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A SURVEY OF TELEVISION UTILIZATION IN TEACHER EDUCATION
WITH SUGGESTED APPLICATIONS FOR THE REPUBLIC OF CHINA

A Thesis
Presented to
the Graduate Faculty
Central Washington State College

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
Tuz-Chin Ting
November 1965

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Presented to

the Graduate Faculty

of the University of Michigan

in partial fulfillment

of the requirements for the Degree

Master of Education

by

John R. ...

Ann Arbor, Michigan 1988

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APPROVED FOR THE GRADUATE FACULTY

Charles W. Wright, COMMITTEE CHAIRMAN

T. Dean Stinson

Gerald F. Brunner

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

I. INTRODUCTION

The development of education in the Republic of China was very rapid during the last decade. Ninety-seven per cent of the total elementary-school-age children are attending school, of whom 75 per cent will go on to junior high school. Approximately 60 per cent of the junior high school graduates can attend the senior high schools, and 38 per cent of high school graduates have a chance to receive higher education. In Taiwan, a small island totaling 13,808 square miles in area, there are 1,843 elementary schools, 224 secondary schools, 21 colleges, and 8 universities (6:42).

There are two major factors responsible for the rapid increase of school population. One of them is the idea of a democratic society and the need of a general education, which pushes the educational leaders to provide more and more opportunities for the people to attain this goal. Another major factor is the drastic increase of the total population in Taiwan because of the newcomers and the high birth rate. According to statistics, the rate of population increase each year is 37.3 per thousand (33:7). This increase in school population

raises many problems. The shortage of qualified school teachers is one of the serious ones, and it has reached the pressure level.

Dr. Chi-lo Huang, the former Minister of Education of the Republic of China, informed the Legislative Yuan in March, 1965, that there are many youths desirous of education and that it is their responsibility to provide satisfactory educational opportunities for them. The increased school population emphasizes his appeal to the Legislative Yuan to face some of these problems. The school system needs more qualified teachers. A high percentage of teachers, especially at the secondary level and in country or mountain areas, is poorly prepared. The secondary teacher training institutes in Taiwan are unable to meet the needs of the public schools. Dr. S. T. Wu, Commissioner of the Department of Education of the Taiwan Provincial Government, points out that our teacher-training institutions can supply only half the secondary teachers needed each year (40:2).

The shortage of teachers is also found in the United States, where the number of immigrants added to the increased birth rate caused a rapid increase in school population. For example, the population increase in California resulting from a major immigration from other states is approximately 3,000,000 individuals annually. This was found to be the cause of the critical shortage of qualified school teachers in California (45:109).

The invention and adaptation of new technical means of communication are involved in the educational field. Television and other new media have been successfully used by educators to extend the learning horizons of staff and students alike, to increase the functional adequacy of overcrowded school plants, to stabilize the quality of education in the face of greatly expanded quantity, and to stimulate teachers and patrons to understand and accept unprecedented changes necessary for upgrading education. More frequently than in previous years, educational institutions have asked teachers and students to use television and other new communication media. A number of institutions now use small, inexpensive closed-circuit units for some required courses. One of the newest and in some ways most promising applications of closed-circuit television now used in a number of universities and colleges is the conducting of observations and demonstrations for teacher trainees (23:3). Several experiments and researches have been made on the utilization of closed-circuit television in teacher education.

The people of the Republic of China as well as of other countries are greatly concerned with this new educational medium, but the information on such programs is very limited. The writer believes that this study will be helpful in his country's development of a television program for training of large numbers of qualified teachers.

II. THE PROBLEM

Statement of the Problem.

The purpose of this study is (1) to survey the problems of the utilization of closed-circuit television in the teacher-education programs in the United States, (2) to organize this information, and (3) to relate the information to the needs of other developing countries, particularly the Republic of China.

Importance of the Study.

The rapid growth of the school population has created a need for a great number of teachers in Taiwan, Republic of China. The large numbers of students in teacher-education programs has caused an excessive burden on the public schools near the colleges to provide sufficient classrooms for student-observers. This has made it increasingly difficult to obtain sufficient places where observers can see qualified classroom teachers at work. This study may present a new idea gained from first-hand experience here in the United States to ease this particular educational problem in the Republic of China, as well as in other countries which have similar situations.

Although the ability of television to bridge the gap in educational services to the people has been established, it is still too early to

predict what may be the effect of television on education in general. Many studies are attempting to discover the problems, potentiality, and effectiveness of television in education (29:1). At the present time, the use of closed-circuit television in teacher-education programs is still in its experimental stage. Many institutions await the results of these experiments. It is hoped that this study will be an important reference for the needs of these institutions and for further research in the area of educational media.

Limitations of the Study.

The limitations of the study are as follows:

(1) This study was limited to a survey of the universities and colleges using closed-circuit television in teacher education for observing experienced teachers. The samples were selected mainly from the National Compendium of Televised Education. The reason for the small size of the sample is that relatively few institutions have programs which are suited to the purposes of this paper.

(2) This study was limited to information secured directly from the persons working with closed-circuit television in teacher-education programs.

(3) Since time and funds were limited, the method used to gather information was the questionnaire. It was impossible to use a personal or written interview or other means.

III. DEFINITIONS OF TERMS

Closed-circuit Television.

This term means the pickup and use of a television program without broadcasting it. Closed-circuit television may be transmitted to the receiving points by wire, cable, or lowpower radiating devices, which transmit only in a strictly local area.

Utilization of Television.

This term is interpreted in this research, as that amount established by the professional teacher-education staff as being essential in order to introduce students to all major aspects of their observational experience via television facilities.

Teacher Education Program.

This term is used in this research to mean the general and professional educational courses on the college level required to

prepare a prospective teacher for service in secondary and elementary schools--courses which result in initial certification for enrollees.

Observation.

The term refers to one phase of the teacher-education program in which the prospective teachers through guided observation in the public schools watch the procedures and techniques of teaching to gain laboratory experience in a classroom setting.

Opinions.

This term refers to the judgment which the educators display in reacting to specific statements in the opinionnaire.

"Split Image" Technique.

This term refers to a new observational skill for prospective teachers to use in observing experienced teachers via closed-circuit television. In the observation room, there are two television sets--one shows the whole class and the other shows the teacher's actions and special demonstrations.

CHAPTER II

REVIEW OF LITERATURE

I. HISTORY OF EDUCATIONAL TELEVISION IN THE UNITED STATES

Although the history of educational television is short in years, its progress has been rapid. About fifteen years ago, a few educators saw in television a possible means of teaching the fast-growing numbers of students at a time when the supply of good teachers was increasingly too small to keep up with the demand.

Spread of Television.

Television itself has a longer history than educational television. Its origins can be traced back to 1884, when a German scientist, Paul Nipkow, invented the scanning disc which made television possible. In 1923, Dr. V. K. Zworykin patented the iconoscope, the television camera that preceded the present-day image-orthicon camera. In 1939, United States television had its debut at the New York World's Fair. The progress of television was interrupted at that time by a series of governmental orders and then by World War II. Only a few stations televised programs two or three hours a day.

When the war came, the production of television sets stopped completely. After the return of peace, the rush to obtain television was so great that the twelve channels were no longer adequate. In 1948, 336 stations were on the air in nineteen cities, which comprised approximately one-third of the population of the United States. In 1952, there were 108 stations on the air in sixty-three cities having two-thirds of the population of the country. The number of television sets in the hands of the public had risen from one million in 1948 to seventeen million only four years later. By 1956, over 450 stations were on the air. The increase made it possible for the networks to increase their station line-ups and to provide about 70 per cent of national coverage. At the end of 1959, there were fifty million television receiving sets in use in the United States. At present most of the American people arrange their lives to accommodate the picture tube in the living room. Television becomes the greatest source of national entertainment, knowledge, and information. It is probably the greatest source of common experience in the lives of the American people (31:11).

Commencement of Educational Television.

In 1952, educational television began in the United States with a decision of the Federal Communication Commission to reserve 242

channels for nonprofit educational broadcasting. This number has since increased to 252, which represents over 11 per cent of the total number of allocations made by the Commission (22:108). As a result of these allocations, educational television stations affiliated with universities and community educational groups have been established in many states. These stations devote themselves primarily to the programming of educational and cultural materials. Now, only a decade later, more than fifteen million students are receiving instruction by television in elementary and secondary schools and in higher educational institutions in the United States. Lawrence E. McKune reported in the National Compendium of Televised Education that there were enrollments of 11,678,512 in different schools, nearly one million of which were in higher education. Additional enrollments of 4,200,330 were estimated on the projection of average class sizes in institutions which did not record actual enrollments for 1963-64 (33:2). The phenomenal growth, of course, reflects the fact that instructional television has met with success.

Although educational television, as we know it today, had its beginnings in 1952, its roots go back into the decade of the 1930's when the State University of Iowa made technical experiments with "visual broadcasting" telecast programs involving topics and materials from a number of different University departments (18:79). School telecasting

on a regular basis began in the Philadelphia public schools on commercial stations in the school year 1948-1949. The Nation's first television station licensed to an educational institution was WOI-TV, which has been operated commercially since 1950 by Iowa State College. A television-assisted correspondence course for college credit was offered in 1950 by a commercial station in Louisville, Kentucky. In 1951 Western Reserve University began producing courses for university credit over the commercial station in Cleveland. The next year, 1952, saw the broadcast of a full day of regular lessons to thirteen schools in two communities from Montclair State College in New Jersey.

After the Federal Communications Commission reserved the channels for educational use in 1952, state and local governments and educational institutions over the country began exploring ways and means of making the best use of them. On May 25, 1953, station KUHT at the University of Houston, Houston, Texas, became the first educational television station to go on the air. The following year the National Educational Television and Radio Center was established to secure and distribute quality programming for educational stations. Within two years after the initial educational television station began broadcasting, there were fifteen regularly operating educational

television stations on the air. Television had become a significant factor in American education (3:5).

Educational Television Today.

In the United States, there are now 98 educational television stations on the air or immediately preparing to go. These stations regularly serve approximately 20 million school and college students and an adult audience of more than 100 million (3:5). To meet growing needs, there are more than a hundred stations now being planned. These new developments were given added impetus in 1962, when Congress passed Public Law 87-447, authorizing \$32,000,000, to assist the states in developing broadcasting facilities (26:172).

In addition to the broadcasting stations, the colleges, universities, and school systems in the United States are now using nearly 800 closed-circuit television systems of various sizes in their regular instructional programs (3:5).

In short, in a little over 12 years, educational television in the United States has grown from an almost unknown instrument to a major medium of instruction in American education. It has given a new and greater dimension to adult and general education.

Much of this accomplishment and much of the acceptance of educational television as a respected instrument of instruction must be

credited to the National Association of Educational Broadcasters. In the development of educational television, the NAEB was joined by many of the professional educational organizations. From the beginning, the National Educational Association, Department of Audiovisual Instruction, has been instrumental in developing educational television. The Joint Council on Educational Broadcasting, whose membership comprise national school and college associations, has been a constant ally of the NAEB in its efforts to develop television as an accepted educational tool. The Ford Foundation and its offsprings, the Fund for Adult Education, and the Fund for the Advancement of Education, have given heavy financial support to the development of educational television in all its facets. The United States Office of Education has lent its prestige and financial support to the effort from the beginning (37:60-71). This community effort, combined with the growing need for more and better education and the natural effectiveness of television as a means of educational communication, has produced the present mass of educational television facilities. Over a decade of experience in the United States has dramatically demonstrated the effectiveness of educational television and its techniques of operative instruction. Through the continued use of the instructional techniques

and technical contributions of educational television, American educators may satisfy the expanding educational needs in the decades to come.

