buildings or school systems.

Whenever possible, a pilot series of lessons should be developed and tried out either with a group of teachers or, better yet, with a class or two. If a pre-use test is not possible, then the production plan should be such that it can be modified as the series develops. For instance, if a teacher's manual is being used, it should be printed and distributed in segments so that the program can be modified as the series develops. A manual which is written before a series is produced has a tendency to restrict the programs to those class needs determined at the beginning.

3. **Program planning must include classroom teachers.**

This point relates closely to the previous one. A planning group of classroom teachers from the grade level in question can help to determine the class needs. The group will be able to decide on the broad objectives of the course, select content areas, and will be
invaluable in suggesting techniques and materials for the use of the television teacher. The final decisions about content and methods will be made by the television teacher, but the planning group can supply a great deal of material from which this teacher can choose.

4. **Program plans and production procedures must be related to the intended use of the program.**

In the production or planning of any instructional television program there is always the question of utilization. Programs do not exist by themselves; they are never complete entities. The audience, or in the case of instructional television, the class, is expected to do something or learn something as a result of the program. A successful experience depends on knowing this audience and keeping the program oriented toward it at all times.

The program production exists because of the content. Production procedures should never call special attention to themselves. Background, visuals, movement, sound, camera shots, etc., should never stand out. They must all blend together so that they are subordinated to the content.

5. **The programs should be of high quality, with superior teaching, and imaginatively produced.**

The high quality depends on having a good signal transmitted and received. The introduction of noise or interference in the audio or video signal can only distract the learner. The television system when working properly has limitations, and with a degraded signal, these limitations are magnified.
Of course the teaching should be superior. The television teacher, if one is used, must be the best available. But it is more than just the teacher; the goals, concepts, presentations and materials must also be outstanding. Each member of the production team must do his part in seeing that the lesson is the best possible. They must always be ready to try new methods even when the temptation is great to rely on standard classroom techniques. The television medium should be extended to find new ways to present ideas.

6. **A flexible approach to the amount of television support given a curriculum area must be maintained.**

The words *enrichment, supplementary, direct teaching,* are often used to imply a type of use of instructional television. Unfortunately, these words suffer from two weaknesses. They are emotionally charged, and they are not definitive. Neither the name one gives to a type of instructional television nor the number of divisions one selects for cataloging telecasts is important.

"The important point is that neither instructional nor enrichment television is tied to any particular type of utilization nor related to any particular size of receiving group. Television means many things."\(^{11}\)

This might be thought of as a continuum stretching from total teaching to enrichment. The amount of television presentation "in each case is what makes sense in a particular situation, in view of curriculum needs, teacher competencies, pupil enrollment, and television facilities."\(^{12}\)

\(^{11}\)Campion and Lanagan, *And TV Tool*, p. 17.

\(^{12}\)Ibid., p. 16.
7. **Educators must maintain a continuous experimental approach to instructional television.**

The broad term, "educator," is used here to represent administrator, teacher, producer, and all those who are instrumental in the development and use of instructional telecasts. Both education and television are undergoing great change. As new needs are delineated, new methods must be developed. Even after a course has been developed on television, it must be periodically re-evaluated to insure its continuing utility. The search for a better way of teaching must be relentlessly pursued. The precedents as to class size, type of presentation, role of the teacher, and worthiness of content must be tested over and over again to insure their validity. Wherever possible an evaluation project should be built into the television program.

3. **Instructional use of television must reinforce the intimate character of the medium.**

For a long time television was characterized as being a cold and passive medium. As more and more schools used television in their classrooms, it became apparent that there was an intimate one-to-one quality in the presentation. This was partially due to television's monocular vision, but it was largely owing to the skill of the television teacher. By using the close-up view to concentrate attention on a subject, and by employing a direct form of presentation, the teacher was able to achieve a feeling and relationship similar to a live situation.

This is illustrated by the results of an investigation carried on at New York University. In a course on "History of Civilization," students viewed the lectures on television and then met in small
discussion sections. Only two of the six sections were led by the two professors appearing on television. The students were asked how they felt about having taken the course on television and only thirteen percent said they did not like it. Only eleven percent felt it was "too impersonal."

The lack of contact with the lecturer did not preclude nor apparently did it diminish favorable attitudes toward televised instruction. . . . Clearly, students did not need personal student-teacher contact with the television lecturer in order to feel favorably disposed toward, or even enthusiastic about educational television.13

9. Television lessons must be examples of excellent teaching.

All teaching should be excellent, but when a lesson is to be used by thousands and even millions of students, the responsibility placed on the television producer is tremendous. Teachers in classrooms receiving television lessons have a unique opportunity to observe another teacher at work. A great deal of emphasis is placed on observation in teacher training institutions, yet once a teacher graduates and begins to teach, his opportunities for observation have been rare. Some schools have a regular visitation day program where a teacher can observe other teachers on one day in the year. Television, including programs not designed for in-service education, allows the classroom teacher to observe and study the methods of the television teacher.

10. School administrators must give active support to the use of television.

Administrative support must come from those responsible for the television facilities as well as from the school administration. The

television station personnel need to realize that the purpose of the television series is to support the curriculum. The proper emphasis must be on the content and learning situation and not on the gadgetry which is normally so much a part of television production.

The school administration, in addition to taking care of the mechanical and electrical arrangements, has to demonstrate an active interest in the use of television. It is not enough to provide the receiver and viewing room. He must also exert his leadership function and help the teacher learn how to use the medium. The difference between one school's successful use of television and another's failure is almost universally traceable to the attitudes and activities of the school principal.

There are more principles that could be formulated, but the ones presented in this chapter are the most important ones growing out of the author's experience with The Ohio School of the Air. The next chapter will trace the development of school programs in the St. Louis area. The plans and procedures developed and used there were the outgrowth of these principles.
CHAPTER VI

DEVELOPING A SYSTEM OF SCHOOL PROGRAMS

FOR THE ST. LOUIS AREA

The planning for educational television in St. Louis began long before the Federal Communications Commission set aside channels for non-commercial use. To take advantage of the channel reserved for St. Louis, a committee was appointed by Mayor Joseph M. Darst. This committee was later incorporated into the St. Louis Educational Television Commission with Dr. Arthur Holly Compton, Chancellor of Washington University, as its first chairman. Other members of the Commission represented the business, educational and cultural interests of the community.

Origin of KETC

Early in 1952, this Commission applied to the FCC for a construction permit to build an educational television station using reserved Channel 9. It was nearly a year before this application was granted. In the meantime, the Commission was busy interesting the community in the project and laying plans for raising the funds to build and operate the station.

On September 8, 1953, a gigantic fund-raising campaign was begun, culminating on September 24 with a house-to-house canvass. This campaign collected over nine hundred thousand dollars at a cost of only sixty-five hundred dollars. Before the start of operation or
construction, the St. Louis Educational Television Commission had
assets conservatively listed as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
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<tr>
<td>Grant from the Fund for Adult Education</td>
<td>$150,000</td>
</tr>
<tr>
<td>Gift of a studio building</td>
<td>215,000</td>
</tr>
<tr>
<td>Gift of land and use of tower</td>
<td>100,000</td>
</tr>
<tr>
<td>Pledge from twenty-one school districts</td>
<td>150,000</td>
</tr>
<tr>
<td>House-to-house canvass</td>
<td>100,000</td>
</tr>
<tr>
<td>Special gifts</td>
<td>200,000</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$915,000</td>
</tr>
</tbody>
</table>

On September 20, 1954, the St. Louis station went on the air
using the call letters, KETC, as the sixth educational television
station to begin operation. During its first year of operation, KETC
telecast an average of fifteen hours a week for school use and eighteen
hours a week of other production. As the National Educational Television
and Radio Center was just being organized at that time and had little
to offer in the way of programming, most of these programs were produced
live by the staff of KETC. In addition, some one hundred thirty-five
programs were produced and recorded for national distribution through
the Center. Some of these series such as The Finder, Religions of Man,
Soap Box, and Walker in the City, have become classics in the educa-
tional television field.

**School Programs Begin**

KETC also pioneered in the school program field. It was the
first to organize the multiple school districts within an area into a
cooperative unit to finance and use television. Both the Superintendent

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of Schools of the City of St. Louis and the Chairman of the Superintendents from the Cooperating Districts of St. Louis County were members of the Commission. Their membership on the Commission was considered so important that they were the only ex-officio members; all of the other commissioners could be replaced when their tenures expired.²

In addition to these public school educators, the Commission included the presidents of Washington University and St. Louis University and, later, a superintendent representing the Illinois schools within KETC's coverage. Much of the early financial success of the station was the result of this school involvement. In the original fund campaign, PTA's and professional school organizations manned the door-to-door campaign. School children distributed promotional literature and contributed money through classroom collections. The St. Louis Board of Education appropriated $75,000 yearly (later raised to $100,000) for the operation of the station. Twenty of the school districts in St. Louis County pledged an equal amount, and the Bureau of Education of the St. Louis Archdiocese gave $10,000.³

Several factors worked for and against the success of school programs the first year. The most positive factor was the long history of audio-visual involvement of the schools in the St. Louis area. The St. Louis public schools had been one of the first in the nation to set up and carry out an organized audio-visual program. The original stock


³Ibid.
of audio-visual materials came from the Louisiana Purchase Exhibition of 1904, more commonly known as the St. Louis World's Fair.

The school districts surrounding St. Louis belonged to an organization known as the Cooperating Districts of St. Louis County. This group operated a county-wide cooperative audio-visual service which was also one of the first such programs to be inaugurated in this country.

To the schools of St. Louis and St. Louis County, television was another in a long line of audio-visual teaching aids to be tried and tested. To the audio-visual personnel, it was a new medium to be used to improve the caliber of education.

On the negative side was the fact that KETC went on the air with about one-tenth of its authorized power. This meant that the county schools were in the station's fringe area, and the city schools had a low signal to noise ratio. Schools within a ten mile area found they needed an outside antenna in order to receive an acceptable picture. KETC was also the first high band station in the area to go on the air, and many people found that their receivers had not been aligned to receive channels above Channel 5.

Another negative factor was the history of unfavorable legislation in Illinois. A large section of the KETC coverage pattern was across the Mississippi in Illinois. As a result of political pressure relating to the University of Illinois' attempts to start an educational television station the Illinois legislature had passed a law prohibiting the use of tax funds for educational television purposes. This law was subsequently repealed, but schools in the East St. Louis, Illinois, area
were slow to recognize this fact. Having lost their initial drive to use television, they found it hard to overcome their inertia.

Probably the most serious deterrent to the success of the school program was the intense friction which developed between the schools and the professional staff of KETC. This was largely generated because of a lack of communication, but a great part of the problem arose from the television producers' attempts to mold educators into showmen. It is not the purpose of this thesis to decide who was right; the fact remains that the organization necessary to work out these differences was missing.

In September, 1955, the schools in the area assumed the responsibility for the development and production of the programs designed for classroom utilization. Their first step was the establishment of a television executive's position within the school cooperative. The writer was employed in this position, and over the next four years he developed the following school program organization.

**Organization for School Programs**

In order to control and finance the school program offerings of KETC and to plan and produce the programs, an organization including administrators, consultants, producers, and classroom teachers was set up. The principles derived from the Ohio School of the Air outlined in Chapter V were accepted as the policy for the school program operations. The function of each organizational element in this operation is given below.
School Administrators' Executive Committee

This committee was established to give administrative control to the television activities of the schools. The committee's membership included:

- Superintendent of St. Louis Public Schools
- Chairman of Cooperating Districts of St. Louis County Organization
- Superintendent of Catholic Schools
- Superintendent of Lutheran Schools
- Superintendent Representative of Illinois Schools
- Chairman of the School Program Operations Committee
- Executive Secretary

The executive secretary was the only full-time employee of the committee and was directly responsible to the chairman of the Executive Committee. He was also appointed as Director of School Programs at KETC. In this capacity he used the station as his office, and the members of the school programs staff were responsible to him.

The basic function of the Executive Committee was to establish policy for the school programs telecast over KETC. The committee approved the telecast schedule, the program production plans, and the school programs budget. It was responsible for the financial participation of the St. Louis area schools in KETC's services. It approved arrangements and contracts with outside organizations and teachers selected for the programs. It was through the committee's policy decisions that the overall pattern and direction of school programs were determined.
School Program Operations Committee

A second group of administrators was formed into an Operations Committee whose chief function was in the curriculum area. The committee included representatives from:

Bureau of Education, St. Louis Archdiocese
St. Louis Public Schools
St. Louis County Public Schools
Illinois Public Schools
Lutheran Schools
Independent Schools

In addition, there were four ex-officio members of this committee. They were--

Executive Secretary
Director of St. Louis Audio-Visual Education Division
Director of St. Louis County Audio-Visual Department
Television Coordinator of St. Louis Archdiocese

This committee developed the schedule of school programs telecast; decided on curricular areas, grade level, extent and scope of program series; reviewed and approved plans of Program Planning Committees; reviewed production plans of the School Programs Department; coordinated television program plans with available audio-visual materials; evaluated the utilization programs of the schools; critically reviewed the content and production of school telecasts and recommended steps to correct deficiencies; prepared and recommended the annual budget for the school program operations.

KETC School Program Department

The School Program Department of KETC consisted of:

Director of School Programs (who was the Executive Secretary of the School Cooperative Organization listed above)
Assistant to the Director
Program Coordinator (Executive producer)
Program Consultant (Content)
Secretary
The School Program Department had the basic responsibilities for coordinating the planning and development of school programs. It implemented the decisions of the Operations Committee, arranged for the production and telecasting of approved school programs, and was responsible for developing and maintaining channels of communication between the schools and KETC for the dissemination of program information and the collection of data pertinent to program planning.

The actual production of the programs was the responsibility of the production department at KETC. Their work, however, was under the supervision of the Program Coordinator and the Program Consultant.

**Classroom Teachers Committees**

Two different organizational plans were tried for these committees. The first was on a subject matter basis. There was a separate committee for science, art, social studies, etc. Each committee included teachers from the first through the eighth grades so that they might be able to plan television programs which would be consistent from first grade through the eighth. Although this seemed to be the most logical organization, several difficulties were experienced. It was impossible to get teachers who had a wide range of backgrounds. A fourth grade teacher knew what was being taught in the fourth grade but had no idea of what was being taught in other grades. The committees found it difficult to think of subject matter in terms of a continuing experience through all the grades. It was impossible to offer television programs at all grade levels in every subject, and the committees could not reach decisions as to where television could be used most effectively.
The second organization plan worked considerably better. The original committees were reorganized around grade levels. This meant having four committees, each of them with subcommittees. The new committee structure is shown below.

Preschool and Kindergarten Committee consisting of:
  Preschool subcommittee (five teachers)
  Kindergarten subcommittee (five teachers)

Primary Grade Committee consisting of:
  First grade subcommittee (three teachers)
  Second grade subcommittee (three teachers)
  Third grade subcommittee (three teachers)

Intermediate Grade Committee consisting of:
  Fourth grade subcommittee (three teachers)
  Fifth grade subcommittee (three teachers)
  Sixth grade subcommittee (three teachers)

Junior High School Committee consisting of:
  Seventh grade subcommittee (five teachers)
  Eighth grade subcommittee (five teachers)

This second organization involved more teachers and required more committee meetings, but it worked.

**Subject Area Consultants**

To provide the overall view of how individual level oriented series would fit into the total curriculum, a group of subject matter consultants was appointed. Consultants were made available in art, language arts, mathematics, music, physical education, science, social studies, and speech. The consultants were selected on the basis of their ability in their particular area, their acceptance as local authorities, and their previous experience with television, either as teachers or producers.
Financing the School Programs

The school program operation was financed on a contribution basis from the schools. All of the funds were deposited by the schools into KETC's general account. It was understood that the station would give program service equal to the amount contributed, but since KETC did not make a financial accounting to the schools, this was always a point of contention.

The St. Louis City Board of Education contributed $75,000 per year toward the support of the station. This amounted to approximately one dollar per student and was raised to $100,000 when the school population increased to 100,000. In addition, the St. Louis Public Schools assigned one of their consultants to work at the station on a full-time basis as the School Program Department's Program Consultant.

The proportioning of the cost throughout the school districts of St. Louis County was much more complicated. The financing was handled through the Superintendents of the Cooperating Districts of St. Louis County, an organization including twenty-nine independent districts. Each of the districts had to make an individual commitment. Twenty of the districts supported the program and nine did not. The Cooperative worked out a complicated sharing plan which made the average commitment approximately eighty-five cents per student. This plan was developed so that the wealthier districts with smaller school populations would pay proportionately more than the poorer districts with larger school populations.

The formula consisted of two parts. The first was a charge of fifty cents per student based on the total enrollment in a district.
The second was based on the assessed evaluation on the real estate in each district. This was figured at the rate of four mills per $100.00 of evaluation. As an example, Ladue, one of the wealthier districts, paid $1.59 per student. Of this amount, fifty cents was for the student's enrollment, and $1.09 was the charge based on the real estate evaluation in the district. Another example is Kinloch, one of the poorer districts. This district paid fifty-seven cents per student, consisting of fifty cents for the student's enrollment and seven cents as the amount based on the real estate evaluation. It is interesting to note that neither of these districts participated originally, Ladue because they felt that they did not need television, and Kinloch because they couldn't afford it.

The Catholic schools gave $10,000 to the station operation the first year and $25,000 paid in equal installments over the next three years. The fifth year they gave nothing. The Lutheran schools were never able to contribute to the support of the programs although they were represented on all the committees. The independent schools usually made a contribution of approximately $1.00 per student.

A difficult situation resulted from the early legislative action in Illinois. Since it was unlawful for schools to support educational television, they had not purchased sets or developed utilization procedures. By the time the law was repealed, teachers and administrators had lost their initial drive to use television. Also, the Illinois schools were not organized like the St. Louis County Schools, and before financial support could be developed, it would be necessary to set up an Illinois school organization. The first Illinois contribution
of $422.00 was made in the 1957-58 school year by Freeburg, Illinois. This represented $1.00 per student.

Another source of funds for the station accruing from School Programs was from a special research project carried out jointly by KETC and the St. Louis Public Schools for the Fund for Advancement of Education. This project ran for two years and accounted for $95,100.00 of the station's income during this time.

To put this financial picture in perspective, Table 6 shows the School Programs' financing for the first five years of operation of KETC. The percentage figures shown first in the table were based on the station's budget, not on its income. Each year the station failed to raise the necessary money to carry out the budgeted plans. If the actual income figures were available, the percentage of the station's support derived from the schools would be considerably higher.

Extent of Programs

During this same five-year period the production of school programs was increased. A comparison of the number of programs is shown in Table 7. As can be seen, the emphasis shifted from pre-recorded programs to live programs during this period. This was largely due to the institution of a high school mathematics program and a daily elementary level news program. The research project financed by the Fund for Advancement of Education accounts for the large number of live programs produced in 1955-56 and the kinescope recorded programs in 1956-57.

In this five-year period the programs scheduled for school use increased from sixteen to thirty-seven hours per week. A general policy
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<tr>
<td></td>
<td>59%</td>
<td>62%</td>
<td>54%</td>
<td>45%</td>
<td>51%</td>
</tr>
</tbody>
</table>

| Total school money available to station     | $147,700 | $222,800 | $169,800 | $148,400 | $165,400 |
| Money contributed by the St. Louis Public Schools | $ 75,000 | $ 75,000 | $ 75,000 | $ 75,000 | $100,000 |
| Money contributed by the St. Louis County Schools | $ 61,300 | $ 67,500 | $ 63,500 | $ 63,500 | $ 64,000 |
| Money contributed by the St. Louis Catholic Schools | $ 10,000 | $ 8,300  | $ 8,300  | $ 8,400  |        |
| Money contributed by Illinois Schools        | ........ | ........ | ........ | $ 400   | $ 400   |
| Money contributed by Independent Schools      | $ 1,400  | ........ | $ 800    | $ 400   | $ 600   |
| Earned income from rental of filmed lessons   | ........ | ........ | ........ | $ 700   | $ 400   |
| Fund for Advancement of Education research project | ........ | $ 72,000 | $ 23,000 | ....... | ....... |
of repeating all recorded programs at least once, and in most cases four
times, was followed. Series which were judged to be of continuing value
were repeated from year to year. In addition to the programs produced
and recorded locally, several series were obtained from the National
Educational Television and Radio Center, from other educational televi-
sion stations, and from commercial film producers. A sample schedule for
spring semester, 1958, is shown in Appendix F. Information on each of
the series shown on this schedule is also included in Appendix F.

<table>
<thead>
<tr>
<th>TABLE 7</th>
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<tbody>
<tr>
<td>SCHOOL PROGRAMS PRODUCED IN ST. LOUIS, MISSOURI,</td>
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<tr>
<td>BETWEEN 1954-1959</td>
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<td></td>
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<tr>
<td>1954-55</td>
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<tr>
<td>1957-58</td>
</tr>
<tr>
<td>1958-59</td>
</tr>
</tbody>
</table>

In order to give teachers an opportunity to preview the lessons,
two preview periods were set up. Programs from series which particularly
needed classroom follow-up were scheduled to be shown at the noon hour and
immediately after school the week preceding their regularly scheduled use.
These periods are marked on the schedule in Appendix F as PREVIEW.

The schedule was set up so that there would be at least one
television series at each grade level. A typical list of the programs
showing the recommended grade levels for their use is shown in Figure 1.

Broadcasts were scheduled to run twenty-eight weeks during the
year. Since the schedule had to be usable in many different school
districts, this was the maximum that could be scheduled so that all the
districts could use complete series. Programs began the fourth week in
September, and the first semester telecasts ended the middle of January.
The second semester programs began the first week in February and stopped the middle of May.

**Extent of Use**

Probably the most significant gain made during this five-year period was in the amount of use made of the programs. A pattern of recording the number of weekly class uses made of the programs was developed. This method of accounting was adopted to enable the schools to figure their cost of instruction for each lesson. In the 1954-55 school year there was an average of 450 class uses each week; in 1958-59 this had increased to an average of 5,800 class uses each week. A complete record of this utilization is shown in Table 8.

**TABLE 8**

SCHOOL PROGRAM CLASS USE IN ST. LOUIS, MISSOURI BETWEEN 1954 AND 1959

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Weekly Class Uses</th>
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<td>1954-55</td>
<td>450</td>
</tr>
<tr>
<td>1955-56</td>
<td>1300</td>
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<tr>
<td>1956-57</td>
<td>3400</td>
</tr>
<tr>
<td>1957-58</td>
<td>4900</td>
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**The FAE Research Project**

In September, 1955, KETC and the St. Louis Public Schools began a joint experiment to test the feasibility of large class instruction by television. This research project was financed by the Fund for the Advancement of Education and was one of the first that foundation
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Fig. 1.—Recommended Grade Levels for KETC School Programs
sponsored as a means of testing the large class instructional concept.

The project was designed to answer the following questions.

1. Is it possible for a competent television teacher to teach large groups of children effectively without supplementary activities?

2. Is it possible that the traditional pattern of classroom instruction can be modified so that an entirely new concept of teaching personnel, numerically and functionally, may be developed?

3. What is the reaction of pupils and teachers to large-group direct television teaching?

To answer these questions the following experimental design was set up:

1. Instruction would be offered in three subject-matter areas: ninth grade general science, ninth grade English composition, and second grade spelling.

