

THE UNIVERSITY OF MANITOBA

A SURVEY OF TELEVISION UTILIZATION
IN MANITOBA SCHOOLS

by

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ABSTRACT

The purpose of this study was to assess the use and identify some of the factors related to the use of educational television in Manitoba schools by a modified replication of a study done by Steely in Kentucky in 1973. A random sample of 300 teachers (K-12) was asked to complete a 56 item questionnaire. The data were collected by mail during January, 1977.

The first part of the questionnaire dealing with demographic information was examined with the intent of arriving at some generalizations about those persons now using television in their teaching. The investigation was aimed at determining whether any particular pattern emerged as to type of television used, how television was used, frequency of use, grades and subjects in which used, problems encountered in the use of television and suggestions for more effective use. In addition, the type of television training received by teachers and teacher attitude were surveyed.

A 77.3 percent response to the questionnaire was received. Of those, 46 percent used television. Results showed that there was no significant relationship between a teacher's age, number of degrees, total years of teaching experience, location of school (Winnipeg, suburban Winnipeg or rural), TV training received and use of television.

There was, however, a significant relationship between teacher opinion as to student achievement via ETV, cost

justification of TV equipment in their school and use of television. Those teachers who used television felt that students learned from it. The television users felt that the TV equipment in their schools received sufficient use to justify its cost.

There was no significant relationship between a teacher's age, number of degrees, total years of teaching experience and television training received by teachers. There was, however, a significant relationship between location of school and TV training received. More suburban Winnipeg and rural teachers indicated training than did Winnipeg teachers.

There was no significant relationship between a teacher's age, total years of teaching experience, location of school and use of School Broadcasts. Although there was a significant relationship between number of degrees and use of School Broadcasts, no consistent pattern was determined. Respondents indicated a preference for off air School Broadcasts as opposed to videotaped programs.

There was no significant relationship between television facilities and location of school. There was, however, a significant relationship between operational knowledge of TV equipment and location of school. A greater percentage of respondents from suburban Winnipeg and rural Manitoba indicated they knew how to operate the TV equipment in their schools than did Winnipeg teachers.

Teacher opinion as to apparent student achievement from TV was positively related to teacher opinion of cost justification of TV equipment in their schools. The majority who thought that ETV facilitated student achievement also thought that the use of TV equipment in their school justified the money spent. This majority were TV users.

Conclusions and recommendations, based on the results of this survey, were included.

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CHAPTER I
INTRODUCTION

OVERVIEW

The purpose of the study was to survey the educational television utilization practices and procedures of Manitoba teachers.

The data reported in this study were collected in the Province of Manitoba during January, 1977.

It is hoped that the results of the survey will provide information concerning the state of educational television in Manitoba schools. The data collected may serve as the basis for recommendations for possible future action.

IMPORTANCE OF EDUCATIONAL TELEVISION

Research has shown that television is effective as a teaching method.

"In the great majority of comparative studies, there is no significant difference between learning from television and learning from conventional teaching; and that where there is a significant difference, it is a bit more likely to be in favor of television than of conventional instruction" (Chu and Schramm, 1967, p. 6).

Similar findings have been reported in over 400 such experiments in the United States. (Schramm, 1964, p. 11).

It is probable that these findings have influenced the development of educational television (ETV) in Canadian schools. Knowles wrote:

"The growing acceptance of television as an important adjunct to Canadian education would seem to indicate that there is a strong desire to improve the communication or learning process through technology" (Rosen, 1967, p. 3).

However, many teachers today have access to television without an accompanying understanding of its application. Their unawareness may produce less-than-successful results.

Those in the field of education have become increasingly concerned about evaluating the results of various types of instructional programs employed in the schools. Investigation and analysis of results may lead to wiser decisions, the aim being to improve methods of instruction which can facilitate the learning process and maximize the full potential of television. Educators with a knowledge of television's capabilities are in a better position to use this medium to effectively teach Canadian students.

HISTORICAL BACKGROUND

The British North America Act, Canada's Constitution, places education as the responsibility of each of the ten provincial governments. "Broadcasting, on the other hand, is constitutionally a function of the federal government" (Lambert, 1963, p. 7). All Canadian broadcasting is subject to the Canadian Radio-television and Telecommunications Commission which reports to Parliament through the Secretary of State.

Canadian television began on a regular basis in September, 1952. Television operates on a national level as well as a provincial level. Nationally, the Canadian

Broadcasting Corporation (CBC) produces instructional television. The CBC is a public corporation established under the authority of the Radio Broadcasting Act of 1936 and is licensed by Parliament. In 1954 the CBC initiated its first educational television broadcast, an outgrowth of the national school radio broadcasting series begun in 1942. The Media Program Committee of the Council of Ministers of Education Canada oversees the national school broadcasts.

Provincially, school broadcasts are produced and telecast within individual provinces. Both national and provincial educational television use the CBC facilities. In the division of responsibilities provincial educators supervise pedagogical aspects while the production technology falls to the CBC. Manitoba also cooperates with other provinces to produce programs related to specific curricula as opposed to the more general nature of the national school broadcasts.

Television in Canadian schools began in 1954. Children all across Canada viewed programs originating from Toronto studios. The successful results of this experiment indicated that "television programmes jointly planned and executed by teachers and broadcasters have a definite contribution to make as a teaching aid" (Lambert, 1963, p. 194).

School broadcasts soon developed in other provinces and became an additional method of instruction in our schools. Today national and provincial telecasts reach elementary, junior and senior high schools. A variety of subjects are included in the many programs in both English and French.

Teachers are informed of the broadcast schedule by means of a printed guide available free upon request from their local Department of Education.

In addition to the national level of CBC school telecasts, ETV operates on a provincial level. Examples of provincial television authorities include: the Alberta Educational Communications Corporation (ACCESS), the Saskatchewan Educational Communications Corporation (SASK-Media) and TV Ontario, formerly the Ontario Educational Communications Authority (OECA). Manitoba has no such central body.

On a local level of educational television, examples of dial access broadcasting in Canada are noteworthy. Perhaps the most elaborate system that Canada has known was Information Retrieval Television (IRTV) in Ottawa. This cable system was installed experimentally by Bell Northern Research in 1968 and funded by the Province of Ontario.

"The IRTV experiment was set up because it was assumed that easy and rapid access to a large library of films and videotapes would lead to more and varied use of the programs by teachers and that this would make a significant difference to the quality of classroom instruction and learning" (McLaughlin, 1972, p. 3).

The Ottawa Board of Education in a period of fiscal crises decided in 1971 not to continue to maintain this project.

Another local format for ITV utilization is Instructional Television Fixed Service. Examples of ITFS include a 6 channel system in Timmons, Ontario owned and operated by the separate school system and a 4 channel system owned and operated by the London Board of Education in London, Ontario.

Manitoba also has an ITFS system located in St. James-Assiniboia. An explanation of this system is found on page 9.

MANITOBA: A VARIETY OF TELEVISION SYSTEMS

Educational television in Manitoba comprises a variety of different systems. Three examples illustrating this diversity will be discussed: (a) School Broadcasts, (b) Instructional Television Centre, and (c) bicycling systems.

SCHOOL BROADCASTS

If a uniform system of TV broadcasts for Manitoba schools were identified, school broadcasts would probably be named. These are perhaps the most commonly known and used form of ETV. Their programs are available off air and on videotape.

These television broadcasts began as educational radio in the 1940's. They are produced by the School Broadcasts Branch of the Manitoba Department of Education and the CBC Winnipeg. The basic function of school broadcasts is the continued planning, preparation and production of daily radio and television programs from mid-October until the end of May. Radio programs are broadcast from 2:00 to 2:30 p.m. every afternoon. Television programs are telecast from 10:00 to 10:30 a.m. each morning, Monday through Friday.

The following statistical breakdown best illustrates the program production. In the 1976-77 school year, 187 English television programs were presented. Of these Manitoba was totally responsible for 97 (22 new productions, 31 repeats, 44 procured). Six feature length films were also produced.

Of the remaining 90 programs, responsibility is shared for national programs with Western provinces and arrangements for loan, or rental are made with the British Broadcasting Corporation, the National Film Board, National Instructional Television, and other Provinces. In addition, school broadcasts coordinates the airing of French language television programs over station CBWFT. During 1976-77, 17 feature length French films were shown.

Programs are produced in cooperation with the CBC. School broadcasts are responsible financially for the direct costs (script writers, performers, costumes, etc.) while the CBC assumes the indirect costs (producer, technicians, equipment). CBC pays approximately four dollars for each one dollar spent by school broadcasts. The production budget for school broadcasts for 1977-78 is just over \$100,000 for both radio and television. Costs for a half-hour television show vary drastically depending upon the type of program. A half-hour program costs the Department of Education approximately \$2,500. A film, produced by school broadcasts, costs around \$6,000.

A continuing concern is the provision of broadcasts relevant to the classroom. When creating a program, members of school broadcasts seek guidance from teachers and curriculum consultants to ensure that the program content is educationally sound and relevant. Only when an idea has been thoroughly discussed and approved by this branch is a writer employed to develop the script for television.

To coordinate broadcasts nationally and regionally most programs must be planned at least 18 months in advance. Consequently many of the programs must be of a general nature. By producing its own films, school broadcasts are able to reduce the period of time between conception of an idea and airing of the program. Taking this route assures programs which have greater relevance to the education of Manitoba students.

Support materials in the form of manuals containing information on ideas for use of programs, calendars, song sheets to supplement music programs, poetry folders and French language scripts and manuals, and Art Kits based on the "It's Fun to Draw" series, are provided free to schools by this Department (Harrison, 1975, p. 37).

A major undertaking of school broadcasts has been the taping of programs for use at the convenience of the teacher and a time most appropriate for classes. In keeping with what is now commercial broadcast practice, no school broadcasts are aired "live" but all are taped then shown. Tapes may be procured by teachers in one of two ways. A blank tape may be sent to the School Broadcasts Branch for dubbing then picked up or returned by mail. Or tapes may be bought by a purchase order with that school system being billed by the distributor. During 1975-76, 2,600 videotapes were dubbed. 90 percent of these were on $\frac{1}{2}$ inch videotape with the remaining 10 percent on $\frac{3}{4}$ inch videotape. Of the 2,600 30 percent were for elementary schools, 70 percent for secondary schools.

Of the total, 50 percent were requested by rural schools and 50 percent by urban schools. Several of the Winnipeg school divisions dub school broadcast programs for their schools. These are in addition to direct teacher requests to this branch. The following table, prepared with information supplied by the School Broadcasts Branch, illustrates dubbing by divisions during 1975-76.

