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Educational Television Today

LEO H. LARKIN

THE growth of educational television throughout the world during the last decade has been truly remarkable. In this short space of ten years in the United States alone sixty-four broadcast stations have been licensed to colleges, universities, school systems, and community organizations by the Federal Communications Commission for strictly educational use. Approximately two hundred closed-circuit educational television systems are in operation. There is besides a growing volume of educational programs being transmitted by commercial television stations for some hours each day as a community service.

Such fast growth implies that the application of television to education has met with definite successes. This new educational tool, therefore, deserves the careful consideration of all educators. Indeed, this was the exact message of Colonel Jesus A. Villamor to Philippine educators in his **Manila Bulletin** column of four years ago. He noted that "this new and experimental system of education deserves very special consideration of less developed countries which are faced with immense problems involving finances and personnel." And he went on to suggest that "it would be well worth it for the Philippine government to send some education authorities of the Philippines... to study and evaluate this revolutionary method of instruction and see if it is... applicable to the Philippines."¹

¹ "Inside Washington," **THE MANILA BULLETIN** (October 6, 1958), p. 16.

This article is written after a three-year investigation of educational television facilities in the United States which included visits to broadcasting stations, closed-circuit systems, and service organizations; conversations with men and women experienced in the use of television in education; and a careful study of the most pertinent and important literature on the subject. The main purpose of this article is to present some facts about this new medium of instruction to educators in the Philippines. It will describe facets of the educational television phenomenon such as the various out-of-school and in-school audiences, teaching techniques, representative experimental projects; and, finally, the effectiveness of teaching by television will be discussed. No explicit judgment concerning the applicability of educational television to the Philippines will be made; rather, the facts will be presented to speak for themselves and experienced educators can decide whether or not some form of educational television can be adapted to fit their own school conditions.²

The basic concept of education has been described as the placing of a teacher on one end of a log and a student on the other and letting nature take its course. Obviously, this is an oversimplification but it does highlight the essential elements in the educational process, namely, the teacher-student relationship in a setting conducive to the imparting of knowledge and the formation of skills. Against such a setting the basic objective of educational television may be expressed as follows: ETV places the best possible teacher at one end of the log and the maximum possible number of students at the other end of the log, while the complex of studio, classroom, and electronic equipment constitutes merely a sophisticated log.

Although educational television is still a new development it already has a variety of applications in the educational field. However, in all these varieties there are certain staples in the

² For a more detailed explanation and graphic presentation of the idea of developing an educational television system for a particular school's needs, see *DESIGN FOR ETV: Planning for Schools with Television*, pp. 26 and 27. This brochure was prepared by Dave Chapman, Inc., Industrial Design for Educational Facilities Laboratories.

picture. Basic to every ETV system is the TV studio with adequate equipment for producing the program, namely, camera and sound equipment, lighting, monitoring equipment, personnel, and administrative facilities. Of course there is the teacher, the focal point of one end of the system. At the other end of the system there is the TV set viewed by from one to twenty or thirty students.

AUDIENCES

In considering the general patterns of the application of television to education, a division may be made from the standpoint of the intended viewer of the particular program. Broadly speaking the audience will be either out-of-school or in-school. They will be watching a particular TV presentation completely of their own choosing or they will be constrained to a greater or less degree to watch the program due to external circumstances. The typical out-of-school audience will view adult education programs and will either be the general public or some particular homogeneous segment of the general public. The in-school audience will usually be the students viewing a TV screen within a school building during school hours. Both of these different audience classifications, out-of-school and in-school, will be considered separately.

THE GENERAL PUBLIC

The concept of presenting educational material to the general public is not without precedent. Radio stations have frequently sponsored programs designed to inform the public rather than merely to entertain. Special news programs, panel discussions on current topics, etc., are examples of this type of presentation. In such arrangements the commercial station provides the time and usually some educational or civic group provides the program. A similar arrangement has developed with television.