2. Such instruction was to be given to large groups of pupils (up to 150 in number) by means of television alone without any supplementary teaching of the receiving groups.

3. Instruction would continue for one semester, thirty minutes per day, five days per week in general science and English composition. Instruction in spelling would continue for twenty minutes a day, five days a week for two semesters.

4. This instruction would be carried on in two St. Louis public high schools and in three St. Louis public elementary schools.

5. Achievement would be measured and compared with that of a similar number of pupils in control groups.5

The programs started in the spring semester of 1956. The two high school courses which were to last one semester were completed during this semester, but the second half of the second grade spelling course


5Ibid., pp. 1-2.
was not completed until the fall semester of 1956. The St. Louis Public Schools followed a pattern of promoting twice a year, so it was possible to arrange beginning classes of sufficient size at the mid-year point.

Each classroom teacher had a full-time assistant to help in the administration of the classes. In the high school experimental classes these assistants were liberal arts college graduates, and in the elementary schools they were retired teachers.

The results of the project in terms of the three questions asked were largely inconclusive. In terms of achievement, the experimental classes in the high schools and in the elementary schools at least equaled that of the control classes taught in the conventional manner. In elementary spelling, however, the control group made a significantly greater gain than the experimental group among the sub-groups of pupils classified above the second grade level in ability. In these experimental groups the television lessons did not challenge the more gifted pupils; in fact, it appeared to hold them back.5

The study did not furnish any conclusive evidence on the question of modifying the traditional pattern of classroom instruction. Although student achievement was satisfactory, the conditions of carrying out the experiment such as those under which the programs were produced and received, would need to be changed before a positive answer could be given.

Students, on the whole, did not react favorably to the program. More than half of them thought that they would have learned more in a regular classroom than they did in the television course, although, as indicated by achievement tests,  

5Herminghaus, An Investigation of Television Teaching, pp. 44-61.
their gain in achievement was equal to that of control
classes. Many of them thought that the course was less
interesting than it would have been in a regular classroom
and indicated that they missed not being able to participate
in class discussions and to ask questions directly of the
teacher. These reactions were probably conditioned by the
fact that ninth grade students are usually accustomed to
instruction that is dependent upon close teacher-pupil
relationship, and that, at their stage of maturity, they
did not feel secure in what they regarded as the impersonal
atmosphere of large-group television classes.7

Beginning with the fall semester, 1956, the second grade spelling
course was repeated. During that semester the teacher presented two
lessons a day. She continued with the second half of the year's work in
order to complete the research project, and she also repeated the course
previously given. This second presentation of the course was recorded
on film at the same time as it was given on the air. This second series
was completed and recorded during the spring semester, 1957, giving the
station an entire year of Beginning Spelling lessons on film which they
scheduled for repeat showing during the following years.

This chapter has discussed the organization for school programs
in the St. Louis, Missouri area schools. The procedures and plans
followed were those developed by the writer from the experience and
principles derived from the Ohio School of the Air project as outlined
in Chapter V. The following chapter will deal with the duties and
responsibilities of the members of the television team and the specific
planning procedures they used.

7Ibid., p. 46.
CHAPTER VII

SCHOOL PROGRAM PLANNING PROCEDURES

Much has been written about the team concept in education. Since World War II and with the advent of automation, the systems approach has been applied in many fields. Through new media such as the teaching machine, language laboratory, television, etc., a systems approach to education is beginning to be developed.

Such a systems approach, using a team of specialists, was experimented with in the Ohio School of the Air project and is discussed in Chapter IV under planning procedures. The seminar groups were used as teacher planning committees for the programs. The production responsibilities were divided among the television teacher, content specialists, teaching materials specialists, the producer, the director, and production assistants. Each member of the team carried out his responsibilities within the area of his special competencies.

Members of the Television Team

Television is by nature suited to a "team effort." The complexity of television production requires that many people work together with split second accuracy. When television is employed in the learning process and includes all the complex problems of the classroom, the importance of a team approach is multiplied. The planning procedures
originally formulated in the Ohio School of the Air project and then used in St. Louis provide a good example of program planning with a team.

The Teacher Planning Committee

The basic unit in the team concept is the teacher planning committee. As noted earlier, in St. Louis these committees were organized within grade levels. The committee should be composed of outstanding classroom teachers who have experience with the subject and grade level being considered. While this committee may be a temporary organization, it is best if the group can work together long enough to become well integrated. Teams don't just happen—they need a leader; the members need to learn to work together; and they must feel that what they are doing is important and will result in action.

No matter how well a committee does its work, there is a limit to what one should expect it to do. As the saying goes, "You can't run a railroad with a committee." You also cannot produce a television program with a committee. There comes a point at which the committee must relinquish control, and the production staff must assume it. Much of the content to be included in a series is planned by the teacher committee. The members draw on their classroom experience for the techniques and materials that have proved the most successful.

The planning committee has four major functions. First, it must clarify the objectives for the series. The specific concepts, ideas, skills or understandings to be learned or achieved should be listed and agreed upon.
Second, the committee should select the series and individual program content. To do this they need to analyze each lesson to see how television can be used best to achieve the lesson's goals. They should point out those areas where the classroom and classroom teachers are deficient in ability, time, money, space or materials.

In St. Louis the teacher planning committee which was developing a series on the Missouri Constitution made a list of all the concepts to be taught about the Missouri Constitution. They then divided this list into those things which they as successful teachers had been able to teach, and the ones which they had been unable to teach. The latter group became the content outline for the television series. In this instance television was used to supplement the course by doing those things which the teachers could not do themselves.

Third, it is important that the program be related to the maturity level and background of the students. This means that the teachers planning the series or program be experienced with the grade level involved as well as with the content. Many questions of pacing, vocabulary, and content difficulty will be resolved naturally from the teacher's experience.

Fourth, the final responsibility of this committee is evaluation. This may be either as continuous feedback during the program development period or as a final evaluation after the program is produced. The committee should answer the question, "Does this program do the intended job?" Many changes will have been made in the plans during production. Some of these may have been required by the limitations of the medium, and some may have been made to improve the presentation. There is always a chance, however, that these changes may have adversely affected the
educational aim of the program. The originating committee can best make this evaluation.

Consultants

Consultants are used in two areas to help these planning committees carry out their functions. First there is the program or production consultant. This is a person who knows the medium and can work with the committee, suggesting ways in which television can best be used. Teacher committees seldom have members who are experienced with the television medium. After a committee has been functioning for a period of time, they will have gained some "know-how," but at first, and possibly indefinitely, they need someone with professional knowledge to consult with them.

The second type of consultant is the subject matter specialist. His responsibility is to guarantee the accuracy of the content. He can look at the committee's plans from a broad curriculum point of view. He must see how the series or the work level fits in with what came before and what will follow. He is the source of new techniques and materials, and can bring to the committee information about trends in the field. In the St. Louis area where the planning committees were organized by grade levels, this consultant's work was very important. There the teachers were selected for the committees because of their overall success in the classroom, and often their background in any one subject area was weak. In a situation where classroom teachers were selected for their subject matter background, this consultant might be a specialist in the psychology of learning and be responsible for seeing that the
learning values in the program were not lost. In any case, the committee needs a consultant to bring a broader viewpoint to its work.

The Television Teacher

The television teacher is probably the most important person on the planning and production team. Ideally, the teacher should work with the planning committee and consultants from their first meeting. "His role is to take the lead in the selection of content units and concepts; in the structuring of learning experiences; and in the selection of framework and method for the stimulation of those experiences."¹ The working relationship between this teacher and the classroom teacher should be close and continuing. If the teachers on the planning committee are selected from those who are potential users of the programs, they can continue to advise the television or studio teacher during the production phase. If they cannot use the lessons, the committee should be re-formed or augmented with classroom teachers who are able to use the programs.

No other single decision will affect the outcome of the program so acutely as that of selecting the television teacher. In making this selection,

It will be helpful to remember that the studio teacher is not a "performer" or simply a lecturer, but is first and foremost a teacher with a record of successful experience in the classroom. He knows the classroom situation; he

knows students; he is aware of the privileges and problems of the classroom teacher. Regardless of his previous relationship to the school system concerned, therefore, the studio teacher is in effect the partner of the classroom teacher; each may rely upon the other for valuable help. The studio teacher is given time to prepare a lesson with resource personnel and materials not available in the usual classroom situation. He must become skillful in adapting his teaching to the limitations and requirements of the medium and at the same time must exploit its full potential for maximum teaching impact. He must learn to teach before cameras and technical crew, learn to "feel" his unseen audience, sense its pace, anticipate its questions, stimulate intellectual interaction, and develop rapport between himself and the students and teachers on the receiving end.  

The Producer-Director

The last position to be considered in the program production team is the producer-director. In some situations both of these responsibilities are handled by the same person; more often, however, a separate person handles each job. Whether the duties are consolidated or divided depends on the local situation and on the personalities of the people concerned. Where the responsibilities for program content and television production are split between a school and a station, the producer is often employed by the content authority and the director by the television authority. In order to see these jobs in proper perspective, we will consider them as being handled by two different people.

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The Television Producer

Every element in the program is the producer's responsibility. He works with the television teacher and the planning committee to develop the ideas and concepts outlined for the program. In some instances the television teacher is his own producer. The producer works primarily with ideas and people, but he must also understand the mechanics of television. In educational television much of the planning of the program must be done outside the studio. The producer, therefore, must be able to visualize how the program will look, shot-by-shot, so that when it is brought into the studio it will be practical. The natural limitations of television and the peculiarities of the studio in which the program is to be produced must be taken into account.

The producer must be psychologist, educator, showman, communicator, and artist—all at the same time. He must ask constantly the questions that the viewer will ask. Every camera shot, demonstration, comment must be tested to see that it contributes to the central idea of the program. If the producer represents any one person it is the learner. Instructional television will not remain forever a matter of classroom lessons recorded hit or miss by hastily oriented cameramen, or of studio conversations more or less improvised. Like other effective forms of communication, the educational program takes talent, imagination, adequate preparation, and a structuring that is pointed.

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proportioned, and polished. Beyond that, it must not merely be recorded by television; it must express itself through television. For the producer not only puts the show together; he puts it together with its medium.4

The Television Director

The television director's major concern is with the mechanics of the program. Although he must be involved in the main ideas of the program, his approach will be from the studio production point of view. It is his responsibility to take the outline or script prepared by the teacher and producer and convert it into a smoothly running program. He works with the teacher in preparing run-down sheets, suggesting visuals, and blocking out movements. He also coordinates all the technical services used in telecasting the program. Each producer and director must work out his own operational rules. Some producers bring a program into the studio completely written and rehearsed. Others bring in only the central outline and leave the rehearsing entirely up to the director. In any case, prime responsibility changes hands when the program comes into the studio. This can be illustrated by a chart (Figure 2). Notice that neither the producer's nor the director's responsibility ever reaches 100 percent or zero percent. There is also a shaded area which represents the transfer of authority. There is not a clear cut transfer of responsibility as in the passing of a baton in a relay race; rather, the gray area indicates a more gradual shift of authority.

4Ibid., p. 42.
Fig. 2.—Division of Responsibilities between Producer and Director
Selecting the Television Teacher

No matter how carefully you select the teacher, there is really no guarantee as to whether he can adjust his teaching to the television medium. Suggestions of teachers who might be able to appear on television can come from principals, consultants, supervisors, and other teachers. If it can be arranged, it is helpful to observe these candidates first while they are teaching in their classrooms.

One of the most often discussed and hard to define qualities is the teacher's personality. This is such an individual matter that it is impossible to draw up specifications. A successful television teacher must be liked and appreciated by the students and the classroom teachers, and the production team. In a process which involves so many interdependent roles counted out with split second timing there is little room for the temperamental artist.

Beauty in the usual sense is not as important in educational television as perhaps it is in commercial television. But a teacher should have a warm personality. He should present a neat, attractive appearance. His movement and speech patterns should be free of annoying mannerisms. And, of course, he must be willing to work hard and long hours. Television teaching is a demanding profession.

Television programs are almost a bottomless pit. They can gobble up huge quantities of content, visual materials, and demonstrations; the television teacher must be ready to provide this material with a minimum of lost motion. He must also be natural, and be willing to take suggestions. There are a few audition techniques which will give clues to the teacher's flexibility, but generally these qualities do not become apparent until the teacher has had considerable television experience.
Auditioning the Teacher

If it is at all possible, one should arrange to have a pilot series for the teacher before starting the full series. This will give the teacher himself, the producer, the technical crew, and the selection committee a chance to see the teacher working in a real situation. In St. Louis it was the practice to arrange a series of two programs with each teacher tentatively selected for a television series. This pilot series was then telecast in a time period announced only to the twenty classrooms which were invited to use it. The teachers from these classrooms then met with the planning committee to evaluate the series idea, the program format, and the teacher's effectiveness. The final decisions as to the program and the television teacher were made after these evaluations.

If it is impossible to telecast a pilot series, then closed-circuit on-camera auditions should be held. Here again the audition should simulate the program conditions as they will exist for the series. Where possible, these auditions should be recorded either on film or tape and viewed several times by the group which will make the selection. This removes from the selection committee the pressure of a one-time live presentation audition.

The audition, whether a pilot series, a closed-circuit presentation, or a recorded sample, is divided into three steps—choosing the people to be auditioned, the audition itself, and the selection or evaluation.
Choosing the Teacher to Be Auditioned

A teacher to be considered for television teaching must first, last, and always be a teacher. This teacher must have been a successful classroom teacher and one who is extremely well qualified in the subject matter field. However, success in the classroom does not guarantee success on television. Some teachers' classroom techniques depend largely on immediate feedback from the class, and when this is removed in the television situation, they are unable to simulate an imagined class reaction.

The Audition

As a first step, the teacher should become acquainted with the television hardware and personnel several days before the audition. He should be shown exactly what will happen and be told exactly how the selection will be made. The projected series should be explained thoroughly and the teacher's role discussed.

The teacher should be asked to prepare the audition material. If his audition is to be a telecast pilot series, then the programs should be developed as if they were a part of the regular series. However, if the audition is to be closed circuit, a different set of procedures should be followed.

\footnote{In some instances the person appearing on camera is a professional actor. When this method is used, the program is completely scripted, and the performer acts out the part of the teacher. The real television teacher is the teacher (or teachers) preparing the script. This scheme is used extensively by British and Canadian school television. In the United States the Master Teacher plan is followed almost exclusively. It is a plan whereby the teacher who is basically responsible for the content appears on television.}
In a closed circuit audition the teacher should be asked to prepare a presentation not less than ten minutes in length. This can be chosen from any ten-minute segment in the entire series other than the introduction or summary. It should be a segment from the middle of a typical lesson.

Even though there will be many people to help with the planning, visuals, etc., during the series, only a minimum amount of help should be given in preparing the audition material. The teacher is asked to provide or make his own visuals. He is told, however, that he will not be expected to make perfect television visuals; he is even told he may simulate or pretend to have visuals. The evaluation will be made on the ideas and approach, not the quality of the art work.

On the day of the audition the teacher should have plenty of time to familiarize himself with the studio. A well organized, competent director should be assigned to handle the audition. Every effort must be made to keep confusion and obstructing activities out of the studio. The crew must be friendly but not flippant. Many auditions have been ruined because the crew laughed. Even though the laughter may not have a thing to do with the audition, the teacher assumes it is aimed at him.

While the director is discussing the audition material and while the teacher is walking through the presentation, the cameras should be turned on and the natural movements and voice of the teacher should be observed or recorded. The auditioning teacher should not be aware that an observation is being made. Many things about a person's natural ability can be gleaned from such a viewing.
When the regular audition is started, the teacher should be allowed to go completely through it without interruption. Only time cues and signals to change cameras should be given. Of course the time cues are not important as far as schedule is concerned, but they are important in showing how the teacher reacts to the time restriction.

After the teacher's initial presentation, the director should work with him to make changes in the presentation. Some changes should be made even if the material does not call for them—the setting might be reversed, the visuals moved, the teacher asked to sit down or stand up during the presentation, or other physical changes made. The teacher should then give the presentation again under the new conditions. These changes are made so that the teacher's willingness to take direction and his ability to adjust to changes can be observed.

Following the audition, the director should sit down and discuss the presentation with the teacher. In this way the teacher will learn what he can do to improve the program, and the director will learn more about the teacher's personality and his reaction to this experience.

Evaluating the Audition

If the auditions were recorded, this step can be taken any time after the auditions for a series are completed, but it should be scheduled during a period when there is sufficient time to view all the auditions for the series—several times if necessary.

The make-up of the judging panel is very important. If it is composed of the administrators responsible for the programs, as is often the case, the panel should be augmented by certain specialists. Ideally, the group should be about seven in number and should include a
representative from the administrative group controlling the program, the program producer, the director or directors who worked with the auditioning teachers, a subject matter specialist, one or two classroom teachers, and a specialist in the psychology of learning.

Some form of rating sheet should be used. This sheet is mainly designed to give the judges a way of organizing their thoughts, rather than for the purpose of getting a numerical score. A very good fifty-item Teacher Television Rating Scale has been worked out by Daniel Tanner and Frank J. Woerdenhoff of Purdue University. This scale is intended to be used to assess teachers' opinions on the effectiveness of individual television lessons, but it will adapt nicely to the audition requirements. No matter what scale is used, the teacher and the content should be judged separately. Some of the questions to be kept in mind concerning the teacher are—

Does he convey a warm, friendly personality?

Does he give the feeling that he knows the subject and has confidence in his presentation?

Is his speech clear, strong and pleasant?

Does he have any annoying nervous habits in speech or movement?

Are his movements natural and relaxed?

Does he take direction well?

Can he adapt to changing situations?

Does he have a visual approach to the presentation of his material?

Is his presentation interesting?

Does he make any special use of the television medium?
Does he arrange the lesson appropriately?

Was the material selected suitable for the grade level, time available, and visual medium?

Was the content accurate, timely, and appropriate?

Does he appear to talk directly to the television class?  

One of the hardest things to judge is how a teacher will react and develop after a series is under production. In general, a television teacher improves with experience, but the writer knows of cases where the teacher was never able to adjust to the medium. This will usually become apparent after two or three lessons. If the series is planned in short segments or if a pilot series is used, a change can be made with little or no difficulty.

Developing the Outline and Scripting the Program

Each production unit will develop its own procedures for outlining. These will vary from preparing a complete script with planned shot sheets for each cameraman, to a one-page outline, sometimes called a sequence or "run-down" sheet, which lists only the major topics to be covered. In instructional television the limitations of time prevent the use of complete scripts in most cases, but all programs must be outlined.

This outline not only serves to communicate the ideas to all who will work with the program; it also is a device which forces the teacher and producer to crystallize their thoughts. An outline should be more

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6Daniel Tanner and Frank J. Woerdehoff, Teacher Television Rating Scale (Lafayette, Indiana: Purdue University, 1961).
than a mere logical or chronological order of topics; it should include the reactions which you want to stimulate in the student. Without a well thought out outline the student may be given the answer before he has ever had a chance to ask the question.

In developing an outline the first step is to define the purposes of the lesson. Ask, "What is this lesson intended to do and to whom?" What do you want the student to know or do when the program is completed? Is this a part of a total experience and, if so, what part has taken place before and what part should take place after the program? After these questions are answered, the concepts or facts to be developed should be listed. Each of these is then explored to find out how it can best be taught through television.

By now the outline will probably have assumed some logical order and should now be put into some kind of television script outline. The usual form calls for a sheet to be divided into two columns, one for video and one for audio. A completed script outline form is shown in Appendix C. While these two columns are logically video and audio, there are certain instructions that also must be added to the script outline. Where they pertain to what the teacher does or says, they are placed in the audio column; where they relate to the activities of the technical crew other than the audio engineer, they are placed in the video column.

So far, nothing has been said about accuracy. In situations where the program is dealing with a complicated process or with materials involving considerable detail, the outline should contain all of the material possible to insure that a step is not omitted or a fact or
figure changed. The teacher who can ad lib a lesson and get all his facts straight is "real talent," but they are few in number.

Where a more complete script is used, it is difficult to keep the lesson lively and interesting. Most teachers have their own peculiar way of talking and acting, and unless the individual teacher is a good actor, he will usually not want to follow a complete script.

In those rare cases where it is advisable to use a script, the following procedure has worked. During a preliminary rehearsal the teacher is asked to teach the unit from the outline in his own words and with his own pacing. An audio recording is made of this rehearsal. The transcript of the recording is then edited by the teacher and producer, and this edited version becomes the final program script.

Preparing Supplementary Materials

The Teachers' Manual

The teachers' manual is the most important communication link from the television teacher to the classroom teacher other than the television lesson itself. It is through this manual that the teacher in the classroom learns about his share of the teaching. The lesson sheets used in The Ohio School of the Air project described in Chapter IV and shown in Appendix B contained the basic elements of a good manual, but some programs require considerably more information. For example, in foreign language teaching the manual has to include the vocabulary lists with their translations, descriptions of dialogues or exercises to be performed, and additional practice material. In cases such as these the manual almost becomes a textbook for the teacher.
Student Materials

Some programs require manuals or other work sheets for the students. In St. Louis two series were telecast that called for student materials. A second grade spelling program had an accompanying series of simple work sheets that were printed in booklet form. These booklets were distributed to the schools where the work sheets were duplicated for the students. Work sheets for an advanced algebra course were printed in quantity and sent to the schools for distribution to the students.

No matter how the material is distributed, it must be planned and written as a part of the program. It must contribute to the overall objectives of the course.

Other Materials

More and more emphasis is being placed on a systems approach to teaching. Schools are beginning to study various combinations of materials. Television programs, tape recordings, programmed learning sequences, etc., are being coordinated with classroom teaching to enrich the educational process. Proper coordination in a multi-media approach calls for very careful planning and production. All of the experiences should be planned by the same group. This requires augmentation of the planning and production personnel to include specialists in the other media.

Communication Channels

Although the teacher's manual has been mentioned as an important communication from the television teacher to the classroom teacher,
there are at least three other important ones. Teachers' manuals are
generally written and distributed before the programs are telecast; in
fact many of them are written even before pre-recorded programs are
produced. A series of specially printed bulletins or a regularly issued
newsletter may be used to bring the material up to date, to report
changes which become apparent as the series develops, or to add supple-
mental material to the original manual. A sample of the newsletter
which was sent monthly to all of the schools in the St. Louis area is
shown in Appendix G.

Another way of communicating with teachers is through televised
in-service programs. In St. Louis a series of televised teachers' me-
meetings was used at the beginning of the year to inform teachers about
the various series to be telecast during the year. A series of weekly
teacher preparation or preview programs is a regular part of the foreign
language instruction telecast in the Minneapolis-St. Paul area.

The last of these communication channels between the television
teacher and the classroom teacher is the personal visit. This has the
advantage of establishing two-way communication. The policy in St.
Louis was to have regular meetings between the television teacher and a
representative group of classroom teachers. Sometimes these were held
in the schools so that the television teacher could observe the results
of his teaching; and sometimes they were held at the television station
where the classroom teacher could observe the program planning and pro-
duction procedures. Either way, there was an opportunity for the
teachers to intermingle and to exchange ideas.
In addition to the personal visits, a system of feedback reports from the classroom should be established. Several methods of establishing this feedback will be discussed in Chapter X. Besides being useful for overall evaluation, feedback from the classroom immediately after a program helps the television teacher adjust his lessons as he goes along.