TABLE 1

SCHOOL BROADCAST TAPES DUBBED BY WINNIPEG SCHOOL DIVISIONS - 1975-76	
SCHOOL DIVISIONS	NUMBER OF TAPES
St. Vital	1600
Fort Garry	750
St. James	642
Winnipeg	500
Transcona	60
River East	--
Lord Selkirk	--

As of March 31, 1977, 431 tapes had been dubbed and 18 videotapes had been purchased.

During 1975-76, 5,600 teacher evaluations of off air programs were received. On the basis of these evaluations, school broadcasts concluded that (a) there is greater usage in rural areas as compared to urban areas (3 to 1), (b) there is a larger elementary audience as compared to secondary (18 to 1), and (c) the television audience is greater when compared to radio (3 to 1). However they note that requests for audio

tapes outnumber requests for videotapes by 9 to 1. This is probably due to a lack of video playback equipment available.

INSTRUCTIONAL TELEVISION CENTRE

An example of another ETV system in Manitoba is the Instructional Television Centre, located in Sturgeon Creek Regional School in St. James-Assiniboia. This ITFS closed-circuit transmission system operates 3 TV channels simultaneously. An audience of 600 classroom ranging from Kindergarten to Grade 12 has access to over 1100 programs. The Centre provides a library of videotapes which are readily available to teachers. Microwave transmitters carry requested programs to classrooms throughout this division. All secondary schools in the division are wired to this network. "This 'rapid-transit' ITV service permits efficient use of the centralized TV library by reducing 'time-out-of-circulation' since program tapes do not actually leave the Centre" (Warren, 1976, p. 3). Bookings are arranged in advance by teachers telephoning the Centre. "By using several videotape recorders at once the Centre can transmit three separate programs at any instant and is able to start three more programs as soon as those "on-air" are finished....50 to 60 separate requests can be handled daily" (Warren, 1976, p. 3).

BICYCLING SYSTEMS

Another different system developed in 1960 in the Fort Garry School Division was the Bicycling System. Over 1,200 videotapes (1975) on a full range of subjects make this the

largest bicycling system in Manitoba. 24 hour delivery offers flexible scheduling. The St. Vital School Division also offers bicycled dubs to teachers.

STATEMENT OF THE PROBLEM

The general purpose of this study was to examine the current state of educational television in Manitoba through survey research techniques. More specifically the study was to:

1. survey 300 Manitoba school teachers (K-12) representing school divisions 1-6 and 8-48 (there is no division 7) in Manitoba to determine their television utilization practices in the classroom

2. identify factors related to utilization practices

3. make possible recommendations for future development.

It was hypothesized that the following demographic information:

1. teacher's age

2. number of degrees

3. years of teaching experience

4. location of school

was related to the following factors:

1. television usage

2. television training

3. School Broadcast utilization

4. teacher attitude toward: (a) student achievement via ETV and, (b) cost justification of television equipment in their school.

This study also proposed to indicate the frequency of:

1. how television is used in the classroom
2. types of television utilization including School Broadcasts, video tapes, image amplification and teachers' and/or students' productions
3. grades in which used
4. subjects in which used
5. types of television training received by teachers
6. problems in television utilization encountered by teachers
7. factors to encourage teachers to make more effective use of television.

HYPOTHESES TO BE TESTED

From the preceding stated problem, a total of five hypotheses were derived. These were:

1. The utilization of educational television (dependent variable) will vary significantly according to the following independent variables: (a) teacher age, (b) number of degrees, (c) years of teaching experience, (d) location of school (Winnipeg vs. suburban Winnipeg vs. rural Manitoba), (e) television training and (f) teacher attitude. This study was concerned specifically with teacher attitude toward student achievement via ETV and cost justification of ETV equipment in their school.

2. Training in the use of ETV (dependent variable) will vary significantly according to the following independent

variables: (a) teacher age, (b) number of degrees, (c) years of teaching experience, (d) location of school.

3. Utilization of Manitoba School Broadcasts (dependent variable) will vary significantly according to the following independent variables; (a) teacher age, (b) number of degrees, (c) years of teaching experience, (d) location of school, (e) television training and (f) type of broadcast (off air vs. videotaped).

4. Television facilities and teacher knowledge of how to operate the facilities in their school will vary significantly depending upon location of school.

5. Teacher attitude toward student achievement via ETV will vary significantly according to teacher attitude toward cost justification of television equipment in their school.

In addition to these hypotheses, it was proposed to indicate, for descriptive purposes, the following information: frequency of TV, type, grades, subjects, training, problems and suggestions for more effective use of television.

SIGNIFICANCE OF THE STUDY

Since the primary function of any school program is to facilitate the learning process, information concerning the more effective use of television as an instructional tool would be significant to the improvement of education.

Other ETV surveys have been conducted before this one. A 1975 media survey by the National Film Board of Canada focused on all media in education across Canada. The Forward of Report 1 stated, "very little national survey data

regarding the utilization of audiovisual media has been available in the past". A 1973 study by Steely reported on ITV in Kentucky. In a Canadian study Malhotra (1974) investigated the usage and effectiveness of ETV in Dartmouth, Nova Scotia. But no study has examined systematically the state of the art in Manitoba. There is a need for the examination of ETV utilization practices at all levels: international, national, provincial and local.

There is reason to believe that television is not fulfilling its potential. "With minor exceptions, the total disappearance of instructional television would leave the educational system fundamentally unchanged" (Killian, 1967, p. 81).

Programming cannot proceed without a current knowledge base. Research tells us what television can do. Surveys have pinpointed utilization patterns in other locales. ITV in Manitoba can only serve its public if emphasis is upon service. That service can be improved only if one knows what, if anything, needs to be improved.

Television utilization patterns in Manitoba may be similar to patterns in other provinces in Canada and in the United States. To this extent, this survey is committed to drawing upon such extant literature and research.

The final result should be a better appreciation of what instructional television is contributing to Manitoba today. The implications for what television can do are the next step beyond this present study.

DEFINITION OF TERMS

Terms used in this study are defined as follows:

1. Educational Television (ETV) is defined as "(1) Non-commercial broadcasting transmitting the broad range of educational, cultural, and entertainment programs and also programs designed for use by schools in connection with regular school courses; (2) any broadcast or closed-circuit television program related to some form of instruction or peripheral enlightenment" (Good, 1973, p. 593). ETV programs are broadcast primarily to enrich, support and supplement the educational process. Support comes from the government, contributions and foundations.

2. Instructional Television (ITV) is defined as: "Lesson-planned programs, systematically developed and conducted largely in school systems or universities; may be offered on commercial television or ETV, UHF, ITFS, or standard microwave, open (broadcast) and/or closed-circuit television" (Good, 1973, p. 593). Educational Television and Instructional Television are used in the same context in this study.

3. School Broadcasts as used here in this paper refer to television programming aimed at the pupils in school covering subject matter compatible with school curricula produced by the Manitoba Department of Education. School Broadcasts may be off air or taped.

4. Teachers are those persons surveyed in this study working directly with students in an instructional capacity from Kindergarten to Grade 12. There are some 12,000 teachers in Manitoba.

5. School Division as used in this study means an organized unit or system recognized by the Province as being responsible for educating the children within a specific area. There are 47 divisions in Manitoba. For a listing, see Appendix A.

6. In-Service Education: a program of systematically developed activities promoted and directed by a particular school system and designed to increase the competencies needed by the instructional personnel in the performance of their duties.

7. Student Achievement in this study refers to teacher opinion as to apparent student achievement.

8. Off air refers to television programs broadcast by direct transmission as opposed to videotape. Such programs are therefore viewed at the moment of transmission.

DELIMITATIONS OF THE STUDY

Delimitations are those restrictions which are researcher-selected in order to keep the study to a reasonable size and scope. The following are the delimitations of this study:

1. The study was limited to 300 active teachers representing a random selection from all school divisions in Manitoba. Only school divisions, not school districts were included.

2. 50 percent of those selected to receive the questionnaire were chosen from Winnipeg and Suburban Winnipeg while the remaining 50 percent were teachers in rural Manitoba.

3. Public schools only were sampled. Private, Department of National Defence, Special Revenue, Federal and Private

Hutterite schools were not included in order to simplify the study.

4. The survey was limited to a mail questionnaire.

LIMITATIONS OF THE STUDY

Limitations are those aspects over which the researcher has no control. The following are the limitations of the study.

1. Teachers were urged to respond to the questionnaire but a 100 percent response was not guaranteed. Non-response was assumed to be random.

2. The success of this survey depended largely upon the validity and reliability of the data obtained from the questionnaire.

3. It is assumed that teachers offered honest and unbiased answers.

4. It is assumed that teachers answered only one questionnaire.

CHAPTER SUMMARY

This chapter attempted to present the framework around which the study was constructed. The importance of television in education was examined. This was followed by an overview of the historical background of television in Canada with emphasis on Manitoba School Broadcasts. Next followed a statement of the problem, a list of hypotheses to be tested, significance of the study, definition of terms, delimitations and limitations of the study.

Chapter II will present a review of literature related to the subject.

Chapter III will outline the procedures for collection and treatment of data.

Chapter IV will present an analysis of the data.

Chapter V will present a summary of the study, discussion, conclusions, implications and recommendations.

CHAPTER II

REVIEW OF LITERATURE

This chapter will review literature relevant to the present study. Re-examination will consist of non-research and research readings. Several areas of interest which impinge upon the present problem have been categorized and reviewed as follows: (a) Effectiveness of educational television, (b) The changing role of educational television, (c) Attitudes towards educational television, (d) Applications of educational television, and (e) Contemporary and future Trends.

EFFECTIVENESS OF EDUCATIONAL TELEVISION

This section will examine the effectiveness of educational television focusing on (a) the large number of studies available and (b) selected specific studies.

"The effectiveness of television has now been demonstrated in well over 100 experiments, and in several hundred separate comparisons, performed in many parts of the world, in developing as well as industrialized countries, at every level from pre-school through adult education, and with a great variety of subject matter and method" (Chu and Schramm, 1967, p. 1).

Up to 1966, Chu and Schramm had reviewed 207 published studies in which television teaching was compared with conventional teaching. "Of the 421 separate comparisons made in these studies, 308 showed no significant differences, 63 showed television instruction to be superior, and 50 found

conventional instruction better" (Chu and Schramm, p. 10).

Kelley (1964) made more than three hundred matched achievement test comparisons between television teaching and conventional teaching during the period of 1956-61....Results of his comparisons showed that students generally did well when television was used as a regular resource (Chu and Schramm, 1967, p. 10).

Wilbur Schramm's study of 1962 concluded:

"There can no longer be any doubt that students learn efficiently from instructional television. The fact has been demonstrated now in hundreds of schools, by thousands of students in every part of the United States and in several other countries...