An outstanding type of this educational presentation to the general public is the excellent series of hour-long presentations on science prepared by the Bell Telephone Laboratories. Countless other programs and series on subjects treating of the natural sciences, the social sciences, the arts, and cur-

rent events are presented by the leading networks of the country. The Westinghouse Broadcasting Company and others welcome and encourage much less elaborate presentations of educational institutions with the same purpose of serving the community at large with educational material in an attractive and interesting form. Such material has taken the form of panel discussions on current topics, popular lectures by members of a university's staff on topics of significant interest, weekly religious or inspirational matter, pageants, plays and the like prepared by interested student groups.

It is not always necessary for the educational institution to have its own television facilities to enter into this phase of adult education. Suitable arrangements can be worked out with local commercial stations for presenting such material. However, if the institution does have its own transmitting facilities and channel allocation for educational purposes, it has complete control of the programing, can utilize more desirable times for its programs of special import, and it can control the general tenor of all the programed material of the channel. Attendant on these advantages it also has the responsibility of maintaining a full program schedule as well as the upkeep of the entire station facilities without the usual source of revenue obtainable from sponsors enjoyed by commercial stations.

An educational institution might have its own studios and production facilities for strictly on-campus programs and through a microwave link utilize the transmitter of a local commercial broadcast station. This arrangement permits the programs to be produced at the convenience of the institution's staff and the studio and other equipment can still be utilized by the school's own closed-circuit presentations as well as for special courses in dramatics and communications arts.

HOMOGENEOUS GROUPS

Even in the field of commercial television not all programs are designed for the general public as a whole. Some are specifically directed at a particular group with common interests. The late morning and early afternoon programs are

designed to appeal to the interests of the housewife. The late afternoon serial programs are directed toward children. The "late-late" show is appealing to still another group. The same thing has also been done with pleasing results in the educational field.

Perhaps the most outstanding example of such a program designed to appeal to a certain specific group has been the Continental Classroom presentations in the United States. During the school year of 1958-1959 on an NBC coast-to-coast network from 6:00 to 6:30 in the morning, a course in physics was presented. This course, as well as a similar one in chemistry, is being presented during the present school year and the whole project has met with wonderful success. Another example of such a program series directed to a specific type of audience is that sponsored by station KRMA-TV in Denver, Colorado, where grade and high school courses are produced for "shut-in" students who cannot go to school.

As with programs designed for the public at large, it is not necessary that the educational institution interested in this sort of presentations have its own high-power transmitter, since under suitable conditions arrangements can be made with local commercial broadcasters. For effectiveness in this field a suitable time has to be chosen in accord with the desire and the convenience of the audience; the potential audience should have access to television sets; and, the program itself should fill a felt need of the community.

Although certain arrangements may be made for these TV viewers to come to the educational institution for special assistance and examinations leading to credit, as is done in some localities in conjunction with the Continental Classroom courses, usually the educational institution has no direct connection with the audience. Nor does it obtain any financial remuneration from them other than a nominal charge for course outlines and notes. However, many educational organizations, conscious of their duty to serve the entire community in which they are located, have sponsored these programs; and often with substantial financial backing from industry and philanthropic groups.

IN-SCHOOL VIEWERS

In the out-of-school uses of educational television considered just above, it is desirable that the maximum number of viewers be reached. To do this the electronic facilities employed should be such as to permit the maximum geographical coverage consistent with the spread of population and the availability of funds for equipment. Such programs are broadcast using high or low power and can be picked up by any TV set with a simple antenna within a given locality. For presentations of educational television to in-school audiences it is known ahead of time just how many and where the TV sets are located. In such an arrangement it is often convenient to pipe the program via special coaxial cable from the point of origin to the different TV receivers. In this set-up only those sets actually in the hook-up can receive the program. This can be of advantage, at times, in that there is no difficulty in obtaining sufficient channels allocated for this purpose, and, if several schools share a single closed-circuit system the production costs can be shared on a subscriber basis. Usually a closed-circuit arrangement costs far less to install than a broadcast system.