II. USE OF TELEVISION FOR TEACHER TRAINING

Teacher education, with its beginnings in Europe by Father Demia in 1672, has moved from the simple improvement, the reading of the Catechism, to a complex program involving many areas of study and practical experience. The first normal school was opened in 1823 by Samuel R. Hall in Concord, Vermont (20:368). Since that time, the American teachers colleges have been in fairly rapid evolution. There are a number of colleges and universities whose specific program is primarily teacher-preparatory in nature. One of the distinctive features of a teacher training program lies in its practical activities, observations, participation and practice teaching.

Problems in Teacher Education.

Projections of student population indicate that college enrollments will nearly double between 1959 and 1970, and that grade and high school populations will increase 60 per cent in roughly the same period. If we juxtapose these statistics with the fact that there is a

shortage of 195,000 teachers in the United States in 1959-60, we reach the conclusion that this increase will impose a tremendous strain on the educational system in terms of staff, physical facilities, and money (16:7-16).

Two other factors add to the complexity of the problem. One is the enormous increase in knowledge, particularly scientific knowledge, which students now need to know. It is estimated that the body of scientific information to be taught in junior and senior high schools will double in the next ten years (21:10). Secondly, time, as well as money, is needed to develop able teachers. The mere doubling or tripling of facilities does not necessarily imply higher educational standards. We would be at fault if we did not study the capability of television in improving education, in extending the effectiveness of our available teachers, and in easing the demands for greater increases in plant and equipment. If we find that educational television can serve any one of these ends, we must also determine what provisions we should make for its future.

During this age of rapid development of educational television, it is better for teachers to have experience with television. Dr. Martin J. Maloney and Dr. Stanley T. Donner, of Stanford University,

mentioned in their book Educational Television that:

We repeat, we believe that every teacher in the United States present or prospective, should have a sound, basic familiarity with television as an educational instrument (22:x).

Television in Teacher Education.

A great deal of work with television in the teacher-education institutions is being done via closed-circuit television. Experiments in the use of television for the training of student teachers, or for those already teaching, have been conducted by teachers' colleges, universities, and school systems in many parts of the United States.

In 1956, teachers' colleges of Texas, in cooperation with local commercial stations, televised courses in teaching techniques for college graduates. The step was aimed at increasing teacher recruitment. During 1957, these same colleges allowed college graduates to begin teaching at once, using their teaching certificates on the condition that they enroll in a televised education course which met once a week. Station WOI-TV, Ames, Iowa, offered a series of courses designed to up-date the certificates of former teachers who desired to return to service, but could not attend campus courses (15:75). In Illinois, college graduates could earn credit toward a teaching certificate by taking course work over WTTW-TV, Chicago (28:1).

Television for Observation Programs.

Student teachers are normally required to observe classroom teaching. In many States this general requirement for the issuance of teachers' certificates requires several hours of observation, which vary from a low of five semester hours in South Dakota to thirty-five hours in Indiana for teacher certification (43:19). But when many teachers must be trained, difficulties arise. Public schools are crowded and are unable to accept a large number of observers in many observing stations near teacher training colleges. Prior to the use of closed-circuit television as an observation medium, students in colleges of education were assigned in groups in two, three, or four to observe available high school classes. The scheduling of such a large number of observations with limited facilities was an exceedingly difficult task, for all could not be accommodated in the campus laboratory schools. Moreover, diverse observation provided no common experience among students for follow-up discussion and interpretation. Also, uninitiated observers frequently failed to identify the most significant events and features of their viewing experiences largely because they did not know what to look for or were unaware of the educational implications of what they saw.

Using low cost vidicon equipment, linking public school and campus school classrooms with college viewing rooms, a significant number of colleges have successfully conducted observations and demonstrations for teacher trainees. Kansas State Teachers College, at Pittsburg, Kansas, was a pioneer in this technique (32:108). By September, 1964, more than two dozen colleges and universities in the United States had moved into the area of using closed-circuit television for observations and demonstrations for teachers education programs. According to the National Compendium of Televised Education in 1964, there were twenty-six colleges and universities reported using closed-circuit television for observation purposes.

As reported by Pendergraft, a variety of possible uses of closed-circuit television equipment for observing children as part of professional laboratory experiences included:

1. Closed-circuit television may be used as a supplement to classroom visits. It may provide an extended program of selected observations of children and classroom procedures.
2. Distractions of children caused by television equipment are a concern of many teachers. However, some teachers' experiences in such surroundings indicate that children tend to overcome these distractions more quickly than those caused by the presence of large numbers of observers in the classroom.

3. College classes observing children by means of closed-circuit television may, collectively and in large numbers, enjoy better views of the children than if they were all crowded into a live observation room.
4. The professor and the students in the observing class can freely raise questions about and discuss particular points while the observation is in progress. The professor, thus, has an immediate opportunity to direct the students' attention to and assist them in making judgments about the children's actions and reactions.
5. Closed-circuit television can assist the professional staff in orienting students to the values of observation prior to their own live classroom observations.
6. Kinescope recording of an observation can be made for use with teacher education students in other professional classes.
7. Some teacher education students indicate a preference for observing by closed-circuit television; the reasons for such preference should be subjected to careful analysis, as they have both positive and negative ramifications.
8. Many of the professional education instructors attending the workshops who have had observations both by television and by actual classroom visits seem to feel that in some instances and for certain purposes the television observations are of equal or greater value than live observations.
9. Some demonstration teachers prefer observation by closed-circuit television over the presence in the classroom of an entire class of college students (27:1).

III. EDUCATIONAL TELEVISION IN THE REPUBLIC OF CHINA

Television broadcasting is still an infant compared with the other methods of mass communication in the Republic of China. The first television station, the National Educational Television Station, was officially inaugurated in Taipei, Taiwan, on December 24, 1963. Faced with problems of shortages in both equipment and personnel, the station bravely initiated its instructional television programs in general science to six public and private schools in the Taipei area on an experimental basis. By August, 1964, the station increased its antenna output power to 1 kilowatt and broadcasted four hours each evening. The first commercial television station was installed by Taiwan Television Corporation in Taipei and was on the air on January 1, 1964. A well-equipped 5 kilowatt transmitter covered all of northern Taiwan. Within the next two years, relay stations will be erected along the western coast of the island to effect an island-wide hook-up with the exception of eastern Taiwan. This station broadcasts ten hours a day--20 per cent of which time is composed of educational television programs sponsored by the Ministry of Education of the Republic of China (24:5).

Outset.

The significance of this beginning will be found in the experience which the Ministry of Education will derive in planning an expanded use of classroom television in the years ahead. The first television camera and receiving set was brought back to Taiwan by Mr. C. T. Chang, Associate Professor of Industrial Arts, Taiwan Normal University, from the United States and was demonstrated by the Broadcasting Corporation of China to the public in 1957. In November, 1959, the Broadcasting Corporation of China made a very successful television demonstration in which it televised different kinds of programs to the public by a set of simple, closed-circuit equipment at Municipal Auditorium of Taipei (34:15).

In 1960, a small and simple closed-circuit television system was set up in the Department of Industrial Arts, Taiwan Normal University, for the training of television technicians. The next year, the Audiovisual Center and the College of Science started an experiment to televise some non-credit science courses via closed-circuit television. Because of the lack of proper funds, personnel, and technical help, this experiment was considered unsuccessful (5:21). But after the experiment, the Ministry of Education became interested in the use of television for classroom teaching in the schools.

Karachi Plan.

An experiment named the Karachi Plan for instructional television broadcasting in the elementary schools began in the spring semester of 1963 under the joint sponsorship of the Ministry of Education and the National Chengchi University. During this semester of experimental teaching, the subjects taught were limited to the field of general science for the second, third, and fourth grades. Six schools, both public and private, were cooperating. The programs lasted fifteen minutes out of the thirty-minute class period and were of the enrichment type. Each of the three grades being taught received two programs a week through television. The other classes were taught conventionally. Telecasting was done six days a week from 2:05 to 2:20 p.m. Only one class in each of the schools was taught with supplementary television instruction, leaving one other class for control in the twice-monthly testing carried out by Chengchi University. Preliminary results indicated that most schools using television noted improved results over the teaching done in the control classes. Further experimentation in instructional television broadcasting to the secondary schools was recommended (24:7-9).

School of the Air.

A four-year developing plan of "School of the Air," both in radio and television, was proposed to the Legislative Yuan by the Ministry of Education in the summer of 1964 (19:51). An enthusiastic discussion and controversy developed in the Legislative Yuan and among the general public. Among the puzzling questions to be answered were a group centered around the area of cost and possibilities of its use. Many questions still need to be answered and more research has to be done before the election. The implementation of such proposals probably will be effected in the next year.

The main reasons for such a proposal were mentioned by Dr. Chi-lo Huang, the former Minister of Education, to the Legislative Yuan and to the public--namely, that one of the principal aims of our recent educational policy has been to extend compulsory education to the junior high school, that the exploding school population and the shortage of funds and school personnel has made it impossible to undertake the education of the graduates of the whole sixth grade for the additional three years of the junior middle school, and that the value of radio and television teaching for extended educational opportunities to these students is found in other highly developed countries (39:13).

Many educators and parents are reluctant to accept this new educational medium. Since television is still in its infant stage in Taiwan, most people cannot afford to have a television set, which they consider to be a luxury item. They doubt that this invention is an effective and an economical educational tool.

Need for Teachers.

According to official statistical data published by the Ministry of Education, from the academic years of 1955 to 1962, the number of elementary students increased from 1,133,438 to 1,888,783, or 66.6 per cent, and the number of secondary students increased from 146,361 to 314,655, or 121.5 per cent. During the same period, the elementary school teachers increased from 24,762 to 41,397, or 67.2 per cent; the secondary school teachers increased from 6,298 to 12,669, or 101.2 per cent (25:25-70). From these data, the rate of increase of elementary school teachers seems to have kept up with the increasing number of students, but the teacher-student ratio of 1:45.6 was too high. In the secondary school, the rate of teacher increase was lower than that of student increase. It is evident that the shortage of qualified school teachers is one of the serious problems in Taiwan's educational system.

Presently, there are nine normal schools and three normal junior colleges which train elementary teachers, and one normal university which trains secondary-school teachers. The number of graduates of normal schools and normal junior colleges is just slightly lower than that needed to keep up with the situation in Taiwan's elementary school system.

In regard to secondary education, only one-third of the needed teachers are from Taiwan Normal University, the only secondary-school teacher-training institution in Taiwan. The rest of the teachers are from other universities and are without teacher training. According to the report of the Department of Education of Taiwan Provincial Government, the need for secondary teachers was 2,600 in the 1962 academic year. During the same time, the graduates of Taiwan Normal University numbered 802 (35:7). The proposal that an increased enrollment at Taiwan Normal University be effected has appeared in the public and the University itself. New methods of teaching and new media were eagerly sought.

Foundations for the Future.

The new educational media were introduced to Taiwan in recent years. The National Educational Material Center was established in major cities in Taiwan in order to help school teachers to use more

audiovisual instructional materials. The National Educational Broadcasting Station and its network were organized and put on the air on March 29, 1960. A broadcasting committee was organized under the Ministry of Education in March, 1960. A regulation that every radio and television station should devote at least 20 per cent of its total broadcasting time to educational programs was passed by Legislative Yuan in the summer of 1961 (19:45-51). These programs became a good foundation for the development of educational television in Taiwan.

IV. RELATED RESEARCH

Following are summaries of several experiments and studies which have been reported on the utilization of closed-circuit television in teacher education:

(1) Rogers, William R., 1962, Television Utilization in the Observation Program for Teacher Education. This research was supported by a grant from the United States Department of Health, Education, and Welfare, Office of Education. This experiment sought to provide experimental groups of student-observers in teacher education with an introduction to in-person observation in the public schools via controlled televising. The results of this research were (1) to effect economies in the use of time, and (2) to increase the capacity of the available public schools to provide observational experiences.