Instructional television is at least as effective as ordinary classroom instruction, when the results are measured by the usual final examinations or by standardized tests... (and) employing the usual tests that schools use to measure the progress of their students, we can say with considerable confidence that in 65 per cent of a very large number of comparisons between televised and classroom teaching, there is no significant difference."

In discussing Chu and Schramm's 1967 conclusions, Barwick and Kranz (1975) wrote, "Chu and Schramm were evaluating studies based on monochrome CCTV (closed circuit television). Color and the use of the videocassette have wrought fundamental changes in television, which cannot but have a decisive impact" (p. 24). The co-authors felt that the videocassette will surpass the advantages of the reel to reel television and that this latter type of television is evolving into more of a production tool (p. 31). The videocassette with its ease of operation and distribution plus its favorable economics will increase the effectiveness of educational television.

In one of the largest television research projects, Morgan (1962) used closed-circuit television as a means of

direct and supplemental instruction in the Washington County School System, Hagerstown, Maryland for a five year period from September 1956 to June 1961. His study showed that rural and urban television students made higher gains in arithmetic than did pupils who received conventional instruction, rural students making greater gains than urban students. In a sequential program, television instruction in arithmetic produced greater achievement than did untelevised reading instruction. Results indicated that learning increased in proportion to the length of instructional use.

These are a few representations of the many large studies that have projected great optimism for television teaching.

Selected specific studies include the following examples. Strzelecki's research data (1972) revealed that Oregon public school teachers indicated that television stimulated motivation, interest, understanding, reading and research in students. Respondents to his survey reported that television's main use in the instructional program was enrichment, and that it was used in instructional activities in all curriculum areas.

Forrester and Zakia (1972) wrote, "Collected bodies of research and experience have demonstrated to Rochester Institute of Technology faculty that televised instruction can be an effective as conventional instruction in terms of student achievement and learning" (p. 14).

Galey and George (1974) studied the teaching of science via television to determine whether this method was effective in helping develop inquiry skills. They concluded that the

televised lessons were as effective as classroom lessons in assisting first grade children to develop and use the skill of classification.

Ohio State University has successfully used television as a method of home economics instruction for the past 14 years (Meachan, 1973). Large classes and the students' ready acceptance of television were capitalized upon. Television's unique advantages for integrating visuals and close-up demonstrations into the lecture presentation resulted in permanently recorded material. Full-scale flawless productions were capsuled into mini lessons thus providing greater flexibility in scheduling. Schools participated in elaborate presentations without incurring the purchasing of props and production costs. Standardization of instruction was also an advantage. Videocassettes were used for convenience and ease of operation.

Lewis (1961) postulated that educational television can make a valid contribution to a flexible program and expand the influence of an effective teacher. He pointed out that television may not as yet have been utilized to its fullest potential and that much of the real promise of this medium lies in its still-to-be explored capacity for instruction. He further concluded that, "Regardless of the subject, television can aid in presenting information. It can motivate, stimulate and raise provocative questions - thus spurring teacher and class on to further work" (p. 10).

Thus educational television can equal or surpass conventional methods in selected areas. "Television has given us

a means of improving the quality of learning and teaching at a time that exploding dimensions of education demand running at top speed just to stay even" (Steetle, 1961, p. 7).

One particular advantage of educational television reported by Murphy and Gross (1966) was its effectiveness in large group instruction. Results of the National Program in the Use of Television in the Public Schools which tested elementary classes up to 175 students and junior and senior high classes from 200 to 500 confirmed that "television could improve the quality of education with no increase in cost" (p. 37).

Television can be effective for in-service training as noted in at least two studies. Himmler (1957) found that television lessons provided a valuable indirect in-service education for a number of teachers. Smith (1961) supported this statement by saying that principals stated that television lessons have proved to be valuable in-service training for teachers, especially newly appointed teachers and those who wish refresher work.

Culver (1967) saw the impersonality of television as an advantage in order to teach controversial issues which teachers may be hesitant to discuss.

Lewis (1961) indicated that due to practicality some aspects of a great many subjects could not be treated effectively by television. For example, classroom discussions, immediate clearing up of misunderstandings and supervision of activities growing out of the lessons were in this category.

Schramm (1964) also stated that not all useful activities

can be handled by television. Some of the problem areas were discussion, laboratory work, theme writing and homework. However, "To the extent that teaching goes on by means of lecture and demonstration, then television has an unequalled ability to share the best teaching and the best demonstrations" (p. 11).

An interesting study in effectiveness was reported by Lucas (1974); "The Relationship of Training and Experience Variables to Teachers' Skill in Judging the Effectiveness of ITV Programs". He found "teachers are, on the whole, unable to predict with even nominal precision, the instructional effectiveness of an ITV program by mere inspection" (p. 82). Those teachers with classroom television experience made more precise judgments about instructional effectiveness of television programs.

Evidence from numerous studies has shown positively that students can learn from television. Given the medium of television, the question arises, how can it be used effectively and efficiently for classroom teaching and learning? Teachers who have television available may not know how to use it. One suggestion would be an understanding of the role of ETV. This will be discussed in the changing role of educational television, the next part of this chapter.

This section has examined the literature referring to the effectiveness of educational television.

THE CHANGING ROLE OF EDUCATIONAL TELEVISION

Several authors (Heinich, 1972; Freeman, 1967; Forrester and Zakia, 1972) advocated shifting the role of educational television from its earlier use as an instructional aid to an autonomous teaching medium. Traditionally television is used by the classroom teacher as a supplement to the existing curriculum. Figure 1 (Pula & Goff, 1972, p. 169).

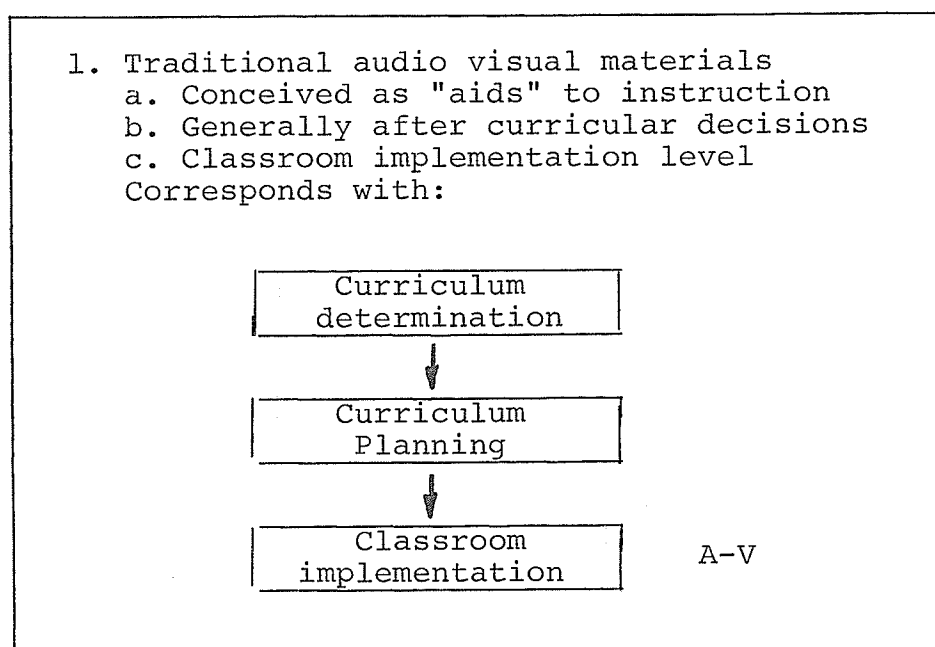


Fig. 1 - Changing Nature of Media

This may be the situation in Manitoba whereby teachers consider educational television as an "extra" not as an integral part of their teaching.

According to Heinich (Pula & Goff, 1972, p. 172) it should enter the instructional system at an earlier planning level. This way the teacher is not alone in his decision to use television. Educational television then becomes more

meaningful education or instructional technology. Television in this new role assumes a major part in the total teaching structure. Greater involvement at the curriculum planning phase will maximize the potential of television and will not diminish the role of the teacher. Figure 2 (Pula & Goff, 1972, p. 173).

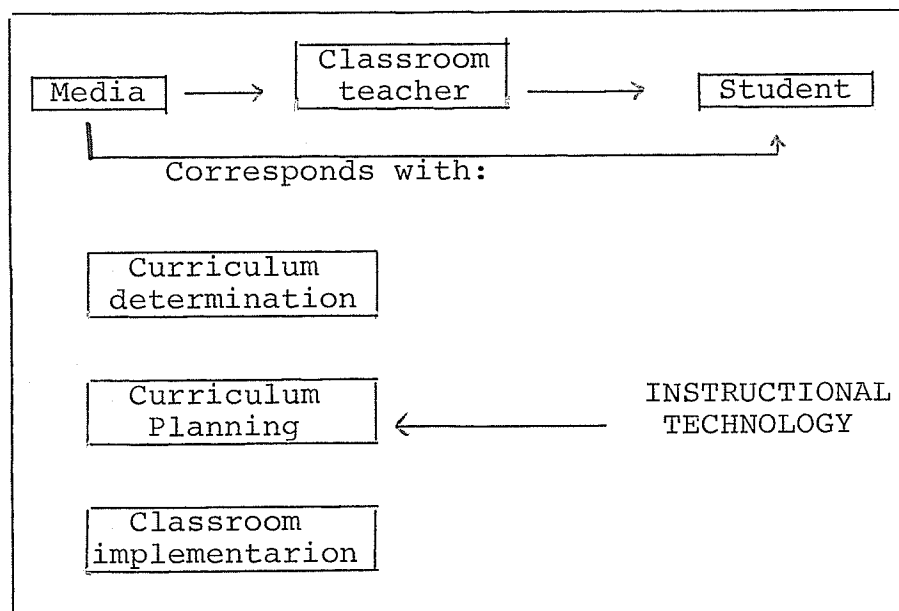


Fig. 2 - Instructional Technology

Smith (1961) supported the changing role of educational television from simply being an "aid" to a "teamwork approach to teaching" in which the television teacher, classroom teacher and curriculum specialist regularly re-evaluate course content and methodology.

Fritz and Massialas (1964) conducted a survey under the auspices of the National Council for the Social Studies to examine the manner in which the classroom teacher perceived the effects of shared instructions upon his role in the

classroom. Out of a total of 385 questionnaires mailed to social studies teachers, 160 were completed and returned. Of the 158 teachers who responded to the question, "To what extent has your role as a teacher changed in a television class as compared to your regular classroom", 114 teachers reported a considerable change, 81 out of 151 reported that they wanted to continue to use educational telecasts.