TECHNIQUES

There are already various approaches and techniques in this fast growing field of in-school televised instruction which is the main subject of this article. To present them in some sort of orderly fashion these different techniques are roughly divided into three categories depending on whether the televised material is intended (1) to perform the total teaching task in a given course, (2) to be integrated with and complement the presentation of the classroom teacher, or, (3) merely to supplement the regular teacher. In a given school system all three methods may be utilized in various grades and for different subjects. The salient points of each of these three approaches for in-school audiences will be pointed out and from these basic types extensions and combinations should become evident to the experienced educator.

TELEVISED LECTURE

In this arrangement the televised material takes the place of the classroom teacher and an entire course such as college physics is presented on television. During the actual time of transmission a proctor may be in the classroom to check on attendance and keep order if this is necessary. A number of TV sets can be arranged in a single large hall (with provisions for twenty to thirty students viewing each set) with a single proctor for the entire group. Normally this proctor takes no active part in presenting the course. Teachers may be available for private consultation if individual students seek guidance but this is not usually an essential part of this particular program. At certain times during the course examinations are given to the individual groups but this is not done necessarily through the television facilities.

Several successful applications of this method may be cited from the United States:

(1) In both Nebraska and Oklahoma small rural high school students are enabled to take regular instruction in college preparatory subjects on television.

(2) In the state of Oregon three public and one private university are cooperating in a closed-circuit TV network so that outstanding professors of education, psychology, and history may be viewed simultaneously by students on all four campuses.

(3) At Pennsylvania State University closed-circuit television pipes all the required courses to the freshman and sophomore students in classrooms on the campus while the University of Detroit broadcasts similar courses for off-campus freshman and sophomore students in their homes.

All of the above students have teachers or professors available for further explanation of the subject matter and they must present themselves periodically for consultation, testing and guidance.

TEAM TEACHING

This method utilizes televised material to complement the classroom teacher. In the previous section the application of

televised material intended to take the place of the classroom teacher but it was pointed out that there are several limitations to this method. The student is not able to ask questions nor enter into discussions, no real provisions are made for the less gifted student nor for the student with talents significantly above the average. The present application eliminates these difficulties entirely. For each subject taught on television part of the teaching is done by the studio teacher on TV and part, an essential part, is taken care of by the classroom teacher. This arrangement is frequently referred to as the "team teaching technique". As is to be expected this basic pattern is subject to different variations.

In all of the variations of the team teaching technique the common note is that the presentations of the studio teacher and the classroom teacher are carefully integrated and intended to be mutually complementary. In accord with the relative division of time between these two teachers three broad types can be roughly distinguished: (1) Classroom and studio teachers present matter on different days; (2) classroom and studio teachers present matter at different hours of the same day; (3) classroom and studio teachers present matter at different times within the same class period. Each system has its advantages and also its limitations. Each system will be briefly considered.

(1) **Classroom and studio teachers present matter on different days.** Perhaps the outstanding example of this is the special twist given to the Continental Classroom project mentioned above. The project consists basically of a half hour lecture and demonstrations in college physics each weekday morning for the entire school year. The course is designed primarily for science teachers who wish to improve their own knowledge of their field. Normally, the course would be completely self contained on television. However, special arrangements have been made with over three hundred colleges throughout the country to offer each week a special laboratory session and also a problem-discussion session coordinated with the TV lessons. Periodic tests are given, and, if the participants pass the final examinations and have performed success-

fully all the experiments in the laboratory, due college credits are given them for the course. In this arrangement the laboratory and problem-discussion sessions are completely integrated with the TV presentations. The different guest lecturers on the televised presentations (many of them Nobel prize winners explaining their own particular field of physics or chemistry) provide an opportunity nowhere else available. At the same time the discussion and laboratory sessions provide the guidance, stimulation, and self activity required for the ideal learning situation. A number of similar courses are available on film and tape and can be integrated rather easily into the televised programming of a school or school system.