(2) Slingland, Robert Paul, 1958, A Study of the Problems of Installing and Utilizing Closed-Circuit Television for Observations in the Teacher Education Program. (A Thesis.) A questionnaire investigation indicated that (1) there are common problems in providing laboratory experiences in teacher education, (2) that there are problems in using closed-circuit television for laboratory experiences in teacher education, but (3) that there are possible solutions for these problems.

(3) McKune, Lawrence E., 1964, National Compendium of Televised Education. This report contains pertinent data concerning televised courses for credit and for supplemental course work for informal use of the medium for education, for thoughtful commentary by persons responsible for achievement at all levels, and for related information.

(4) Keller, Robert J., 1957, Closed-Circuit Television in Teacher Education. This research project, under a grant from the Fund for the Advancement of Education, investigated six major areas of television utilization in education. The area relating to the present proposal was "CCTV as a Classroom Observation Technique." A summary of the results of the investigation indicated that television could be used in observation: (1) to provide pin-pointed illustrations of specific features of the teacher-learning situation, such as principles, teaching techniques, curriculum, and pupil characteristics; (2) to

show all aspects of the teacher-learning situation woven into one inter-related program; and (3) to provide all observers with a common observation experience and a common frame of reference upon which to base subsequent discussions.

(5) Instructional Television Summary (1958). This research project was sponsored by the New York State Department of Education. The investigation involved three major areas: (1) Teacher Education Observation and Methods, (2) College Direct Teaching, and (3) Elementary School Direct Teaching. The results indicated: (1) that large numbers of (college) students can be taught at one time, and (2) that they can make practical application of what they are learning by observation of children at each age level.

(6) Clemens, Thomas D., 1956, Television and Teacher Education. A comparison of the relative effectiveness of in-person observation in elementary teacher education at San Jose State College showed definite results. Evidence indicated that television observation before in-person observation is significantly more effective than (1) television observation only, (2) in-person observation only, or television observation after in-person observation.

(7) Educational Broadcasts in the Republic of China (1964). This report was supported by the Ministry of Education of the Republic of China. The investigation involved three major areas: (1) Educational

Radio Broadcasting, (2) Educational Television Broadcasting, and (3) an experimental television instructional program in general science for six public and private schools in the Taipei area.

CHAPTER III

PROCEDURES USED

I. BACKGROUND

In 1962, the writer was appointed senior technician for the National Educational Television Station, Taipei, Taiwan, Republic of China. This was the first television station in Taiwan, and the position gave the writer a chance to participate in a new program and encouraged him to continue studies in this specialized field.

While attending Central Washington State College, the writer was assigned as a graduate assistant in the Audiovisual Department. The application of the closed-circuit television system to teacher education at the College is of the type that could be used in the Republic of China. Before a plan could be developed, a more detailed study was made to secure the information needed.

The normative survey method of research was used. The first step was to search the published literature for information to be used for the background of this study. This review of literature gave an overall picture of the development of educational television. The preliminary survey, involving several areas, covered the general conditions of the use of television in education in the past, the present,

and the future. This material included a historical review of the development of educational television, the present television programs in schools, and the research related to the use of closed-circuit television in a teacher education program. Emphasis was placed on the use of closed-circuit television in the observation and demonstration program in teacher education.

II. QUESTIONNAIRE DESIGN

Following the preliminary survey, a questionnaire was designed (Appendix A). The form was divided into two sections. The first was designed to get the information by asking questions. Four different categories of questions were covered in this section--namely (1) general information, (2) system design, (3) administration, (4) needs for observations. This section was designed to get practical information and first-hand experience concerning the needs, the cost, the personnel, the operation, and the installation of closed-circuit television in the teacher-education program.

The second section was designed to secure opinions regarding the effectiveness, the operation, and the direction of future development. Attitudes concerning possible administration and personnel problems were also sought. Twenty statements were included to which the respondents were asked to give their opinion at one of these five

levels--strongly agree (SA), agree (A), no idea (NI), disagree (DA), or strongly disagree (SD). Following each section, additional spaces were provided for extension of remarks.

III. SAMPLING AND PROCEDURES

Copies of this questionnaire were mailed to twenty-six different universities and colleges in the United States. These institutions were selected because they have been using closed-circuit television in a teacher-education program. Most of the names were selected from the National Compendium of Televised Education. The questionnaire was sent to individuals at these institutions which had made the reports to the Compendium editor and had cooperated in research projects in the use of closed-circuit television on these campuses.

After the selection of the names of individuals, the questionnaires were sent with an explanatory letter (Appendix B) and a stamped, self-addressed envelope on March 12, 1965. By March 25, 1965, eight questionnaires, or 30.8 per cent of the total, had been completed and returned. On that date, a follow-up letter (Appendix C) was mailed to everyone on the list who had not responded to the original request. Ten days after the second letter, seven more persons responded, bringing the total response to fifteen, or 57.7 per cent.

On April 5, 1965, a second follow-up letter (Appendix D) was sent out accompanied by another copy of the questionnaire and a self-addressed envelope. Copies of this second follow-up letter were mailed to each person whose return had not already been received. Two weeks later, on April 19, 1965, the returns were considered complete with a total of twenty questionnaires, 76.82 per cent, having been completed.

A letter to express the writer's gratitude for their cooperation was sent to everyone immediately after the questionnaire had been received (Appendix E). Most of the responding persons showed high interest in this study, and all of them requested data when the study will have been completed. Two colleges sent additional information and publications which were very helpful to the writer.

IV. DATA ANALYSIS

The analysis of data was started on April 20, 1965. The individual questions were analyzed, and the data was grouped in major areas. A five-point rating scale was used in the second section of the questionnaire to evaluate the opinions. An index of agreement value was established as follows: 5 points for strongly agree, 4 points for

agree, 3 points for no idea, 2 points for disagree, and 1 point for strongly disagree. Simple statistical techniques were used to help the writer interpret the data.

CHAPTER IV

ANALYSIS OF THE QUESTIONNAIRE DATA

For the purpose of analyzing the information concerning closed-circuit television in teacher-education programs, two types of information were secured. Facts about the closed-circuit television in teacher education programs now in the United States were compiled. This information includes the kinds of institutions, the size of distribution of the closed-circuit television system, the design and operation of the television system, the cost, and the need for television observation. This part of the information is mainly to act as a guide for institutions wanting to establish a closed-circuit television in their own teacher-education programs. For one who has no experience in this field, this information will become very basic and practical for him to plan his own television system. Secondly, the various opinions concerning the effectiveness, the difficulties, the problems, and the future development of the use of closed-circuit television in teacher-education programs were tabulated. These opinions were obtained from leaders and scholars who are knowledgeable and experienced in closed-circuit television. These different ideas will help the new institutions to design up-to-date systems and also enable them to prepare the capacity to develop future expansion.

I. USE OF CLOSED-CIRCUIT TELEVISION IN TEACHER EDUCATION

General Information.

This Chapter presents data obtained by means of the questionnaire and what seems to be the significant inferences that may be drawn from an analysis of these data. In the first section of the questionnaire, the respondents were asked to answer the questions which concerned the facts of their closed-circuit television systems. The over-all data reflect a great deal of dissimilarity among institutions. They ranged in size from the small colleges to the larger universities. Some colleges are mainly for teacher education, but others are for liberal arts. Therefore, some of the campus television systems for teacher education only, whereas others are multi-purpose, in use by different departments. It seems significant that all types of institutions experience similar problems in providing observation programs.

Twenty different colleges and universities, or 76.9 per cent of the total expected respondents, completed and returned the questionnaire. Among them there were 12 colleges and 8 universities. The range of enrollment was from the highest, 42,000 students, to the lowest, 1,129 students. Table I, Page 37, shows the enrollment of the

TABLE I
THE TOTAL ENROLLMENTS OF THE INSTITUTIONS

Name of the Schools	Male	Female	Total
State University of New York College at Albany			42,000
San Jose State College	11,519	9,151	20,670
State University of New York University at Buffalo	12,663	6,494	19,157
San Diego State College	8,000	8,000	16,000
San Francisco State College	8,083	7,618	15,701
Ohio University			11,808
University of Massachusetts	6,000	5,000	11,000
University of California at Davis	3,629	2,815	6,444
Central Missouri State College	4,000	2,300	6,300
University of Wyoming	3,500	2,500	6,000
Kansas State Teachers College	3,000	2,400	5,400
Western Illinois University	3,039	2,133	5,172
Colorado State College	2,000	3,000	5,000
Central Washington State College	2,020	1,550	3,570
Millersville State College	1,300	1,400	2,700
Wisconsin State University	1,844	748	2,592
University of the Pacific			2,500
Slippery Rock State College	1,100	1,211	2,311
State University of New York College at Brockport	831	1,288	2,119
Concordia Teachers College	471	658	1,129

colleges and universities. Table II, Page 39, shows the enrollment in teacher education which are ranged from the highest, 4,700 students, to the lowest, 84 students. There are 18 state colleges and universities, two of which are private.

Most of the institutions have campus laboratory schools. Only three institutions reported that they had no campus schools. Eight institutions reported that they had campus schools which covered the entire range from elementary school to senior high, two institutions had both elementary and junior high level, six had only the elementary level, and one had only senior high level. In addition, two institutions mentioned that they had a nursery school affiliated with the colleges. There was strong evidence that campus laboratory schools are one of the important educational facilities in teacher education.

The number of the public schools within the communities where the colleges are located varies from 124 schools to 3 schools. It indicates that some institutions are located in large cities, whereas others are in rural areas. Most of the closed-circuit television systems of these institutions included only the laboratory schools, but some of them included schools of the entire community.

It is revealed in Table I, Page 37, that most of the institutions are over 5,000 in total enrollment. It may be surmised that the establishment of the television system in colleges is still quite

TABLE II
THE ENROLLMENTS IN TEACHER EDUCATION

Name of the Schools	Male	Female	Total
Colorado State College	1, 900	2, 800	4, 700
Kansas State Teachers College	2, 400	1, 900	4, 300
Western Illinois University	1, 638	1, 767	3, 405
Ohio University	750	2, 250	3, 000
State University of New York College at Albany			3, 000
State University of New York College at Brockport			2, 072
Central Missouri State College	500	1, 500	2, 000
Millersville State College	1, 250	1, 350	1, 600
San Jose State College	101	1, 489	1, 590
Slippery Rock State College	600	900	1, 500
Wisconsin State University	738	532	1, 270
University of Wyoming	600	600	1, 200
San Francisco State College			1, 200
Concordia Teachers College	471	658	1, 129
Central Washington State College			700
San Diego State College	50	400	450
State University of New York University at Buffalo	102	197	297
University of California at Davis	16	68	84

expensive. The small colleges might find it difficult to have enough in the budget to install and operate the television system. Or it may be explained that the larger the number of students using television facilities, the smaller the cost.

Problems of the Design of the System.

The design of closed-circuit television systems in colleges is planned basically to meet the needs of the educational program and to provide the desired experiences for the students. The ideal is that the paper specifications be prepared by the college staff because they know the kind of programs wanted, the sort of experiences needed, and the best methods to be used to present the information to the students. Due to the fact that television facilities involve new technical products, the necessary technical knowledge is very important for the design of a system. Sixty per cent of the respondents showed that the paper specifications for the system were drawn up by the college staff with the cooperation of engineering consultants. Twenty per cent were prepared by the college staff and 10 per cent by the engineering consultants.

In the initial planning phases, the television systems were administered in 35 per cent by the Audiovisual Departments and in 40 per cent of the reports by a committee composed of college faculty,

administrators and technical consultants. The majority of the schools felt that it was important to have a special organization to combine the educational thinking with the specific technical knowledge in order to prepare the best system.