In summary, to be an effective teaching tool, television must assume an active role as part of the planning phase. It must not be introduced as an after-thought into an existing curriculum.

This section has discussed television as part of the system's approach to instruction. The way the teacher sees the relationship between television and the instructional progress may determine the place of TV in the classroom. Teacher attitude towards ETV will be discussed in the next section of this chapter.

ATTITUDES TOWARDS EDUCATIONAL TELEVISION

Teacher attitude was an important influence in the successful use of television. Freeman (1967) re-directed teacher attitudes away from negative thinking of television as a teacher replacement toward a positive attitude as a tool for use by teachers.

Several research studies have reported negative acceptance of television. Himmler (1957) showed that a substantial percentage of Pittsburgh teachers were not likely to welcome regular television lessons as a major part of their classroom

programs, although many of them welcomed the experience of using such lessons for a period of time. Handleman (1960) said that teacher non-acceptance of television was based upon fear of standardization, mechanized education, fear of reduction of importance of the non-television teacher, lack of teacher-student feedback, and a distrust of measuring instruments used by researchers. Guba and Snyder (1965) reported that television has provided a serious challenge to the class teacher's role as a "purveyor of information". As a result, teachers' self-perception may be threatened. The researchers concluded that this anxiety is unwarranted, and if teachers better understood the capabilities of television, they would have a more positive attitude toward it.

Westley and Jacobson (1963) obtained responses from 50 fourth and ninth grade teachers on a 55 item test of their attitudes towards television in the classroom after 33 of them had been involved and 17 not involved in a television series which introduced new ways to teach mathematics. On the whole the teachers' attitudes were highly favorable to television and consistently rejected the idea that the television teacher represented a threat to the classroom teacher.

This section has reviewed some of the literature relating to both negative and positive acceptance of television by teachers. It can be concluded that attitude is related to use. Examples of use and non-use will be discussed in the third section of this chapter.

APPLICATIONS OF EDUCATIONAL TELEVISION

This section will review some of the literature relating to television application or use within the classroom.

Sussman (1973) surveying Toronto teachers found that the rate of television utilization was low. It was related to quality and distribution of facilities, not to reception quality or kinds of equipment. Teachers with more access to television sets were more likely to use them. The reason most often mentioned by teachers for non-use was inconvenient and rigid scheduling of programs.

These findings support the 1972-73 instructional television survey of KIRN TV Channel 9, Austin, Texas who also stated that more teachers would use television programs to supplement teaching if they had more sets. The main reason given for non-use was unstable scheduling. It may be noted paranthetically that the advent of videotape makes such responses invalid.

However, Dubosh and Wright (1972) in an earlier study in Toronto reported in their findings that simply providing access to television did not necessarily mean utilization would follow. They suggested that an equitable distribution of television sets was not the best way to increase use. Rather they suggested that first consideration should be given to those teachers who had expressed an interest and were likely to use television. Teachers' previous habits toward educational television were the deciding factor in its utilization.

Strzelecki (1972) identified inconvenient scheduling, irrelevant material and lack of time as reasons for non-use

of television. Respondents criticized educational television programs for being of poor quality and for containing material that was not in context with classroom requirements. Teachers used television to a greater extent where specialized human resources were provided and where the community was larger.

Steely (1973) when surveying four school districts in Kentucky found that older teachers used television instruction less than expected. Her data projected the fact that those teachers with more advanced degrees made less use of television than those with an M.A. degree and lower.

Malhotra in a recent Canadian survey of elementary suburban Dartmouth, Nova Scotia schools reported no significant difference in teachers' use of educational television when related to teacher sex and teaching experience. Older teachers (over 30) made more use of television than did younger teachers. More qualified teachers made use of educational television more than less qualified teachers. The teachers with some formal experience with television made use of television more than teachers who had no experience with the medium. The teachers teaching in low income areas made use of educational television more than those teaching in middle or upper middle class areas. Responses were received from 90 out of a possible 130 male and female teachers in a total of 13 elementary schools.

Several studies compared use of television in various grade levels. Sussman in her study of television in the Borough of York reported utilization of facilities tended to be highest in the lowest grades and decreased as school level

increased; primary and junior grade teachers used live television broadcasts more frequently while intermediate and senior grade teachers more frequently used videotape recordings. Steely supported these findings by reporting that ETV was used more extensively in the primary grades and decreased in use as the grades progressed upward with high school using television the least.

Dirr (1970) found greater acceptance of television at the elementary level based on program content. He observed that program content for younger children is more likely to utilize the creativity and potential of television than in the programming for older, more mature viewers. Many more of the commercial production techniques were in evidence in early grade programming while much of the upper grade programming was filled with "talking faces" - or essentially television lectures. Based on the findings of his study, Dirr recommended that television agencies work with school personnel to study and apply the unique characteristics of television to best advantage in production.

Styzelicki also discovered that elementary and senior high school teachers used television to a greater degree than did junior high school teachers.

Chu and Schramm (1967) found that television was more effective for primary and secondary school students than for college students. They cited the following reasons: elementary material is less complex, younger children grew up with television and regard it as "status" in the class room,

elementary teachers' attitudes toward educational television were more receptive.

Several studies have dealt specifically with the practical application of television in the classroom. Himmler (1958) nearly twenty years ago realized that pupil interest in television lessons was likely to be high if there was maximum use of enrichment materials, variety in the lessons, suitably paced skill presentations and provisions for a substantial amount of active pupil participation. Teachers and principals placed great value upon the supplementary period for meeting individual needs, maintaining desirable pupil-teacher relationships, carrying on drill and practice activities, answering questions and providing for the interaction involved in class discussion. Himmler doubted that television teaching without supplementary classroom instruction could be a satisfactory substitute for regular classroom teaching at the elementary level.

In Rayburn's study (1966) the participating teachers in the public schools of Tuscaloosa, Alabama, recommended a preparation period before the program and a follow-up review activity after the program as the most successful procedure for using television in the classroom. These studies point out that television alone is not a sufficient motivator to insure learning.

The administration policies and philosophy of the school also are a factor in television utilization. Two examples are included. Rayburn stressed the important role played by principals because of their influence in dictating school

policy. "The encouragement given by principals, the extent to which he provides the equipment and facilities, and the extent to which he arranges flexible schedules, determine whether teachers will try to utilize educational television" (p. 1288-A). Guba and Snyder saw the administrative responsibility as making television equipment available and recognizing that teachers do need assistance in its utilization.

In summary, integration is the key to successful application. As Chu and Schramm (1967) said, "It works best when it is planned and introduced carefully as part of a teaching-learning system rather than a branch grafted on to what is already there" (p. 180).

From the extant research, four distinct conclusions may be identified. (a) Television is an effective and successful method of education in the school classroom.

(b) The role of educational television is changing from an "extra" to an integral part of curriculum planning.

(c) Teachers' attitudes toward ETV vary. Usually the teachers' attitude is reflected in their use (or non-use of ETV).

(d) Applications of ETV vary. Its use is dependent upon many factors.

CONTEMPORARY AND FUTURE TRENDS

Contemporary and future trends in educational television include color, cable, videocassette, large screen projection and video discs. These versatile and varied means of TV

utilization have a considerable impact on instruction. The first three examples: color, cable and videocassettes will be dealt with specifically as they are being used in Manitoba schools. The latter two: large screen projection and video discs will be discussed generally as they are not currently being used in schools in this province.

COLOR TELEVISION

There is no doubt that the added dimension of color TV presents a new challenge. Color television aids in clarity of presentation and holds the interest of the students. In Manitoba almost every school division has at least one color TV receiver. However organized TV distribution facilities which are color capable, that is, can produce and play back color recordings, exist in only one school division, St. James-Assiniboia. Of the 40 St. James-Assiniboia schools, 19 are wired for microwave reception. Of the 21 schools which are not part of the microwave hookup, several have one or more color receivers for watching school broadcasts off air. School broadcasts are now entirely produced in color. This branch of the Department of Education recommends that schools purchase color equipment. Schools are now moving in this direction. For example, presently the Winnipeg School Division has one color recorder and playback unit in Hugh John Macdonald School. Fort Garry School Division has one color receiver and one color videocassette player while River East and St. Vital School Divisions have at least one color videotape player.

CABLE TELEVISION

The addition of commercial cable television would not only increase the number of viewing channels but would provide better reception particularly to Northern schools. Individually, the installation charge and monthly rental fee for each classroom would be prohibitive. However, three schools in the Winnipeg Division presently are experimenting with cable. During 1977-78, through a special grant, a pilot project of this Division will link five schools to Channel 3, Prairie Public Broadcasting, (Stations KFME and KGFE) from Fargo and Grand Forks. Those schools will be able to videotape educational programs in color and retain them for up to 60 days.

It should be noted that St. James-Assiniboia has its "own" microwave cable system (2500 Megahertz). This is not to be considered as part of the commercial cable system.

VIDEOCASSETTES

Videocassettes may be one of the technological advances which could lead to increased use of TV. These compact recordings have appeal to teachers through their ease of use. Videocassette recorders, when connected to a TV receiver, allow recording and playback flexibility. The program being watched can be recorded, a program other than the one being viewed can be recorded, or the digital clock timer will record automatically whenever desired. Disadvantages of the videocassette include (a) packaging hides the tape so that it cannot be physically examined, and (b) fast forward and

reverse speeds are slower in comparison to open reel machines.

A limited number of videocassettes are currently being used in a limited number of Manitoba School Divisions. There is one unit in Winnipeg #1. The videocassette is being marketed for business and home use. School Broadcasts estimate that requests for 3/4 inch videocassettes will increase from 10 percent of all last year's dubbing requests to 40 percent this year. All National Film Board 16 or 35 mm films are available on 3/4 inch videocassette.

LARGE SCREEN PROJECTION

Large screen color projection is done simultaneously through three lenses from a remotely controlled television set placed seven feet from the screen. The chief advantage of the six foot screen is increased visibility as it is capable of being seen by a large audience. The picture quality is not as high as with the videocassette. Cost is also a deterrent. Large screen projection is not being used in Manitoba schools but is available for home entertainment.

VIDEO DISCS

Video disc systems which play color programs through an ordinary television receiver via a "record player" attachment are expected to be marketed shortly. The video disc closely resembles an audio long-playing record. They allow for maximum playing flexibility, compact visual storage and retrieval. Video discs are not affected by fingerprints and can be handled without special care (Video Player, 1972, p. 27).

CHAPTER SUMMARY

This chapter has summarized literature related to the present study. Five specific areas of educational television were examined:

- (a) effectiveness of educational television,
- (b) the changing role of educational television,
- (c) attitudes toward educational television,
- (d) application of educational television, and
- (e) contemporary and future trends.