(2) Classroom and studio teachers present matter at different times of the same day. This particular application of the team teaching technique differs from the one to follow mainly in the time at which the studio and the classroom teacher each present their portion of the subject matter. In both arrangements the entire course is planned beforehand by both teachers with a curriculum specialist. A well worked out syllabus or course outline is prepared. During the semester periodic meetings can be arranged to check on the coordination and methods and at the year's end the program is evaluated. Prior to the televised portion of the instruction each day the classroom teacher prepares the students for the topic to be presented and subsequent to this portion the classroom teacher asks and answers questions, solves problems and resolves doubts, repeats necessary explanations for slow classes and presents additional material related to the subject for the more gifted classes. The classroom teacher makes the daily homework assignments and corrects them. Drills and repetitions are also arranged according to the nature of the subject matter and the capacity of the teacher. It is to be noted that while the studio teacher is to be one of proven excellence in ordering and presenting a lesson, the classroom teacher must have equal ability for adapting the televised lesson to a particular group of students and for stimulating student activity.

One popular way of dividing the time between the studio and the classroom teacher is to have all the televised portions

of the courses in the morning and the "live" portions in the afternoon or vice versa. This arrangement has its advantages. TV sets may be set up in a large auditorium, in a cafeteria or other large room where a single proctor can monitor several hundred students, thus, leaving many other teachers free.

Certain less desirable features are also to be noted. The gifted student is not able to ask questions till several hours after the TV presentation and after viewing several programs in succession. The classroom teacher is not able to drill or quiz the students while the impression from the lecture on television is still vivid. Nor is there the possibility of questions by the students during the actual televised lecture, as would be the case in the classroom presentation by the teacher. Many also seem to think that watching several lectures in a row (presuming this were the case) might tend to make the student too passive.

(3) **Classroom and studio teachers present matter at different times within the same class period.** This application of the team teaching method is ideal from the standpoint of personal attention given to the student. The first five or ten minutes of the class is conducted by the classroom teacher collecting homework, conducting a brief review of the previous day's matter, and preparing the pupils for the TV lecture-demonstration. The televised lesson then runs for a period of from fifteen to thirty minutes. The remainder of the period is turned back to the classroom teacher for follow-up clarification, questions, and amplification or repetition.

There are many cities and school systems in which this type of programming is being used. Commercial station WPIX-TV in New York City broadcasts lessons from 9:50 in the morning to 2:30 in the afternoon for school children as part of their regular program. Two commercial stations and one educational station televise regular courses to college and university students as well as daily lessons to high school and grammar school students of the parochial, private, and public schools in Philadelphia. Pittsburgh has two full time educational broadcast stations telecasting lessons to its parochial,

ing, selecting a career, and choosing a branch of the Armed Services.

Programs for special events are a third popular type of enrichment programming. The occasion of national holidays, religious holydays, school assemblies, panel discussions, visiting speakers, all provide opportunities and excellent material for supplementary programming. Educational films, regular moving pictures of special artistic worth, and many outstanding documentary programs on local, national, or international events can be presented after regular school hours to the great benefit of the students.

PROJECTS

Someone, half jokingly, has said about educational television projects that there are enough varieties in existence to fit every educator's pocketbook. This statement fundamentally emphasizes the fact that there are ETV systems and stations operating with high and low budgets; however, it is more important to realize that there are broadcast and closed-circuit educational television projects being successfully operated which embrace all levels of education from the grade school to the university, covering public and private schools. A consideration of some of these projects, whose scope ranges from a single campus to the entire nation, is important for educators because it will demonstrate the adaptability of instructional television to almost any school situation.