The classroom teacher is a vital link in the teaching-learning process through television. The more he can be involved in the program, and the more he can be informed about the program, the better he is prepared to play his role.
CHAPTER VIII

PRODUCING THE INSTRUCTIONAL PROGRAM

In the preceding chapter we looked at program planning procedures. Considerable emphasis was placed on the people, their individual responsibilities, and the necessity of working together. Many of the people and the jobs they do on instructional television programs are the same as in commercial television. It was found, however, in the Ohio School of the Air project and later in St. Louis that production methods for instructional television must differ somewhat from those used for commercial television.

This chapter deals only with those production elements which need to be modified for instructional use.

Orientation to the Camera

Most instructional television programs are planned to take advantage of television's ability to talk directly to an individual. As described earlier, the monocular vision of the television system can give every viewer the feeling that the television teacher is looking directly into his eyes.

In a similar manner the viewer can be placed on the outside looking in. This is particularly valuable where one wants the students to disassociate themselves from the action and observe a process or procedure. One of the objectives in foreign language instruction is to learn to use the language in normal life situations. To do this the
"Parlons Francais" series produced by the Heath deRochemont Company shows the language being used in dialogue situations. When they want to introduce a dramatic scene, they change the camera orientation from direct teaching into the camera by Madame Slack to a side view of the action against natural French settings. The class is invited to observe these scenes with the teacher. At the same time that the camera orientation is changed, the students know they are in the position of third party onlookers. At the conclusion of the dramatic episode the camera is again oriented to Madame Slack and she proceeds to teach directly to the class audience.

The director in selecting his shots must always keep the viewer's orientation to the camera in mind. The lesson is being presented to achieve a specific purpose. There should never be any question in the student's mind as to whether or not the teacher is talking directly to him.

**The Use of Children on Programs**

One of the most controversial questions in instructional television is the use of children on the programs. A teacher new to the medium often expresses a desire to have children on the program or at least in the studio. The live class is needed, he thinks, to give him the feel of the classroom. Having students in front of him gives him emotional support by providing something familiar in a foreign setting.

In the classroom some teachers rely on the feedback from the students to adjust their pacing; they want to have students on the program for this same purpose. However, it has been found that a
teacher with several years experience in the classroom can usually approximate the correct pacing without a live class.

In general, having a group of students in the studio during a program is undesirable for at least two reasons. First, the teacher will tend to teach the studio class and put the television student in an eavesdropping position. In a regular classroom the teacher keeps the whole class involved by looking from side to side, including all of the class in his glance. When this technique is used on television the performer puts the viewer in the difficult position of never being talked to and of pretending he is in the studio class.

The second objection is that children in the studio get in the way. Even a small group seriously limits the movement of the cameras; close-up shots are difficult to get. The teacher cannot always show the material to the live class in the studio in such a way that the camera can get a good shot.

There are, however, times when children should be used on the program. For example, it is good to use children to demonstrate a specific technique or to show the television class that children their age can perform a specific task. One series produced in St. Louis on creative writing used this technique. The studio was set up with a class of fifteen students. The program started with the teacher talking through the camera directly to the television class. When she reached a point where it was necessary to demonstrate how a class could carry on the creative writing process she turned 90° toward the class and with a suitable introduction began to teach the studio class. Thus the television class was observing another class at work. When the teacher
wanted to teach the television class directly again she turned back 90\(^\circ\), effectively taking the studio class out of camera range, and proceeded to make her next point in the creative writing program. Throughout the program, she alternated between explanation to the television class and demonstration with the studio class. In this instance the class itself became a property to help the teacher do a better job. The instruction was not turned over to the class, but it did help the teacher by showing how a typical class would use the material she was presenting.

In general children should be used on a program only when they can be of help in getting across the content. They should never be used as a crutch for the teacher or to give him company in a strange environment. If the teacher continues to feel the need of a class in the studio, then the teacher or the studio procedures should be changed.

Educational Materials for Television

Many of the normal audio-visual materials used in the schools are not suitable for television. Charts, maps, graphs, models, globes, etc., are usually produced for large class use but are unsuitable for television for several reasons. For instance, a classroom map usually relies on color to show separation. These colors are selected for their color value and not for their gray scale value which would register on the television screen; therefore the separation may be lost. Classroom maps are also full of detail since they are made to be used for many subjects and for use throughout the whole school year. A map for television should be made in a monochromatic color scale and should contain only the detail necessary to get across the single point or concept.
being taught. A separate map should be made for each purpose, even though several maps may have to be used. Before relying on a classroom visual aid, it should be tested on camera. More and more companies are designing their teaching devices with an eye towards putting them on television.

The use of commercially available material brings up the question of copyrights. There is some confusion about the use of educational materials, particularly films and filmstrips, on television. It is always better, therefore, to use your own material, but if this is not possible as is the case with some film footage, be sure to have it cleared before use. A word of warning--there are two different kinds of clearance. One, "Right of Performance," is usually easy to obtain. It permits the use of materials on live television programs and is usually granted on a one-time-only basis; a new clearance must be obtained for each additional use. The other, "Right of Manufacture," gives permission to record the material on film or tape for future or repeated use. This "right" is much more difficult to secure and in many cases will not be given under any conditions.

The preparation of materials for television must satisfy two conditions. The content must be selected to make the point clearly and concisely. The visual technique must conform to standard television principles as to color, clarity, aspect ratio, and size.

**Instructional Television Techniques**

The techniques used in instructional television vary somewhat from those used in commercial television. Actually the techniques are
not different; rather they are employed differently. Most instructional
television programs use fewer camera shots than do commercial programs.
The shots that are used tend to have a high proportion of close-ups.
Camera shots are selected to direct the viewer's attention to the most
important element at a particular moment. If what the teacher is saying
is most important, the shot should be of the teacher's face; if what he
is doing with his hands is most important, the shot should be of his
hands. In instructional television the camera may be held on one
particular shot for several minutes. This used to be impossible because
of a tendency for the camera tube to retain the image, but with the
development of the orbitor, "burn-in" has been reduced, and the director
does not have to switch cameras as often as used to be necessary.

Staging is another technique that must be used with care in
instructional television. Staging consists of the setting in which the
lesson is taught, the lighting, and the costumes. The three types of
staging generally used are functional, realistic, and abstract. The
functional does not suggest any imaginary time or place. It frankly
says this is a television program coming from a television studio. The
scenery may consist of drapes, or a combination of set pieces and drapes,
or all flats. It should never be all black. A functional setting
should never be severe; the components should be arranged artistically
and should be convenient for the presentation. The whole effect should
be one of a nondescript location.

A realistic setting pinpoints the program in space and possibly
also in time. Here the setting is used to give background by being as
lifelike as possible. It is used for dramatic programs and for dramatic
sections on instructional programs. It might also be used on a foreign language program to give the illusion of a foreign country or to permit the display of furniture, artifacts, or personal belongings peculiar to the country.

Sometimes a realistic setting is used in combination with a functional setting. For instance, a literature lesson might be taught with a functional setting containing a table or desk, chairs, bookcases, and overhead or rear screen projector. Using a suitable transition device, the program shifts to a realistic setting from which a dramatic vignette is picked up which is used to illustrate the lesson being taught.

Realistic staging is expensive and difficult to achieve. It is also demanding on the television crew. For example, the whole effect can be ruined if great care is given to the details of setting and properties and then an out-of-character lavalier microphone is hung around the teacher's neck.

Abstract staging has its place in instructional television, but it must be used carefully. Abstract settings are used primarily to suggest a mood and lose their effectiveness if used indiscriminately. Care must also be taken that a projected mood does not detract from the learning. However, an abstract setting can be used effectively to set a scene by employing a few realistic set pieces or properties as a base. For instance, a program featuring a story-teller could use a few properties to set the scene. A story about the sea could be told on a dock which would be suggested by a few piling tops and a coil of rope against a black or neutral gray background. The storyteller would wear
a pea jacket and a sailor's cap. After the establishing shot the

cameras would move in so that they would see only the storyteller; the

setting wouldn't be seen again until the end of the story.

The other television techniques such as camera movement, picture
cutting, use of film, slides, music, sound effects, etc., should also be
approached modestly. As has been said before, the emphasis should be on
the content. The techniques to be used are selected carefully and
always because they are the simplest and best. All of the elements of
the program should fit together so that none of them stands out from
the others. The viewer should not be aware of camera movement, switching, background, etc. Techniques exist to help the student learn and
must never be allowed to turn the lesson into a show.

Before leaving this section, we should consider the special audio
problems in television teaching. Much of the information in a television
lesson is conveyed through the audio channel, yet very little
attention is given its special problems. Whether a boom mounted microphone or a lavalier type microphone is used, it is necessary for the
teacher to speak in a strong, clear voice. There is usually distracting
noise in a television studio which will be picked up on the microphone
if the volume has to be turned up to record a teacher's weak voice.
Unfortunately, many television receivers, including those designed
especially for classrooms, have small speakers and inferior sound
systems. When the volume on these receivers is turned up to compensate
for a weak, thin voice and to overcome poor classroom acoustics, any
discrepancies in the sound will be magnified.
**Program Production**

The actual production of the program begins weeks before the telecast. The entire developmental scheme might be divided into five stages. The first two, planning and writing, have already been covered, and the last, evaluation, will be discussed later. The remaining two concern rehearsal and actual production of the program itself.

**Rehearsal**

Very few instructional programs have a full scale rehearsal. Camera facilities are limited and unless the program is unusually complicated, the camera rehearsal phase is held to a minimum. There are two kinds of rehearsal—the walk-through and the full facilities.

The walk-through is exactly what the name implies. Here the teacher goes through all the motions and indicates all of his transitions. It is usually best if this walk-through can be performed on the television setting, using all the properties, experiments and demonstrations that will be a part of the program. In addition to the producer and director, the entire studio crew should observe the rehearsal.

After the first walk-through the director will block out the camera shots, following which the teacher will again go through his presentation. During this second run-through the director will have the teacher stop and start so that the camera men can work out their shots. The teacher may have to change his presentation slightly to allow good camera coverage or to fit the program into the time period. It may be necessary to go through the program several times before all elements of the blocking are completed.
When the director is satisfied with the presentation, he takes the rehearsal into the facilities stage. This, like the walk-through, might vary in degree. Sometimes all that is required is a spot check facilities rehearsal where the cameras are used only to check difficult sections such as openings, summaries, and any detailed presentations. This spot-check rehearsal is possible where the program is fairly simple and the teacher and crew are used to working together.

At other times and in other situations the facilities rehearsal would be a complete run-through. In fact, it might be necessary to have several complete run-throughs beginning with a stop-start rehearsal where the individual segments are rehearsed, and ending with the equivalent of a dress rehearsal for a play. There is no specific formula for the amount of rehearsal—too much may kill the spontaneity and freshness of the material, and too little may leave uncorrected the weak spots in the program.

It must be remembered that many people have to learn their jobs during the rehearsal. A rehearsal is needed more often by the studio crew than by the teacher because the teacher already is familiar with his material and knows how he is going to present it. The rehearsal gives the teacher an opportunity to see how this material relates to television. The crew, however, comes in contact with the material for the first time at the rehearsal and must familiarize themselves with it and with their part in presenting it.

**Live Production**

Whether the program is telecast as a live presentation or pre-recorded, it is treated as a live presentation. If a program is being
recorded for future use it can be edited to eliminate errors, but television production is characterized by a continuous presentation. It is generally unwise and considerably more difficult to get a smoothly flowing program if the lesson is recorded in short sequences and then edited together. The latter approach calls for a great deal of skill and should only be attempted when the teacher has professional acting ability. The reason for this is that it is hard for the average teacher to visualize his material broken up into scenes or short segments.

Special Considerations for Classroom Audiences

Several other factors are involved in providing a good learning situation for classroom audiences.

Pacing

Pacing is fitting the presentation to reception by the classroom audience. It is accomplished through the amount of material included and the speed with which it is presented. The general tendency is to include too much material in the program. The programs are likely to move rapidly, and care must be taken that the viewers' minds can move with equal speed. The material must be spaced so that the viewer has a chance to grasp a point before another one is brought up. It is not necessary that something vital be going on all the time. Periods should be planned where the viewer can catch up if he has fallen behind. If a program calls for note taking or other response from the student, sufficient time must be left for this activity.
**Classroom Viewing**

Great care must be taken that both picture and sound are easily understood in the classroom. The picture should be well correlated with the material. Every shot should be motivated and should contribute to the orderly presentation of the lesson. If a close-up is necessary it should be there; if it contributes nothing, then it should be left out.

Any materials used on the program such as maps, models, etc., must be exceptionally clear. This is necessary because some students viewing the picture may be sitting thirty feet from the screen. Then too, there are often other distractions such as electrical interference, low signal strength, noise, or light reflections in the classroom.

These, then, are the special considerations that must be given to instructional television production. The techniques discussed in this chapter are those that were developed during the Ohio School of the Air project and were further tested in the production for the St. Louis area schools.
CHAPTER IX

UTILIZATION

"A great deal of the success or failure of a television lesson depends upon the classroom teacher."¹ Some early proponents of educational television apparently supported the idea that television lessons could stand pretty much on their own. Indeed, some early research such as the experimentation with large classes carried out in St. Louis seemed to prove that in some subjects instruction by television alone was as effective as comparable instruction using regular classroom techniques. While this was hailed by some as the solution to the crowded school problem, it was mourned by others because instructional television had not exhibited achievement beyond that by conventional teaching as had been expected. As more experience was gained with instructional television, it became clear that the main element leading to its success or failure in the classroom was the classroom teacher.

The responsibility for providing good utilization of a television lesson is shared by the television teacher and the classroom teacher; of the two, the classroom teacher's activity is the most crucial. He must develop an atmosphere in which the students can learn as much as possible from the lesson. He must develop a sympathetic climate for

¹Campion and Lanagan, And TV Too!, p. 30.
learning. To do this he needs to re-evaluate his role in the teaching-learning process.

The television teacher and the other program planners should contribute to this climate for learning by designing the presentation with a view toward how it is to be used.

Learning takes place only as the broadcast is complemented by group and individual activities on the part of learners. Indeed, the television teacher has the responsibility of setting the stage for these further activities by raising questions, proposing problems, stimulating thinking, and encouraging creative activities. He leaves the broadcast open-ended. He does not present a nice bundle of subject matter neatly tied together at the end, but rather incorporates in his presentation the material that will motivate, enliven, disturb, and stimulate his viewers both during and following the broadcast.²

As programs are planned the teacher and the producer must think constantly of the classroom and the activity to grow out of the telecast. This does not suggest that television program utilization procedures need always result in some overt behavior. In fact, physical activity is the objective in only a small number of subjects. There is more interest in what happens in the viewers' minds. Learning is a long, continuing process. Utilization of a program is also a long and continuing process. It includes not only what happens before, during and immediately after a program, but also all of the learning that grows out of the program.

Utilization Patterns

Utilization procedures are not fixed by a rigid pattern; rather they are somewhat different for each program. They vary according to the objectives of the program, they will vary from teacher to teacher, and they vary from class to class.

Total Teaching

Television programs which are produced with the expectation that they will comprise all or nearly all of the instruction are the simplest to utilize. In these cases utilization consists of giving assignments, collecting papers, and possibly providing a consulting service. The total learning experience is centrally planned and centrally managed. The teacher's role is that of clerk and advisor or consultant to the students.

Supplemented Television Teaching

If the television program takes less of the responsibility for total instruction, and the classroom teacher takes more, the utilization procedures become more complicated. In some cases the television presentation includes most of the course content, but the classroom teacher is responsible for a wide variety of group and individual activities including filling in the details, conducting drills, and taking care of individual problems.

For example, a high school advanced algebra course was presented in St. Louis by television. There were four thirty-minute lessons per week which were used to carry the bulk of the presentation of mathematics content. The classroom teacher used the remaining thirty minutes of
class time on Mondays through Thursdays to answer questions, clarify points, and assist the students in working on their assignments. The entire Friday period was used by the classroom teacher to review the week's work, go over assignments, give examinations, and adjust the course for individual differences.

To help the teacher in this role he received: a semester outline of the material to be presented; bi-weekly outlines with considerable detail about the lessons; problem assignments in four comparable textbooks; bi-weekly examinations; and grading keys. The results of each examination were sent to the television teacher, and a grade distribution for all students enrolled in the course was returned. These examination results also gave the television teacher information as a basis for adjusting content and pacing. In addition, all of the teachers were invited to meet with the television teacher once a month to go over the material and help plan the content.

Another example of a television series that presented a basic part of the material but relied on the classroom teachers to carry out many of the details comes from a three-year elementary Spanish language series being presented in the Minneapolis-St. Paul area. The first year's course consisted of three television lessons a week, two audio-practice tapes a week, and daily classroom activities. The tapes and the planned games and exercises for the classroom were directed by the classroom teacher. In the second year's program, the classroom teacher's responsibilities were enlarged. The television lessons were reduced to two a week, the audio tapes were continued at two a week, and a student workbook was introduced. To make more time available in the
classroom for the workbook and other teacher-directed activities, the television lessons were scheduled on Monday and Wednesday, the tapes on Tuesday and Thursday, leaving Friday completely in the hands of the classroom teacher.

In the above examples, television had the main responsibility for presenting the content of the course, and the classroom teacher supplemented the television lessons. Both of these examples relate primarily to situations where the classroom teacher does not have the ability or training to teach the subjects unaided. The algebra programs were based on new material, and the foreign language programs required facility in the language.

These examples also illustrate how classroom utilization must be built into television programs. The entire presentations were planned and directed by the television program planners. The approach in both instances was to divide the course content into those parts that could be taught by the television teacher and those parts that could be taught by a classroom teacher with a limited background in the subject.

**Supplemental-Enrichment Uses of Television**

At the present time the majority of instructional television programs are of the supplemental-enrichment type. In this case, the classroom teacher has the major responsibility for the educational value of the program. What he does in the classroom almost entirely determines whether the experience will be worthwhile. Utilization of this type of program is even more an individual thing with each teacher and with each program.
It is impossible to set up a procedure which, if followed by all teachers, would guarantee success. Each teacher has to develop his own way of teaching, and in the same manner must develop his own way of using television. The program producer can plant into the program open-end questions, and follow-up suggestions, but the classroom teacher still has to see that the class takes advantage of these leads in terms of their special interests, needs, and abilities.

Utilization Procedures

While specific steps which will fit all programs and classes cannot be listed, there are certain procedures that teachers will want to consider. Utilization consists of those activities and procedures which are carried on in the classroom before, during, and after a television program, and which provide for a smooth transition into and out of the television program. It makes possible adjusting the program's content to the ability of the class and helping the students get the maximum learning from the viewing experience. The process of utilization is generally directed by the classroom teacher, but it also can be guided by the television teacher, by the students, or by a combination of all three. For convenience of discussion, utilization is divided here into three parts—before, during, and after the telecast.

Before the Television Program

The before broadcast preparation can be further divided into three categories—preparing the teacher, preparing the classroom, and preparing the students.
Preparing the Teacher

The teacher's preparation begins long before the program is telecast—in fact it should go back to his college training. At the present time there are very few teacher-training institutions which familiarize students with educational television. It is encouraging to see the number of schools which are now offering extra courses and summer workshops in educational television for teachers. As the field expands this number will certainly grow. But much more needs to be done if new teachers are to be prepared adequately to handle television in their own classrooms.

The teacher himself should learn as much about educational television as possible. He can do this by taking advantage of professional meetings arranged by his school system, by enrolling in a summer workshop if one is available, by visiting a television studio (preferably an educational television station), and by discussing television and its implications for education with other educators. The more he can do to improve his understanding of television, the more he will understand how television can contribute to his class.

Such first-hand experiences should be augmented by a study program embracing activities such as the following:

Study the literature in the field.

Know as much as possible about the experiments in the effectiveness of instructional television.

Read what the critics of instructional television have said.

Learn how to evaluate the success or failure of instructional television in your classroom.
Read reports on retention studies, student attitude, slow learners, large group viewing, team teaching, and specific subject areas.

Pay particular attention to reports dealing with proper viewing conditions: location and height of sets, amount of light, acoustics, arrangement of chairs, number of pupils per set, and placement of speakers.3

Probably the first step a teacher should take in preparing to use a specific telecast is to familiarize himself with the program. Most programs, particularly those designed for supplemental or enrichment uses, will have an accompanying study guide or teacher's manual. In some cases these guides will vary greatly as to content, but each one helps the teacher effect an improvement in the utilization of the televised lesson.4

As a minimum the teacher will have ascertained the program's general content and its place in the total series. He will then have to decide the telecast's role in his overall plans for teaching the subject. If the television lesson has not been planned by his school system, he will have to consider any special requirements of his particular community or state. With the development of regional networks and exchange library services for instructional programs, this phase of the teacher's preparation will assume greater importance.5

The teacher will want to make a general plan for the utilization of each particular program. He may want to use the program as a topic for discussion, to provide the background for a planning session, or to

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3Campion and Lanagan, *And TV Too!* p. 31.
4Smith, *Using Television in the Classroom*, pp. 45-46.
5Campion and Lanagan, *And TV Too!* pp. 31-32.
supply the basic knowledge from which class or individual projects can be built. Whatever the goals, they should be decided before the program begins, and at that time the necessary arrangements to carry out the utilization should be made.

Preparing the Classroom

Each individual teacher normally will not select his own television set, but he will be responsible for organizing his classroom for the effective use of television. This organization includes the physical arrangements for viewing and hearing the television program and for carrying on the other activities of learning.

Television viewing.--Basic to good reception is the selection of the television receiver and its accompanying antenna. It is difficult to write specifications for receivers and antennas because each receiving location is somewhat different and may require special treatment. In addition, television sets are constantly being improved, and any set of specifications would be obsolete in a few years.

The classroom teacher can make some adjustments which will improve the viewing conditions. The receiver itself must be in good working order. The quality of sound or picture coming from a set may deteriorate so slowly that the viewer will not be aware of the change. A picture should have deep rich blacks, bright whites, and a broad range of gray tones in between. There should be no tendency to smear or to wash out. If readjusting the contrast and brightness controls cannot restore these gray scale values, then the set should be turned in for repair. The picture should be steady and free from "ghosts" or reflections. Any
unsteadiness may be an indication of weak signal strength reaching the set. In this case it may be necessary to use a higher efficiency antenna.

"Ghosting," which is the appearance of multiple images on the screen, can usually be corrected by readjusting the antenna. Sometimes if a self-contained or portable antenna of the "rabbit ear" type is used, it will be necessary to move the set and the antenna to another part of the room. If these simple adjustments do not correct the problem, then the set needs some internal adjustment. In extreme cases a new outside antenna may be the only way to remove the "ghost" image.

Seating arrangements.—The television receiver screen size will be the main determinant as to the size of the viewing class. As a "rule of thumb," with a twenty-one inch screen the class should be seated no closer than eight feet or further than twenty-four feet from the receiver. It is also a good idea to place the class in such a way that the maximum angle from which any student will view the set is forty-five degrees from a line perpendicular to the face of the picture tube.

The set should be mounted high enough so that all students can see. It may be desirable to tilt the set toward the front in order to reduce glare. The optimum height and position will vary depending on the age of the youngsters and the type and size of the classroom furniture. In general the set should be as low as possible while still giving everyone a good view.

Where it is necessary to move a set from classroom to classroom, the stand should be rigid and the casters should be at least four inches
in diameter. Although the stand must be rigid, it has to be small enough to go through the doors.