Chapter III will outline the procedures for collection and treatment of the data.

CHAPTER III

PROCEDURES FOR COLLECTION AND TREATMENT OF DATA

This chapter sets forth a detailed description of the general procedures of the study. The first section describes the questionnaire used to collect the data. The second section describes the selection of the population. The third section gives the procedures for the treatment of the data.

THE QUESTIONNAIRE

The intent of the questionnaire was to ascertain the general utilization practices and procedures of ETV in Manitoba schools and to document non-use factors.

Originally a 1973 survey by Steely at Eastern Kentucky University was to be used as a model. Steely's questionnaire was to be replicated in Manitoba. Upon further examination several questions on Steely's survey were altered. This was done because different information, specifically relevant to Manitoba, was wanted. Thus an 18 item questionnaire was piloted in May 1976 on a group of 30 teachers attending an evening Audiovisual class in the Faculty of Education, University of Manitoba.

Following this pilot the items on the questionnaire were evaluated and changed to avoid ambiguities. The questionnaire was expanded to be more specific and the format changed to include a computer answer sheet. A covering letter was

written and a copy of that letter, a questionnaire and a computer answer sheet were combined in order to simulate actual mailing conditions. This package (Appendix B) was tested on four classes of teachers enrolled in evening education classes at the University of Manitoba during October 1976. Two problems were identified during this second pilot. Firstly, the questionnaire required four separate 8 x 14 inch sheets. Secondly, the completed questionnaires and answer sheets were misaligned. These problems necessitated a third pilot.

The questionnaire and accompanying answer sheet were tested on an Early Childhood education class of 28 teachers in November, 1976. The results were processed through an SPSS computer program at the University of Manitoba.

Following analysis of the results, two minor items concerning the type of television training received at University level were added bringing the total to 56 items. At this stage the questions were spaced to fit both sides of one 8 x 14 inch sheet and the computer answer sheet was omitted. This omission was necessary as (a) it was bulky, (b) created too many papers, (c) required pencil answers and (d) would not fit the return envelope without folding; such folding would not be acceptable to computer processing.

The following questionnaire was designed to test the relationship of the following independent variables:

1. teacher's age
2. number of degrees
3. total years of teaching experience

4. location of school (Winnipeg vs. suburban Winnipeg vs. rural)

with the following dependent variables with respect to ITV:

1. how television was used in the classroom
2. the types of television training received by teachers
3. the formats of television including School Broadcasts, videotapes, image amplification and teachers and/or students' productions

4. teacher attitude toward student achievement and cost justification of television equipment in their schools

5. how often television is used and the grades and subjects in which it is most frequently used

6. the problems encountered by teachers using television and suggestions to encourage more effective use.

The end result was a questionnaire developed for this study.

On the questionnaire items 1-4 were designed to obtain the following information about the respondents: (1) age group, (2) level of professional preparation (number of degrees held), (3) total years of teaching experience, (4) location in which presently employed: Winnipeg, suburban and rural schools.

Items 5-7 were concerned with television equipment, its operation and use in teaching.

Items 8-22 dealt with how television was used and the type of television used. Item 23 dealt with the frequency of television used. Items 24-36 were designed to indicate

the grades and subjects in which used.

Items 37-43 sought information on the type of television training that the respondents may have received.

Items 44-48 were designed to obtain information regarding the problems encountered in using television as an instructional tool.

Items 49-53 looked for suggestions to encourage respondents to make more effective use of television by indentifying problems.

Items 54 and 55 dealt with teacher attitude toward student achievement in respect to ETV and cost justification of television equipment.

Item 56 was open-ended to allow respondents any additional comments that they may care to make.

The final instrument (Appendix B) was printed and ready for mailing along with a stamped addressed return envelope and covering letter. The mailing envelopes, address labels, return envelopes, postage and covering letter were supplied by the Department of Education.

The covering letter was signed by the Assistant Deputy Minister of Education (Appendix B). The letter was mailed by the Department of Education Library on January 3, 1977. A follow-up letter was also signed by the Assistant Deputy Minister on Department of Education stationery. This, along with a duplicate copy of the questionnaire and a stamped addressed return envelope were mailed January 17, 1977 to the same sample. This cost was also borne by the Department of Education. Thus the selected sample received a duplicate

copy of the questionnaire along with a reminding letter two weeks after the initial contact. (Follow-up letter, Appendix B). It is assumed that respondents would take the time to complete and mail only one questionnaire.

SELECTION OF THE POPULATION

The Media Random Selection Sub-System, a computer program at the Department of Education selected a random sample based on the teaching population records stored in the computer-based MEDIA Teacher Information System. Parameters included (a) teaching position: regular teachers, (b) only those teachers actively teaching, (c) Manitoba public schools, and (d) all divisions. A random sample was stratified by geographical location: 50 percent of those selected were chosen from Winnipeg and Suburban Winnipeg schools, 50 percent were chosen from rural Manitoba schools. This stratification was proportionate to the pupil ratio in Manitoba. Had a proportional stratified random sample been selected, many variables would have been introduced. The following could have been specified: school divisions, teacher sex, age, number of years of certified experience, salary, certification data, previous years activity, grant rating, grades and subjects taught and academic and professional majors. Inclusion of these limitations would have imposed the bias of the researcher and contaminated the results. In this first study an overall feeling of teacher use of television was wanted.

300 names (2.5 percent of the teacher population) were

selected out of a possible 12,000 teachers. This number was chosen on the basis of practicality and cost factors in conducting a survey. The respondents were not identified in any way to insure complete anonymity. Of the 300 polled, 232 mailed back questionnaires within the designated time. 126 responses were received during the first two weeks. The remaining 106 were received by January 31, 1977, for a total of 77.3 percent.

This response rate was considered to be above average. Babbie cited the following response rates: 50 percent - adequate, 60 percent - good, 70 percent or more - very good (1973, p. 165).

The response rate may be due to several factors: (a) the subject is of current interest, (b) the respondents have strong opinions on this subject, (c) the survey was brief and required little writing, (d) the timing, no other surveys were being mailed at this time, (e) the Department of Education stationery and enclosed letters from the Assistant Deputy Minister of Education may have been an influence and (f) the reminder system was efficient.

Of the 232 responses received, two persons did not answer any of the questions. Another answered only one question. These three subjects were removed from all future analysis.

On the second mailing two questionnaires were returned marked "duplicate". The duplicates were not included as the originals had been counted. It was assumed that if a questionnaire were filled out twice by one respondent, the second



questionnaire would be indicated as duplicate.

A letter was received containing an apology for not being able to complete the questionnaire. The reason given was poor television reception due to out-of-province transmission (from Saskatchewan).

PROCEDURES FOR TREATMENT OF THE DATA

On the questionnaires television users were asked to answer all the questions. Non-users were directed to answer specific sections. Table 2 illustrates the number of teachers who responded to each item.

Of the 229 usable questionnaires that were returned, 106 or 46.3 percent indicated that they used television in their teaching. That is, they replied "yes" to question 7, "Do you use television in your teaching?" 123 or 53.7 percent answered "no" to this item indicating that they did not use television in their teaching. Table 3 illustrates the breakdown of the raw data.

Completed questionnaires were mailed to the Department of Education Library. No undeliverable questionnaires were returned. Responses were coded by the researcher onto computer answer forms. Automatic computation was used in the treatment of the data using the crosstabulation of the SPSS program at the University of Manitoba (Nie et al, 1975).

The hypotheses of the study were tested using the Chi Square technique. The hypotheses were tested at the .05 level of significance. These results will be reported in Chapter IV.

TABLE 2
DELINEATION OF RETURNS ACCORDING TO RESPONSE
TO QUESTIONNAIRES

<u>Questionnaire Items</u>	<u>N</u>	<u>Category of Response</u>
1-7	229	TV users and non-users
8-36	106	Users only
37-55	229	TV users and non-users

TABLE 3
DELINEATION OF RETURNS ACCORDING TO USE AND
NON-USE OF TELEVISION IN TEACHING

Raw Score	Users %	Raw Score	Non-users %
106	(46.28)	123	(53.71)

(% of score)

CHAPTER SUMMARY

This chapter summarized the procedures for data collection by describing the questionnaire, the selection of the population and the procedures for the collection and treatment of the data.

Chapter IV will present the results of these data.

CHAPTER IV
DATA ANALYSIS

This chapter reports the results obtained from the data collected. The five hypotheses are restated and the results are illustrated in corresponding tables. The significance of these findings will be discussed in Chapter V.

In addition to the hypotheses additional findings are presented.

HYPOTHESIS 1: The use of educational television (7) will vary significantly according to:

- (a) teacher's age (1)
- (b) number of degrees (2)
- (c) total years of teaching experience (3)
- (d) location of school: Winnipeg, Suburban Winnipeg,
rural (4)
- (e) television training received (37)
- (f) teacher opinion as to student achievement from
ETV (54)
- (g) teacher opinion as to cost justification of TV
equipment in their schools (55).

The corresponding item number on the questionnaire is placed in brackets beside each variable.

The results of this hypothesis are illustrated in Table 4. Complete tables relating to each part of this hypothesis will be found in Appendix C.

TABLE 4
RESULTS OF HYPOTHESIS NUMBER ONE

Television use as related to:

Variable	χ^2	df	.05	Results
(a) teacher's age	4.79754	4	9.49	not sig.
(b) number of degrees	6.32289	4	9.49	not sig.
(c) total years of teaching experience	4.89187	4	9.49	not sig.
(d) location of school	1.20551	2	5.99	not sig.
(e) training received	0.04480	1	3.84	not sig.
(f) student achievement	13.60049	2	5.99	significant
(g) cost justification	24.68974	1	3.84	significant

RESULTS:

Table 4 shows that in hypothesis 1 there was no significant relationship between television use and a teacher's age, number of degrees, total years of teaching experience, location of school or training received. However, television use was significantly related to teacher opinion of student achievement via ETV. Those teachers who used TV felt that students learned from it. Television use was also significantly related to teacher opinion of cost justification. Those teachers who used TV felt that the use of the TV equipment in their schools justified its cost.

HYPOTHESIS 2: Training in the use of educational television (37) will vary significantly according to:

- (a) teacher's age (1)
- (b) number of degrees (2)
- (c) total years of teaching experience (3)
- (d) location of school: Winnipeg, suburban Winnipeg, rural (4).

The results of this hypothesis are illustrated in Table 5, page 50.