The Euclid Elementary School in Schenectady, New York, built a simple closed-circuit TV system for \$3,000. A classroom vidicon camera with interchangeable lenses was purchased; school maintenance men installed cables to connect TV sets in three adjacent rooms; six second-hand television receiving sets were bought for the three classrooms at a cost of \$40 apiece. This set-up enabled special resource teachers to instruct 150 students at one time in science, nature study, music, and uses of the library. A similar system at Georgetown University permits the instructors of the biology department to give each laboratory student a close-up picture of all demonstrations in their course of comparative anatomy.

A closed-circuit television system at the Pennsylvania State University uses equipment valued at \$45,000: this includes moderate cost "professional" vidicon cameras for presenting televised instruction and low cost "industrial" vidicon cameras for magnifying live demonstrations including the use of the microscope. Personnel staffing the project included many students who acted as cameramen, monitors, engineers, and classroom instructors. The size of the classes taught at one time ranged from 169 to as many as 810 students. The courses presented were accounting, psychology, sociology and Air Force R.O.T.C. air science.

Many cities in the United States are now using broadcast television stations to bring regular courses of instruction to their school children in the classroom. One of the newest pioneer stations is WNED-TV on channel 17 in Buffalo, New York, a non-profit educational television station which went on the air on March 30, 1959. It has one studio with two live camera chains and two film camera chains and presently serves twenty-five public, private, and parochial school systems with a total of over three hundred receiving schools. This station was chartered by the Board of Regents of the State of New York and is dependent for financial support on local business, foundations, the general public and participating school systems which contribute on a per capita student basis. Philadelphia, Pennsylvania, one of the cities using television in education for the longest time, now has one full time educational station and two part-time commercial stations broadcasting programs to grade schools, high schools and colleges. Pittsburgh, Pennsylvania, boasts of two full time educational TV stations.

The Washington County, Maryland, closed-circuit television project is barely four years old but already its achievements have caught and held the rapt attention of the educational world. In this area, with both urban and rural communities covering 462 square miles, the public schools are serviced by a closed-circuit television system. During its third year of operation the project telecast regular courses of instruction to

37 schools and a total of 16,500 elementary and high school students and, eventually, it will link up a total of forty-eight schools with a student population of approximately 18,000 students.

By means of coaxial cable strung on telephone poles, as many as six subjects at one time can originate from the Hagerstown, Maryland, studios and be received simultaneously in schools twenty-five to forty miles away. These programs are predominantly telecourses, that is, regular courses of instruction as opposed to enrichment programs; however, there are supplementary programs also, such as, puppet shows, enacted fairy tales, and a series of lectures on guidance counseling.

A very significant experiment is the Oregon State Inter-Institutional Teaching by Television Project, a co-operative effort of four public universities and one private university to share their best professors. Courses originating on any one of the campuses, as far apart as sixty miles, can be viewed simultaneously by students on all four campuses. This enables nine hundred students in four universities to profit from the talent and experience of the faculty in all of the institutions. To do this engineers have built two originating studios which are linked by means of a microwave unit to a broadcast transmission tower and from there the lectures are sent to the four separate universities where they are viewed by students in the classrooms.

One of the most imaginative of experiments with educational television is the Midwest Airborne Television Instruction Project. Here, a DC-7 airplane 20,000 feet above the earth will broadcast courses into an area of four hundred miles including the states of Illinois, Indiana, Kentucky, Michigan, Ohio, and Wisconsin in which there are approximately 13,000 schools and colleges and a potential student audience of 5,000, 000. Initially, the program directors plan to offer two different sets of teleprograms a day, each consisting of 24 one-half hour lessons on different wave lengths. In all, there will be twenty courses offered for elementary, high school, and college students each about one hundred and forty-four lectures. Some programs will be broadcast live at Purdue University and then

rebroadcast from the airborne plane, others will be recorded and then rebroadcast as they are needed.