The above assumes that the class will view the program in its own classroom. This is certainly the recommended place for television viewing. However, there are circumstances that will require a class to go to a special room to watch a program. In this case the arrangements should be such that each student has an unobstructed view of a set no more than twenty-four feet away. In auditoriums it is usually better to have several sets with normal screens than one large projector type set. The smaller screen provides more detail for all who are viewing it. The large screen cannot be viewed up close, so the students in the front of the auditorium have a poor picture; it requires that the auditorium be darkened which makes note taking difficult; and it destroys the intimacy of television which can be achieved with small viewing groups.

Tuning the receiver.--Probably the most common cause of poor reception is a mis-tuned receiver. Most sets have six basic controls. Some of these are easily accessible, but others may require a technician to adjust.

If the set has a fine-tuning control, it should be adjusted to give the sharpest, clearest picture each time the channel is changed. The setting giving the best picture should also give the clearest and loudest sound. If this is not so, then the set needs to be adjusted by a serviceman.

In addition to "fine-tuning" the set, it may be necessary to reorient the antenna. If the set uses the rabbit-ear type, it is a simple job to rotate the antenna until the best picture is obtained. If the antenna arms are adjustable, some improvement in the picture quality may be made by changing their length. Higher channels are usually received better on shorter arms, and lower channels on longer arms. By alternately adjusting the fine-tuning and the antenna, an optimum point for reception can be reached.
The vertical and horizontal hold controls are used to steady the picture. When they are adjusted properly the picture on the receiver will be "locked" to the transmitter signal. If the picture rolls or develops "flop-over" or seems to be made up of a series of diagonal jagged lines, one or both of these hold controls may need adjusting.

The brightness and contrast controls are used to adjust the relationship between the black and white elements of the pictures. The brightness control sets the over-all intensity of the picture, and the contrast control regulates the detail of the picture by setting the range of grays between black and white. In adjusting these controls, the brightness control should be turned up until the screen is illuminated. Before making this adjustment, the contrast control should be turned down. When you have the screen illuminated, you can turn the contrast control up until you have a range of gray tones between black and white. There is considerable interaction between these controls, and it may take some practice to get the proper combination. If a balance cannot be achieved on the first attempt, then a new setting of the brightness control should be made and the contrast control readjusted accordingly. A good picture should have rich blacks and bright whites with many shades of gray in between. If the picture is too dark, then the brightness may be set too low. If the picture is dull, lifeless, and washed out, the contrast control may be too low. If the black elements in the picture have a tendency to "bloom" and there are no details in the shadow areas of the picture, or if the whites appear "chalky," it is an indication that the contrast control may be set too high. Much of the picture detail is carried in the grays. There is a tendency to adjust sets for too high a contrast, causing the gray areas to become black and much of the picture detail to be lost. A good test to see if the contrast control is set too high is to turn down the contrast setting and watch the black areas; if details begin to appear, it is an indication that the contrast was too high.  

Room lighting. — It is best to view television in near normal room lighting. The overall illumination can be reduced some, but in no case should television be viewed in a darkened room. The most difficult problem is to keep windows or artificial light from producing a glare on

the face of the tube. This can be corrected by placing the set in a location where light reflection is at a minimum. Another solution might be the placing of cardboard shields on the top and sides of the screen, or tilting the set forward so the face of the tube is not perpendicular to the floor. Some sets are manufactured with a tilting face glass or a darkened glass to help prevent glare.

This light level also allows the student to carry on written work during the telecast. This is one of the great advantages of television over projected visual aids.

Room acoustics.--The television system is capable of excellent sound reproduction. Since the audio channel uses frequency modulation, it has all the inherent qualities of the FM system. But the fact remains that the sound is usually the poorest part of the television program. This is particularly unfortunate in educational television because a great deal of the intelligence is carried by the audio.

This degradation of quality is present at almost every step between television teacher and viewer. The studio pick-up is difficult because of the concern for the camera coverage. Studios are generally designed to be useful to camera operation, and sound quality is secondary.

However, the biggest loss occurs in the receiver. To reduce the cost of the receiver most manufacturers use circuits that do not separate the sound and picture signals until the very last stages. A slight maladjustment in the set and the sound becomes distorted and full of hum or buzz. To reduce further the cost and cabinet size, set designers have used a small speaker which may be mounted in the side, top or bottom of a cabinet. This type of speaker should never be used
in a classroom. A speaker for classroom use should always be at least eight inches wide and should be mounted to project out the front. When a receiver with marginal sound is used in a classroom, the results can be pretty bad, particularly if the classroom acoustics are poor.

There are several things a teacher can do to improve the sound reproduction. First, the set should be properly tuned and adjusted. If this does not correct the problem, then the set should be replaced with one that has an amplifier with five to ten watts of undistorted power and a front-mounted eight inch minimum size speaker. If the room does not have acoustic treatment and the school administration will not make the necessary corrections, the teacher can place the television receiver in a corner of the room. This will not only improve the sound distribution; it will also make the set easier to view by all the class. A corner location uses the reflection from the sides of the room to cancel out some of the sound reverberation caused by the hard surface walls and "boxy" design of the room.

Ventilation.--In older school buildings ventilation is a problem. If classroom windows are draped to reduce glare and if they are closed to shut out disturbing noises, the rooms are apt to get hot and stuffy. All three--lighting, acoustics, and ventilation--have to be considered when a room is being prepared for television viewing.

Preparing the Student

Television has become a common, everyday experience for most youngsters. Television in the classroom, however, is still somewhat of a novelty. Students need to learn that viewing and learning from
television are two different things. There are several ways in which
the teacher can help the student prepare for the television experience.

First, the teacher should discuss the process of learning via
television with the class. If this is the students' first experience,
they will have to be told the type of things to listen and watch for.
The teaching of listening and observation skills is a difficult process
and should be started long before the class views instructional television
for the first time.

Second, views differ as to the desirability of taking notes,
particularly where young children are concerned; however, if notes are
to be taken, the children must be taught how.

Many students go through college without ever acquiring
efficient note-taking habits. For notes to be maximally
useful, four basic principles should be observed in their
preparation and use:
They should be clear so that the note taker will under-
stand them when they are "cold." Complete thoughts or
complete sentences remain self-explanatory, whereas a
"shorthand" of isolated words or symbols often loses meaning
quickly.
They should be brief, otherwise the student will have to
"tune out" too long in order to write them down and will
miss part of the lesson. The telecast is the important
thing, not the notebook.
They should focus on the central ideas. Good note taking
should assist good listening.
They should be reviewed. The real value of note taking is
to reinforce learning through review and evaluation.7

Third, the teacher should make sure that the pupils see how the
television program fits into the total class activity--there should be a
feeling of continuity. One of the most serious deterrents to learning
from a television program is the tendency of pupils to treat the program

7Smith, Using Television in the Classroom, pp. 49-50.
as a "show." If the television program is a part of the teacher's total instructional plan, it can become a high point in interest and motivation. The students need to feel that the particular program is important. They can get this feeling if the teacher reveals that he, too, thinks it is important. If the teacher does not feel that it is important, then he should not use the program. Class time is too precious to waste on an experience the teacher and the class do not really value.

The fourth way a teacher prepares the students for the telecast is to make sure they are ready for the lesson content. The teacher should spend some time before the program in discussing the purpose of the television lesson. He will want to make sure the student sees the relationship of the program to the course as a whole. If the program will require some overt participation on his part or on the part of the students, he has to make sure the necessary material is at hand and that the participation role is understood. The teacher will also want to check on the vocabulary and concepts to be used. If there are unusual words or ideas included on the program, he will want to prepare the student to use them. Perhaps he will want to list these on the chalk board or have the student prepare a list of things to look for in the lesson. The specific activities will be determined by the teacher to fit the requirements of his class.

During the Television Program

After the students are prepared for the lesson, much of the responsibility for the presentation is taken over by the television
teacher. However, the classroom teacher has an important part to play during the program.

First, he has to be ready to help the TV teacher. Some programs, particularly those which call for class response such as a foreign language, require the teacher to direct and even lead the response. At other times he will need to select students to respond or to carry out activities required by the program.

Second, the teacher has a complicated dual role—he has to be on the alert for areas which are not adequately covered in terms of the individual backgrounds, needs, interests and abilities of his group; and he must note those things which will need further work after the program. His interest in the program, thus evidenced, will stimulate a similar response on the part of the students. While he is viewing the program, he must at the same time be sensitive to the class reaction—not only the group reaction to the lesson but individual reactions as well, so that in the follow-up period he can take care of any individual differences.

After the Television Program

The activities or follow-up to the program should be a natural outgrowth of the television lesson and the pre-planned utilization. To some teachers the immediate post-viewing activities comprise the major element in utilization. Of course, what is done immediately after the program is important, but only because interest is highest at that point. Therefore, the teacher should take steps at that time to clarify and amplify the program material where necessary.
The type of immediate follow-up is largely determined by the program. If the program planners have kept the using classroom in mind, there should be some on-going activities built into the program.

Utilization is more than the immediate follow-up. The teacher, particularly with programs designed to be primarily supplemental or enriching, should use the program as the stimulus or the focal point for the development of many concepts. Utilization should be the teacher's guiding thought from the time the program is selected until the last value is achieved.

The teacher should plan ways in which the program and other subjects can be integrated. If the program is basically science, he should ask if the content can also be used in social studies, art, arithmetic, or reading; he should also ask if the materials or concepts from these disciplines can be used to help derive the maximum use from this program. Utilization is a long process, and a skillful teacher can use the program to stimulate learning for many days.

In the education process there is a need for the learner to work with the content. He needs to become involved with the subject, with the presentation, with the teacher, and with his environment. The classroom teacher is responsible for guiding and structuring this involvement so that the student can learn from the situation. He must be alert for the cues that the television teacher gives. Open-ended questions should be pointed up, not answered. Appropriate group and individual activities should be planned and carried out. Through these
the student will have an opportunity to work with the ideas presented,
to re-examine them, and to make them his own. 2

Special Utilization Patterns

Television lessons can be used in many ways. Each set of condi-
tions may open up new utilization patterns. Two examples of unusual
utilization come from St. Louis. One of these involved a filmed high
school physics course which was presented three times a day. The
students were permitted to view any of these that their schedules would
permit—the early evening presentation could be viewed at home, or the
daytime programs could be seen during their study hall periods. When
the class met the teacher carried on a variety of related activities
which included additional demonstrations, laboratory experiments, small
group work, and supervised study. The teachers felt that this was an
excellent way of using television. It freed them from the arduous task
of preparing and giving lecture-demonstrations and let them devote more
time and attention to the individual student.

The other St. Louis example was from a second grade spelling
series. These lessons were also on film and were scheduled in such a
way that a class could view the series beginning either semester. This
schedule was necessary since the St. Louis school system has semiannual
promotions, and there are new classes starting each semester. This
staggered schedule prompted one teacher to divide her second grade
class into two sections. The faster learners started viewing the

television lessons at the beginning of the year and the slower learners started at the middle of the year. Since the same teacher taught the class through the third grade, she was able to complete the year's course in both sections of the class. In addition to matching the TV presentation to the various abilities in the class, she used the time one group was viewing the programs to work with the other group in meeting special needs. Her work was more effective for this period since it gave her an opportunity to work with smaller groups.

Other special utilization patterns can be adopted. The schools which participated in the National Program in the Use of Television in the Public Schools, financed by the Fund for the Advancement of Education, developed many utilization patterns built around large class instruction by television. The Commission on the Experimental Study of the Utilization of the Staff in the Secondary School in *Images of the Future* outline a completely different approach to the use of television in reorganizing the school.

It is difficult, if not impossible, to specify the kind or type of utilization a teacher should carry out. It is the teacher's responsibility to see that the television lesson benefits his class. He needs to collect information about the program and relate this to his class needs. If he finds that a program fits into his overall teaching plan, then he should decide to use it. If, however, he finds that he can use the time which would be spent on the television program to better advantage, or if he finds that his class has not had the background or does not have the ability to make the most of the experience, then he should elect not to use this program.
The decision as to whether or not a television program is to be used should be made by the classroom teacher. After all, it is up to each teacher to see that his class has those experiences which will most benefit them. Instructional television lessons can only be as good as the television teacher and the classroom teacher working together can make them. But the classroom teacher is the only one who can adjust the television lesson to fit the backgrounds, abilities, and needs of his class.
CHAPTER X

EVALUATION

Evaluation as related to instructional television programs is a continuous process. The assumption has been made that any use of instructional television should be based on the desire of educators to fulfill a recognized need that was present in the classroom. How well this need is met is the measure of success of any instructional television program. This evaluation can be carried on either as a formal research study or as a less sophisticated investigation. Both forms of evaluation have their place, but the purpose of this chapter is to indicate some ways in which pertinent information can be obtained by the educational broadcaster with a minimum of time, money, and research facilities.

There are many questions which might be asked which are important for the producer and teachers who are presenting a television lesson, but the most important concerns the student's achievement. Standardized achievement tests can be used to measure this achievement, or special tests designed to evaluate specific learnings from the television lesson can be devised. A considerable amount of the formal research carried on to date has concerned itself with comparing achievement from television taught classes with conventionally taught classes. An overwhelming majority of these comparisons has indicated no significant differences.\(^1\)

In addition to measuring achievement, evaluation has another function. If relevant information is collected as the series is being produced, this information can be used to modify the lessons. A teacher in a classroom does this all the time—he adjusts his teaching according to the feedback he receives from his class. In television teaching this feedback is just as important but harder to obtain and process than in a face-to-face teaching situation. The remainder of this chapter outlines some procedures which can be used to gather information as to the effectiveness of television lessons. Some of these can be used before a series is telecast, others while it is being telecast, and still others after a series is completed.

**Pilot Productions**

Before a new series is begun it should be tried out in pilot form. This is not always possible, due either to a lack of facilities or time, but such a pilot run will answer many questions as to format, teacher acceptance, and teaching techniques before the series is started.

One of the most popular of the series presented by the St. Louis educational television station was on the Missouri constitution. There were several questions that the planning committee and the television teacher found hard to resolve, so a series of three pilot programs was planned and telecast. These programs were put on the air at the same time on three consecutive days. The times were not announced in the paper or through any other public information channels. Twenty classroom teachers were asked to use these lessons and then to meet with the program planners to discuss the programs and their classes' reactions to
them. Even though participation was entirely voluntary, some twenty-three teachers used these lessons and attended the meeting.

The three lessons had been organized to use different techniques. From the discussion following the use of the pilot programs the planners decided to change the series from one thirty-minute program a week to two twenty-minute programs a week. They also decided to cover the more difficult areas in the study of the Constitution in depth and not to attempt to cover the entire Constitution.

As for the teaching techniques to be used, the group of teachers felt that the television teacher should teach directly to the class, and since the teacher was a good cartoonist, he should illustrate his points with cartoons drawn during the program.

A variation of this pilot technique was used to select a teacher for a Spanish language series at the educational television station in Minneapolis-St. Paul. Two teachers, who seemed to possess the required attributes as television teachers, were asked to prepare a typical lesson for the teaching of conversational Spanish to fourth graders. Film recordings were made of these lessons, and the films were shown to various groups of specialists. Their reactions and comments helped the program producers to choose between the two teachers. These specialist groups included fourth grade teachers, Spanish teachers, and curriculum supervisors.

Some schools and stations will produce an entire series as a live production one year, and then re-produce the series either live or as a recording the next year. They use various methods of gathering information about the effectiveness of the series in the classrooms. This
information is used to modify the lessons for the second production. This plan has the advantage of giving the teachers and the producer experience with the lesson and the medium as well as being able to collect reactions to the entire series. It has the disadvantage of taking a longer period of time to effect modification. This system was used in Boston with the "Parlons Francais" French language series. The lessons were first produced on television and recorded on video tape. Then using the information gained from this production, the entire series was re-produced on motion picture film.

**Evaluation Committees**

One of the frequently used evaluation devices is to organize a committee of teachers using the programs in order to secure their reactions. Such committees can be set up as a regular part of the continuing planning procedure if the series is telecast at the same time it is being produced. The committee meets regularly with the television teacher and the producers. They report on class reactions to the lessons and make suggestions which will make the programs more useful in the classroom. The television teacher will often ask the committee members to assist him in evaluating specific points or procedures which will be coming up on the program. Many questions of pacing and vocabulary can be answered by the committee.

To save time or to get an answer to an immediate question, the television teacher has a ready list of consultants to call. In at least one series produced in St. Louis the evaluation committee consisted of three teachers who gave their reports to the television teacher by
telephone. This technique was of special value to this series since it allowed the studio teacher to make use of the information before the next program.

**Feedback Forms**

While personal contact is probably the most valuable kind of feedback, it is possible to gather helpful information through feedback forms or program utilization report sheets. The exact layout of these sheets will depend on the nature of the program and the type of information required. Two examples of forms used with the St. Louis area schools are shown in Appendix H.

The first of these, labeled *Supervisory Teacher Daily Form*, was used with the large class project carried out for the Fund for the Advancement of Education. This form is somewhat more complicated than the usual form. It asks for considerably more information than is usually required. Each supervisory teacher filled in one of these forms after each day's class and then mailed it in a stamped, self-addressed envelope to a post office box where it was picked up each morning. In this way the television teacher received the report from the classrooms after each program and before producing the next.

The second form, called *KETC Program Evaluation*, was much shorter and was used to collect information on all programs telecast for class use. The form itself asks the teachers to rate the vocabulary, pacing and ideas presented. There is a three-point scale associated with each of these questions. The fourth question was open-ended and asked for comments concerning teacher-student reaction to the programs. Nearly
half of the page was left for these comments. In practice it was found that nearly 92 percent of the forms returned had comments written in this section. The real value of the forms was in providing opportunity for these comments.

The method of using this second form was also important. The form was assembled into pads of twenty-five. They were perforated for ease in tearing out. A supply of these pads along with self-addressed envelopes was sent to each building television coordinator. He was asked to place the pads on the top of the television set and to urge the teachers to fill out the forms. The completed, unsigned forms were then returned to him, and when he had several he sent them to the educational television station.

There was another factor in the use of this form which was important. The schools cooperating with this evaluation were only asked to help out for a one-month period. Twenty different schools were selected each month. The teachers were asked to fill out one of these forms for each program they used during that month. No school was asked to participate twice in the same year although many reported voluntarily over a longer period.

This pattern resulted in continuously fresh evaluation from a wide sampling of schools, and at the same time did not work a hardship on any one school or group of teachers. The television teacher and planners found this feedback technique most valuable and surprisingly accurate.
Utilization Survey

One form of evaluation often used is the utilization survey. This is actually a count of the teachers, classrooms, and students using a particular program or series of programs along with some information about their use. The figures resulting from this type of survey are helpful in showing the relative popularity of specific programs. They provide little indication concerning why a given series is used more extensively than others, however. To find this out, it is necessary to study the patterns of use in different grades, throughout different schools or school systems, or over a period of years. The results of the survey do present some guide lines for consideration when new programs or series are planned.

In St. Louis, a utilization survey was conducted during the fall semester each year. A questionnaire was sent to each school principal in the station's coverage area. By means of mail and telephone follow-up, it was possible to secure nearly a 100 percent return of the forms. A sample of the form used is shown in Appendix I. The principals were asked to report the number of teachers in their schools who used each series and to indicate whether this use was "regular" (every program in a series), "frequent" (about half of the programs), or "occasional" (less than half of the series). By assigning a value of "1" to regular users, "½" to frequent users, and "¼" to occasional users, it was possible to arrive at relative utilization figures for the various series.

The results of such a survey are limited in accuracy and reliability, but they do give the program planner rather definite information
regarding the series which are getting the most use. By analyzing the series which are used most, it is possible to generalize about certain techniques, subject matter, and grade level selection for television programs.

This type of survey was carried on in St. Louis over a three-year period. In that time it was possible to see certain series emerging as having continuing value, while others, after an initial flurry of utilization, dropped to the bottom of the scale.

Case Studies

The use of case studies is one of the most valuable evaluation techniques. Case studies are time consuming, and they depend on having a trained interviewer available, but they provide a large amount of information about the program. Case studies involving entire school faculties were used in St. Louis to help explain the utilization patterns developed from the utilization survey described above.

The case studies consisted of interviews with the teachers and principals at selected schools. The interviewer had been graduated recently from an eastern school where she had majored in education and where she had worked for two summers conducting interviews for a national research bureau. An interview schedule was developed, a copy of which is shown in Appendix J. The schedule covered the responding teacher's teaching experience and his experience with audio-visual and educational television materials.

Each teacher in the school building was interviewed and a corresponding schedule was filled out. The interviewer then met with
the principal to determine what special arrangements had been made to facilitate the use of educational television. Special precautions were taken to identify the interviewer with a school group and not with the organization responsible for developing or presenting the television lesson in the community.

After all of the interviews had been completed, the interviewer wrote a summary from the completed interview schedules. In this summary she included background data on the school as well as a description of the audio-visual facilities available. As an example, the reports from the first two case studies completed in St. Louis are included in Appendix K.

These reports were particularly helpful in ascertaining the attitudes held by the teachers. Surprisingly, the case studies even from those schools judged as being polarized against the use of television in the classroom, pointed out that teachers thought that those programs making the most direct teaching use of television were best and had the most educational value.

Evaluation needs to be continued throughout the life of a program. At the beginning or during the planning phase evaluation can help to set the pattern and the form for the series. In fact, determining which areas within the curriculum need help should come from some form of evaluation.

Even after a program has been planned and produced, whether live or recorded, it is necessary to gather information from the classroom to determine whether the series is accomplishing its objectives. It is
also entirely possible that educational needs might change so that a once worthwhile program must be modified or dropped altogether.

In describing the techniques suggested in this chapter, there has been no attempt to separate content and production. Neither of these can be evaluated alone. They are so interrelated and so dependent on each other that any attempt to evaluate one without the other is artificial.

Evaluation is an important part of any instructional television program. Television is an enormously expensive and complicated system. Therefore there must be solid evidence that this method of education is worth the money, time, and effort expended. These can only be measured in relation to how well television serves the established educational goals. The final evaluation criteria have to be based on individual student achievement.
CHAPTER XI

SUMMARY, RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

Educational television is relatively new. With the ending of World War II educators were faced with the task of providing an educational system which could absorb the twin explosions of population and knowledge. New methods and new materials had to be devised if the new generations were to receive an adequate education. The post-war successes of the Soviet Union in science and technology made it imperative that the quality of education in this country not only be maintained but improved if the United States were to continue in its position of world leader.

Experimentation with television for instructional purposes had been going on since the end of the war. Many educators saw television as one answer to the problems facing them. Following a well organized campaign to have television channels reserved for education, the F.C.C. set aside 242 channels for non-commercial use; this number has since been raised to 309. On May 25, 1953 the first of these channels was activated in Houston, Texas by the University of Houston.

Early efforts to use television in the classroom were at the college level. Several university courses were offered over commercial stations, and most of the instructional television offered over the Houston station was at the college level. A few public school systems
were experimenting with television programs, but most of these were in the after-school hours, and were primarily for public relations purposes.

These early efforts with instructional television were characterized by a trial and error method. Many of the programs were operated as a side line by already overworked audio-visual departments or curriculum centers. As stations began to multiply and educators realized that television had vast potential for education, the need for experimentation and plans became apparent.