RESULTS:

Table 5 shows that in hypothesis 2 there was no significant relationship between training in the use of educational television and a teacher's age, number of degrees or total years of teaching experience. However, television training was significantly related to location of school. Specifically

TABLE 5
RESULTS OF HYPOTHESIS NUMBER TWO

Television training as related to:

Variable	χ^2	df	.05	Results
(a) teacher's age	3.60050	4	9.49	not significant
(b) number of degrees	1.91073	4	9.49	not significant
(c) total years of teaching experience	7.05579	4	9.49	not significant
(d) location of school	8.06206	2	5.99	significant

more suburban Winnipeg and rural teachers indicated receiving television training than did Winnipeg teachers.

HYPOTHESIS 3: Utilization of School Broadcasts (17) will vary significantly according to:

- (a) teacher's age (1)
- (b) number of degrees (2)
- (c) total years of teaching experience (3)
- (d) location of school (4)
- (e) type of broadcast: live vs. taped (21,22)

The results of this hypothesis are illustrated in Table 6, page 52.

RESULTS:

Table 6 shows that in hypothesis 3 there was no significant relationship between utilization of School Broadcasts and a teacher's age, total years of teaching experience or location of school. However, utilization of School Broadcasts was related to number of degrees. Teachers with no degrees or with three or more degrees used School Broadcasts more than teachers with one or two degrees. No consistent pattern of use was determined.

There was a significant relationship as to type of School Broadcast preferred. Off air viewing was selected over video-taped programs.

HYPOTHESIS 4: Television facilities (5) and teacher knowledge of how to operate the television facilities in their school (6) will vary significantly according to location of school (4).

TABLE 6
RESULTS OF HYPOTHESIS NUMBER THREE

School Broadcasts utilization as related to:

Variable	χ^2	df	.05	Results
(a) teacher's age	6.58482	4	9.49	not significant
(b) number of degrees	14.42371	4	9.49	significant
(c) total years of teaching experience	6.38156	4	9.49	not significant
(d) location of school	2.68909	2	5.99	not significant
(e) live (off air) broadcasts	9.98762	1	3.84	significant

The results of this hypothesis are illustrated in Table 7, page 54.

RESULTS:

Table 7 shows that in hypothesis 4 there was no significant relationship between television facilities and location of school. However, teacher knowledge of how to operate the television facilities in their school was significantly related to location of school.

More suburban Winnipeg and rural teachers knew how to operate the TV equipment in their schools than did Winnipeg teachers.

HYPOTHESIS 5: Teacher opinion of student achievement via ETV (54) will vary significantly according to teacher opinion of cost justification of TV equipment in their school (55).

The results of this hypothesis are illustrated in Table 8, page 55.

RESULTS:

Table 8 shows that in hypothesis 5 there was a significant relationship between teacher opinion of student achievement via ETV and teacher opinion of cost justification of television equipment in their school. Teachers who felt that students learned from TV also felt that the use of TV equipment in their schools justified its costs.

TABLE 7
RESULTS OF HYPOTHESIS NUMBER FOUR

Location of school as related to:

Variable	χ^2	df	.05	Results
Television facilities	3.36141	4	9.49	not significant
Operational knowledge	6.50418	2	5.99	significant

TABLE 8
RESULTS OF HYPOTHESIS NUMBER FIVE

Teacher opinion of student achievement via ETV as related to:

Variable	χ^2	df	.05	Results
Teacher opinion of cost justification	34.77798	2	5.99	significant

DESCRIPTIVE DATA

In addition to the aforementioned hypotheses, this study sought the following descriptive data: How Television was Used, Type of Television Used, Frequency of Television Use, Grades in Which Television was Used, Subjects in Which Television was Used, Types of Television Training, Levels of University Television Training, Problems Encountered in the Use of Television, and Suggestions for More Effective Use of Television. Complete breakdown of these data may be found in the tables in Appendix C.

HOW TELEVISION WAS USED

Scrutiny of the data in Table 29, Appendix C indicated that the majority of respondents (92.5 percent) used television to supplement their teaching (N= 106, users only). Slightly more than half used television to introduce a subject. Approximately half used television for "fun" and to review material previously covered. Only 32 percent used television as the main body of the lesson. This latter choice illustrated a direct contrast in application to the "supplemental" use. Fewest respondents chose television for independent study, individual work and/or remedial work. The majority tended to use television as an "extra" or an enrichment to their regular instruction.

TYPE OF TELEVISION USED

The data of Table 30 indicated that the majority of respondents, 76 percent, (of 106 or 34.9% of the population)

selected off air school broadcasts as the type of television most preferred. These programs, covering a variety of subjects, are broadcast Monday through Friday from 10:00 to 10:30 a.m. This item was answered by those teachers who used television in their teaching. The results indicated that for at least three-quarters of these teachers, the direct school broadcasts are the most convenient type of educational television.

Less than one-half or 42.5 percent of the respondents preferred videotapes. School broadcasts may also be obtained on videotapes.

Only 12 percent of the respondents indicated using their own or their students' productions. A minority specified a preference for image amplification, a type of television used for close-ups or demonstration.

Respondents were able to indicate a multiple response for these items.

FREQUENCY OF TELEVISION USE

The data in Table 9 relate to frequency of television use. Data were tabulated from two categories of respondents: category one was only those teachers who used television in their teaching, category two was an all-inclusive group of both TV users and non-users.

The results indicated that 30 percent of the users showed television to their students once a month. This represents 13.9 percent of the total group of users and non-users.

The second most frequent response came from those who used television once a week or more frequently than once a month. This response was tied with those who replied "other". Teacher comments included in "other" will be discussed in Chapter V. Generally, "other" referred to limited use. These second most frequent use categories, weekly and other, represented 26 percent of the users, equivalent to 12 percent of all respondents.

Only a small percentage, 8.4 percent of users, or 3.9 percent of all respondents indicated using TV daily. 4.7 percent did not respond to the question. 3.8 percent of users indicated infrequent use; once a year.

GRADES IN WHICH TELEVISION WAS USED

Table 31 indicated that use of television varied with grades taught. The data showed a decline in educational television usage as the grade level progressed upwards. Elementary school teachers tended to use television more in their teaching from Kindergarten to grade 6.

Television was used less often by Junior High School teachers in grades 7 to 9. Senior High school teachers used television least of the three groups of teachers. Responses were tabulated from only those people who indicated that they used TV in their methods of instruction.

SUBJECTS IN WHICH TELEVISION WAS USED

The data of Table 32 showed that teachers varied in the use of ETV according to subject taught. Social Studies,

Science and Mathematics were the subjects in which TV was most frequently used. Language Arts and Music were next in order of use followed by Art and "other". In many cases Health was mentioned by teachers as "other".

Physical Education received only a 9.4 percent response and Home Economics exhibited the least use of television.

The data were tabulated from the 106 questionnaires received from those teachers who used television in their teaching.

TYPES OF TELEVISION TRAINING

Tables 33 and 34 indicated the types of television training received by teachers. A proportionately large number of teachers did not answer these items. The responses are indicated here but cannot be considered as representative of the population sampled due to the small response rate.

Of those who had received training, 17.9 percent or the majority received their orientation at a University. Of those who indicated University training, the majority had contact with TV instruction as undergraduates or as student teachers. Only 4.3 percent had received training as part of an advanced degree beyond the graduate level.

Very few indicated training as an active teacher at either an In-service or division workshop. There was a surprisingly large number of teachers who received no formal training in the use of ETV. This data pointed up the need for future investigation of this topic. These figures indicated that the potential training opportunities were not

being utilized and that a need for more television-related teacher training exists.

PROBLEMS ENCOUNTERED IN THE USE OF TELEVISION

Teachers enumerated several problems realized in the use of television. Table 35 presented these results. 42.8 percent of the 229 teachers who answered the survey named scheduling difficulties as the major problem.

The broad heading 'irrelevancy of programs' was rated by 35.3 percent as a hinderance. 26.2 percent indicated that lack of equipment created a problem. Sets not available when needed would tend to be a limiting factor in TV use.

Mechanical difficulties such as poor reception, were reported by 20.5 percent or one-fifth of those surveyed. This category created the least problem.

SUGGESTIONS FOR MORE EFFECTIVE USE OF TELEVISION

Suggestions for more effective use of television were correlated with problems encountered by teachers. Recommendations as suggested by teachers were tabulated in Table 36.

The majority; 56.3 percent indicated that they would like to have an opportunity to preview programs before the broadcasts were shown to the entire class. Previewing of programs beforehand would give the teacher time to evaluate the presentation and to integrate it within the lesson structure.

33 percent of the teachers surveyed would like more equipment at their disposal. 30 percent wanted training in

the use of television. Earlier Table 33 indicated that only 34.4 percent of teachers had training leaving 65.6 percent with no training. Of those 65.6 percent, less than half wanted training.

A variety of suggestions were received in the "other" category. These will be discussed in Chapter V. This accounted for 18.6 percent.

Only a small number, 32 out of a possible 229 felt that the presence of a trained technician would assist teachers in their use of television.

SUMMARY

This chapter has presented the results obtained from the data collected. The findings of the five hypotheses have been reported. In addition, the following data were collected: how television was used, type of television used, frequency of use, grades and subjects in which used, types of television training received, levels of university television training, problems encountered in the use of television, and suggestions for more effective use of television.

Chapter Five will summarize the findings. A discussion of the results and their interpretation will be included. Conclusions, recommendations and implications will be presented.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this final chapter is to focus upon the following five considerations. First, a summary of the significant hypotheses will be presented. Second, the results of both the hypotheses and descriptive data will be discussed. Third, overall conclusions of the study will be formulated. Fourth, recommendations will be made and finally, implications for researchers, administrators and teachers will be suggested.

SUMMARY OF THE SIGNIFICANT HYPOTHESES

The chief goal of the study was to examine the current state of educational television in Manitoba schools and to identify factors related to the utilization practices. The data collected from a mail survey of 300 active teachers during January, 1977, revealed the following significant findings:

1. The use of ETV varied according to teacher opinion of student achievement and equipment cost justification. Those teachers who used television felt that it positively affected student achievement. Teachers who used television in their teaching also felt that the use of the television equipment in their schools justified its cost.

2. Training in the use of ETV varied according to location of school. More suburban Winnipeg and rural teachers

indicated training than did Winnipeg teachers.

3. The utilization of Manitoba School Broadcasts varied according to number of degrees held by teachers. However, the data revealed no consistent pattern between number of degrees and TV use. Manitoba School Broadcasts are produced both off air and on videotape. Respondents indicated a greater preference for off air programs.

4. Teacher knowledge of how to operate the television facilities in their school varied according to location of school. More suburban Winnipeg and rural Manitoba teachers indicated operational knowledge than did Winnipeg teachers.

5. Teacher opinion of student achievement from ETV varied according to teacher opinion of cost justification of television equipment in their school. Teachers who felt that students learned from television also felt that the use of the television equipment in their school justified its cost.