The largest, in the sense of having the widest scope and the greatest audience potential, educational television experiment in the country is the now three year old "Continental Classroom". This project has the entire continental United States as its classroom; a feat made possible by the National Broadcasting Company network facilities. One reporter narrates the growth of the initial program with statistics:

In rapid sequence 144 stations cleared time for the course; 243 colleges and universities offered full academic credit; 27,000 students mailed in 50 cents each for a syllabus; an estimated 270,000 Americans began sitting in with Dr. White on their home sets.

This reference is to Dr. Harvey E. White's course in Atomic Age Physics offered five times a week from 6:30 to 7 o'clock in the morning. The second year of teaching increased the course offerings to two: the physics course and a new course in Modern Chemistry given by Dr. John F. Baxter. The estimated audience during the second year was 500,000 people.

Reflecting on these and many other experiments in educational television, an impartial observer must stand in admiration of the individuals and organizations of educators, members of the television industry, and to philanthropic groups who had the imagination and courage to attack educational problems with this new audio-visual electronic medium. Each experiment is concrete proof that television can be successfully applied to the field of education. Indeed, each project report can supply interested educators with answers to the various questions that might arise in connection with possible ETV projects in their own institutions.

EFFECTIVENESS

No matter how many projects and experiments with televised instruction are in operation, no matter how great the volume of literature is describing this remarkable research and this marvelous experimentation, every conscientious educator will be uneasy about educational television until he has had

one series of questions answered to his satisfaction. Does it work? Can televised instruction really teach students their lessons? Can children learn when taught by kinescopes, films, and video tapes? And, how does televised instruction compare with conventional classroom teaching?

The results of scientific research during the past ten years have demonstrated to the satisfaction of even the most dubious educator that televised instruction has been effective on all levels of education from grade school through college and, furthermore, that this effectiveness has not been diminished with the use of kinescopes, films or video tapes nor in large-size class situations. Moreover, there is no significant difference, discovered up to now, between teaching by television and under conventional classroom conditions.

In 1952, C. F. Hasen reported a successful effort to teach elementary school music lessons by television in the Washington, D.C. public schools.³ Five years later the Board of Education in Pittsburgh, Pennsylvania, carried on an effective experiment of teaching fifth grade students reading, arithmetic and French via television.⁴ And the 1959 progress report of the Washington County Closed-Circuit Educational Television Project centered in Hagerstown, Maryland, reported that children in grades one to eight learned reading and number experiences, art, music, social studies, arithmetic, science, mathematics, and practical arts via television.⁵

High school students in Washington County project successfully learned general science, plane geometry, United States history, English, and physics through the medium of television. In Cincinnati, Ohio, secondary school teachers report that

³ Carl F. Hasen, *REPORT ON AN EXPERIMENT IN TEACHING ELEMENTARY SCHOOL MUSIC BY TELEVISION IN THE WASHINGTON PUBLIC SCHOOLS*. Washington, D.C.: Board of Education, 1952.

⁴ Board of Education. *AN ANALYSIS AND EVALUATION OF A TV DEMONSTRATION OF THE TEACHING OF 5TH GRADE READING, ARITHMETIC AND FRENCH*. Pittsburgh, Pennsylvania: Board of Education, 1957.

⁵ Board of Education. *CLOSED-CIRCUIT TELEVISION: TEACHING IN WASHINGTON COUNTY 1958-1958*. Hagerstown, Maryland: Board of Education, 1959.

their students have learned biology by means of television;⁶ elsewhere languages and the humanities have been taught by television.⁷ The Ford Foundation report on education television **Teaching by Television** confirmed the effectiveness of this medium of instruction by citing many other examples.