Only a few respondents reported that their television system served several purposes. Numerous institutions, 75 per cent, remarked that the major purpose of the system was designed for the teacher-education programs.

In this investigation, it was found that the earliest closed-circuit television system for the teacher-education program was initiated in 1955 by San Jose State College. Other literature reported that Kansas State Teachers College, at Pittsburg, was the pioneer in the use of television for this particular purpose in 1953 (32:57). Table III, shows the number of increases each year. (See Page 42)

The increase in the use of closed-circuit television indicates that there are more and more institutions beginning to accept this new medium. Although the use of television in an educational environment does indeed have many advantages, educational television, as we know, still has certain limitations and is still under experimentation. Many alert educators have experimented with and learned to use new teaching methods and devices. Many educational practitioners are awaiting the result of the experiments, and they have a responsibility

TABLE III

THE INCREASE IN NUMBER OF CLOSED-CIRCUIT TELEVISION
SYSTEM FOR TEACHER EDUCATION IN EACH YEAR

Year	Number of Increases	Cumulative Numbers
1955	1	1
1956	4	5
1957	1	6
1958	3	9
1961	2	11
1962	2	13
1963	5	18
1964	2	20

to use the advantages of the new teaching methods and devices to achieve the goals of education more effectively.

A typical installation of closed-circuit for observations in teacher education contains three basic parts: the program-originating facilities, the distribution system, and receiving facilities. Such an installation is found at most of the institutions.

The semi-professional vidicon television camera was used in many institutions. Table IV, Page 43, shows the different kinds of cameras used in the television systems for teacher-training purposes.

TABLE IV
THE DIFFERENT TYPES OF CAMERAS USED IN
CLOSED-CIRCUIT TELEVISION SYSTEMS

Types of Cameras	Number of Cameras	Percentage of Total Number
Industrial (Vidicon without view finder)	24	26
Semi-professional (Vidicon with view finder)	41	42.7
Professional (Orthicon)	11	11.3

The use of the semi-professional vidicon camera might be due to several reasons: the size of the vidicon camera is small and light; it can be stationed in fixed positions; it also can be mounted on a cart or tripod to be moved in the classroom; the cost is considerably lower than for the large-image orthicon camera; and the vidicon camera images appear to be adequate for observing techniques in classrooms.

The length of the distribution varies from 50 feet to 35,000 feet. Some of the closed-circuit television systems only cover a few rooms, but others cover an entire community. All of the respondents indicated a distribution system utilizing coaxial cable carrying both the

video and audio signals. More than 80 per cent of the cable is buried underground. Table V shows the different methods used for the cable systems.

TABLE V
THE METHODS USED FOR CABLE SYSTEM

Methods	Percentage of Users
On Poles	6.7
Buried (Underground)	80.0
Both	13.3

The originating and the receiving points for television varied in proportion to the length of the distribution. Certain electronic devices can increase the origination and reception points to as many as one desires. It is also true that these points can be reversed. Because of sensitivity of the camera, extra light systems are usually not needed. The lack of need for additional lights makes it simple and easy to operate the camera and also to keep more natural conditions in the observed classroom. Sixty three point two per cent of the institutions reporting indicated that they did not need extra-light systems, but 36.8 do report the need of some extra-light. These

extra-light systems usually are supplied by a small power unit, within 3,000 watts, in the regular classroom.

As to the receiving facilities, the smaller system has four television sets, whereas some big universities have more than eighty. As shown in Table VI, the size of the screens range from 21 to 24 inches, and it appears that there are more schools using the big screen, 23 and 24 inches, in the classroom. The success of the wide-angle cathode-ray tube in the electronic industry has made it possible to produce the non-distorted big-screen television sets. These probably will soon be accepted by educators.

TABLE VI
THE SIZE OF THE TELEVISION SETS USED

Size of Screen (inch)	Number of Users	Percentage of Users
21	5	26.3
23	8	42.1
24	3	15.8
23-24	1	5.3
21-24	2	10.5

Table VII, Page 46, shows the sets in each reception point, which vary from one set to seven.

TABLE VII
THE SETS PER RECEPTION POINT

Number of Sets Per Reception Point	Number of Users	Percentage of Users
1	2	10.5
2	3	15.8
3	3	15.8
1 to 2	4	21.0
2 to 4	2	10.5
2 to 6	1	5.3
1 to 7	3	15.8
7	1	5.3

The coaxial cable of closed-circuit television systems has the ability to transmit through several channels on one line both television and audio signals at the same time by adding certain electronic devices to the circuit. Some schools use up to seven channels in their systems. Table VIII, Page 47, indicates the channels used in different institutions. This makes it possible to expand the system and to incorporate new equipment as it is developed. This flexibility is very important for an up-to-date educational institution.

Sixty-four point eight per cent of the institutions have reported the use of the video recorder in their systems. Some of the institutions used the video-tape recorder for more than 90 per cent of the

TABLE VIII
THE CHANNELS USED IN CLOSED-CIRCUIT TELEVISION SYSTEMS

Number of Channels	Number of Users	Percentage of Users
1	7	36.8
2	5	26.3
3	1	5.3
4	2	10.5
5	2	10.5
6	1	5.3
7	1	5.3

total television programming. Most of the video-tape recorders are made by Ampex, the rest, by Sony of Japan.

Problems of the Administration of the Closed-Circuit Television.

The operation of the system presents many important problems. The proper use of the equipment is necessary if it is to provide the necessary aid to instruction. Within these problems, personnel and finances are the two biggest questions.

The majority, or 42.1 per cent of closed-circuit television systems are under the Audiovisual Department. Many others are set up in independent units. There are 21 per cent named Instructional

Television Department or Center. The other 21 per cent use a committee to run the system. The rest of them are affiliated to some other department.

The persons who administer the closed-circuit television systems are all well educated in the fields of education media or in radio and television. Table IX shows the educational background of the heads of the closed-circuit television systems investigated.

TABLE IX

THE EDUCATIONAL BACKGROUND OF HEADS OF CLOSED-CIRCUIT TELEVISION SYSTEM OF INSTITUTIONS

Degree	Area of Study	Number of Person	Percentage
Ph. D.	Education and Media	11	58.00
Ph. D.	Radio and Television	1	5.25
M. A.	Education and Media	3	15.75
M. A.	Radio and Television	3	15.75
M. A.	Industrial Arts	1	5.25

Adequate technical personnel is an important factor in the operation of the television system. The new developments in technology make it possible to provide sophisticated equipment for instructional purposes. The maintenance and repair of the television equipment need knowledgeable people. The technical personnel need

not only the theoretical base, but also experience. The latter is as important as the former. The data showed that most of the persons who are in charge of the technical sections were trained in technical schools or junior colleges. Most of them have had many years of experience in the electronics field.

Most of the institutions within the closed-circuit television systems have one administrator, one engineer, one or two technicians, one secretary, and few student employees to run the system. The operation of the equipment is done by the technicians and student employees. The data indicate that more than half of the institutions use student employees to operate the equipment. Table X presents the detailed information about the operators of the equipment.

TABLE X
THE PERCENTAGE OF EQUIPMENT OPERATORS USED

Operator	Percentage of Equipment Handled		
	Cameras	Lighting System	Audio System
Student Employees	58.0	53.0	42.1
Technicians	15.7	23.5	31.6
Student Employees With Technicians	24.3	23.5	26.3

Fifty per cent of the total respondents reported that the television projects were supported by state funds; 35 per cent, by separate college funds; ten per cent, by both state funds and separate college funds; and five per cent, by grants from other organizations. The total costs of establishing closed-circuit television systems were widely distributed between \$3,000 and \$900,000. The detailed information is presented in Table XI, Page 51.

Most of the institutions had no yearly detailed records for the costs of the operation of the closed-circuit television systems. Most respondents gave no information on this question.

Problems of the Needs for Observation.

There is strong evidence that most of the students in teacher-education programs are required to observe teachers in classrooms before their student teaching. Only two institutions reported no observations required. A wide variance in the number of hours of observations was reported, ranging from 9 hours to 50 hours.

Some colleges required the student teachers to observe experienced teachers. In six institutions, observations are not required. A wide variance of replies is noted. Most of the institutions gave no requirements in hours; but several stated a moderate number; and the University of Wyoming reported the highest, 50 hours.

TABLE XI
THE INITIAL COST OF CLOSED-CIRCUIT TELEVISION SYSTEM

Name of Institutions	Initial Cost
San Diego State College	\$900,000
State University of New York University at Buffalo	160,976
University of California at Davis	150,000
San Francisco State College	100,000
San Jose State College	80,000
Slippery Rock State College	70,000
University of Massachusetts	50,000
State University of New York College at Albany	50,000
Ohio University	50,000
Central Washington State College	49,336
Concordia Teachers College	35,000
State University of New York College at Brockport	30,000
Kansas State Teachers College	30,000
Colorado State College	25,000
Central Missouri State College	25,000
Millersville State College	15,000
University of the Pacific	7,500
Wisconsin State University	6,000
University of Wyoming	3,000-5,000

This variation in the hours of observation causes quite an amount of confusion. It seems that most institutions agree that observations are necessary, but no standards for the number of hours for observation have been established.

The courses available for observation in the teacher-education programs differ also from one institution to another. The University of California reported that the whole range of the public school courses are available for observation. Central Missouri State College stated that the courses for observation are available from kindergarten through grade 12. The highest number, 50 courses, was reported by the University of Wyoming; whereas most of the others reported from one to ten courses.

The size of the average enrollments for observation varies from 20 to 250 students. The University of Massachusetts reported that there are usually four classes of 80 students each. The biggest class of 250 was reported by the State University of New York College at Brockport. Table XII, Page 53, shows the average size of enrollments for observation.

TABLE XII
THE SIZE OF ENROLLMENTS FOR OBSERVATION

Size of Enrollments	Number of Institutions	Percentages
20 - 30	7	43.7
30 - 40	3	18.8
40 - 50	0	00.0
50 - 60	2	12.5
Over 60	4	25.0

The reasons for using closed-circuit television for observations are indicated in Table XIII, Page 54. Eighty per cent of the total respondents gave as reason the impossibility of discussing live observation during class time; seventy-five per cent, the increasing college enrollments; sixty per cent, the lack of observation stations in the community and scheduling problems due to class time; fifty-five per cent, the impossibility to point out the mistakes during the live observation; fifty per cent, the public school classrooms are too small and the lack of control of observation by the instructors.

Nearly 80 per cent of the respondents indicated that it required four years for graduation in teacher-education programs; certain others said that five years were needed. Only San Diego State College mentioned that they required one and one-half years for graduation in

TABLE XIII
THE REASONS FOR HAVING CLOSED-CIRCUIT TELEVISION
FOR OBSERVATION

Reasons	Number of College Reported	Percentage
Impossibility of discussing live observation during the class time	16	80
Increasing college enrollment	15	75
Lack of observation stations in community	12	60
Scheduling problems due to class time	12	60
Impossibility to point out the mistakes during the live observation	11	55
Public school classrooms too small	10	50
Lack of control of observation by the instructors	10	50
Transportation difficulties	7	35
Public schools not cooperating in the program	3	15
Uncomfortable feeling during the live observation by teachers	3	15
Increased college faculty	3	15
Crowded teaching conditions	2	10
Public relations problems	1	5
School organization changes causing modifications	1	5

the teacher-education program. (In addition to the student's major field, 39-42 credits were required.) Sixty-five per cent of the colleges reported that they required four years of college education for a teaching certificate; 30 per cent required five years. Millersville State College indicated that four years were required for a provisional certificate; and five years, for a permanent one. Ohio University answered that two years were needed for a temporary certificate; and four years, for a standard certificate.