DISCUSSION

This section will discuss the findings of the survey. The hypotheses will be dealt with first under the headings of television utilization, teacher opinion, television training, School Broadcasts and television facilities. A discussion of the descriptive data will follow. Suggested reasons accounting for the results will be offered.

TELEVISION UTILIZATION

This survey found that the use of television by Manitoba teachers did not vary significantly according to a teacher's

age. Steely (1973) found the opposite. Her data indicated that older teachers used television more than expected, while younger teachers used television less than expected. Malhotra's study (1974) supported Steely by reporting that older teachers used television more.

The present study found that ETV did not vary significantly according to number of degrees. This does not support the results of either Steely or Malhotra. Steely found a correlation between television use and number of degrees. Teachers with more degrees used television less. Malhotra reported the reverse; that more qualified teachers used television more.

It appears that the research is inconsistent on this point. There are several possible reasons for the results of this conclusion, namely, that the use of ETV did not vary according to number of degrees. One of these could be that television in Manitoba classrooms may be an accepted method of instruction by all. It does not require a more qualified teacher to use it. Alternatively, perhaps Manitoba does not have a large number of teachers with three or more degrees. Certainly this survey identified very few from this stratum.

No significant results were reported by this survey regarding the use of ETV and teaching experience. Malhotra also reported no difference in TV use as related to teaching experience. However, Steely found that television use varied according to total years of teaching experience. The National Film

Board of Canada Media Survey related that "teachers with between 6 and 20 years experience are the biggest users of A/V media" (1975, Report 4, p. 4).

The majority of respondents to Steely's survey had 16 years of teaching. The majority of respondents to the present study had from 2 to 10 years of teaching. This median of six years indicated less experienced teachers. There are several possible explanations for this interesting discrepancy. Perhaps the figures simply reflect a "real world" phenomenon; Manitoba teachers are younger. Or, a non-representational sample, biased by a greater percentage of younger teachers, may have inadvertently been selected. Or, a higher proportion of rural respondents may have replied to the survey. Traditionally rural school divisions have younger, less experienced teachers. Or, the Steely study may have used a non-representational sample.

In summarizing the results of these first three hypotheses, there was a relationship among the demographic factors of teacher's age, number of degrees and years of teaching experience. This survey noted a consistency in the results in that none of these factors was related to TV use. It may be safe to assume that younger teachers have not had sufficient time to incorporate television into their teaching. On the other hand, older teachers may be print oriented. Television in Manitoba schools is no longer new or unique. It does not require older, more experienced or more confident teachers to

use it. Those teachers surveyed were familiar with TV and were reasonably receptive to its use, regardless of their demographic position. Teachers surveyed indicated no fears, anxieties or threats from television.

This study revealed no significant differences in TV use according to location of school. According to this result, it could be assumed that television was not placed discriminately in particular geographical locations but was used to some degree throughout the province.

TEACHER OPINION

Both this survey and Steely's survey supported student achievement being moderately increased through ETV (Table 14). This study recorded that TV users thought that ETV benefited the student. Steely had previously reported a similar result. Both studies recorded a positive response by users to cost justification of money spent on ETV equipment. Indications were that TV users approved of the expenditures and felt that the money was well spent in relation to the amount of use the equipment received. Users did not seem to begrudge the money spent for TV in their schools. Non-users reported negative feelings about television.

Teachers who felt that students learned from TV also felt that the use of the TV equipment in their school justified its cost. These findings seemed to imply a potential commitment among the TV users.

TELEVISION TRAINING

This survey reported no significant differences in TV use according to television training. This would seem to mean that use depended upon attitude rather than acquired skill. However, the National Film Board Media Survey suggested that those teachers with some form of A/V training used media more frequently than did those who had no training (1975, Report 4, p. 4).

This survey showed that training in the use of ETV did not vary significantly according to a teacher's age, number of degrees or total years of teaching experience (Table 5). Only 59 out of a possible 229 indicated that they had received training in the use of TV. 122 indicated that they had not received training. Unfortunately, due to a misreading of the questionnaire, a large proportion did not answer this question. Steely also reported that the use of ETV did not vary significantly according to training. Steely reported that the majority received orientation through school district workshops. The present study found that a very small percentage received training through division workshops, inservices or training institutions other than a University. The majority received their TV training at a University (Table 33). Concerning A/V workshops, a spot check indicated that it appeared more were held in rural Manitoba than in Winnipeg (Campbell, 1977).

At this point, in order to test the results of this survey, opinions of persons in direct contact with ETV in Manitoba

were sought. Discussion and letters yielded various comments. Two such opinions as related to teacher training have been included here.

"We should provide all teachers-in-training with instruction in the use of all media equipment and with instruction to use it creatively as well as passively. There is value in using a prepared program on regular T.V. and there is additional advantage in using T.V. to teach a special lesson (as well as for distance teaching) as suggested in the use of V.T.R. and, of course, prepared and loaned tapes (from the Department and or Universities). These tapes are difficult and expensive to produce and should be used widely to reduce the cost. The answer is not necessarily that the Department of Education should provide such materials, but it is one option. A cooperative arrangement among schools and divisions is an option" (Pippert, 1977).

Of those teachers in this study who indicated University TV training, more took it at the undergraduate level as opposed to the graduate level (Table 34). To assist in future planning for Education students, the following opinion was offered.

"TV should not be isolated as an optional course with limited enrollment but should be integrated into subject matter courses, just as textbooks are. University teachers of TV courses should assist Professors in this regard. Part of this orientation would be an awareness of the role of School Broadcasts as related to specific subjects" (Harrison, 1977).

Training did vary according to location of school, with more suburban Winnipeg and rural teachers indicating training than Winnipeg teachers. This would tend to support the seemingly high percentage of rural teachers enrolled in the Saturday morning TV course in the Faculty of Education, University of Manitoba. Both Steely and this study agreed that the need for training exists. Teachers should be prepared to use ETV effectively in the classroom.

SCHOOL BROADCASTS

Manitoba School Broadcasts were used more than other forms of television including videotapes, image amplification, and teachers' or students' own productions. However, no preference was indicated according to teacher age, years of teaching experience or location of school.

The preference for off air programming may reflect the fact that teachers appeared to favor off air programs for the sake of convenience. The same School Broadcast programs are produced in both off air and videotaped forms. Perhaps this convenience of using a television set surpassed the more complicated procedures involved in obtaining tapes and in using a videotape machine. Or, perhaps more monitors than videotape playback units were available. A further analysis, specifically aimed at School Broadcast viewers, may explain this unjustified preference.

TELEVISION FACILITIES

TV facilities did not vary significantly according to location of school. To this extent every school division in Manitoba has some form of television. However, this generalization, according to persons directly connected with TV in Manitoba, is not quite true. Some school division, St. James-Assiniboia for example, have facilities far superior to many districts. The significant result obtained by this survey may be due to (a) small sample size, or (b) misrepresentation of population. Facilities do vary according to geographic location of school.

The present study found that more suburban Winnipeg and rural teachers indicated operational knowledge of the TV equipment in their schools than did Winnipeg teachers. This would substantiate the earlier mentioned finding of this study that more suburban and rural teachers had television training than did Winnipeg teachers. It is assumed that Winnipeg schools employ A/V personnel to assist in operating the equipment.

DESCRIPTIVE DATA

HOW TELEVISION WAS USED

How should a teacher use television? How did teachers in this survey use television? Four main choices were listed on the questionnaire. Table 28 presents the responses to this question.

The choice of the majority was to supplement or enrich instruction. This could be related to lack of opportunity to preview programs. If a teacher cannot preview a program, then it becomes difficult to prepare activities related to that production. Thus the teacher ensures that the work is covered in a lesson and the television becomes an "extra".

Teachers don't preview TV programs probably due to (a) lack of time, and (b) logistics of the situation. In order to see the program in advance, teachers would need unscheduled time. Releasing teachers from classroom duties costs money. Off air programs cannot be previewed by teachers before the telecast date. Programs may be previewed in either of two ways. School Broadcasts will dub a program at no charge

but the school requesting this service must supply the videotape. Or a teacher may visit the School Broadcasts branch and view the program there. To do the former requires money for the tape, viewing equipment and teacher time. To do the latter again requires teacher time and may not be feasible for rural teachers.

Concerning the use of television, The National Film Board Media Survey also found enrichment was the most common purpose for showing films (1975, Report 6, p. 27).

"The pervasive tendency to use audio visual materials for enrichment is probably related to historical attitudes about the proper place of music and pictures in the classroom, or anywhere for that matter, as well as the fact that many of the materials readily available today are of a general nature best suited to enrich or supplement concepts in the text or by the teacher" (Godfrey, 1962).

The second choice of how television was used was to introduce a subject. When used as the preface to a unit, television was a good motivator. A televised introduction was useful in stimulating students' interest in a topic or beginning a discussion.

The third use identified was for "fun", "as a change of pace" or "to add variety to classroom routine".

Another use included "review". A program can present a capsule summary of the work covered. TV was used for demonstrations, particularly for close-ups of small details.

Only a small percentage indicated that they used TV as the body of the lesson. This may be related to inavailability or irrelevancy of programs. Or it may be that through lack of training, teachers do not realize the potential teaching

ability of television. Teachers may also feel guilty about having television give the lesson. It may point up the fact that curriculum planners do not build television into the planning stage.

The trend should be to consider television as an integral aspect of the total instructional development system. Television offers an alternative method of instruction. The teacher thus becomes the coordinator of the learning experiences. As Chu and Schramm said, television works best, "when it is woven into a classroom context of learning activities" through a teamwork approach (1967, p. 180). Team members would include the curriculum writers, studio teachers, school administrators and classroom teachers. The difficulty of building television into the on-going activities of a classroom has been recognized by those teachers who use it as a major component of instructional design. It appears that Manitoba teachers have a long way to go in terms of effective ITV utilization. Appendix D provides more practical suggestions for TV use.

FREQUENCY OF USE

This study found that 46.3 percent or slightly less than one-half of all teachers surveyed used television in some way in their teaching.

The majority of respondents to this study, 30 percent, indicated that they used television once a month (Table 9). The next choice of frequency, by 26 percent, was weekly. This was tied at 26 percent by other. This latter category was

TABLE 9
FREQUENCY OF TELEVISION USE

	Responses of Users		All respondents
	Raw Score	%	&
Daily	9	(8.49)	(3.93)
Weekly	28	(26.41)	(12.22)
Monthly*	32	(30.18)	(13.97)
Yearly	4	(3.77)	(1.74)
Other	28	(26.41)	(12.22)
No Response	5	(4.71)	(2.18)
Did not use TV			(53.71)
N = 106		(100.00)	N = 229 (100.00)

* Majority response

accompanied by such comments as, "depends upon the programs"; "when a series is applicable"; "when the need arises"; or, "when a program is suitable". An informal spot check of a Winnipeg High School indicated that about 8 out of 90 teachers used television weekly which would seem to agree with the findings of this study (Campbell, 1977). The Director of the ITFS closed-circuit system for the St. James-Assiniboia School Division indicated at least 30 percent but closer to 50 percent of their teachers used television once a week (Warren, 1977).