The writer undertook the present study to develop a plan for the production of classroom television programs and to test this plan over a period of years. This plan was developed from the experience with the production of two series of instructional television programs for the Ohio School of the Air. The central idea of the plan was the development of a production team.

For the Ohio School of the Air these production teams were organized around groups of classroom teachers meeting in Program Planning seminars. Each team consisted of classroom teachers who had a background of teaching the subject of the series and who would also use these programs in their classrooms; a content specialist; a teaching materials specialist; a television teacher; a television producer; and a production assistant.

Following the experience with the Ohio School of the Air, the plan was modified and tested in the St. Louis area over a four-year period. While the production teams of the Ohio School of the Air were developed for one series of programs and then disbanded, the St. Louis
teams operated over the whole four-year period and were continually developing various series.

**Results**

The Ohio School of the Air project indicated that program production through the use of teacher planning groups was feasible. There was some evidence to suggest that the teachers involved in the planning were more willing to accept television in their classrooms and saw more value in these lessons than did the average teacher.

Unfortunately, much of the raw data collected from the Ohio School of the Air project was destroyed when the writer's home was flooded, but from the limited data recovered it was apparent that the programs had exceeded the teachers' expectations.

For example, 67 percent of the teachers indicated before the series started that they expected the programs to suggest activities which they could use in class. After the series, 36 percent of this same group said the series had helped them by suggesting activities they could use in class.

Similar results were reported by the teachers concerning the value of the series for the children. In a pre-telecast questionnaire the teachers responded that in general they expected the telecasts to help them more than the children. However, on the post-telecast questionnaire the teachers indicated that the series had helped the children more than had been expected—and to a greater extent than it had helped them.
From the program development and the planning procedures in the Ohio School of the Air project certain principles were derived.

1. Television when used for instruction must make a significant contribution to the learning process.

2. An instructional television program must be based on actual class needs.

3. Program planning must include classroom teachers as a key segment in the planning group.

4. Program plans and production procedures must be related to the intended use of the program.

5. The programs should be of high quality, have superior teaching, and be imaginatively produced.

6. A flexible approach to the amount of television support given a curriculum area must be maintained.

7. Educators must maintain a continuing experimental approach to instructional television.

8. Instructional use of television must reinforce the intimate character of the medium.

9. Television lessons must be examples of excellent teaching.

10. School administrators must give active support to the use of television programs in order for such programs to succeed in the classroom.

Had it been possible to complete the Ohio School of the Air study, there might have been additional principles; however, these are the most important from the author's experience and from the material available.

In 1955 the writer became Executive Secretary of the Executive Committee for School Programs in the St. Louis area. Chapters VI through X describe the system that was developed there for the production, utilization, and evaluation of instructional television programs. The system is based on the principles derived from the Ohio School of the Air project.
The actual class needs and the ways that television could make a significant contribution to fulfill these needs were worked out by classroom teachers' planning groups and consultants in specialized fields. The plans evolved from these groups were then pre-tested through a series of pilot programs before production of the actual series was begun. A constant check on the classroom utilization and on the effectiveness of the programs was made through the use of feedback forms, teachers' meetings, classroom observation, and case studies.

An attempt was made to maintain a high level of quality in all of the instructional programs. Some of the steps taken to achieve this were the use of special educational producers; a generous use of studio rehearsal; extensive use of kinescope recording; a regular system of revising part or all of a series after production had started; and constant evaluation by special evaluation committees. As evidence of some success in this attempt, several series were exchanged with other educational television organizations, and several series were honored by awards from the Institute for Education by Radio and Television sponsored by The Ohio State University.

An additional factor which contributed greatly to the quality of the television lessons was the careful selection of teachers to appear on the programs and to work on the planning committees.

Administrative support was developed on two levels. The financing and policy making were the responsibility of the school superintendents in the area. Two committees representing the public and private schools in the area were then established—an executive committee on the policy level, and an operations committee on the operating level. The Executive
Secretary (who was also appointed to the staff of the educational television station as Director of School Programs) was responsible for correlating the work of these committees and the production of the programs.

Each television series was approached as a new problem. After the specific curriculum needs were assessed and identified, they were studied and evaluated in the light of what television could do to serve these needs. A flexible approach was always maintained. In some cases television became the major instructional force, and in others it became a supplemental portion of the instruction, or a program that enriched a presentation made by a teacher in the classroom. In every case the television approach was selected to fit the specific curriculum area being supported.

Television was always treated as an intimate medium—the classroom viewer was never unintentionally put in the position of watching someone else learn. The television presentation was made as though the lesson was directed to each individual pupil. The intimate quality of television was not only preserved—it was exploited.

Based on the experience gained at the Ohio School of the Air and in St. Louis, the following conclusions seem justified.

Conclusions

Television can be used to upgrade education. It can multiply the effectiveness of the superior teacher. It can broaden the scope of the curriculum by introducing new areas of study, enlarging present areas, and updating outmoded ones. It gives the classroom teacher an opportunity
to observe new materials and teaching techniques. It is a natural adjunct to team teaching through the sharing of the output of many content and technical specialists.

This goal can only be reached if the television experiences are of high quality. This quality is dependent on three key factors in the development and production of instructional television programs. They are (1) the development of a capable production organization; (2) the use of specific production procedures; and (3) the development and use of effective classroom utilization and evaluation procedures.

**Organizational Structure**

The control of television programs for classroom use must rest with the schools. To insure this control they must set up an organization capable of supervising the learning experience from the planning stage through the classroom utilization stage. If responsibility for the development and production of instructional television lessons is divided between the educator and the television specialist, it is important that the final responsibility be held by the educator.

On the other hand, the schools must be ready to accept this responsibility, and they must employ or train high calibre people to work in this field. They must also be willing to commit money in sufficient amounts to achieve a high quality performance.

The only way that schools can maintain the necessary control over content and production is to have an organization with a well defined structure indicating clear cut areas of responsibility. Once this organization is set up it becomes a base upon which to build high quality
programs. An important factor in this organizational pattern is the close cooperation between the elements responsible for content and the elements responsible for production.

The organization must have a person responsible for seeing that the ideas developed by those in charge of content are not distorted or lost when they are translated into television experiences.

**Specific Production Procedures**

The production procedures used on instructional television programs must be selected as those best suited to accomplish the stated educational goals. The suitability of a specific technique must be measured in terms of the resulting learning. By far the most important step in the production of an instructional television program is the selection of the television teacher. On his or her shoulders rests the major responsibility for the selection of the material to be taught, the decision as to how it will be taught, as well as the actual teaching on television. Of course, these are the same responsibilities carried out by every teacher, but on television the teacher's presentation can affect the individual student to a greater degree and reach far more students. Television has a greater impact than is found in most classroom teaching. Lessons taught by television usually have a credibility superior to that of the classroom; the teacher becomes an authority merely by being on television.

While the burden of the decisions related to the content in a television presentation must remain with the teacher, he must also be able to draw on adequate resources for help. These must include classroom teachers as well as subject matter, learning and technical specialists.
The selection of the content for the programs is second in importance only to the selection of the television teacher. Television programs must be accurate and significant—their contribution to the learning experience of the class must be obvious. In making the selection of content, three factors must be kept in mind. The content (1) must be based on class needs; (2) it must fit the maturity level of the class; (3) it must make use of the special qualities of television.

Educational television is purposeful. This purpose must always be clear and well defined. Producers and teachers must constantly ask themselves why a specific thing is being taught at all and next why it is being taught this way by television.

All of the planning, selection and preparation is brought to a climax in the studio. It is here that extreme care must be exercised that the elements of the lesson are not converted primarily into a show. There is need for showmanship and professionalism in the production, but these must not be the primary consideration. The technical and production staff need to be sympathetic too, and understanding of the educational goals set for the television presentation.

The educational producer is responsible for coordinating the elements of the lesson into a television program. He is the person who must make sure that the medium is being used effectively. The division between content and production is not sharp and distinct. The television teacher and the educational producer have to work together to see the resulting presentation is the best possible.
The educational producer sees that there are adequate facilities available. He sees that time is set aside for rehearsal of the program so that the studio crew and teacher can learn to work together. He plans the visuals so that they are clear, meaningful and well integrated into the presentation. Along with the teacher, he selects the material and presentation to see that both are appropriate and timely.

Classroom Utilization

Instructional television must be utilized to be effective. The size of the classrooms and the receiving groups may vary, but the program exists for the individual student. Television programs cannot stand alone. The classroom teacher is an important member of the teaching team. Since schools and curricula differ, it is impossible to create a meaningful television presentation that will fit the needs of all schools or all classrooms. This means that the teacher must make the necessary adjustment in his lesson plan or course outline in order to take advantage of the television lessons.

Television programs can be received in classrooms because of an administrative order, but that order cannot create proper utilization. Teachers have to be convinced that the presentation on television will achieve more than they can by themselves. This means that in addition to being a superior presentation, the television lesson must also preserve the status of the classroom teacher in his classroom. The teacher's role has changed; the teacher must be aware that it has changed and must be willing to accept his new responsibilities.
The type and kind of utilization is inherent in a properly produced television program, but it is not always obvious. The classroom teacher must be trained and given the necessary supplementary aid which will make the television presentation a meaningful classroom experience.

In most cases the television program will occupy only a portion of the class period. If the program is intended as a supplementation to the classroom activity, the classroom teacher has the major responsibility for the teaching, and television is used to point up or to highlight segments of the lessons. However, more and more television is being used as a basic teaching resource and as such it occupies more of the class time. Even in these cases the classroom teacher has responsibilities to make the television program and the additional activities an integrated learning process.

If television is to help educators achieve their goals, it must become an important part of the educational picture. It cannot be relegated to the status of an enrichment or extra device. The job that television can do must be defined, and then educators must accept the medium as a primary tool within these boundaries. As long as educators think of television as a frill and a fad, albeit an important one, television will never reach its full potential.

**Recommendations**

It is not possible to develop a set of principles that will fit all situations. During the time that the writer was developing the procedures which have been discussed, the whole field of education was undergoing momentous changes. Educational television too has been
changing. The initial emphasis was on informal adult educational and informational programs; it has now shifted to more formal instructional use for all ages. Nearly all educational stations are devoting some of their telecast schedules to programs for formal educational uses.

On the basis of the writer's experience in educational television, and keeping in mind the changes which have taken place in the field since the beginning of this study, the writer makes the following recommendations.

1. There is a need for further study and exploration of the factors within a television program which account for the effectiveness of that program.

2. Further experimentation should be undertaken to determine the effect on utilization of a television series when the classroom teacher using it is involved in its development and/or evaluation.

3. A school system using a television series for instruction should provide a coordinator of classroom television. He would be responsible for seeing that the teachers were informed about the programs, that the supplementary materials were available to them, and for helping them learn how to make appropriate use of the programs.

4. Steps should be taken to build greater understanding between the educator and the television producer—each should be made aware of the other's responsibilities and problems.

5. An effort should be made to raise the standards of instructional television programs. This should be done by:
   a. Encouraging more able people to enter the instructional television field;
b. Providing adequate initial training for television teachers;

c. Providing adequate financing to furnish the talent and facilities required for superior production.

d. Concentration on fewer local productions superbly done and exchanging with other production centers for recorded programs suitable for local use.

6. School administrators should investigate thoroughly all phases of instructional television. If their schools are not presently using television, they should determine where and how it can be put to best use. If they are using it, they must make sure that the necessary in-service training programs and workshops are available to their teachers to insure its proper use.

7. Those responsible for educational television stations or facilities need to take a more sympathetic and informed view of the educational problems, along with their concern for proficiency in television production.

8. Further experimentation and development should be carried out with the teacher program planning group concept to find more efficient procedures for the involvement of the teacher groups.

9. There needs to be further experimentation to find and use the unique advantages which television offers for instructional use.

10. Further experimentation should be undertaken to develop new school organizational patterns to permit the greater use of television.

11. Colleges and universities need to revise their teacher training curriculums to include television instruction. Courses dealing with both
utilization of the programs in the classroom and the preparation of lessons for presentation on television need to be initiated.

12. Colleges, universities, large school systems and educational television stations should establish and maintain systems of in-service workshops which would work constantly with teachers toward the improvement of television utilization.

13. Teams of instructional television production experts should be organized and assigned to educational television production agencies to work with each of them for at least three months at a time. They could then produce programs for and with these local agencies and train them in the newest and best production techniques.

14. There needs to be further development in the use of instructional television as a "basic-resource," particularly in the secondary school.

15. Further experimentation should be undertaken to determine the division of time between television and other classroom experiences within given subjects.

This thesis is an account of one system of producing instructional television programs. It is not suggested that this is the only acceptable system. It was developed at the same time that television itself was developing and growing, and it has been tested in three different situations. This study has reported the development and testing of the system at the Ohio School of the Air and in the St. Louis Area schools. However, since the end of the St. Louis experience the writer has had the opportunity to use these principles in the Minneapolis-St. Paul area.
A similar method of program development has been employed in the formation of the Minnesota Council for School Television.

This Council, formed in 1960, grew out of the desire of the suburban schools in the Minneapolis-St. Paul area for a series of elementary foreign language television programs. The writer was employed by the educational television station in the Twin City area to assist these schools in the development of the series. The principles evolved at the Ohio School of the Air and tested in St. Louis, Missouri, were modified to serve in this situation.

Following an extensive developmental period using the services of classroom teachers and language specialists, the school administrators decided on a multi-media approach for this language course to include six elements.

1. Three fifteen-minute television presentations a week.
2. Two drill and practice sessions a week to be provided on audio tape recording.
3. A detailed teacher's manual outlining specific activities and projects to be developed by the classroom teacher.
4. A series of Spanish books to be used by the students beginning in the middle of the second year.
5. A series of televised in-service teacher preparation programs.
6. Pre-telecast workshops and consultation services to be directed by the television teacher.

The council mentioned above was then set up to direct the development and utilization of these materials. It was composed of one representative from each participating school district and employed an executive secretary to supervise its activities. It elected from among its own members a nine man executive committee whose function was to set
policy, establish the budget, and give direction to the operation. This executive committee appointed a curriculum advisory committee whose major responsibilities were the planning of program series and program activities, evaluation of the language series, and giving guidance in the development of the language program materials.

To provide the television teacher with feedback from the classrooms a group of teachers using the programs was invited to constitute a language advisory committee. These teachers met regularly with the television teacher to give him classroom reactions to the programs, outline areas that needed additional work, and assist him in an overall evaluation of the lessons.

As can be seen, this basic structure is similar to that employed in the St. Louis situation. However, a stronger control over the planning, budgetary, production, utilization, and evaluation was vested in the participating schools, so that they, rather than the television station, were responsible for the content and its method of presentation. The educational television station's function then became that of a service facility to the council.

The plan for utilization of this series relied on considerable involvement on the part of teachers and administrators—as was the case in St. Louis. Here, however, the production and program development structures were greatly simplified by using smaller planning groups composed of outstanding language teachers. All committees, other than the executive and curriculum advisory committees, were temporary in nature. Groups were recruited for specific projects and then were dissolved. In this way the membership of each committee could be
selected for the job to be done, and when the job changed the membership could also be changed to fit the new requirements.

The initial program series presented by the council was highly successful. Some of the factors which contributed to this are listed below.

1. There was a genuine need for foreign language instruction in the elementary schools.

2. The television series with its associated supplementary materials made a significant contribution to the learning process.

3. The program plans and production procedures were developed so as to take advantage of the intimate character of the medium.

4. The program was actively backed by the school administrators and the professional educational groups in the area.

5. The program series was of high quality, with superior teaching, and was imaginatively produced.

The organizational, program production, utilization, and evaluation procedures which have been discussed have worked to good advantage in all three of these situations. It is hoped, therefore, that this plan will serve others as the use of television for instruction becomes a more effective force in education.
APPENDIX A

OHIO SCHOOL OF THE AIR PLANNING FORMS
School Telecast Project  
Bureau of Educational Research  
The Ohio State University  

DUE DATE: **February 9, 1955**  
Chairman: **Rebecca Blackstone**  
Advisor: **Lewis Evans**  

**Exact Title of Program:** Hearing Sounds  
**Prog. Date:** 3-8-55

**SPECIFIC PURPOSES OF PROGRAM:**  
1. To help children understand how sound is made.  
2. To help children understand how sound helps us.  
3. To help children become aware of differences in sound.  

**PROGRAM CONTENT:**  
1. A sound game (guessing the name of sounds heard on program).  
2. Sound in vibration demonstration.  
3. Sound transmission demonstration.  
4. Illustration of how sound helps  

**FILM REQUIREMENTS:**  
No film requirements  

Tape recording of sound effects or sounds reproduced from sound effects records.
School Telecast Project
Bureau of Educational Research
The Ohio State University

DUE DATE: February 16, 1955  Chairman: Rebecca Blackstone
Series: Things Around You  Advisor: Clair Tatterson

Exact Title of Program: Hearing Sounds  Prog. Date: 3-8-55

COMPLETE PROGRAM OUTLINE:
A. Introduction—standard for series
B. Greetings by Mrs. Lakin
   1. Refer back to sound effect used as hook on last week's program.
   2. Interview with sound effects man showing how sound was made.
C. Sound Game—use four series of pictures with question of identifying sound heard as you look at pictures.
D. Vibration Demonstration
   1. Spell word—Blackboard, slide or super study card.
   2. Snow bome jumping on drum.
   3. Snow tuning fork vibrating in water.
   4. Have children hold their voice box and say sounds to feel vibration.
   5. Use other things which don't vibrate as visibly such as rock and sticks.
E. Sound Transmission Demonstration
   1. Wood stick carries sound vibrations.
   2. Tin can telephone.
   3. Metal rod carries vibration better than wood.
F. Sound Chart development
G. Closing
   1. Hook for next week's program.
   2. Standard close.
**Properties Required:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Where Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellophone</td>
<td>Cig package</td>
</tr>
<tr>
<td>Blackboard</td>
<td>Studio</td>
</tr>
<tr>
<td>Drum</td>
<td>Lakin</td>
</tr>
<tr>
<td>Beans</td>
<td>Lakin</td>
</tr>
<tr>
<td>Tuning Fork</td>
<td>Greene</td>
</tr>
<tr>
<td>Glass baking dish</td>
<td>Lakin</td>
</tr>
<tr>
<td>2 short sticks</td>
<td>Tettmer</td>
</tr>
<tr>
<td>Rocks</td>
<td>Tettmer</td>
</tr>
<tr>
<td>Clocks</td>
<td>Greene</td>
</tr>
<tr>
<td>Long stick</td>
<td>Tettmer</td>
</tr>
<tr>
<td>Tin can telephone</td>
<td>Tettmer</td>
</tr>
</tbody>
</table>

**Art and Slides Required:** (Include Suggested Layout)

- Opening credits on roll drum (Standard)
- Closing credits on roll drum (Standard)
- Studio Card - Things Around Us (Standard)
- Studio Card - Hearing Sounds (Special for program)
- 4 studio cards for sound game.
  1. picture of chicken, dog, and cat
  2. picture of drum, piano, violin
  3. picture of bell, triangle, whistle
  4. picture of plane, car, train
Form C 2/12/55

School Telecast Project
Bureau of Educational Research
The Ohio State University

DUE DATE: February 23, 1955  Chairman: Rebecca Blackstone
Series: Things Around Us  Advisor: John Richardson

Exact Title of Program: Hearing Sounds  Prog. Date: 3-9-55

GUIDE SHEET INFORMATION: (This will go to all teachers requesting manuals)

Re-evaluation of Objectives:

On the program we will try:
- to help children understand how sound is made.
- to help children understand how sound helps us.
- to help children become aware of differences in sounds.

Some of the questions we'll bring up on the program:

How is sound made?

How is sound carried?

What is the importance of sound in terms of distance, direction, and pleasantness?
Before the program we suggest that you:

- discuss with the children the sounds they already know;
- discuss the uses of sound and how this helps us know and understand the things around us;
- ask the children what sounds they can hear at the moment.

After the program you might want to do some of these things:

- make a "sounds I like - sounds I don't like" chart (This will be illustrated and started in the program)
- use a spoon and string demonstrate sound transmission
- make a tin can telephone
- vibrate a ruler on the edge of a desk showing that the sound is related to the vibration
- vibrate a rubber band.

Resources:

Children: The Summer Noisy Book, Harper and Bros., 1951
Noisy Book, Harper and Bros., 1931
The teacher's Noisy Book, Wm. P. Scott, 1941


Related teaching aids:

None.
At this meeting we will need to have all the properties and art work. Today's work period will be devoted to rehearsal with the TV teacher.

SUGGESTIONS FROM PLANNING GROUP FOR LAST MINUTE CHANGES:

- There is too much material for the time.
- Suggest that the tin can telephone demonstration be dropped out of the program and used as a possible filler at the end. It can be used as a suggested type of follow-up activity. There should be more time spent on the sound chart to give the class a specific thing to do when the program is over.

CRITIQUE COMMENTS:

- Mrs. Lakin needs to practice with the demonstration material more, as it seems as though she really expected the experiments to work.
APPENDIX B

OHIO SCHOOL OF THE AIR GUIDE SHEET
SYNOPSIS:

On this program, Mrs. Lakin will show how sound is produced by vibration. Vibration will be discussed and shown in various experiments. The transmission of sound through wood will be demonstrated.

A "contest" will be featured during the opening few moments. Three pictures will be shown on the television screen; the sound made by one of the objects will also be broadcast. Mrs. Lakin will then ask the viewers to guess which object made the sound.

The usefulness of sound in detecting distances and direction will also be discussed.

It will be suggested, at the close of the program, that the children make a chart of which are pleasant and unpleasant sounds to them.

ON THE PROGRAM WE WILL TRY:

- to help children understand how sound is made.
- to help children understand how sound helps us.
- to help children become aware of differences in sounds.

SOME OF THE QUESTIONS TO BE RAISED ON THE PROGRAMS ARE:

- How is sound made?
- How is sound carried?
- What is the importance of sound in terms of distance, direction, and pleasantness?
BEFORE THE PROGRAM YOU MIGHT:

- discuss with the children the sounds they already know.
- discuss the uses of sound and how this helps us know and understand the things around us.
- ask the children what sounds they can hear at the moment.

AFTER THE PROGRAM YOU MIGHT WANT TO DO SOME OF THESE THINGS:

- have the children make a "Sounds I like - Sounds I don't like" chart.
- make a tin-can telephone. Put a small nail hole in the bottom of two fruit juice cans. Stretch several feet of string between the cans. Place the end of the string through the bottom of the cans and knot it. The string must be pulled tightly between the cans in order for it to work properly.
- tie a spoon to the center of a yard long string. After tying each end of the string to the two index fingers, swing the spoon and let it strike a table. Listen to the sound. Now put your index fingers to your ears. Swing the spoon and let it strike the table again. More sound is heard as it is carried to the ears through the string.
- stretch a rubber band, with one end held between your teeth and the other in your hand. Pluck the rubber band with your other hand. You can then see the rubber band vibrate back and forth and also hear sound.
- place a 12-inch ruler on the side of a desk with three inches held firmly to the desk--the rest over the edge. Strike the end of the ruler with your fingers and see what happens. Can you hear a sound? Strike the ruler again and quickly touch it with your hand. When the vibrations stop the sound, of course, also stops.

AUDIO-VISUAL MATERIALS

Again, be sure to check your own libraries for aids that might be used before, during, and after the program.