Although reports from the college level are mixed with more reservations than those from the elementary or secondary school experimenters, statements concerning the effectiveness of televised instruction are basically the same: college students learned when taught by television. This was true as early as 1954 when the United States Naval Academy evaluated instruction by television and it is the conclusion of a scientifically planned, carefully operated, and meticulously evaluated experiment recently concluded at The Pennsylvania State University.⁸

Various graduate schools have effectively used television also. For some time medical and dental schools have utilized television to give their students close-up views of surgical techniques that heretofore could not be seen even by occupants of the front rows in operation room amphitheaters.⁹ Television is a new tool in psychiatric education since TV cameras have recorded interviews between psychiatrists and their patients through one-way plate glass windows.¹⁰ Adkins and others in-

⁶ J. N. Jacobs and J. K. Bollenbacher, "Experimental Study in Teaching High School Biology by Television in the Cincinnati Public Schools," *SCIENCE EDUCATION* 43 (December, 1959), 399-405.

⁷ M. Goldstein, "Humanities Through Television," *ENGLISH JOURNAL* 49 (April, 1960), 250-255.

⁸ W. F. Boone, *EVALUATION OF THE U.S. NAVAL ACADEMY TELEVISION AS A TEACHING AID*: No. 7010-7-26-54. Annapolis, Maryland: United States Naval Academy, 1954; and C. R. Carpenter and L. P. Greenhill, *AN INVESTIGATION OF CLOSED-CIRCUIT TELEVISION FOR TEACHING UNIVERSITY COURSES*. University Park, Pennsylvania: The Pennsylvania State University, 1958.

⁹ G. L. Martin and C. H. R. Over, "Therapy by Television," *AUDIO-VISUAL COMMUNICATION REVIEW* 4 (Spring, 1956), 119-30.

¹⁰ C. Wittson, M.D. and R. Dutton, A.M.T., "A New Tool in Psychiatric Education," *MENTAL HOSPITALS* (November, 1956).

dicating at least five different ways in which television can be used for training pre-service and in-service teachers.¹¹

Television has been used for adult education courses.¹² New York University in conjunction with Columbia Broadcasting System station in New York City has offered courses for credit on their Sunrise Semester programs for over three years to the satisfaction of professors, broadcasters and the public.¹³ The United States Army experimented with televised instruction as early as 1952 and a report in 1958 indicates the continued success of this work.¹⁴

Today educators are looking around for other than strictly instructional uses for television in education. King reports the use of television for back-to-school orientation lectures.¹⁵ In California television has been used for administering standardized tests.¹⁶ Elsewhere TV has given new impetus to students' use of the library.¹⁷

A special study sponsored by the Fund for the Advancement of Education has indicated that large class situations, classes with fifty to over two-hundred students (with one television receiver set to every thirty students) do not alter the

¹¹ E. P. Adkins (ed.), *TELEVISION IN TEACHER EDUCATION*, Washington, D.C.: American Association of Colleges for Teacher Education, 1960.

¹² B. Shimberg, *EFFECTIVENESS OF TELEVISION IN TEACHING HOME NURSING*, Princeton, New Jersey: Education Testing Services, 1954 and M. S. MacLean and W. H. Allen, *UNIVERSITY EXTENSION THROUGH TELEVISION*, Madison, Wisconsin: University of Wisconsin, 1957.
view," *AUDIO-VISUAL COMMUNICATION REVIEW* 6 (Summer 1958) 172-88. (May 23, 1959).

¹⁴ J. H. Kanner, "Teaching by Television in the Army—An Overview," *AUDIO-VISUAL COMMUNICATION REVIEW* 6 (Summer 1958) 172-88.

¹⁵ W. H. King, "Back to School Orientation," *AUDIO-VISUAL INSTRUCTION* 5 (March, 1960) p. 78.

¹⁶ J. C. Woodward, "Administering Standardized Exams," *AUDIO-VISUAL INSTRUCTION* 5 (March, 1960) 78-9.