II. OPINIONS CONCERNING THE USE OF CLOSED-CIRCUIT TELEVISION FOR TEACHING EDUCATION

In the second section of the questionnaire, the respondents were asked to evaluate a series of statements which related to the effectiveness, the technical achievements, the operating process, the use of video-tape recorders and the technical personnel. Each statement was followed by five different ratings for greater ease of comparison of the responses.

An index showing the amount of agreement or disagreement with the original statement was established. The rating scale and the values for calculating the degrees of agreement or disagreement are as follows:

RATING	INDEX OF AGREEMENT VALUE
Strongly Agree	5
Agree	4
No Idea	3
Disagree	2
Strongly Disagree	1

The Effectiveness of the Television Observation.

The growth of educational television is obvious. A great number of research investigations have indicated that there are satisfactory methods of using television in the educational process. However, some educators have pointed out that education television is not an educational cure-all capable of solving the manifold problems that face education today. Educational television has certain limitations which need careful appraisal in considering its use in teaching. Without entering any controversy on this subject, we can safely say that television, properly used, can enhance, enrich and improve the quality of instruction in a learning situation.

In order to get the opinion directly from the experienced resource persons, there are eight statements in regard to the effectiveness of the television observations in the opinionnaire.

Many of the respondents believe that television observations are better than live observations. As is indicated in Table XIV and Table XV, Page 57, more than 65 per cent of the respondents agree

TABLE XIV

THE OPINION REGARDING THE STATEMENT THAT "TELEVISION OBSERVATIONS ARE BETTER THAN LIVE OBSERVATION FOR PROVIDING ENOUGH INFORMATION TO THE STUDENTS"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
26.3%	42.1%	5.3%	26.3%	0%	3.69

TABLE XV

THE OPINION REGARDING THE STATEMENT THAT "TELEVISION OBSERVATIONS CAN PROVIDE A BETTER LEARNING SITUATION THAN LIVE OBSERVATIONS"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
27.8%	38.9%	5.5%	27.8%	0%	3.67

that by using closed-circuit television for observation purposes, they can provide enough information and provide a better learning situation to the student than live observation. Although some disagreed, no one strongly disagreed. This reveals that the majority of the respondents believe that television observations are much better than live observations.

There was a wide distribution of opinions in response to the statement that the television observations are more economical than live observations. The result was less favorable and the majority of respondents indicated that they would not agree that television observations are economical. There are a number of people who gave no idea concerning this statement. (Refer to Table XVI.)

TABLE XVI

THE OPINION REGARDING THE STATEMENT THAT "TELEVISION OBSERVATIONS ARE MORE ECONOMICAL THAN LIVE OBSERVATIONS"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
10.5%	15.8%	26.3%	42.1%	5.3%	2.84

There was no uniform response to the statement that from television observation students can obtain classroom experience easily. As indicated in Table XVII, there was a wide distribution of opinion, but both the positive and negative sides were nearly even.

TABLE XVII

THE OPINION CONCERNING THE STATEMENT THAT "FROM TELEVISION OBSERVATIONS STUDENTS CAN OBTAIN CLASSROOM EXPERIENCE EASILY"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
5.5%	33.3%	16.7%	39.0%	5.5%	2.94

It may be due to the fact that there are no basic grounds to test the results. It is very hard to judge this, for television has been used for this particular purpose for only a short period of time.

With closed-circuit television as the viewing medium for observation, several advantages over direct observation are achieved. Television can focus attention on some selected features or details of a teaching situation while removing unwanted or distracting information from the scene. There was a strong agreement in this response.

Table XVIII shows that the majority, or 47.4 per cent of the respondents agreed with this statement. Although a minority group did disagree, no one strongly disagreed.

TABLE XVIII

THE OPINION REGARDING THE STATEMENT THAT "THROUGH TELEVISION OBSERVATIONS, COLLEGE STUDENTS EASILY OBSERVE THE TEACHER'S DEMONSTRATION AND TEACHING TECHNIQUES AND STUDENTS' REACTIONS"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
47.4%	31.6%	5.2%	15.8%	0%	4.11

One of the important techniques of a teacher is the handling of routine classroom problems and keeping a sound classroom atmosphere to bring the students into a proper learning situation. This technique can be learned through television observation of experienced teacher. Table XIX and Table XX, Page 61, clearly indicate a general agreement that college students can learn from experienced teachers how to handle the classroom and also can observe the public school classroom atmosphere through television observations. The data for these two statements were very close when the index of agreement value ratings of 3.79 and 3.83 were calculated.

TABLE XIX

THE OPINION REGARDING THE STATEMENT THAT "THROUGH TELEVISION OBSERVATIONS, COLLEGE STUDENTS CAN LEARN FROM THE EXPERIENCED TEACHER HOW TO HANDLE THE CLASSROOM"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
21.1%	57.8%	0%	21.1%	0%	3.79

TABLE XX

THE OPINION REGARDING THE STATEMENT THAT "THROUGH TELEVISION OBSERVATIONS, COLLEGE STUDENTS CAN OBSERVE THE PUBLIC SCHOOL CLASSROOM ATMOSPHERE"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
17.7%	58.9%	11.7%	11.7%	0%	3.83

In Table XXI, there was a broad distribution of opinion, but a majority of the respondents indicated that they would not agree to the statement that public school teachers will be more natural on television than during live observations. The index ratio for this statement was 2.75. This presents the idea that the pressure of the observation program will not be relieved by changing directly from live to television observation.

TABLE XXI

THE OPINION REGARDING THE STATEMENT THAT "PUBLIC SCHOOL TEACHERS WILL BE MORE NATURAL ON TELEVISION THAN DURING LIVE OBSERVATIONS"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
12.5%	18.7%	18.7%	31.3%	18.7%	2.75

The Technical Achievement.

Technically, television has some limitations. Black and white reproduction may not reproduce all textures. In pictorial representations, color is mottled; and the third dimension of depth may not be accurately represented. The dimensions of space and aspect ratio on television often require the condensation of written and visual

stimuli. The visual intelligence of the small television screen often requires a simplification of visual material for accurate comprehension. These limitations are important and are recognized by the educators who are interested in many communication devices as well as television. These will not be discussed in this section.

Generally we use television as an educational medium because it has the ability to transmit sound and pictures from one point to another. The professional television station is capable of presenting a high fidelity sound and a non-distorted picture with less interference. In colleges, the simple closed-circuit television equipment cannot compare with that of the more complicated commercial stations. Can closed-circuit television really satisfy the educational needs?

There was a general agreement presented in Table XXII, Page 64, that the pictures in closed-circuit are clear enough for observation. But it shows in Table XXIII, Page 64, that there was a disagreement as to the sound achievement. Audio equipment cannot adequately reproduce the speaking and discussion of the teachers and students.

Operating Process.

Generally, in the viewing room, one may have several television sets all showing the same scene. A suggestion made by some

TABLE XXII

THE OPINION REGARDING THE STATEMENT THAT "THE PICTURES ARE ALWAYS CLEAR ENOUGH FOR OBSERVATION"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
11.1%	61.2%	5.5%	22.2%	0%	3.61

TABLE XXIII

THE OPINION REGARDING THE STATEMENT THAT "THE SOUND IS ALWAYS CLEAR ENOUGH FOR LISTENING TO THE TELEVISED TEACHER'S SPEAKING AND THE STUDENTS' DISCUSSION"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
0%	27.8%	16.6%	50.0%	5.5%	2.67

educators was that the "split image" technique could be used. One set could show the whole class, and another could show the teacher's action at the same time (10:7).

There is an indication of general agreement among the respondents with the statement concerning the "split image" technique for observing classes. The data are presented in Table XXIV and the index rating is 3.56.

TABLE XXIV

THE OPINION REGARDING THE STATEMENT THAT "USING 'SPLIT IMAGE' TECHNIQUE (ONE SET SHOWING THE WHOLE CLASS AND ANOTHER ONE SHOWING THE TEACHER'S ACTION AT SAME TIME) IS BETTER THAN TWO SCREENS SHOWING THE SAME PICTURE"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
27.8%	27.8%	22.2%	16.6%	5.5%	3.56

There was agreement with the statement that a special viewing room for observation is needed. The index rating is 3.89 and the detail information is presented in Table XXV, Page 66. The special viewing room for observation is designed to provide the effective

TABLE XXV

THE OPINION REGARDING THE STATEMENT THAT "A SPECIAL VIEWING ROOM WHICH PROVIDES THE EFFECTIVE PLACEMENT OF CHAIRS, GOOD VIEWING SCREENS, SUITABLE LIGHTING FACILITIES WITH ENOUGH LIGHT FOR STUDENTS TO TAKE NOTES AND NOT INTERFERE WITH PICTURE QUALITY AND GOOD SOUND SYSTEM DESIGN IS NEEDED"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
42.1%	26.3%	10.5%	21.1%	0%	3.89

placement of chairs, good viewing screens, suitable lighting facilities with enough light for students to take notes yet not interfere with picture quality and a good sound system.

In the viewing room, the professor usually acts as director and uses some electronic equipment to guide the television crew in the public school classroom to select the wanted information and also control the college viewing room to present the proper picture illustration. Although the electronic television control devices in the viewing room are very simple, the data show that most of the professors felt that it was not easy to handle the television equipment. There is a negative response to the statement that college instructors can very easily handle the television equipment for observation without any extra training. The data are listed in Table XXVI, Page 67.

TABLE XXVI

THE OPINION REGARDING THE STATEMENT THAT "COLLEGE INSTRUCTORS CAN VERY EASILY HANDLE TELEVISION EQUIPMENT FOR OBSERVATION WITHOUT ANY EXTRA TRAINING"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
5.2%	26.3%	5.2%	36.8%	26.3%	2.47

The majority of respondents disagreed with the statement that public school teachers need not have special preparation for television demonstrations. The index rating was 2.28 and the data is presented in Table XXVII.

TABLE XXVII

THE OPINION REGARDING THE STATEMENT THAT "PUBLIC SCHOOL TEACHERS DO NOT REQUIRE SPECIAL PREPARATION FOR TELEVISION DEMONSTRATIONS"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
0%	16.6%	11.1%	55.6%	16.7%	2.28

There is strong disagreement with the statement that there are no problems in arranging the schedule to meet the needs of college professors. Nearly 80 per cent of the respondents revealed that they were less favorable to the statement; among them, a number of respondents indicated they strongly disagreed. The index rating calculated was 2.17, and the data is shown in Table XXVIII.

TABLE XXVIII

THE OPINION REGARDING THE STATEMENT THAT "THERE ARE NO PROBLEMS IN ARRANGING THE SCHEDULE TO MEET THE NEEDS OF COLLEGE PROFESSORS"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
0%	16.6%	5.5%	55.6%	22.2%	2.17

The Use of Video-Tape Recorder.

The new video-tape recorder may revolutionize our closed-circuit television system in the near future. As mentioned on Page 46, the data show that 68.4 per cent of the closed-circuit television systems are using the video-recorder. Some active educators have done research to test the effectiveness and the values of video-tape recorders.

According to the data presented in Table XXIX, there is general agreement that the use of the video recorder is better than the cable system, but a high percentage of the respondents indicated no idea on this topic. As indicated previously, most colleges have just recently started to use video-tape recorders, but others do not yet have this equipment. Perhaps the lack of experience with this type of equipment may account for the high percentage of those with "no idea."

TABLE XXIX

THE OPINION CONCERNING THE STATEMENT THAT "USING THE VIDEO RECORDER IS BETTER THAN THE CABLE SYSTEM"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
18.7%	31.3%	37.5%	12.5%	0%	3.56

There is a very strong agreement indicated by the respondents that the use of video-recording tapes to establish a "resource" center for observation is a practicable idea. It was revealed in Table XXX, Page 70, that the index rating was 4.42 and with no disagreement.