STATION WJW-C••••CHANNEL 4••••TUESDAY••••MARCH 8, 1955••••10:45 A.M.
BOOKS


Children's:
by Brown, Margaret W.

THE SUMMER NOISY BOOK. Harper and Bros., 1951.

NOISY BOOK. Harper Bros., 1939.

THE SEASHORE NOISY BOOK. Wm. R. Scott, Inc., 1941.

SHHHHH BANG. Harper and Bros., 1943.

INDOOR NOISY BOOK. Wm. R. Scott, Inc.

APPENDIX C

OHIO SCHOOL OF THE AIR SCRIPT
THINGS AROUND US
"Hearing Sounds"

Video

BLACK

DISSOLVE TO CARD
"Ohio School of the Air Presents"

DISSOLVE TO FILM
Standard Opening

MATCHED DISSOLVE TO CARD
"Things Around Us"

DISSOLVE TO CARD
"Hearing Sounds"

DOLLY BACK DISCOVER LAKIN
ON MS

Audio

MUSIC IN: Program Theme

MUSIC UNDER:

ANNOUNCER: The Ohio School of the Air presents...Things Around Us, a series of science telecasts for use in the primary grades...Today's program deals with "Hearing Sounds."

MUSIC OUT:

LAKIN: Ad lib on points below.

Good morning boys and girls.
I'm Mrs. Lakin.
Glad you are doing things with plants.
Remember sound from last week.

SOUND: (Rattle of cellophane)

LAKIN: Ad lib:
Here is how that sound was made.

Introduce John Bopst.

LAKIN AND BOPST: Ad lib:
How are you.
What do you do?
Show children how you made sound.
Illustrate small fire.
<table>
<thead>
<tr>
<th><strong>Video</strong></th>
<th><strong>Audio</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TAKE CU MIKE AND HANDS</strong></td>
<td><strong>SOUND</strong>: <em>(Rattle of cellophane—easy)</em></td>
</tr>
<tr>
<td><strong>TAKE TWO SHOT</strong></td>
<td><strong>BOPST</strong>: Ad lib</td>
</tr>
<tr>
<td><strong>TAKE</strong></td>
<td><strong>Big fire—much action</strong></td>
</tr>
<tr>
<td><strong>CU LAKIN</strong></td>
<td><strong>SOUND</strong>: <em>(Rattle of cellophane—hard)</em></td>
</tr>
<tr>
<td><strong>TAKE CARD</strong></td>
<td><strong>LAKIN</strong>: Ad lib:</td>
</tr>
<tr>
<td><strong>Pix of Animals</strong></td>
<td><em>That is how sound is used in radio and television.</em></td>
</tr>
<tr>
<td><strong>DOLLY IN TO CU OF DOG</strong></td>
<td><em>Now we play game.</em></td>
</tr>
<tr>
<td><strong>DISSOLVE TO CARD</strong></td>
<td><em>Listen.</em></td>
</tr>
<tr>
<td><strong>Pix of Instruments</strong></td>
<td><strong>SOUND</strong>: <em>(Dog barking)</em></td>
</tr>
<tr>
<td><strong>DOLLY IN TO CU OF DRUM</strong></td>
<td><strong>LAKIN</strong>: Ad lib:</td>
</tr>
<tr>
<td><strong>Next.</strong></td>
<td><em>Ask if wrong animal.</em></td>
</tr>
<tr>
<td><strong>DISSOLVE TO CARD</strong></td>
<td><em>Ask if dog.</em></td>
</tr>
<tr>
<td><strong>Pix Bell, etc.</strong></td>
<td><strong>LAKIN</strong>: Yes, it was a dog.</td>
</tr>
<tr>
<td><strong>DOLLY IN TO CU OF TRIANGLE</strong></td>
<td><em>Now the next one.</em></td>
</tr>
<tr>
<td><strong>DISSOLVE TO CARD</strong></td>
<td><strong>SOUND</strong>: <em>(Drum)</em></td>
</tr>
<tr>
<td><strong>Pix auto, etc.</strong></td>
<td><strong>LAKIN</strong>: Yes, it was a drum.</td>
</tr>
<tr>
<td><strong>DOLLY IN TO CU OF TRAIN</strong></td>
<td><em>Next.</em></td>
</tr>
<tr>
<td><strong>DISSOLVE MS LAKIN</strong></td>
<td><strong>SOUND</strong>: <em>(Triangle)</em></td>
</tr>
<tr>
<td></td>
<td><strong>LAKIN</strong>: Yes, it was triangle.</td>
</tr>
<tr>
<td></td>
<td><em>Next.</em></td>
</tr>
<tr>
<td></td>
<td><strong>SOUND</strong>: <em>(Train whistle)</em></td>
</tr>
<tr>
<td></td>
<td><strong>LAKIN</strong>: Yes, it was a train whistle.</td>
</tr>
<tr>
<td></td>
<td><strong>LAKIN</strong>: Ad lib:</td>
</tr>
<tr>
<td></td>
<td><em>Sounds are vibrations.</em></td>
</tr>
<tr>
<td></td>
<td><em>Describe vibration.</em></td>
</tr>
</tbody>
</table>


**Video**

TAKE CU BLACKBOARD

TAKE MS LAKIN AND DRUM

TAKE CU DRUMHEAD

TAKE MS LAKIN

TAKE CU FORK

TAKE MS LAKIN

TAKE CU TUNING FORK AND TRAY OF WATER

TAKE MS LAKIN

TAKE CU LAKIN NECK

TAKE MS LAKIN

**Audio**

LAKIN (Writing vibration on board)

Ad lib a band vibration.

LAKIN: Ad lib:

Show vibration with this drum.

LAKIN: Ad lib:

(Hit drum) Can you hear it?

Yes.

Can you see it?

Not so easy.

(Puts beans on head)

(Hit drum again)

You can see the vibration and hear it.

LAKIN: (Holding tuning fork)

Ad lib:

Describe tuning fork.

Strike it and listen.

SOUND: (Tuning fork)

LAKIN: Ad lib:

Can you see it?

Not easy.

LAKIN: Ad lib:

Put in water.

You can see vibration.

LAKIN: Ad lib:

Repeat illustration.

See water jump.

LAKIN: Ad lib:

Put hand on voice box.

Feel vibration when you say Ahhhhh.

LAKIN: Ad lib:

Summary so far:

Can feel vibration.

See vibration.

Know that things which make sound vibrate.
Can we always see vibration?
No.
Let's listen to other sounds.

LAKIN: Ad lib:
Do these sticks make sound?
Do they vibrate?
What about these rocks?
Do they make sound?
Do they vibrate?

LAKIN: Ad lib:
Yes, all those things vibrate or they couldn't make sound.
Now how is sound carried?
(Pick up wood stick and demonstrate sound upon clock.)

LAKIN: Ad lib:
Putting this stick on clock carries sound to the other end.
This can magnifies sound. We can hear with microphone.
Demonstrate several times by removing contact with clock.

LAKIN: (Crossing to board)
Ad lib:
Let's make sound chart.
Sounds I like.
Sounds I don't like.
You make one.
Illustrate sounds for column.

LAKIN: (Crossing to table and picking up sweater)
Ad lib:
Next week we are going to talk about the weather. We'll find out why we can wear lighter clothes.
ANNOUNCER: (Synch with drum)
The series Things Around Us features...Laura Lakin as the television teacher...This series is directed by Jack Anthony...
Produced by Clair Tettemer...for the Ohio School of the Air...in cooperation with the Public and Parochial schools of the Columbus area...and WLW-C...

DISSOLVE TO BLACK

MUSIC OUT
APPENDIX D

OHIO SCHOOL OF THE AIR QUESTIONNAIRES
School Telecast Project
Bureau of Educational Research
The Ohio State University

"THINGS AROUND US" TEACHER INFORMATION

Name_________________________School_________________________Grade(s)___

School Address____________________________________________________No. in class__

1. Do you have a TV set available? Yes □ No □
   To whom does the set belong? School □ Classroom □ Teacher □
   PTA □ Other □
   What size screen does it have? ______ inches.
   Will it receive or can it be easily adapted to receive the new UHF Education station being built in Columbus on Channel 34?
   Will receive now □ Can be adapted □ Can not be adapted for UHF □

2. How many of the programs of THINGS AROUND US do you plan to use?
   All of them □ Most of them □ A few of them □ None □
   What factors will determine your selection?
   Availability of set □ topic □ quality of reception □
   scheduling □ suitability of program □ other ____________

3. In general will the programs be viewed in:
   Your own classroom □ another classroom □ multi-purpose room □
   auditorium □ other _______________________

4. With whom will your class view the programs? Alone □ With other classes of same grade level □ How many? ____ With classes of mixed grade levels □ How many? ____ What levels? ____
5. List the names and addresses of other teachers in your school who are using the telecasts so we may send them the manual and weekly guides.

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Have you used TV programs in your classes before? Yes ☐ No ☐

What program(s)? ____________________________________________

When used? __________________________________________________

Where used? _________________________________________________

7. What do you expect these TV programs will do for you as teacher?

Check as many as appropriate:

- Demonstrate some helpful teaching techniques ☐
- Suggest activities I could use with my class ☐
- Provide me with a broader informational background in Science ☐
- Bring resources to class which I couldn't have provided ☐
- Help me organize the science activities in my class ☐
- Help me to fit science into the whole curriculum ☐
- Other ________________________________________________

3. What do you expect these telecasts will do for the children in your class?

- Give them background information in Science ☐
- Stimulate them to further experimentation in Science ☐
- Stimulate a curiosity about their environment ☐
- Stimulate more reading about Science ☐
Show the children how to solve problems scientifically ☐

Stimulate science activities to do at home ☐

Other

9. As far as we know, THINGS AROUND US is the only regularly scheduled science series for primary grades. Do you feel that classroom television is really feasible on the primary level? Yes ☐ No ☐

Comment __________________________________________

What other grade levels would you feel could benefit from classroom TV? __________________________________________

10. Your suggestions can be helpful in planning the individual programs. What kinds of things would you like to have included in the programs?

11. Will you be willing to take 10 minutes each week to fill in a check sheet which has been designed to report your class's reactions?

Yes ☐ No ☐
School Telecast Project
Bureau of Educational Research
The Ohio State University

"THINGS AROUND US" telecast program evaluation
(completion time 10 minutes)

Your name ____________________________________________

Program title __________________________________________ Date______

School ___________________________ Grade____ No. in your class__

1. Did your class view today's program? Yes □ No □

   IF YOU ANSWERED NO PLEASE CHECK ONE OF THE FOLLOWING:

   Reception difficulty □ Conflict with school activity □
   Set not available □ Other reason____________________ □

   IF THE ABOVE QUESTION IS ANSWERED YES COMPLETE THE FOLLOWING:

2. Did your class view this program alone or with other classes?

   Alone □ With other □ If with others, how many other
   classes? ______

   Where did your class view this program?

   Own room □ Other classroom □ Auditorium or multi-purpose room □
   Other ____________________________________________

   Were the viewing conditions good? Yes □ No □ Fair □

   Explain ________________________________

3. Were the children specially prepared before the telecast?

   Yes □ No □

   IF THE ABOVE IS ANSWERED YES COMPLETE THE FOLLOWING:

   About how many minutes of preparation? ____________

   What did you do? Discussed telecast topic □ Told about program □
Read stories ☐ Looked at pictures ☐ Familiarized children with special vocabulary ☐ Other ____________________________ ☐

5. Could the children follow the telecast without difficulty?
   All the time ☐ Most of the time ☐ Part of the time ☐
   None of the time ☐

   What aspects or parts of the telecast were hard for the children to follow? ____________________________ None ☐

6. Did the words (vocabulary) of the broadcast give the children trouble?
   No ☐ Once or twice ☐ Quite often ☐ Most of the time ☐

   What words gave them trouble? ____________________________
   ____________________________ None ☐

7. Could your children understand and follow the ideas in the program?
   All the time ☐ Most of the time ☐ Part of the time ☐
   None of the time ☐

8. For each kind of response the children made to the television teacher, indicate about how many made this response.

<table>
<thead>
<tr>
<th>Response</th>
<th>All</th>
<th>Most</th>
<th>Some</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talked to her</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Laughed</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Answered questions</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Clapped hands</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Moved around</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Asked questions</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Fidgeted</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Followed directions</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Whispered to each other</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Do these responses generally indicate: Interest [ ] Disinterest [ ]
Roughly what proportion of your class seemed generally interested?
All [ ] Three-fourths [ ] One-half [ ] One-fourth [ ] None [ ]
What in the program caused the most response? _________________________

9. In general what were the children's reactions to the program as a whole?

Enthusiastic [ ] Liked it [ ] Indifferent [ ] Disliked it [ ]

How did your children like this program compared with last week's program?

Liked it better [ ] About the same [ ] Didn't like as well [ ]

10. In general how did the children react to the following characteristics of the television teacher?

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Enthusiastic</th>
<th>Liked</th>
<th>Indifferent</th>
<th>Disliked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Her manner of talking with them</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Her general appearance</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Her handling of materials</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Her voice</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

11. What activities relative to the telecast were carried on in your classroom immediately following the program?

Discussion [ ] Group experimentation [ ] Individual investigation [ ]

Looked at pictures, films, filmstrips, etc. [ ] Which of these? [ ]

Other __________________________________________

12. How would you rate the following things about today's telecast?

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational value of the topic</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Children's interest in the topic</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Demonstrations by TV teacher</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
TV teacher's use of visual material
Personality of TV teacher
Camera work during the program
Guide sheet material

13. How would you rate the suitability of today's program to your class?
   Too mature □ About right □ Too simple □

14. How did you think today's program moved along?
   Too rapidly □ Just about right □ Too slowly □

15. Describe any activities which grew out of last week's program

______________________________________________________________

______________________________________________________________ None □
School Telecast Project  
Bureau of Educational Research  
The Ohio State University

"THINGS AROUND US" FINAL REPORT

Name_________________________________School____________________Grade(s)______
School Address________________________________________________________No. in class_______

1. Did your class view any of the classroom television programs in the Things Around Us series on WLW-C1? Yes ☐ No ☐

   IF YOUR ANSWER IS NO, PLEASE INDICATE REASON BY CHECKING BELOW AND RETURN TO THE SCHOOL OF THE AIR.
   ☐ No TV set available ☐ Conflict with school activity
   ☐ Program not appropriate ☐ Reception difficulty
   ☐ Set not working ☐ Other Reason:________________________

   IF YOUR ANSWER IS YES, PLEASE COMPLETE THE QUESTIONNAIRE AND RETURN.

2. DIRECTIONS: Below is a list of the dates and program titles of the series. **First**, check (X) in column (1) each program which your class viewed. **Second**, check (X) in column (2) the three programs your class liked **best**. **Third**, check (X) in column (3) the three programs your class liked the **least**. **Fourth**, circle the letter in column (4) which indicates your own personal judgment as to the educational value of each of the programs which you viewed. (E=Excellent; G=Good; A=Average; F=Fair; P=Poor). Leave blank, of course, those programs you did not view.

<table>
<thead>
<tr>
<th>Date</th>
<th>Program</th>
<th>(1) Programs Viewed</th>
<th>(2) Class Liked Best</th>
<th>(3) Class Liked Least</th>
<th>(4) Educational Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 15</td>
<td>How Planes Fly</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>E G A F P</td>
</tr>
<tr>
<td>Feb. 22</td>
<td>Caring for Our Pets</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>E G A F P</td>
</tr>
<tr>
<td>March 1</td>
<td>How We Grow New Plants</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>E G A F P</td>
</tr>
<tr>
<td>March 9</td>
<td>Hearing Sounds</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>E G A F P</td>
</tr>
<tr>
<td>March 15</td>
<td>How Weather Changes in Spring</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>E G A F P</td>
</tr>
<tr>
<td>March 22</td>
<td>Starting an Aquarium</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>E G A F P</td>
</tr>
<tr>
<td>Date</td>
<td>Program</td>
<td>(1) Programs Class Viewed</td>
<td>(2) Class Liked Best</td>
<td>(3) Class Liked Least</td>
<td>(4) Educational Value</td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------</td>
<td>----------------------------</td>
<td>-----------------------</td>
<td>------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>March 29</td>
<td>Things That Live in the Water</td>
<td></td>
<td></td>
<td>E G A F P</td>
<td></td>
</tr>
<tr>
<td>April 5</td>
<td>Staying Healthy</td>
<td></td>
<td></td>
<td>E G A F P</td>
<td></td>
</tr>
<tr>
<td>April 12</td>
<td>Looking at the Sky</td>
<td></td>
<td></td>
<td>E G A F P</td>
<td></td>
</tr>
<tr>
<td>April 19</td>
<td>How Our Toys Work</td>
<td></td>
<td></td>
<td>E G A F P</td>
<td></td>
</tr>
<tr>
<td>April 26</td>
<td>Animals That Live in the Woods</td>
<td></td>
<td></td>
<td>E G A F P</td>
<td></td>
</tr>
<tr>
<td>May 1</td>
<td>Doing Things Safely</td>
<td></td>
<td></td>
<td>E G A F P</td>
<td></td>
</tr>
</tbody>
</table>

3. As a teacher who has been using this program, you probably have some valuable judgments regarding it. Please indicate your judgment about the general length of each program (15 minutes).

This is:  Too long ☐  About right ☐  Too short ☐

What length would you consider ideal for a science telecast directed to the primary grades? __________ minutes.

Please indicate your judgment about the frequency of broadcast (once a week). What would you consider the ideal frequency for a science telecast directed to the primary grades?

Daily ☐  Twice a week ☐  Once a week ☐  Every other week ☐  Once a month ☐  Other ___________________________ ☐

4. What did these TV programs do for you as a teacher?

CHECK AS MANY AS APPROPRIATE:

☐ Demonstrated some helpful teaching techniques.
☐ Suggested activities I could use with my class.
☐ Gave me no help.
☐ Interfered with classroom routine.
☐ Provided me with a broader informational background in science.
☐ Brought resources to class which I couldn't have provided.
☐ Upset class discipline.
Helped me organize the science activities in my class.
Diverted class from regular curriculum.
Helped me to fit science into the whole curriculum.
Other ________________________________

5. What do you feel these telecasts did for the children in your class?

CHECK AS MANY AS APPROPRIATE:

Gave them background information in science.
Over-stimulated the children so they could not settle down to class work.
Stimulated them to further experimentation in science.
Stimulated a curiosity about their environment.
Confused them.
Showed the children how to solve problems scientifically.
Stimulated science activities to do at home.
Introduced material above the comprehension level of the children.
Other ________________________________

6. In connection with the programs your class viewed, check in column (1) the two elements which you feel were most responsible for the interest of your class in the telecasts. In column (2) check the two elements which you feel were most responsible for the educational value of the broadcasts.

<table>
<thead>
<tr>
<th>Subject matter presented</th>
<th>(1) Class Interest</th>
<th>(2) Educational Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality of the participants</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Demonstrations and experiments</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Questions asked children by TV teacher</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The TV teacher's methods of presenting material</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Suggestions from the weekly guide sheets
Visual materials used on program
Activities suggested by TV teacher to be done
Classroom activities before the telecast
Classroom activities after the telecast

7. Did the telecasts stimulate any activities which continued over several weeks?
   Yes ☐ No ☐ What activities? ________________________________
   ______________________ Which programs? ______________________

8. Since television is a relatively new classroom experience it is important to know the attitude of your children toward classroom telecasts. In the following will you try to appraise the attitudes of your class.

   Indicate by checks about how many of the children:

   - regard classroom television as an escape from regular classroom routine?
     None ☐ A few ☐ About half ☐ Most of them ☐ All of them ☐

   - look upon this program simply as a different kind of class activity?
     None ☐ A few ☐ About half ☐ Most of them ☐
     All of them ☐

   - felt that they obtained something from these programs that they could not get in any other way?
     None ☐ A few ☐ About half ☐ Most of them ☐ All of them ☐

   - felt that the TV teacher was actually a sort of visiting teacher in their classroom?
     None ☐ A few ☐ About half ☐ Most of them ☐ All of them ☐
10. Show by check (X) how valuable you found each section of the weekly guide sheet.

<table>
<thead>
<tr>
<th>Section</th>
<th>Very Valuable</th>
<th>Valuable</th>
<th>Of little Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synopsis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>List ideas to be covered on the program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questions to be brought up on program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before the program suggestions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After the program suggestions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Related teaching aids</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In what other way could program information be made more valuable to you? _________________________________________________________________

11. As you consider the whole series and the use you made of it with your class, would you say it was;

Very valuable □  Valuable □  Of some value □  Of no value □

How might this experience be made more valuable? _________________________

12. Would you like another TV series next year? Yes □  No □

If you were asked to help plan such a series for the primary grades what one area would you suggest as the most important?

____________________________________________________________________

What suggestions would you make for such a series? ________________

____________________________________________________________________

____________________________________________________________________
THINGS AROUND US
"Hearing Sounds"

BLACK
DISSOLVE CARD

MUSIC IN:

DISSOLVE TO FILM

Ohio School of the Air

WLW-C, Channel 4
March 8, 1955
10:45 A.M.
ANNOUNCER: The Ohio School of the Air presents... Things Around Us, a series of science telecasts for use in the primary grades... Today's program deals with Hearing Sounds.

MUSIC IN:

LAURA: Good morning boys and girls. I'm Mrs. Lakin, your television teacher. I am so happy this morning. I have been hearing how many of you boys and girls have been doing things with plants. Do you remember that sound that you heard last time? -- at the end of our show? You listen to that sound again.

PAUSE:

SOUND: (Rattle of cellophane)
LAURA: Today we're going to show you what that sound is.

JOHN: Good morning, Mrs. Lakin.

LAURA: Hello John. How are you?

JOHN: I'm fine.

LAURA: And John, will you tell the boys and girls who you are.

JOHN: My name is John Bopet.

LAURA: And what do you do here at the studio?

JOHN: I'm a floor director here at the studio.

LAURA: And what does that mean that you do?

JOHN: Well, I handle props, set up shows, take care of sound effects, and so on.

LAURA: And this is a prop that you have in your hand?

JOHN: This is a prop, yes.

LAURA: Will you tell the children what you were doing last week to make that sound?
JOB: Well, I have a piece of cellophane that you can get off of your father's cigarettes or so on and we use it at the station here and on radio stations for the sound effects of fire.

If you want to have a small fire, maybe a camp fire, or something like that, you have a very small easy motion of the fingers.

SOUND: (Rattle of cellophane-soft)

LAURA: Hear that fire? That sounds just like a fire, John.

JOB: And if you want a big fire, a big, big fire, say a forest fire, or something like that, then we go all out and you really twist that paper and make all kinds of noise.

SOUND: (Loud rattle of cellophane)

JOB: And there's a big forest fire.
LAURA: So now you see how that fire—that sound was made and what it is used for.
John and I have a game to play this morning with you, and if you would come over here I'll tell you how to play the game.
We're going to show you a group of pictures and you have to listen very carefully for a sound that goes with the pictures, and you may say yes, or no.
Now you listen to the sound of the first—the sound that goes with the first group of pictures. Listen.

SOUND: (Dog Barkings)
PAUSE:
LAURA: Now that sound has to come from either one of those pictures on that animal chart. Was it a rooster? (PAUSE) Noooooo.

Was it a dog?

PAUSE:
Sure, it was a dog so we know that it couldn't have been the cat.

Wasn't that fun?
Now you listen to the sound that goes with the pictures of the musical instruments.
Listen carefully.