¹⁷ D. Sinclair and E. Alexander, "Television and the School Library: Book Look," *NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS BULLETIN* 45 (November, 1959) 52-4.

effectiveness of instruction by television.¹⁸ Furthermore, kine-scopes, films, and video tapes are as effective as live television lessons.¹⁹

Studies have been made since 1952 on the comparative effectiveness of television and conventional classroom teaching and the conclusion reached is that there is no significant difference between the two types of teaching. This was the conclusion of Anderson who made a comparative study of the effectiveness of lessons in the slide rule presented by television and in person;²⁰ and it was the conclusion of Husband's experiments concerning the effectiveness of television versus classroom teaching for learning general psychology.²¹ A comprehensive study made by Holmes to analyze the trends of results in television research relating to the teaching-learning process indicated among other things that 90 percent of comparisons between television and conventional instruction showed no substantial differences in achievement or information gain.²²

CONCLUSION

This article has attempted to give more than a panoramic view of education television as it exists in the United States today. An effort has been made to single out the factors of prime importance to educators who are trying to evaluate this

¹⁸ Fund for the Advancement of Education, *THE NATIONAL PROGRAM IN THE USE OF TELEVISION IN THE PUBLIC SCHOOLS*. (1) A Report on the First Year (1957-1958); (2) A Report on the National Workshop; (3) A Report on the Second Year (1958-1959), New York, New York: Fund for the Advancement of Education.

¹⁹ R. T. Rock, et al, *THE COMPARATIVE EFFECTIVENESS OF INSTRUCTION BY TELEVISION, TELEVISION RECORDINGS, AND CONVENTIONAL CLASSROOM PROCEDURES*, NAVEXOS, p. 850-2. Port Washington, New York: Special Devices Center, n.d.

²⁰ G. W. Anderson and A. W. VanderMeer, "A Comparative Study of the Effectiveness of Lessons in the Slide Rule Presented Via Television and In Person," *MATHEMATICS TEACHER* 47 (1954) 323-7.

²¹ R. W. Husband, "Television Versus Classroom for Learning General Psychology," *AMERICAN PSYCHOLOGIST* 9 (1954) 181-3.

²² P. D. Holmes, *TELEVISION RESEARCH IN THE TEACHING-LEARNING PROCESS*. Detroit, Michigan: Wayne State University, 1959.

new electronic medium in terms of education. At best, these basic fundamentals can only construct a framework, a skeleton, of what educational television's image is: these few pages can only hope to give the faintest idea of the potential of televised instruction, some notion of the problems it presents, a vague feeling of what future possibilities it augurs. Specific topics have been single out for discussion because they should assist Philippine educators in evaluating this new medium of instruction.

It would seem unfair to the reading audience not to mention that it is the conviction of the writer that the use of television for formal instruction in schools and colleges is a valid and valuable innovation into the educational world. Its effectiveness has already been proven as a medium of instruction. The advantages it brings with it, such as the ability of multiplying the scope of the better than average teacher, presenting ordinary as well as extraordinary demonstrations so that all the students may have a front row seat, offering courses of instruction that might not be otherwise available, simplifying the use of audio-visual aids by presenting them once for all, all these are fringe benefits that come with the use of this medium. And the future promises to bring even better televised instruction because research efforts are gradually eliminating the defects and magnifying and multiplying the assets. In the light of these facts, effectiveness, advantages, and research predictions, it is not a difficult prediction to say that educational television will come to the Philippines.

This, of course, places a burden of responsibility on Philippine educators. It is our problem to familiarize ourselves with the many other aspects of the use of television in education aside from some of the education factors described above. There are other educational factors; there are technical, personnel and financial questions to be asked and satisfactorily answered about the medium. The peculiar situations of individual schools, school systems, cities, and even provinces must be analyzed before any intelligent commitment to educational television can be made. No tool is a panacea; neither is television as applied to education. Hence, a school must have problems

which televised instruction can remedy and these problems must be diagnosed by administrators. Once the medium is understood, educators must turn to their own schools to determine how the medium will be used; then, problems of personnel and financing can be attacked. Educational television is definitely coming to the Philippines but the quality of the work it accomplishes when that happy day arrives depends on the study that Philippine educators give the medium now.