TABLE XXX

THE OPINION REGARDING THE STATEMENT THAT "USING VIDEO RECORDING TAPES TO ESTABLISH A RESOURCE CENTER FOR OBSERVATION IS PRACTICABLE"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
57.8%	26.3%	15.8%	0%	0%	4.42

There is a general agreement, as shown in Table XXXI, that a new instructional television system can be established easily by using a video-recording system. This means using a video-tape recorder to store the necessary information to be given later to the students via video-tape. This not only makes the system simple, but makes it possible to use the recorded material at other times. In addition to this, the entire set-up is much more flexible than a cabled system.

TABLE XXXI

THE OPINION REGARDING THE STATEMENT THAT "A NEW INSTRUCTIONAL TELEVISION SYSTEM CAN BE ESTABLISHED EASILY BY USING A VIDEO-RECORDING SYSTEM"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
11.7%	47.1%	17.7%	23.5%	0%	3.37

Problems of the Technical Personnel

There was a wide variance in responses to the statement about the qualifications of the technical personnel. According to the data presented in Table XXXII, a number of the respondents disagreed with the statement that owing to the simpler equipment, one needs a technician with only minimum experience to maintain and repair the equipment. There was a high percentage of the respondents who indicated disagreement with this statement. Although the index of agreement value is 2.63, it may indicate that the majority were in disagreement, but since there was a wide variance in the reactions toward the statement, it is hard to judge the true opinions at this time.

TABLE XXXII

THE OPINION REGARDING THE STATEMENT THAT "TECHNICAL PROBLEMS IN CLOSED-CIRCUIT TELEVISION ARE SIMPLER THAN IN A PROFESSIONAL TELEVISION STATION AND, THEREFORE, NEED A TECHNICIAN WITH MINIMUM EXPERIENCE TO MAINTAIN AND REPAIR THE EQUIPMENT

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
5.3%	31.6%	0%	47.4%	15.8%	2.63

Again, there was also a wide variance in response to the statement that the operation of equipment is simple, requiring only a short in-service training for student employees. According to Table XXXIII, there was a high percentage of respondents who indicated agreement to the statement, but a number of the respondents indicated disagreement and even strong disagreement. These dissimilar opinions made it difficult to draw a conclusion about this data.

TABLE XXXIII

THE OPINION REGARDING THE STATEMENT THAT "THE OPERATION OF EQUIPMENT IS SIMPLE, REQUIRING ONLY A SHORT IN-SERVICE TRAINING FOR THE COLLEGE STUDENT EMPLOYEE"

Strongly Agree	Agree	No Idea	Disagree	Strongly Disagree	Index of Agreement Value
5.2%	37.8%	5.3%	31.6%	21.1%	2.73

III. INTERPRETATION

Based on the professional literature and the results of the questionnaire, the following interpretations will be made in order to relate the results to the purposes of the study.

There is a strong possibility of the utilization of closed-circuit television for observational programs to help meet the needs of the school for a larger number of qualified teachers. There are a significant number of institutions satisfactorily using closed-circuit television for observation in teacher-education programs. As indicated in this study, there are more and more institutions beginning to accept this new medium for this particular purpose. Although the use of closed-circuit television for observational purposes has not been entirely accepted by the teacher-education institutions, the increase in the use of this facility indicates that a strong tendency to apply it in the teacher-education programs is apparent.

Observational programs for prospective teachers are required by most of the teacher-education institutions in order to provide the necessary laboratory experiences. The laboratory-affiliated campus school is one of the common educational facilities in teacher education. To observe the experienced teachers in the actual classroom is one of the indispensable procedures in teacher-training programs. The conventional live-observation programs, in which the college students go directly into the public-school classrooms to observe the teaching process, are still commonly used in teacher-education institutions. However, the conventional observation no longer satisfy the needs. There are several reasons indicated by most of the respondents for the

requirement of closed-circuit television for observation;--namely, impossibility of discussing the live observation during the class time, increasing college enrollment, lack of observation stations in the community, scheduling problems due to class time, impossibility to point out mistakes, small size of public school classrooms, lack of control of the observation by the instructors. These main reasons can be grouped into two major categories; the need to increase the potentiality of observation stations for the training of a large number of students, and the necessity to increase the effectiveness of the observation programs. As indicated in the data, most of the respondents felt that television observation is better than live observation, television observation may be just the right answer for these needs.

Although it is very hard to compare the different institutions--dissimilar in size, form, and location--nevertheless, in each institution, some similar problems are found. No matter whether here in the United States or in the Republic of China, the growth of college enrollments in teacher education and the need of better qualified teachers force educators to find some new methods and facilities to meet these demands. The recent developments of television would be a good chance for the educators to utilize this facility for this particular aim. There is no doubt that the closed-circuit television system can be used for the improvement of teacher education in the Republic of China.

Wise use of television observations will satisfactorily meet the needs for the prospective teachers. The effectiveness of the utilization of closed-circuit television for observation programs is asserted by many educators. As mentioned by William R. Rogers in his study, Television Utilization in the Observation Program for Teacher Education, it is good procedure to use television for the economical use of the time of both teacher and student. Robert J. Keller also pointed out that it can provide pin-pointed illustrations of specific features of the teacher-learning situation and show all their aspects, woven into one inter-related whole (29:15). Other studies showed that television observation provides all observers with a common visual experience and a common frame of reference upon which to base subsequent discussions. By this method, a large number of college students can be taught at one time (17:62).

The data included in this study indicate that television observation has met these needs successfully. There is clear evidence in the data that, through television observations, college students easily observe the teacher's demonstration, teaching techniques, and student's reactions. Most of the respondents indicate agreement that college students can learn from the experienced teacher to handle the classroom and to understand the public school classroom atmosphere through the television observation. These results bring about the conclusion

that television is a successful device which satisfactorily links public schools to the college classrooms and fulfills the needs of the prospective teachers.

Technically, television still has some limitations. It is indicated in the data that the performance of the audio is not clear enough for listening to the televised teachers' instruction and the students' discussion, that college professors will not feel happy in handling the equipment without extra training, that the scheduling problems between public school and college still exist, that public school teachers will be hesitant about accepting this device without special preparation for the television demonstrations.

All of these weaknesses can be reduced to a minimum by a carefully-designed system used properly. The first-hand experiences which have been collected and presented in the data of the questionnaire can be used as a guide for this project. According to the results of the questionnaire, the few directions following will be made for helping to use this facility properly.

(1) The initial plan for the system should combine educational thinking with special technical knowledge to prepare the best system. A special organization which includes educators, administrators, and technical consultants is needed to plan and design the system. The specifications should be drawn by the college staff with cooperation

from engineering consultants. An elite educational television system needs the best engineering design with modern educational thinking in mind to eliminate many unnecessary limitations and mistakes. The best design for the funds available and adequate administrative support will bring good results.

(2) A well organized administrative structure is needed to operate the system. An adequate administrative organization will allow the system to be used effectively, successfully, and economically. Television systems were usually placed in the audiovisual departments. This may permit the television system to have the best use of other related audiovisual materials, to use adequately technical personnel for both audiovisual and television work, and to establish a good relationship between the departments and local school systems.

(3) Well-trained personnel are wanted. The people working with television systems should have specialized training to fit their positions. As indicated in the data, the head of the system should have special professional training in the field of educational media or in radio and television. An advanced degree is preferred. Educational and technical knowledge and leadership are very important.

The technical personnel should have both the basic theoretical training and the essential experience in special field. They have a very important role in keeping the whole equipment working effectively.

Student employees are the significant source of manpower to help operating the equipment. This not only can reduce the costs for operating the system but also can have its educational meaning.

Through this, student employees can gain practical experience and become familiar with the equipment. The student employees should have some simple training and guidance by professional persons.

The college professors who direct the observation programs should have some knowledge about the equipment and have the opportunity to become familiar with the equipment before using it.

The public school teachers should understand the features and peculiarities of television in order to prepare proper demonstrations.

(4) New methods, new designs, and new equipment to improve the system must be sought continually. As indicated in the data, the video-tape recorder, the large-screen receiving set, the well-designed viewing room, the "split image" technique, and the resource center of video-taped information were desired by most of the respondents. The data revealed that the educators were not satisfied with the present achievements and are trying to keep up with the latest developments for educating the students.

In conclusion, may I say that in view of the data presented, I feel confident that a good television system will be highly effective.

On the other hand, I feel that a poor one will be detrimental to good educational procedure.

Television observation is an economical way for the training of large numbers of students. In regard to the financing of closed-circuit television, there is some conflict of opinions among educators. The cost of installations and operation of television systems may vary greatly from one institution to another. Obtaining some basis of comparison has been almost an impossibility. Direct comparisons are, therefore, only partially accurate and lead to unwarranted conclusions if not carefully made. Dr. Lyle M. Nelson, of Stanford University, pointed out that many educational television stations and closed-circuit television systems lack funds, and inadequate financing has made it necessary to cut corners in operation, to eliminate everything except bare essentials, and even to compromise with program quality (26:181).

A careful study of 133 closed-circuit television systems in 1958 by the Joint Council on Educational Broadcasting showed a total capital value of approximately \$10,750,000 and annual operating costs probably in the neighborhood of \$4,250,000 (26:167). It appears that there were problems in providing suitable financial support to educational television.

It is quite hard to draw a clear conclusion from the data concerning the financing of closed-circuit television. A wide range in the initial costs--from \$3,000 to \$900,000--was found. The selection of closed-circuit television equipment depends entirely upon the function it is to serve. Low cost equipment, to serve simple demonstration type functions only, can be purchased for around \$4,000 to \$5,000. This equipment, however, is extremely limited in application. Since they are different in size, purposes, and the types of equipment, there is no common base for comparison. However, this extreme range does show that the small and simple system can cost only a few thousand dollars; whereas, the large, and complex one may be quite expensive. It seems probable that the system can be designed exactly according to the funds and the purposes. Most of the respondents did not indicate the yearly operational expenses; many of them admitted that they had no detailed records. Again, the opinion regarding the statement that television observation is more economical than live observation is to be widely held. Also, there was a high percentage of respondents who gave no opinion on this statement.

As appeared in the data, closed-circuit television can successfully serve large groups of students. Some institutions have used it for large sized classes of up to 250 students; others have it used for several combined small classes at some time. The data also

indicated that the cable system has the potential to transmit through several channels on one line both television and audio signals at the same time by adding certain electronic devices to the circuit. Some institutions have used up to seven channels. This feature of closed-circuit television makes it possible to serve more classes and more students. This makes it possible to use television systems effectively for large numbers of students without increasing the costs unduly.

It also appeared that a new idea for using video-tape recorders may give educators an opportunity to use effectively the taped information over and over. Even though the initial costs for a video-tape recorder are still quite expensive, nevertheless, in the long run, the video-tape recorder will be an inexpensive way to serve the needs.

Although there was no clear evidence in the data to show the television observation is less expensive than live observation, it would be fairly safe to say, in view of all these possibilities, that for the training of a large number of students, television will be an economical way. But the question is--how large should the class be?

L. P. Greenhill, of Pennsylvania State University, reported on closed-circuit television costs that it is necessary to have, on the average, more than 200 students in a class before television begins to become as economical as regular teaching methods.

The video-tape recorder is a tool which may revolutionize educational television in the near future. There are a large number of institutions which have started to use video-tape recorders in their television systems. Eventually, video-tape may play as important a role at the receiving as at the sending end. The high flexibility of movable-tape video-tape recorders has brought about the possibility that the teachers and the students may store and play what they want when they want it for study and review. It also enables the teachers to select certain wanted points for further emphasis.