SOUND: (Triangles)
LAURA: Oh, that's the wrong sound.
Wait, I have to give you another sound. Listen carefully.

SOUND: (Drum)
LAURA: Was that sound a violin?
Noooo.
A piano? Noooo.
It had to be that drum.

Now let's try another game.
I'll get the right one this time. Listen to the sound that goes with that picture. Those are all going to be noises.
Listen carefully.

SOUND: (Triangles)
LAURA: Oh, you know already, don't you. Well, let's do it. Was it the bell? Nooooo.
The whistle? Nooooo.

It had to be that triangle.
But you got to hear it two times.

Now you listen to the last one.

There are things in which we ride. You listen to the sound that goes with that picture.

SOUND: (Train whistle)

LAURA: Was that a car? Nooooo.

An Airplane?

No, it had to be a train.

Sounds are vibrations. A vibration is something that moves or trembles. Anything that vibrates, moves or trembles.
I'm going to put the word vibrate right up here on the board because it's the thing that makes sound. Anything that will vibrate will make a sound. Here's the word that says vibrate.

Now then, we know that this drum, for instance, vibrate because we could hear that a while ago. You listen - you watch and see if you might be able to see that vibrate.

SOUND: (Drum)

LAURA: You can hear it.

SOUND: (Drum)

LAURA: Now I can show you that you can see that drumhead vibrate. I can also feel it when I struck it a moment ago with the stick I could feel the vibrations on the stick. Now you watch those beams and you can see that the head of this drum vibrates to make a sound.
LAURA: See how much the head of that drum had to vibrate?

SOUND: (Drum)

LAURA: Also I can show you how vibrations are in this tuning fork. Maybe you don't—maybe you've never seen one of these before.

A tuning fork is used to tune pianos or to get the right pitch if we're going to sing because it is always the same pitch. You listen and see if you can hear the sound of this tuning fork. Listen carefully.

SOUND: (Tuning fork—three times)
LAURA: Can you hear the sound of that? Now we're going to see if we can see it we can see it. Over here is a pan of water.

How you watch and you can see how that the vibrations from the tuning fork are so strong that it.

SOUND: (Tuning fork)

LAURA: ... splashes the water. Watch.

SOUND: (Tuning fork)

LAURA: That's how much vibration we have on a tuning fork. Now vibrations are trembling or movements and we know that this tuning fork actually moved because we saw the water splash and we know that the top of this drum actually moved, trembled, or vibrated because we saw those beans jump up and down.
Put your hand right here on your throat.
say, "HMMMMMME.

PAUSE:

HMMMMMME.

PAUSE:

Could you feel your throat vibrate? -- or tremble?
You may put your hands down now.

We have been able to feel vibrations, to see vibrations, but sometimes we can't see them.
Now we know that anything that makes a sound, vibrates but sometimes we can't see the vibration.
Now, listen and see if you can hear a sound on these sticks.

SOUND: (Hit sticks together)

LAURA: You could hear them?
That means that they were vibrating but we really couldn't see the vibration in a piece of wood. But
we know that it had to move or tremble in order to make a sound, just the same way that the drum had to move or tremble in order to make a sound. We call that vibration.

It's very hard to imagine that two hard things like these - two pieces of rock - would be able to vibrate or move. You listen and see if you can hear it.

SOUND: (Hit two rocks together)

LAURA: Could you hear that sound? Well, that means that there was a vibration there or you couldn't have heard it because a sound is vibration. Now we have to have something that will carry those sounds - those vibrations. We know that everything around us is filled full of air - we learned that a few weeks ago. So we know that right here we have been having the air carry the sound. But if you - have you ever been
down in a swimming pool or down under the water? And had anybody cracked two pieces of stone together down there? If the stones were cracked together, down under the water, you could hear them. That's because the water also carries vibrations. We found out that metal can carry vibrations. And we can - we found out that wood could carry vibration. I have a way of showing you here that wood carries vibrations. An ordinary alarm clock that goes tick-tock, tick-tock and a piece of wood. Now in order to make it sound more plainly, I have put on here a tin can and I can go up against this clock like this and listen and it gets very loud when I listen into that tin can. I take it away and it gets softer again.
Now listen and it gets louder again when I press it up against the clock, because the vibrations from the sound of this clock are going through the wood — I'm carrying it through the wood in order that I can hear it. We have some games that we can play with vibration. I'd like to show you how you can make a chart.

Over here on the blackboard we can make a vibration chart or a sound chart. Big one like this. And up at the top we can write Sounds We Like. Sounds We Like. Now maybe you would like to say Sounds I Like. Maybe you would like to do it with the class and say Sounds We Like or maybe you'd rather have Sounds I Like, because you know some people like certain sounds and other people don't. For instance, boys and girls often like the sound of a siren and often times boys, grown-up people don't like the sound of a siren. So you might say Sounds
I Like or Sounds We Like, whichever one you want to say and on the other side you write Sounds I Don't Like. Down this way and then write on this side Sounds I Don't Like. I have to get a larger chart than this won't I. I'll press this - push this out a little bit - way out here - it'll have to go way out here. Sounds I Don't Like.

And then down under there you can write all the things that you do like and the things that you don't like. That's a lot of fun - to find out the sounds that you do like and you don't like.

Also besides sounds being able to be carried by water and air and metal and wood we also know that sounds - we can tell how far away sounds are or how close they are. We can tell distances by sounds. When you hear a siren coming down the street, you don't have to go looking up and down the street right away to see where it is. You listen, and you know that it's far away and all you have to do is wait a little while.
You can tell how far it is - how close it is - and then you turn your head to see it coming down the street. Or, when you're walking to school and you hear somebody say to - call back of you, "Wait up, wait up" you know right away that it's coming back of you. You don't have to look up and down the street to see where it's coming from.

Sounds have a distance. So we'd know how far they are away. Also, I'd like to show you something else you can do at your school, with a tin can and a string.

Tighten the string and you can hear through there.

Next week we are going to be talking about weather and we'll get to find out why it is we can put things away like this and get out lighter garments to wear like this.
MUSIC: (Establish then under)
ANNOUNCER: The series Things
Around Us features...

Laura Lakin as the television
teacher.....

This series is directed by
Jack Anthony.....

produced by Clair Tetteg

for the Ohio School of the Air.
In cooperation with the Public and Parochial schools of the Columbus area.

And WLW-C.

MUSIC OUT
APPENDIX F

KETC SAMPLE SCHOOL SCHEDULE
## SCHOOL PROGRAMS

**STATION KETC-CHANNEL 9**  
**ST. LOUIS**  
**MISSOURI**

### School Programs Telecast Schedule

#### Spring Semester 1958

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### Evening Programs

- **Tuesday** - 7:30 to 8:00 P.M. French Through Television  
- **Thursday** - 8:00 to 8:30 P.M. Educators' Review  
  - 8:30 to 8:45 P.M. U.N. Review

*Figure It Out will run for the first seven weeks of the semester. Beginning with the eighth week (March 24) Word Adventures will be shown at this time.

**Figure It Out (PREVIEWS)** will run six weeks. Beginning with the seventh week (March 17) Word Adventures (PREVIEWS) will be shown at this time.
SCHOOL PROGRAMS
KETC - Channel 9

Beginning February 3, 1958

HERE AND THERE (Series II)--14 programs, 15 minutes long, for Primary-Low (Kindergarten and First Grade). Included are visits to a puppeteer, a cowboy, the Mississippi River, and the zoo; stories and songs. This is a continuation of the series presented the first semester and the teacher again is Mrs. Louise Pillisch of the St. Louis Public Schools.

ROOM NINE (Series II)--14 programs, 15 minutes long for Primary-High (Second and Third Grades). Included are puppets, a clown, kites; things to make; a visit to Shaw's Garden and the St. Louis Municipal Airport. This is a continuation of the series presented the first semester. The teacher again is Miss Esther Dornhoefer of the St. Louis Public Schools.

BEGINNING SPELLING--FIRST HALF--a daily 20-minute program. Miss Charlotte Robinson of the St. Louis Public Schools is the teacher. A handbook has been assembled with the picture sheets that are used on the program from time to time. These picture sheets may be reproduced by the schools for the children's use, if they so desire.

BEGINNING SPELLING--SECOND HALF--a daily 20-minute program. This is a continuation of the above program and the same type handbook is available.

LEARN TO SPELL--14 programs, 20 minutes long, a spelling program for Grades 3-4-5-6, reviewing the basic principals of spelling. The teacher is Miss Kay Ware, General Consultant for the St. Louis Public Schools.

THE STORYTELLER--14 programs, 15 minutes long; a literature program for Fifth and Sixth Grades, designed to develop an appreciation and enjoyment of good literature. This series, a continuation of the one telecast last semester, consists of fourteen new stories. The storyteller is Bill Martin, Jr.

LINES AND SHAPES--14 programs, 15 minutes long, for Middle Grades. This series is designed to encourage the listener to discover shapes, patterns, rhythms and designs in the world around him. Mrs. Kate Haven, Art teacher at Community School, is the teacher.

WORLD ADVENTURES--7 programs, 20 minutes long, for Middle/Upper grades, designed to show students how fascinating the study of words can be. The purpose of the series is to develop an attitude toward and
an interest in "Words." This series will not begin until March 24 and will be in the same time slots as the series FIGURE IT OUT, which will run for the first seven weeks of the semester. The teacher is Miss Ruth Schofield of the St. Louis Public Schools.

FIGURE IT OUT—7 programs, 30 minutes long, for Middle/Upper grades. Here is a series on the development of our number system which brings you a teaching specialist with new materials and information not normally available. Here is a part of the fascinating story of numbers—an introduction to the pleasures, achievements, and satisfactions which an understanding of numbers can bring. This series was produced by Station WHA-TV, University of Wisconsin. The teacher is Miss Sara A. Rhue, formerly an Associate Professor of the Wisconsin School of Education. The series will run for the first seven weeks of the semester. Beginning the week of March 24, WORD ADVENTURES will be shown in these time slots.

DISCOVERY—14 programs, 30 minutes long, for Middle/Upper grades, a series of Natural Science Lessons. This series aims to make learning about the world in which we live an adventure that opens the doors to many fields of scientific knowledge. Living animals and plants and other visuals become the illustrations for what the producers call "How learnings."...how something causes something else. The series was produced by Station WOBM-TV, Boston, by Lowell Institute Cooperative Broadcasting Council. The teacher is Mary Lela Grimes, whose wide background of experiences makes her an ideal person for the series.

SCIENCE AT WORK—14 programs, 20 minutes long, for Junior High-Upper Elementary grades. This series is designed to develop basic scientific understandings needed at this level, to help students understand that science is a method of obtaining knowledge and solving problems, and to show how science is at work in the home, in the community, in the universe. The teacher is Mrs. Adela Scharr of the St. Louis Public Schools.

WHAT'S THE NEWS—A current events presentation for Grades 7-8-9. This is a live program televised twice each Wednesday, at 10:35 A.M. and 1:45 P.M. with Walter Ross. The purpose of this series is to make children news-conscious. To do this, the newscaster will not only tell what the news of the moment is, but will describe where it was obtained and why it made news.

MISSOURI CONSTITUTION—14 programs, 20 minutes long, for Upper Grades. These programs are correlated to Missouri, the Simplified Constitution. Two different lessons will be telecast each week. Program No. 1 will be telecast Monday and Tuesday of the first week and Program No. 2 will be telecast Thursday and Friday of the same week. The third program will be telecast the first part of the second week and the fourth program, the last two days of that week, and so on.
for the seven weeks. This means that a teacher intending to use all of the television programs will need to schedule both a Missouri Constitution "A" and a Missouri Constitution "B" period each week. The entire series will be repeated twice during the semester. The teacher is Paul Andereck, Audio-Visual Director of the Affton School District.

INTRODUCTORY PHYSICS—150 programs, 20 minutes long, for High School. This is a continuation of the complete course in Introductory Physics, produced by Encyclopaedia Britannica Films and featuring Dr. Harvey E. White. The series is scheduled to be shown three times each day, twice during school hours and once after school. Dr. White and his assistants have prepared a daily lesson guide to assist the teacher. KETC stocks these guides and will make them available to schools at our cost of $11.00 per set.

ADDITIONAL HIGH SCHOOL PROGRAMS

ACTIVITIES PLUS--A series of programs to serve the extra-curricular programs in high schools, telecast once a week on Wednesday from 5:45 to 6:15 P.M. Individual program schedules will be listed in the monthly bulletins sent each school. The programs will be arranged in sub-series for use by Camera and Journalism Clubs.

FRENCH THROUGH TELEVISION--An introductory course in French, telecast Fridays from 5:45 to 6:15 P.M. and repeated the following Tuesday from 7:30 to 8:00 P.M. This series is based on the Pocket Book (Cardinal Edition), French Through Pictures, written by Prof. I. A. Richards of Harvard University, Miss Christine Gibson of Harvard University, and M. H. Ilsley, Professor of French at Wellesley College. The series was produced by Language Research, Inc., under the supervision of Miss Gibson.

U.N. REVIEW--A series of fifteen minute programs produced by the UN's Television Department. The programs prepared each Friday include films of the General Assembly and Committee meetings as well as special interviews with leading UN newsmakers. The commentator for the series is John McVane, noted radio and TV news analyst, who has covered the UN for many years. The present general assembly session is scheduled to end on or about March 2, 1958. The Reviews will be carried as a part of the school program schedule as long as they are available. Should the session be extended, the REVIEWS will continue to be telecast. Upon termination of the meetings and the UN REVIEW programs, we will continue the series throughout the semester with "re-runs" on the most pertinent issues.
EVENING PROGRAMS FOR HIGH SCHOOL STUDENTS

TEMPEST IN A TEST TUBE--TUESDAY, 8:30 to 9:00 P.M. Here are 26 programs conducted by Dr. Harry Sello, Research Chemist at Shockley Semiconductor Laboratory, Mountain View, California. Dr. Sello conducts many illustrative experiments to intrigue the teenager. It begins with nineteenth century lectures of Michael Faraday and continues on through experiments in electricity, acids, bases, metals, organic chemistry, and radioactivity.

HERITAGE--WEDNESDAYS, 8:00 to 8:30 P.M. Through HERITAGE, a selected group of prominent persons individually address themselves to broad areas of subject matter in fields where they are particularly qualified to speak. Rather than being a series of conventional pattern, this is a "series of series"; each guest appears on several programs. The sub-series present poet Robert Frost, Harold Urey, Clinton Golden (known as Dean of the Labor Movement), Hungarian composer Ernst Von Dohnani, and others.

DOCTORS IN SPACE--WEDNESDAYS, 9:00 to 9:30 P.M. This timely series explores what is now known about flight into space and resultant medical problems and includes the latest scientific developments in space medicine. Appearing in all programs of DOCTORS IN SPACE is a leading authority on space medicine, Dr. Hubertus Strughold, Advisor for Research, School of Aviation Medicine, U.S. Air Force, Randolph Air Force Base, Texas. The host of the series is Dr. John Rider, a professor of physics at the University of Houston.

OUR NATION'S ROOTS--FRIDAYS, 8:00 to 9:30 P.M. A series of 26 programs dealing with the contributions of immigrants to the growth and development of the United States. Dr. Thomas P. Robinson and Ormand J. Drake, both of New York University, narrate, discuss, dramatize, and demonstrate this intensely interesting story.

STAFF PROGRAMS

EDUCATORS' REVIEW--THURSDAYS, 8:00 to 8:30 P.M. This series, formerly known as EDUCATION DIGEST, will continue to bring to its listeners the news and views prominent in the field of education. Lee Campion, Director of the St. Louis County Cooperating Schools Audio-Visual Department, serves as host editor on this live series.

POSTSCRIPT--This series is planned to bring interesting ideas, suggestions, and techniques in various subject areas to its audience on MONDAYS from 3:50 to 4:00 P.M. Individual program titles will be announced through the monthly bulletin.

PREVIEWS--EVERYDAY from 12:00 to 1:00 P.M. and at 3:20 P.M. on Mondays, Tuesdays, and Thursdays. Previews of coming programs will be telecast during these periods.
SCHOOL BUSINESS--WEDNESDAYS from 3:20 to 4:00 P.M. This time has been set aside for school administrators for such purposes as teachers meetings, transmitting specific subject matter information, preview of audio-visual material, teaching demonstrations, etc. Arrangements for using this time can be made by calling Clair R. Tettemer, Director of School Programs, KETC, Volunteer 3-0995.

SPECIAL PROGRAMS--THURSDAYS from 2:35 to 2:55 P.M. New program ideas, planned by Teacher Television Committees as pilot programs, will be telecast to teachers and pupils on closed circuit during this period. Schools will be invited to participate in the evaluation and will be notified whenever pilot programs are telecast.
HERE'S A PROGRAM YOUR STUDENTS SHOULDN'T MISS! - TUESDAY, MARCH 31, 1:15 P.M.

Walter Ross will interview Representative THOMAS B. CURTIS of the Second Congressional District of Missouri on WHAT'S THE NEWS.

Local representation in the United States Congress, the life of a congressman, the geographic boundaries of local Missouri and Illinois congressional districts, and the names of representatives of the greater St. Louis area will be explained.

Don't miss WHAT'S THE NEWS on March 31, or any school day, Mondays through Fridays at 1:15. Mr. Ross covers the week-in-review, local news, national and global news, and newsmaking, each on a different day of the week. Over 72 classes have been participating in WHAT'S THE NEWS weekly poll questions in the first five weeks of this semester. These student opinion polls, which have stimulated classroom debates, motivated students to do research, and given viewers practice in taking a stand on issues, have covered several topics in the news. They have dealt with the question of lowering the legal voting age, the relative greatness of presidents, repeal of the 22nd amendment, the desirability of nepotism in congress, and other areas of newsworthy significance. More than six thousand students have engaged in WHAT'S THE NEWS polls thus far. Would your class like to participate? Call Volunteer 3-099C and ask for “opinion poll reporting cards.”
HORIZONS IN HOME ECONOMICS - FRIDAY, April 3, 1:55 to 2:25 P.M.

This special television program for home economics teachers and students will feature chief officers of state and national home economics organizations. The moderator will be Miss Esther Lee Bride, Director of Home Economics Consultant Services of Union Electric Company.

Miss Bride's special guests will be:

MISS OLGA P. BRUCHER, President of the American Home Economics Association, who will discuss the new horizons for home economics.

MISS RUTH WHEELER, President of the Illinois Home Economics Association, who will describe the horizons for home economics on the secondary school level.

MRS. MARIE HUGG, President of the Missouri Home Economics Association, who will explain the dual career aspects of a home economics career.

These prominent home economists will be in St. Louis to address the Missouri and Illinois joint spring meeting of state home economics associations at the Sheraton-Jefferson Hotel on April 3 and 4.

STAFF NOTICE

NEW PROGRAMS FOR 1959-60

In our May School Programs Bulletin, we will publish a schedule of telecasts for next fall semester (telecasts to begin September 20, 1959). Several new series will be included. Some of these will be obtained from other agencies, such as the National Educational Television and Radio Center, and some will be produced at EETC. The programs "in-the-works" are:

THE FRIENDLY GIANT - A Literature Program for the Primary Grades. This series is designed to introduce children to books and to help them see how books can answer their questions and supplement and enrich their everyday living. The main part of each program is the showing of a book, introduced through a bit of friendly discussion, by the Friendly Giant and one or more of the following puppets: A giant giraffe, a rooster who lives in a book bag, and two kittens, a black one and a tiger-striped one.

MUSIC FOR YOUNG PEOPLE - Music Appreciation Series for Middle/Upper Grades. Members of the New York Woodwind Quintet, the New York Brass Quintet, the Trio Concertante, the New York Percussion Trio, the Juilliard String Quartet, and their soloists explain and demonstrate their respective instruments, individually and in various combinations. A wide variety of music is played that would appeal to students and is especially effective in displaying the individual qualities of the instruments and the ensembles.

GEOGRAPHY - For Grades 5, 6, 7, and 8. Relative location of places of importance, how to read maps of various projections, understanding why cities are located where they are, and study of land forms are part of this geography series for upper grades. There will be fourteen programs of twenty minutes each. Basic knowledge of geography will be reinforced for students who have a "shaky" foundation in geography and the well-grounded students will learn broader concepts in this series.
ILLINOIS CONSTITUTION - For Grades 7, 8, and 9.

This series of fourteen programs (each twenty minutes in length) will be telecast at a rate of three lessons per week. The series has been planned by teachers of Illinois schools to clarify the portions of the constitution which are difficult to teach. These areas include the court system, amending the constitution, taxation, and other difficult areas. Basic concepts of constitutional law and government will be illustrated through hypothetical cases and visual illustration. Illinois State law requires the study of Illinois Constitution in the elementary grades and in high school. Many concepts of government and legal process are hard for adults to understand; the difficulty is even greater for junior high age citizens. Plan to use this series next fall and see how it can help your class.

DRIVER EDUCATION - For High School

The Cincinnati Public Schools have produced a series of television lessons dealing with topics such as "Physical Qualities of the Good Driver", "Mechanics of the Automobile", "Defensive Driving", "Unusual Traffic Situations", "Bad Weather Driving", "Traffic Courts and Law", and "Auto-mobile Insurance". This series will be a great help in the teaching of driver education. The course begins with the invention of the automobile and covers much of the information which does not involve in-the-car instruction.

POSTSCRIPT - WEDNESDAYS 4:30 to 5:00 P.M.

April 1 - What School Libraries Can Do For You will be the subject of the first of a four-program series dealing with school libraries and children's books. Members of the St. Louis Suburban School Librarians Association -- Mrs. Elizabeth Brinkman, Ladue High School; Mrs. Estelle Elmore, Bayless Senior High School; Mrs. Helen Smith, formerly of Clayton High School -- will be the participants. Areas discussed will include book talks, guidance, curriculum planning, bulletins, audio-visual materials, book reviews, and aspects of library use and training.

April 6 - Books for Primary Children will be explored by two teachers, Miss Esther Dornhoefer and Miss Sarah Owen. The discussion will center around new books on the market, standards to guide in the selection of these books, and the interests of young children.

April 15 - What Books Do Intermediate Grade Students Enjoy? will be answered by a group of students and two teachers, Mrs. Harriet S. Miller and Miss Frances McMahon. The teachers will also discuss the selection of books for students in this age group.

April 22 - Special Program - Through glimpses into the classroom of an experienced, skillful teacher, the National Educational Association's film, Not By Choice, points up what it takes to make a good teacher. Both subject competency and teaching methods are emphasized.

April 29 - Books For Upper Grade/Junior High Students will be discussed on the last program of this series. Three teachers, Miss Helen Baldwin, Miss Winifred Concannon, and Mr. Harlan Lewis, will present books used by pupils for projects in the various curricular areas. Students on the program will show projects on which they are working.
HIGH SCHOOL NOTICES

METROPLEX ASSEMBLY - TUESDAYS 8:00 to 8:30 P.M. (First Half)
9:30 to 10:00 P.M. (Second Half)

The Civic Education Center at Washington University presents St. Louis artists talking about their arts and the relationship these arts have to daily living. People who view the "first half" gather at Viewing Posts throughout the city to watch, discuss the ideas presented, and then telephone in questions they want discussed during the "second half" of the program. Information about how your class can set up a Viewing Post and participate in the Assembly may be obtained from the Civic Education Center at Washington University, Parkview 5-3320.