A majority of respondents agree to use video-tape recorders to establish a new instructional television system to link the public school classrooms to the college viewing rooms. This not only makes the whole system simple, but the high flexibility will make it possible to record information at any chosen time and place and to play it later. A strong agreement appeared in the data to use the taped information for establishing a resource center. This may give educators an opportunity to organize and to exchange the taped information for the best use of them. It may be surmised that the video-tape recorder will become a major role in educational television systems.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

I. SUMMARY

This study was conducted for the purpose of: (1) surveying the problems of the utilization of closed-circuit television in teacher-education programs in the United States, (2) organizing this information, and (3) relating the information to the needs of other countries, particularly the Republic of China.

Since the beginning of the last decade, there has been a shortage of school facilities and teachers to take care of increased enrollments. In the Republic of China, between 1955 and 1962, elementary school enrollments increased 66.6 per cent, and secondary school enrollments increased 121.5 per cent. Teacher training institutions were unable to keep up with this expansion. New methods and new educational tools were eagerly sought by educators and educational administrators to keep up with the needs.

Educational television has been in use for more than fifteen years in the United States. It has grown from an almost unknown instrument to a major medium of instruction in American education. The first educational television station, KUHT, at the University of

Houston, Houston, Texas, went on the air on May 25, 1953. Today, ninety-eight educational television stations are operating. These stations regularly serve approximately twenty million school and college students and an adult audience of more than one hundred million. In addition, the school systems in the United States now use nearly 800 closed-circuit television systems of various sizes in their regular instructional programs. It would seem, then, that educational television has been successful in the United States.

A shortage of school teachers is also found in the United States. Closed-circuit television has been used to train many prospective teachers. This has been found to be successful in a number of the teacher training institutions in the United States. Using low cost vidicon equipment, linking public-school and campus-school classrooms with college viewing rooms, a significant number of colleges have successfully conducted observations and demonstrations for teacher training. Many experiments and studies have been reported on the utilization of closed-circuit television in teacher education. These studies show that it is an economically feasible and effective method for satisfying the needs of observation programs. There is a possibility of using these successfully to help the Republic of China in teacher training.

A questionnaire survey was conducted with this study. Twenty-six colleges and universities were selected because they have been using closed-circuit television in teacher-education programs. The data were grouped and tabulated in order to evaluate the results and to serve the purposes of the study.

The results showed that (1) there is a strong possibility of the utilization of closed-circuit television for observational programs to help meet the needs of the school force for a large number of qualified teachers, that (2) wise use of television observation will satisfactorily meet the needs for the prospective teachers, that (3) television observation is an economical way for the training of a large number of students, and that (4) the video-tape recorder is a tool which may revolutionize educational television in the near future.

II. RECOMMENDATIONS

Recommendations to establish closed-circuit television systems in teacher-education programs have been made to the Republic of China. Also, recommendations for further studies have been suggested.

Recommendations to the Republic of China.

The following are recommendations to the Republic of China for the development of closed-circuit television systems in its teacher-education training institutions:

1. A closed-circuit television system in Taiwan Normal University should be developed to be used as a model. This system should be used as an experimental station to provide experience for expanding the system to the other normal schools and junior teachers colleges in the Republic.
2. A committee, under the jurisdiction of the Ministry of Education, should be organized for providing the basic information and supplying technical help to the individual institutions. The committee should include administrators, teachers, college professors, and technical consultants. The experienced experts, both educational and technical, should be hired by the Ministry of Education to design the basic plans. Qualified persons could be found in other countries.
3. A long-range plan should be made in relation to the financial situation of the country in order to develop a sound system which would allow its use, not only for observation purposes, but also for education. It also should plan for future technical development and maintain a high degree of flexibility to meet the rapid developments in technology and education.

4. A video-tape recording system should be combined with that of the cable. A video-tape resource center should be established, and materials should be organized to furnish these resources to all teachers and students.

5. A well-organized administrative closed-circuit television section should be established under the audiovisual centers in each educational institution to operate the system.

6. A careful personnel training program should be established by Taiwan Normal University and sponsored by the Ministry of Education. The people selected to work with the first system in the University should be sent to other countries for further study, or persons who have had training and experience in other countries should be brought in. A training program should be offered by those people who have the special training and experience with the system in order to provide the necessary native personnel for the development of educational television. The program should offer college instruction, workshops, and in-service training for both college students and professional personnel.

7. Investigations should be undertaken by the Ministry of Education, The National Educational Material Center, The National Educational Television Station, and the universities in order to seek

new and up-to-date information for the optimal use of these media and to plan for future development.

Recommendations for Further Research.

As an outgrowth of experiences in this project, the following are recommendations for further research:

1. Investigate the effect of varying the size of an observational class with closed-circuit television.

2. Investigate the effectiveness of video-taped observations. Determine what modifications of presentation techniques are required to use recorded tape observations.

3. Determine the organization of a video-tape library to insure the best use of the recorded materials.

4. Investigate the qualifications of closed-circuit television personnel. Determine the preparations necessary for qualified staffs.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Brety, Rudy. "How to Prepare an ITV Lesson," NAEB Journal, August, 1964.
2. Brody, David S. "Teacher Preparation," College Teaching by Television, American Council on Education, 234 pp.
3. Bronson, Vernon. "Educational Television in the United States," Educational Perspectives, Journal of the College of Education, University of Hawaii, December, 1964.
4. Carle, Wayne M. Education on Air. The Ohio State University, Columbus, 1960.
5. Chang, C. I. "Teaching Via Television," Taiwan CHIAO-YU FU TAO YUEH KAH (Educational Guide Monthly) March, 1965.
6. Chinese Educational Association, Educational Digest, May, 1964.
7. Clemens, Thomas D. Television and Teacher Education, California: San Jose State College, San Jose, 1956. 56 pp.
8. Deway, Richard H. Selected Bibliography on Instructional Television. Instructional Television Center, San Jose State College, San Jose. 10 pp.
9. Eurich, Alvin C. "Shibboleths in Higher Education," Quality and Opportunity in Higher Education, Boulder, Colorado, Proceedings of the second regional workshop on Higher Education Western Interstate Commission for Higher Education. 1959.
10. Everly, Hubert V. "E. T. V. in the College of Education," Educational Perspective, Journal of the College of Education, University of Hawaii, December, 1964.
11. Gilman, Richard C. "Basic Issues in Teacher Education," AACTE Year Book, 1963.

12. Greenhill, L. P. The Potentialities of Closed-Circuit Television for Teaching in College and Universities. University Park, Pennsylvania, Pennsylvania State University, May, 1959.
13. Hester, Giraud C., Garrison, Garnet R. Television and Radio. Appleton-Century Crofts, Inc., New York. 1956. 636 pp.
14. Hull, Richard B. "A Note on the History Behind ETV," Educational Television, The Next Ten Years. Stanford: The Institute for Communication Research, 1962. 375 pp.
15. Hunt, Harold C. "Television and Formal Education," Television's Impact on American Culture. East Lansing, Michigan State University Press. 1956. 312 pp.
16. Industrial Design for Educational Facilities Laboratories. Planning for School with Television. New York: Dave Chapman Inc., 1960.
17. Keller, Robert J. Closed-circuit Television in Teacher Education. Minnesota: College of Education, University of Minnesota. 1957, 66 pp.
18. Kurz, E. B. Pioneering in Educational Television 1932-1939. Iowa City, Iowa: Department of Publications, State University of Iowa, 1959. 166 pp.
19. Lin, T. F. "School of Air" CHIAO YU YU WEN HWA (Education and Culture), June, 1964.
20. The Local Education Commission of Atlanta and Fulton County, Georgia, Educational Development Program, 1960.
21. Lueck, William R. An Introduction to Teaching. New York: Henry Holt and Company, 1953. 414 pp.
22. Maloney, Martin J., and Donner, Stanley T. Educational Television. Stanford Institute for Communication Research. 1962. 192 pp.

23. McKune, Lawrence E. National Compendium of Televised Education. Volume II, Michigan State University, East Lansing, Michigan. September 1, 1964. 350 pp.
24. The Ministry of Education. Educational Broadcasts in the Republic of China, Taipei, Taiwan, Republic of China. April, 1964.
25. The Ministry of Education. Educational Statistics of the Republic Of China. Taipei, Taiwan, Republic of China. 1963.
26. Nelson, Lyle M. "The Financing of Educational Television," Educational Television, The Next Ten Years, Stanford, The Institute for Communication Research. 1962. 375 pp.
27. Pendergraft, Daryl. "The A. A. C. T. Workshops on the Use of Closed-circuit Television in the Preparation of Teachers," The American Association of Colleges for Teacher Education. Oneonta: Subcommittee on Television in Teacher Education. January, 1958.
28. Radio Corporation of America. "College Graduates Earn Credit Toward an Illinois Teaching Certificate by Television," RCA Educational Television News. No. 18. October, 1957.
29. Rogers, William R. Television Utilization in the Observation Program for Teacher Education. San Jose State College. San Jose, California, 1962. 61 pp.
30. Samish, Mary Howard. Using Television in the Classrooms. McGraw-Hill Book Company, Inc., New York. 1961.
31. Schramm, Wilbur, Lyle, Jack, and Parker, Edwin B. Television in the Lives of Our Children. Stanford University Press, Stanford, California, 1961. 324 pp.
32. Slingland, Robert Paul. A Study of the Problems of Installing and Utilizing Closed-circuit Television for Observations and Demonstrations in the Teacher Education Program.(A Thesis) Ellensburg, Washington: Central Washington State College. August, 1958. 108 pp.

33. Taiwan Population Center. Annual Report. Taichung, Taiwan, Republic of China. March, 1962.
34. Taiwan Provincial Education Association. "The Possibilities of Educational Television in Taiwan," Taiwan Education Review Monthly. February, 1964.
35. Taiwan Provincial Government. Monthly Report. Taichung, Taiwan, Republic of China. March, 1963.
36. Wade, Warren Lindle. Television Tape Recording System, A Guide for School Administrators. Santa Clara County Office of Education, San Jose, California. January, 1964. 17 pp.
37. White, John F. "The Organization and Financing of ETV in the Next Ten Years," Educational Television, The Next Ten Years, Stanford, The Institute for Communication Research, 1962. 375 pp.
38. White, John F. "N. E. T. National Educational Television," Educational Perspectives (3:7-8) Journal of the College of Education, University of Hawaii, December, 1964.
39. Yao, Chi-Ching. "An Educational Report to the Legislative Yuan," CHIAO-YU FU TAO YUEH KAH (Educational Guide Monthly) July, 1964.
40. _____, Central Daily News Paper. March 24, 1965, Taipei, Taiwan, Republic of China.
41. _____, Instructional TV Observation and Demonstration. Office of Visual Education Publications, Central Washington State College. 19 pp.
42. _____, Instructional Television Summary. New York: State University of New York, Teachers College at Brockport. 1958. 65 pp.
43. _____, National Commission on Teacher Education and Professional Standards, A Manual on Certification Requirement for School Personnel in the United States, Washington, D. C., 1957.

44. _____, The Video tape Recorder in Education. Ampex Corporation, Video-Instrumentation Division, Redwood, California, 1963. 15 pp.
45. _____, The World Almanac, 1959, and Book of Facts. New York: New York World-Telegram and the Sun. Harry Hansen, Editor, 1959.

APPENDIX A

AN IDENTIFICATION OF MAJOR PROBLEMS RELATED TO THE CLOSED-CIRCUIT TELEVISION IN TEACHER EDUCATION PROGRAMS

DIRECTIONS AND EXPLANATIONS:

The purposes of the survey are to analyze the information concerning closed-circuit television in teacher education programs and to use that information for the improvement of closed-circuit television particularly in The Republic of China.

Please answer every question. If necessary make as close an estimate as possible. Use the space provided to clarify answers where the questions are not completely applicable.

When completed, return the questionnaire in the self-addressed envelope to Tuz-Chin Ting, Audiovisual Library, Central Washington State College, Ellensburg, Washington 98926.

Please return this questionnaire as soon as possible so that I may have sufficient time to collect and interpret the data.