April 7 ARCHITECTURE...Eugene Mackey, St. Louis Architect
14 PAINTING......Fred Conway, Washington University art instructor
21 THEATRE......Jay and Fran Landesman, amateur playwrights
28 MUSIC........Robert Wykes, composer in residence at Washington University

ADVENTURING IN THE HAND ARTS - MONDAYS 4:00 to 4:30 P.M.
FRIDAYS 5:00 to 5:30 P.M.

This series deals with the creativity of man through the use of his hands. Each week Miss Shari Lewis, hostess, is joined by a different guest expert. Film visits to primitive cultures are highlights of this series.

April 3 MASKS AND IMAGINATION.....Special guest: Miss Dorothy Leadbeater
6 & 10 MUSIC AND MUSICAL INSTRUMENTS.....Special guest: Robert E. Wood
13 & 27 DOLLS, PUPPETS, AND DIVERSION..Special guest: Ascacio Spolidoro
20 & 24 WOODCARVING AND ARTISTIC EXPRESSION..Special guest: Chaim Gross
27 DESIGN AND ENVIRONMENT.....Special guest: Vincent Bruno

SURVIVAL - WEDNESDAYS 8:30 to 9:00 P.M.

A television inquiry into the problems facing us in the event of disaster and the preparations that can be made to give us a fighting chance for...SURVIVAL. The purpose of this series is to re-awaken an interest in Civil Defense as a whole and in Civil Defense plans for the greater St. Louis area, in particular.

April 1 PLANS FOR EVACUATION AND SHELTER: Orderly evacuation of St. Louis.
8 FACTS ABOUT Fallout: Preparation to get through the fallout period.
15 NATURAL DISASTER: Warning and preparation for things like tornadoes.
22 AFTER SURVIVAL...WHAT?: (Part 1) Preparations for living in chaos.
29 AFTER SURVIVAL...WHAT?: (Part 2) Survival in order to fight back.

HERITAGE - TUESDAYS 6:15 to 6:45 P.M.
FRIDAYS 1:55 to 2:25 P.M.

This series features distinguished people who discuss their fields of endeavor. Dr. Harold Urey, discoverer of heavy hydrogen and professor of chemistry at the University of Chicago, will complete his discussion of the twentieth century scientist's work this month. Dame Edith Sitwell, distinguished English poetess, will read her own poetry, discuss poetry and poets, and chat with guest poets.

April 3 (NO PROGRAM.....SEE HOME ECONOMICS SECTION OF THIS BULLETIN)
7 & 10 SCIENTIFIC TRAINING: The makings of a good scientist; Dr. Urey.
14 & 17 OUTSTANDING QUALITIES OF POETRY THROUGH THE AGES: Dame Sitwell.
21 & 24 SELECTIONS OF POETRY BY DAME SITWELL: Dame Sitwell.
APPENDIX H

KETC EVALUATION FORMS
SUPervisory Teacher
DAILY REPORT

School__________________________ Teacher__________________________

Subject________________________ Date____________________________

The items listed below are suggested as a guide in making your daily comments.

The numbers to the right of any item may be considered to be a five-point scale, as follows: 5 = excellent; 4 = good; 3 = average; 2 = poor; 1 = unsatisfactory.

I. Estimate of the overall quality of the lesson

II. Detailed evaluation

1. Gearing of the lesson to the ability of the students

Comment______________________________

2. Organization of the lesson

a. Effectiveness of the opening of the TV lesson

Comment______________________________

b. Major presentation

Comment______________________________

c. Effectiveness of the close of the TV lesson

Comment______________________________

3. Significance of the content

Very important □ Of some importance □ Not important □

Comment______________________________

4. Quantity of material covered:

Too much □ About right □ Too little □

Comment______________________________
5. Assignment (clarity, quantity, etc.)

Comment______________________________

III. Apparent student interest in the lesson

Comment______________________________

IV. Reproduction on screen of visual materials
(films, filmstrips, pictures, etc.)

Comment______________________________

V. Camera work--was the camera on the right spots?

Comment______________________________

VI. Characteristics of the TV teacher

1. Personal appearance

Comment______________________________

2. Mannerisms

Comment______________________________

3. Voice and diction

Comment______________________________

VII. If the reception was unsatisfactory, indicate the nature of the
difficulty and the cause, if known.

Comment______________________________

VIII. Interruptions which disturbed the lesson

Comment______________________________

IX. Portion of lesson that should be repeated

Why?______________________________

X. General Comment--classroom conditions, student morale, etc.
(Fill out, tear off, and give to television coordinator)

**SERIES TITLE**_____________  **GRADE**________

**PROGRAM TITLE**_____________  **PROGRAM DATE**______

**SCHOOL**_____________  **DISTRICT**________

1. **Vocabulary:**
   - Too Difficult
   - Too Easy
   - Right

2. **Pacing:**
   - Too fast
   - Too slow
   - Right

3. **Ideas Presented:**
   - Too Difficult
   - Too Easy
   - Right

4. **Teacher-Student Reactions:**

   ____________________________________________________

   ____________________________________________________

   ____________________________________________________

   ____________________________________________________

   ____________________________________________________
October 1957

School Address

School System

High School [ ]  Junior High School [ ]  Elementary [ ]

Number of teachers in your school?

1. Are any KETC School Programs used in your school? Yes [ ]  No [ ]

2. How many TV sets are in your school?

3. How many teachers in your school use some school program telecast over KETC?

4. Indicate below the number of your teachers who use a particular series REGULARLY (every program in a series), FREQUENTLY (about half of the programs), or OCCASIONALLY (less than half of the programs).

<table>
<thead>
<tr>
<th>Series</th>
<th>REGULARLY</th>
<th>FREQUENTLY</th>
<th>OCCASIONALLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Here and There</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Room Nine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Begin. Spelling 1st half</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Begin. Spelling 2nd half</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talking Town</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn to Spell</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science Shelf</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Louis Missouri</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Storyteller</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lines and Shapes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What's the News</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missouri Constitution</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Physics</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Activities Plus</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Beyond the Gate</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>French Through TV</td>
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</tr>
</tbody>
</table>

5. How many of your teachers view the program EDUCATION DIGEST (Tuesday) 9:00-9:30?

   Regularly  ________
   Frequently ________
   Occasionally ________
   Never ________
6. Has your school used the series POSTSCRIPT (Mon. 3:40-4:00) as a part of their regular faculty meetings?  Yes □  No □

How many of your teachers watch the POSTSCRIPT Program on their own?

Regularly__________
Frequently__________
Occasionally__________
Never__________

7. How many of your teachers take advantage of the PREVIEWS telecast at noon?

Regularly__________
Frequently__________
Occasionally__________
Never__________
APPENDIX J

KETC CASE STUDY INTERVIEW SCHEDULE
CASE STUDY OF PRACTICES AND ATTITUDES TOWARD E.T.V.

Information and Background

Name: 

School: 

Grade: 

Teaching Experience:

1. Number of years: 

2. In this grade: 

3. Other grades: 

4. Other subjects or specialized fields: 

5. Number of years in this school: 

6. In the St. Louis area: 

Audio-visual Experience:

1. Any formal training in use of audio-visual materials (i.e. E.T.V.):
   a. Where? 
   b. How extensive? 

2. Previous experience in use of E.T.V.:
   a. Does she use it now? 
   b. Has she ever used it? 
   c. For how long? 
   d. If stopped using--why?

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3. Use of other audio-visual aids:

   e.g. field trips ☐ motion pictures ☐ slides ☐
   film strips ☐ still pictures ☐ other ☐

Preparations for Use of and School Facilities for E.T.V.:

1. How is information about available programs obtained (or dispersed):
   a. Through the T.V. co-ordinator? ☐ Who is he?
   b. Does the teacher have a study guide and have access to the monthly bulletins?
   c. Does the dispersement of information about E.T.V. (the available programs) seem satisfactory?

2. Location of T.V.:
   a. Classroom ☐ Audio-visual Room ☐ Multi-purpose Room ☐
      Auditorium ☐ Cafeteria ☐ Other ☐
   b. Is T.V. set readily accessible and convenient to use?
   c. Are there any difficulties in moving the class?
   d. Is T.V. used by more than 1 group at a time?
   e. If so, what are the difficulties of using it with mixed groups?

3. Scheduling for various classes:
   a. Is it difficult to reserve T.V. facilities?
   b. How is it done?

4. Mechanical factors:
   a. Reception: good ☐ satisfactory ☐ poor ☐
   b. Sound: good ☐ satisfactory ☐ poor ☐
   c. Does poor reception or sound discourage use?
Pattern of Utilization by Teacher:

1. Does she use previews in order to determine which programs are useful or appropriate? Why not?
   
   (IF ANSWER TO ABOVE IS "NO," GO TO PAGE 5, "Reasons Most Frequently Cited for Not Using E.T.V.")

2. Does she use the study guide and find it helpful in determining which programs are suitable for her class?
   Could the study guide be more helpful and how?

3. Which series(s) does she use with her class?
   How often: regularly ☐ frequently ☐ occasionally ☐

4. How does she integrate the use of E.T.V. into her teaching schedule?
   Does she use the programs as: kick-offs ☐ directives ☐
   reviews ☐ as substitute teaching ☐ other ☐

5. Do any interesting projects grow out of the use of E.T.V.?
   a. What are they?
   b. Do they stem from suggested follow-ups in the study guide?

6. Are the pupils' interest and attention good?

7. What first started her using T.V.?

Reasons Most Frequently Cited for Using E.T.V.:

1. Administrative pressure exerted.
   Use encouraged by administration.
2. In order to compensate for personal inadequacies—e.g. in teaching music, science, art.

3. In order to obtain further in-service training—ideas about methods of presentation from watching the T.V. teacher.

4. Relief of work load. (What does the teacher do while class is watching T.V.?)

5. Lack of other materials: e.g. on Mo. Constitution or City of St. L.

6. In order to experiment with new material:

   To take advantage of the stimulative value of a variety of material and of material which is not otherwise available (e.g. field trips, "The Storyteller").

   To take advantage of the stimulative value of bringing in another person (teacher) as well as of novel or new material.

7. Greater clarification of content enabled by T.V.:

   By the additional appeal to sight
   By the opportunity for use of many examples
   (Some concepts can be taught better visually.)

8. Special values of T.V.:

   Immediacy—e.g. News Program
   Close-up views
   Pacing steady and uninterrupted
   T.V. can bring many people to bear on preparation.
   T.V. is able to organize many different audio-visual materials and synthesize them into 1 program.
   T.V. is a compelling medium.

9. Other(s):

Reasons Most Frequently Cited for Not Using E.T.V.:

1. Administrative disapproval or apathy—lack of encouragement.

2. Unawareness of what is available, how to obtain information, and from whom.

3. Inconvenient or unsatisfactory physical or mechanical set-up—e.g. location of T.V., reception.
4. Scheduling of T.V. programs does not fit in with the class's daily or seasonal schedule. Material covered or paced too slowly or too rapidly.

5. Fears and prejudices:

   Fear of personal inadequacy on part of teacher and/or of her replacement by T.V.

   Audio-visual tools do not fit into her philosophy of education. She does not see T.V. as playing an important or constructive role in education.

6. No felt need for T.V. aid—teacher feels competent to teach everything.

7. Content:

   Disagreement with what is being taught: the material included and developed.

   Disagreement with the way the material is being taught: the method of presentation.

8. Other(s):
APPENDIX K
SUMMARY OF CASE STUDY--NO. 1

Background data on School:

In a well-to-do district—middle-upper-middle socio-economic class. Very stable faculty. Average tenure 11 years. For the most part, experienced, competent, conscientious teaching staff. Only one novice teacher (C.S.3). Fairly small classes. Children enter school with a generally more sophisticated educational background than do those children who come from less well-educated, lower-income families.

Audio-visual Facilities:

School is able to provide its teachers with a great deal of educational (e.g. audio-visual) material which is readily available and easy for them to use. T.V. is used in the classroom; there is a set-on-cart on each of the two floors. The only class in which there are two sections is the fifth grade—sections are on separate floors. The sets are reserved by the teachers in advance by signing up on a sheet which is posted on the faculty bulletin board. The school principal is the T.V. coordinator; he encourages the use of E.T.V. by making it as easy as possible to use, but he does not exert pressure on the faculty.

Of the nine teachers, only 5 had had formal training in the use of audio-visual materials, yet all of them used it to a greater or lesser extent. In all cases the teachers stated that they had first started using T.V. because it was "there and easy to use." All possessed study guides and appeared to be well informed about the available and pertinent programs. None of the teachers used the previews to inform them themselves. They all felt that given a brief familiarity with the basic format and the teacher of a program, the study guide provided sufficient information for them to determine which programs would be interesting and useful.

Pattern of Utilization

<table>
<thead>
<tr>
<th></th>
<th>regularly</th>
<th>frequently</th>
<th>occasionally</th>
</tr>
</thead>
<tbody>
<tr>
<td>program</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2 or more</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

In all cases, the teachers were familiar with and have at one time or another used all the programs pertaining to their grade level.

Most frequently cited reasons for not using E.T.V. (as much as they might otherwise):
1. Scheduling: cited by 3 teachers of the 5th and 6th grades (C.S.6,7,8) as being a definite deterrent to the regular use of E.T.V.—in the upper grades the curriculum requirements are more stringent than in the lower elementary grades and the teachers often find it more convenient and profitable to use other audio-visual material.

2. In the case of 2 of the younger teachers (C.S.3,7) the "lack of time" excuse coincided with a round-about admission that they were not sufficiently organized and did not possess enough control over their classes to make extended or profitable use of "extras."

3. A frequently cited complaint about E.T.V. (and one of the primary reasons for using other audio-visual material) was that the programs were paced too steadily for the children to absorb and digest what they saw. They allowed for no interruptions during which a discussion could augment and clarify a particular point or concept. Also, watching T.V. was a passive experience and as such was contrary to our philosophy of education. (C.S.3,5,6,8—on the teachers who made this complaint were either using programs which were too advanced for their groups—C.S.3, were not making adequate preparations for the programs—C.S.6, or felt no actual need for E.T.V.—C.S.8).

4. In one case the teacher felt no need for E.T.V.—she felt competent to teach everything (C.S.8), but she used the programs anyway.

Comments, Criticisms, Suggestions:

1. In several cases it was suggested that perhaps E.T.V. could make more extensive use of illustrative materials (i.e. props—e.g. scientific experiments not possible for them to duplicate) and a greater amount of activity—less straight lecturing (e.g. "The Storyteller)."

2. Attention and interest in almost all cases was cited as good—the pupils' attitude toward T.V. positive. It was suggested that lapses of attention occurred: (a) when the T.V. teacher "talked down" to the children thus sometimes tempting them to talk back (4th grade up), (b) when too many weakly related concepts were presented for the pupils to follow and understand, (c) when (in the case of the lower elementary pupils) there was "too much talk" and not enough activity to hold their attention.

3. It was suggested that the most useful programs were those which were complete and well-rounded in themselves—not dependent on previous or subsequent programs. In the case of "City of St. Louis" it was suggested by those who used it that the series could be condensed into a shorter number of weeks so that the study could be undertaken as a concentrated unit in perhaps 7 weeks or less.
4. The science programs were cited as being the most difficult ones to use. They, least of all, correlated with the required courses of study. It was felt that they could perhaps be more beneficial (particularly when used as direct teaching) if they dwelt on a single unit more fully than was possible in a single program.

5. Among those who used the E.T.V. programs regularly almost all used them as teaching directives—making them the focal points, preparing for them and following them up in class work. Those who appeared to be using them to greatest advantage followed this procedure—in other words, they integrated their class schedules and programs of study with T.V. rather than vice-versa. Those who complained most about scheduling, etc., appeared to be the least qualified teachers in general. Among those who used E.T.V. frequently or occasionally, the programs were described as being additional material, or if not pertinent to their current course of studies, simply interesting and informative in themselves.

In general, all of the teachers felt that there were many excellent programs available on E.T.V. The most frequently cited advantages of E.T.V. were—

1. The stimulative value of a variety of material and of material which is not otherwise available; the stimulative value of bringing in another person (teacher).

2. The increased clarification of concepts by the appeal to sight—the illustrative value of T.V.

3. The fact that many people are brought to bear on the preparation of the programs: many audio-visual materials may be synthesized in a program.

4. The opportunity for further in-service training made possible by watching the techniques and methods of presentations of many teachers.

5. The fact that T.V. is a compelling medium.

The most enthusiastically-received programs were—

1. "A Number of Things," "Here and There," "Adventures in Learning." The criticisms directed at these programs concerned the T.V. teachers: the fact that they often "talked down" to the children, and in the case of "Here and There," that the teachers' voices were not good—"too soft," "too sugary" or "too harsh."

2. The creative art programs "Lines and Shapes" were always thought to be excellent.
3. The spelling programs were generally considered to be very good--particularly the emphasis on phonetics.

4. The "Storyteller" was not currently being used by any of the teachers.

5. "Missouri Constitution" being used by 7th grade teacher and considered to be very helpful.
SUMMARY OF CASE STUDY—NO. 2

Background Data on School:

In a lower-middle to middle class district—Average tenure of faculty 3 years. Average number of years teaching experience 5 years. 4 novice teachers with only 1 year experience, 3 with 2 years teaching experience. Classes of manageable size. No complaints of over-loading.

Audio-visual Facilities:

For the most part excellent—plenty of A-V material available. Almost all teachers made fairly extensive use of it. Two T.V. sets on carts—one on each floor. Reservations made by signing up on sheet posted on faculty bulletin board. Use of E.T.V. encouraged by the principal who is also the T.V. coordinator. On the whole, the teachers appeared to be fairly well informed about available programs. None of the teachers used the previews. All depended on study guides for informing themselves of pertinent programs. 9 of the 13 teachers had had formal training in the use of A.V. aids, and most of them cited this training as the reason why they first started using E.T.V. with their classes. Of the remaining 4, all first used it because it was available.

Pattern of Utilization

<table>
<thead>
<tr>
<th></th>
<th>regularly</th>
<th>frequently</th>
<th>occasionally</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Program</td>
<td>8</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Two or more Programs</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Kindergarten thru Third:

The teachers on the whole seemed to be less discriminating about which programs they used and how often they used them. Those in School No. 1 "A Number of Things," "Here and There," and "Adventures in Learning" were used regularly by all the primary (grades Kindergarten - 3) teachers. "Beginning Spelling" was used either frequently or regularly by the 4 teachers of the 1st and 2nd grades. In all cases but one (C.S.5) in grades Kindergarten thru 3, the teachers seemed to be quite competent and conscientious, and they appeared to be making good use of E.T.V. by attempting to integrate it with their current course of studies—preparing for it and following it up, building around it. By and large, they felt that the programs were
good, and the children were interested and attentive. The only criticisms made were that loss of attention occurred when the T.V. teachers "talked down" to the children (as they all occasionally tended to do), and when there was not enough activity or illustrative material to capture and hold the attention of the children.

4th Grade: Of the 4th grade teachers, one used the "City Around Us" frequently and the "Storyteller" occasionally; the other used "Science Shelf" and "Lines and Shapes." Both teachers seemed to be making reasonably good use of the programs using them as directives and supplementary material—preparing for them and following them up. Again, it was felt that the T.V. teachers occasionally "talked down" to the children (e.g. "Science Shelf") and that the T.V. teacher of "Storyteller" lacked a forceful enough personality to maintain the children's interest and enthusiasm. "Lines and Shapes" was again commended as being an excellent program.

5th Grade: The 5th grade teachers used the "Science Shelf" and "Storyteller." C.S. 10 seemed to be making excellent use of "Science Shelf." As an example of the most profitable utilization, hers was undoubtedly the best. She felt that "Science Shelf" was organized at the 5th grade level and therefore very easy to use. She used it as their science course building a solid unit of study around it. Her children kept a notebook on the program and prepared for and followed up each program thoroughly. They were very enthusiastic about it and always interested in the projects they did in connection with it. Again the "Storyteller" teacher was criticized as being "not as interesting as he could be." The other 5th grade teacher (C.S. 11) appeared to be only average as a teacher and making only mediocre use of E.T.V. although he said that attention and enthusiasm on the part of the students were for the most part excellent.

6th Grade: One of the 6th grade teachers (C.S. 12) used the news (regularly), the two science programs, and the "Storyteller." She seemed to be using the news program to fairly good advantage. Her children themselves put on a daily news program and for that reason enjoyed watching "What's the News" although their project was not initiated as a result of the T.V. program. She felt that neither of the science programs touched at her grade level. The other 6th grade teacher (C.S. 12) seemed to be lethargic and uninterested in teaching. She made poor use of E.T.V. and was highly critical of it. Both 6th grade teachers felt that the teacher of "Science Shelf" tended to be much too "sugary."
General comments and criticisms:

1. "Talking down."

2. Often not enough material or activity.

3. Suggested that the Science programs be better organized as direct teaching presenting thoroughly developed courses of instruction in science at the intermediate grade level. Also that the "city" be condensed and concentrated in a shorter period of time.

4. The best received programs were those listed in report on School No. 1.

Again it seemed to follow that the better teachers (those who controlled their classes, organized themselves, were enthusiastic and interested in teaching) were the ones who made the most profitable use of E.T.V. and who gave it every chance. They took the time to prepare their students and build up interest, to follow up and discuss the programs—-to make the E.T.V. program the unifying and directive factor in a larger and deeper unit of study.

The poorer teachers did not take the pains or the time to use E.T.V. properly.

Only one teacher of the 13 (C.S. 6) felt no need of E.T.V. and felt that she could depend on her own skills, make far better use of other A-V aids.

In general the curriculum demands in this school seemed to be far less stringent than those at School #1. The teachers felt that they were permitted as much flexibility in their programs as they desired. For this reason, scheduling difficulties were not as often mentioned. On the whole, they felt less responsible for including a specified amount of material.

Special advantages of E.T.V. were felt to be those cited by the teachers in School No. 1.
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BIBLIOGRAPHY

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Public Documents


Unpublished Material


AUTOBIOGRAPHY

I, Clair R. Tettemer, was born in Mt. Vernon, Ohio, December 17, 1920. I received my secondary-school education in the public schools of Coshocton and Zanesville, Ohio. I received a Bachelor of Science degree in Education from The Ohio State University in 1942. Following four years of service with the United States Army as an officer in the Signal Corps and with the Armed Forces Radio Service, I returned to The Ohio State University where I received a Master of Arts degree in 1948. I was then appointed an instructor in the Department of Radio, Speech and Dramatics at Michigan State University, East Lansing, Michigan. During this period I was involved in the development of the closed circuit television facilities at that institution which later became WMSB-TV. As a part of my responsibility I developed a course in Television Studio Operations and Production. In 1953 I returned to The Ohio State University to complete the requirements for the degree of Doctor of Philosophy. While there I was employed as a research assistant in the Bureau of Educational Research for The Ohio School of the Air. After the completion of my residence requirements I was employed as Executive Secretary of the School Administrators Executive Committee for the schools in the St. Louis area and as Director of School Programs for Station KETC, the educational television station in St. Louis, Missouri. I held this position from 1955 to 1959 when I became Director of School
Programs for the educational television station in Minneapolis-St. Paul, KTCA-TV. While in this position I organized the Minnesota Council for School Television, a cooperative organization of schools throughout the states of Minnesota and Wisconsin. At present, I am the Executive Secretary of this organization as well as the Director of School Programs at KTCA-TV.