GENERAL INFORMATION

1. Name of School _____
2. Address _____
3. Property: State _____ Private _____ Other(Please explain)
4. Size: Total enrollment: Male _____ Female _____
Enrollment in teacher education: Male _____ Female _____
5. How many affiliated campus schools do you have?
Elementary School _____ Junior High School _____
Senior High School _____ Other (Please explain)
6. How many public schools in your community?
Elementary School _____ Junior High School _____
Senior High School _____ Other (Please explain)
7. How many public schools are included in your closed-circuit television system?
Elementary School _____ Junior High School _____
Senior High School _____ Other (Please explain)

8. Has your closed-circuit system been removed?

If "yes" why? _____

SYSTEM DESIGN

1. Who drew up the paper specifications for the system?

- ___ a. College staff
- ___ b. Engineering Consultants
- ___ c. Both a and b
- ___ d. Others (Please explain)

2. Who was in charge of organizing initial planning?

- ___ a. A committee composed of _____
- _____
- ___ b. A particular administrative office named _____
- ___ c. Department of Education
- ___ d. Others (Please explain)

3. When was your closed-circuit television project initiated? 19____.

What was the major purposes of the system? _____

Is this still the reason for using CCTV? Yes _____ No _____

4. How many cameras are used in your system and what kinds of cameras are used?

- ___ a. Industrial
- ___ b. Semi-professional
- ___ c. Professional (Commercial)

5. What is the total length of the distribution system? _____ ft.

6. How is the signal transmitted? Microwave _____ Cable _____

Is the cable on poles _____, buried (underground) _____, or both _____?

7. How many TV origination points are used? _____

8. How many TV reception points are used? _____ How many TV sets do you have? _____ How many sets per reception point are used when observing? _____ What size TV sets are used? _____ inches
9. How many channels are used in your system? _____
10. Do you need an extra-light system (besides regular room light) for the camera? Yes _____ No _____. If "yes" how much power is needed for regular classroom? _____ watts.
11. Have you used a video recorder in your system? Yes _____ No _____. If "yes" what is the make and model? _____
Approximately what percent of your telecasts are via tape? _____%
12. Please use the space below for extension of remarks.

ADMINISTRATION

1. What organization is in charge of the CCTV system in your school?
Title _____
2. Who is in charge of the CCTV system?
Title _____ Education (major studies and degree) _____
_____ Has he had special training in educational television or related subject? Yes _____ No _____. If "yes" please explain. How many years? _____ What kind of training? _____

3. Who is in charge of the technical section?
Title _____ Education (major studies and degree) _____
_____ Experience _____ yrs. (years in TV or other electronics fields) Special training or qualifications _____

4. How many people are employed in your TV system for operation of the system?

Title	Full Time	Part Time	Total hrs. per week
Engineer	_____	_____	_____
Technician	_____	_____	_____
Administrator	_____	_____	_____
Secretary	_____	_____	_____
Student employees	_____	_____	_____
Others	_____	_____	_____

5. Who operates the -

Cameras	Lighting System	Audio System	
_____	_____	_____	Technical Personnel
_____	_____	_____	Student Employee
_____	_____	_____	Others

6. How was (is) the project financed?

- a. Separate college funds
- b. State funds
- c. Grants from organizations
- d. A combination of (a ___%, b ___%, c ___%)
- e. Other (Please explain)

7. What was the cost of establishing your television system? \$ _____

8. What is the cost per year for operating the system? (in last five years)

1960	1961	1962	1963	1964	
_____	_____	_____	_____	_____	Personnel
_____	_____	_____	_____	_____	Equipment
_____	_____	_____	_____	_____	Administration
_____	_____	_____	_____	_____	Others
_____	_____	_____	_____	_____	Total

9. Please use the space at top of Page 5 for extension of remarks.

THE NEEDS FOR OBSERVATION

1. How many hours of observation are required for a student before his student teaching? _____ hours.
2. How many hours of observation are required for a student during the student teaching? _____ hours.
3. How many courses are available for observation in your teacher education program? _____.
4. What is the average enrollment of the observing classes? _____
5. How many years are required for graduation in teacher education program? _____ years.
6. How many years are required for a teaching certificate? _____ years.
7. Why do you need to have closed-circuit television for observations?
 - _____ a. Increasing college enrollment.
 - _____ b. Lack of observation stations in community.
 - _____ c. Transportation difficulties.
 - _____ d. Public schools not cooperating in the program.
 - _____ e. Public school classrooms too small(a need to increase number of observers and/or observations).
 - _____ f. Public school teacher feels uncomfortable during the live observation. A need to reduce the pressure of public school teacher (keep more "natural" situations for observing).
 - _____ g. Lack of control of observation by the instructors.
 - _____ h. Cannot discuss live observation during the class time.
 - _____ i. Cannot immediately point out the mistakes during the live observation.
 - _____ j. Scheduling problems due to class time.
 - _____ k. Public relations problems.
 - _____ l. Crowded teaching conditions.
 - _____ m. Classroom teacher shortage.
 - _____ n. Increased college faculty.
 - _____ o. Large yearly turnover of public school faculties.
 - _____ p. School organization changes causing modifications.
 - _____ q. Others (Please explain).
8. Please use the space below for extension of remarks.

OPINIONNAIRE

Please check your opinion of the following statements.

Each statement is followed by five levels as follows:

1. Strongly agree (SA).
2. Agree (A).
3. No idea (NI).
4. Disagree (D).
5. Strongly disagree (SD).

Please encircle the number following each statement which best describes your feeling about that statement.

	SA	A	NI	D	SD
1. The television observations are better than the live observations for providing enough information to the students.	1	2	3	4	5
2. The television observations can provide a better learning situation than live observations.	1	2	3	4	5
3. The television observations are more economical than live observations.	1	2	3	4	5
4. From the television observations students can obtain classroom experience easily.	1	2	3	4	5
5. Through television observations college students easily observe the teacher's demonstration and teaching techniques and students' reactions.	1	2	3	4	5
6. Through television observations college students can learn from the experienced teacher how to handle the classroom.	1	2	3	4	5
7. Through television observations college students can observe the public school classroom atmosphere.	1	2	3	4	5
8. Public school teachers will be more natural on TV than during live observations.	1	2	3	4	5
9. The pictures are always clear enough for observation.	1	2	3	4	5
10. The sound is always clear enough for listening to the televised teacher's speaking and the student's discussion.	1	2	3	4	5
11. Using "split image" technique (one set showing the whole class and another one showing the teacher's action at same time) is better than two screens showing the same picture.	1	2	3	4	5
12. The college instructors can very easily handle the television equipment for observation without any extra training.	1	2	3	4	5

SA A NI D SD

- | | | | | | |
|---|---|---|---|---|---|
| 13. A special viewing room which provides the effective placement of chairs, good viewing screens, suitable lighting facilities with enough light for students to take notes and not interfere with picture quality and a good sound system design is needed. | 1 | 2 | 3 | 4 | 5 |
| 14. Public school teachers do not require special preparation for the television demonstrations. | 1 | 2 | 3 | 4 | 5 |
| 15. There are no problems in arranging the schedule to meet the needs of college professors. | 1 | 2 | 3 | 4 | 5 |
| 16. Using video recorder is better than the cable system. | 1 | 2 | 3 | 4 | 5 |
| 17. Using video recording tapes to establish a resource center for observation is a practicable idea. | 1 | 2 | 3 | 4 | 5 |
| 18. A new instructional television system can be established easily by using video recording system. | 1 | 2 | 3 | 4 | 5 |
| 19. Technical problems in closed-circuit television are simpler than in a professional television station and therefore need a technician with minimum experience to maintain and repair the equipment. | 1 | 2 | 3 | 4 | 5 |
| 20. The operation of equipment is simple, requiring only a short in-service training for the college student employee. | 1 | 2 | 3 | 4 | 5 |

PLEASE USE THE SPACE BELOW FOR EXTENSION OF REMARKS.

DO YOU WISH A SUMMARY OF THE DATA WHEN COMPLETED? YES _____ NO _____

MAY YOUR NAME AND THAT OF YOUR INSTITUTION BE MENTIONED SPECIFICALLY IN THE STUDY? YES _____ NO _____.

THANK YOU VERY VERY MUCH FOR YOUR KIND HELP.

APPENDIX B

As a part of my graduate work at Central Washington State College, Ellensburg, Washington, I am attempting to define the problems of the utilization of closed-circuit television in teacher education for observing experienced teachers. In the study I will try also to help my own country, the Republic of China, as well as other developing countries to apply closed-circuit television in the educational area.

Through related research materials I found you have had experience in this area. Therefore, I request your assistance in this survey. The questionnaire may seem at first to be an excessive demand upon your time; however, I am certain, you will agree that the survey of the problems associated with closed-circuit television for education would be interesting and valuable data to you and others, particularly the people in the developing countries. Since only a small number of carefully selected institutions is being surveyed, the quality of my study is dependent upon your response. The results of the survey will be sent to you for your information if you so desire.

Please fill out the enclosed questionnaire and return it to me before April 9, 1965 so that I can have sufficient time to collect and interpret the data. A self-addressed stamped envelope is enclosed for returning the questionnaire.

Your kind help on this project is greatly appreciated and will be appreciated by the people in The Republic of China. Thank you again for your cooperation.

Sincerely yours,

TUZ-CHIN TING, Graduate Assistant
Audiovisual Library
Central Washington State College

TCT;dn
Encs.

APPENDIX C

CENTRAL WASHINGTON STATE COLLEGE

ELLENSBURG, WASHINGTON
98926

AUDIOVISUAL LIBRARY

Approximately two weeks ago I sent a letter to you asking your gracious help for my studies. I asked that you fill out an enclosed questionnaire relating the problems of the utilization of closed-circuit television in teacher education for observing experienced teachers.

Since the sample of my study is so small you cannot imagine how anxious I am to have your answer. Please forgive me for calling your attention to the return of my questionnaire at your earliest convenience.

In case you have already returned my questionnaire please accept my gratitude for your kind help.

Thank you again for your cooperation.

Sincerely yours,

TUZ-CHIN TING
Graduate Assistant
Audiovisual Library
Central Washington State College

TCT:dn

APPENDIX D

CENTRAL WASHINGTON STATE COLLEGE

ELLENSBURG, WASHINGTON
98926

AUDIOVISUAL LIBRARY

May I call your attention again sir. Approximately twenty days ago I sent a letter with a questionnaire to you relating my study of the problems of the utilization of the closed-circuit television in teacher education for observing experienced teachers. Would you please complete the questionnaire and return it to me at your earliest convenience?

I am enclosing another set of my questionnaire thinking the last one was misplaced somewhere. Since only a very small number of institutions were carefully selected in my study, each one is essential to the completion of my study. I am very anxious to have your answer and sincerely ask you again to give me some of your priceless time and your intelligence in helping me in this study.

Because the study is related to the needs of other developing countries your kind help is not only of benefit to me but also will contribute to people in other countries who are waiting your gracious help in order to receive higher education. Your kindness in this study is deeply appreciated and I shall be grateful for any assistance you can give me.

In case you have already returned my questionnaire please accept my sincere thanks.

Sincerely yours,

TUZ-CHIN TING
Graduate Assistant
Audiovisual Library
Central Washington State College

TCT:dn
encs.

APPENDIX E

CENTRAL WASHINGTON STATE COLLEGE

ELLENSBURG, WASHINGTON
98926

AUDIOVISUAL LIBRARY

I have received the questionnaire which you returned to me. Please accept my gratitude for your kind help.

As soon as I have completed my study I will send a summary of the data to you for your information.

Thank you again for your cooperation.

Sincerely yours,

TUZ-CHIN TING
Graduate Assistant
Audiovisual Library
Central Washington State College

TCT:dn