GRADES IN WHICH TELEVISION WAS USED

Television was used most often by the elementary teachers K-6, less frequently by Junior High School teachers of grades 7-9 and least by Senior High School teachers in grades 10-12 (Table 31). Steely and Sussman found that ETV was used most often in the elementary grades. In both these studies use decreased as the grades progressed upwards with high school using ETV the least. The old theory that high school classes are a preparation for University and therefore not in keeping with television instruction may no longer be applicable as many University classes are now taught by television (Herold, 1968). Perhaps high school teachers need to rethink their teacher-centered approach in terms of television. One factor which may account for this grade distribution was program availability. An informal analysis of the Manitoba School Broadcast calendar of programs readily showed that the majority of programs are for elementary and junior high rather than for

high school. The School Broadcasts branch is aware of this distribution. The National Film Board Media Survey also focused upon this factor:

"Elementary teachers are the most prolific in their use of (A/V) material, using nearly twice as many items overall as secondary level teachers. The most common A/V medium at the Elementary level is 16 mm film followed closely by Filmstrips and Broadcast Television" (1975, Report 6, p. 1).

SUBJECTS IN WHICH TELEVISION WAS USED

The present survey showed that television was most often used in the following subjects in order of preference: social studies, science and mathematics (Table 32). It is interesting to note that in the Steely study, the same three subjects were chosen but in a different order. Steely reported that mathematics, science and social studies were the most popular choices. Although these three subjects were the favored choices, teachers in the current survey asked for more programs in these same areas. Other subjects that used television frequently were: language arts, music, languages, art and health. It may be generalized that TV was used in subjects in which programs were available.

Low use of TV in home economics and physical education was reported in the present study. However, a check with several Manitoba teachers having TV expertise refuted limited use in physical education. TV, it would appear, is used differently in physical education. Instant replay for skill evaluation is used, not School Broadcasts.

PROBLEMS ENCOUNTERED IN THE USE OF TELEVISION

This survey noted many comments concerning the usefulness of television. Teachers surveyed were given the opportunity to add any comments that they felt might be helpful. (Item 56 of the questionnaire was open-ended). Many teachers took advantage of this feature.

Perhaps non-use of television did not mean non-acceptance but to say the opposite, was due to problems or assumed problems arising. For examples see Table 35.

One of the problems was scheduling difficulties. More teachers would have used television more often but blamed rigid scheduling. This same hardship was reported by Sussman in Toronto and Malhotra in Nova Scotia. The reason for non-use most often mentioned by the teachers in Sussman's study was inconvenient scheduling. Responses from the questionnaire in the present study stated that the half-hour School Broadcast from 10:00 to 10:30 a.m. daily does not allow for specialist teachers, rotating or team teaching, recess, class changes or prime teaching time. Fewer scheduling problems were noted in rural Manitoba schools. School Broadcasts are telecast Monday to Friday while many schools are on a 6 day cycle and so cannot adjust classes to fit the broadcast schedule. Scheduling should not be a problem because all School Broadcasts are available on videotape. Perhaps the difficulty lies in the fact that teachers do not know that these same programs are available in videotape form. Teachers showed a general preference for off air School Broadcasts. One teacher

remarked that scheduling the videotape machine was difficult in that particular school. Another asked for off air programs in the afternoon. School Broadcasts are telecast in the morning only.

Another limiting factor in the use of television was the programs themselves. Teachers asked for programs to be varied and relevant. Teachers requested that there be more correlation between programs and the curriculum. They asked for programs related to specific content areas of subjects. "Programs need to be prepared with excitement, action and humour" and "older programs need to be updated" were two of the comments received. Greater continuity of programs from week to week was stressed by one questionnaire. One teacher felt that the programs should cover more of the curriculum. Several teachers wanted greater quantity of programs. Two persons asked why British material was not used.

Strzelecki identified inconvenient scheduling, irrelevant material and lack of time as reasons for non-use. These complaints still hold true in 1977 in Manitoba. Several teachers needed more time to integrate programs into their course schemes.

Equipment posed problems. It was lacking in some schools, difficult to transport in some divisions or fixed in other schools. When the television room was being used, there was no other room for viewing.

Lack of color was responsible for some non-use. "Children are not motivated by black and white television" was a typical

response. Color was needed for interest and for clarity of content.

In some schools there was no money for television or for videotapes. It appeared therefore, that TV was not a priority item.

Mechanical difficulties did not rate highly as a non-use factor. This indicated that either the teachers or audiovisual technicians can operate and adjust the equipment.

Teachers' lack of familiarity with available resources created problems. For example, teachers indicated that copyrights created problems in duplicating materials. This is only partially true as all School Broadcasts can be duplicated. Sometimes copyrights can be waived if the material is being reproduced for limited educational use.

LIMITATIONS

1. The hypotheses of this study were tested at the .05 level of significance. With so many multiple comparisons being made, there was therefore, a likelihood that out of 100, 5 will occur just by chance. Thus, of the 5 significant hypotheses in this study, there is a probability that the results of one of these may be due to chance. One might attempt to guess which of the five hypotheses was a chance occurrence. Most seem consistent and logical, except for hypothesis three, part B, which stated that the utilization of School Broadcasts was significantly related to number of degrees. The results appear to be ambiguous as no consistent pattern of use was evident.

2. Under the circumstances, the use of multiple chi squares was deemed the most appropriate statistical approach.

3. The questionnaire used in this survey has several limitations. For example, a question could have inquired specifically about the amount of French language television being used. A considerable number of French programs are produced. However, it might be noted that almost no response indicated use of French TV. This seems to be in direct contradiction to the fact that a large portion of French materials are shown by School Broadcasts.

Concerning the frequency of television use, the words, "at least" should be added to each category to eliminate ambiguous responses. Ages of respondents could have been more closely classified to indicate the youngest, most recent teachers. This could have been obtained with responses of 20-25 years, 26-29 years instead of 20-29 years. Choice of problems encountered in the use of TV could have included, "availability of programs". This was written in by several respondents. A question concerning other uses of television would have revealed new and diverse applications in the schools.

4. This study may focus attention on educational television and produce increased interest in this subject. For example, one respondent mailed a questionnaire indicating lack of television use. The survey stimulated his interest and television was introduced to the class. A revised questionnaire indicating altered use was received along with a letter

of explanation. This example of reactive behavior (Campbell and Stanley, 1963, p. 5) was not included in the statistical analysis as the existing behavior was being measured. The first questionnaire was tabulated as being legitimate. The second questionnaire gave evidence of changed behavior.

5. A major error was made concerning the wording of one section of the questionnaire. This was not in evidence during the pilot testing. Item 37 was headed, "Non-Users Start Here". The intent was to have non-users skip items 7 to 36, beginning at question 37. The title, in bold print, was designed to make this item easily distinguishable. Many television users interpreted this title to mean that the section was for non-users only hence a poor response to items 37 to 53 occurred.

6. The completed questionnaires were returned to the Department of Education where they were opened by the library staff. Lack of foresight prevented the envelopes being attached to the corresponding questionnaires. The envelopes were destroyed. Although the intention was an anonymous questionnaire, it would have been interesting to note the postmarks, particularly as some respondents reported no TV in their schools and it was thought that at one point every school in Manitoba had a videotape machine given to it by the Department of Education. It would also have been satisfying to see whether those questionnaires that reported poor reception were from remote areas of the province.

7. This survey did not attempt to distinguish quality

of TV instruction from quantity or frequency. Just because School Broadcasts may have been viewed by more teachers did not mean that these programs were necessarily better than other programs or forms of TV.

8. A more detailed estimate of ETV costs in Manitoba should have been given. The following information gives a brief overview. The costs of ETV equipment in the schools is not included.

COST EFFECTIVE CONSIDERATIONS

SCHOOL BROADCAST COSTS

It is extremely difficult to prepare an accurate cost per student for School Broadcasts. There are no surveys of actual numbers of students who view or listen to these programs. Estimates are based upon the following figures:

Total students in Manitoba	226,000.
Total Operating Budget (1977-78) for School Broadcasts	
Branch	\$213,000.00
This includes all services performed by this department including television and radio programs, kits, in-services, etc.	
This excludes administrative and office salaries for this department. Breakdown: Program budget for television and radio including direct production and procuring costs . . .	
.	\$100,000.00
Of this \$25,000 is allocated for radio and the remaining \$75,000 for television.	
Printing	\$ 50,000.00
Equipment, repairs, tapes	\$ 25,000.00

The balance includes such items as transportation costs, for examples, of students to appear in musical productions, travel expenses, telephone, residuals.

Charges for space rental (office and studios) plus heat and light are not part of the \$213,000.00.

CBC COSTS

In addition to the above, CBC contributes to the cost of producing School Broadcasts. CBC pays approximately four dollars for each one dollar supplied by the Department of Education. CBC costs include performers, union fees, producers, script assistants and technical personnel. In addition, there is financing from the CBC for National programs as well as for programs shared with various provinces. Manitoba School Broadcasts benefit from this arrangement.

ESTIMATED COST PER STUDENT

The following is an approximate estimate based on evaluations received from teachers plus requests for videotapes and audiotapes:

6,000 evaluations received by School Broadcasts, relating primarily to off air programs x 25 students per classroom (approximate class size) = 150,000 viewers

2,500 videotape requests x 25 students per class = 62,500 viewers

22,000 audiotape requests x 15 (as a portion of these requests are for correspondence students, class size is reduced from 25 to 15) = 330,000 listeners

for a total of about 600,000 students viewings/listenings.

This is 2.6 programs per student. School Broadcasts cost per program = $\frac{600,000}{213,000} = \2.81 per student.

COST ESTIMATES FOR ST. JAMES-ASSINIBOIA

By way of contrast the St. James-Assiniboia School Division with the most highly developed ITV system of all school divisions in Manitoba estimates the cost per viewing per student per year at 50¢. It must be pointed out the St. James-Assiniboia has free access to all School Broadcast programs. The 50¢ figure does not include production costs. St. James-Assiniboia estimates that it costs \$3.50 to \$4.00 per student per year to provide television service. They say that a system such as theirs could be installed for under \$100,000.

Because so many factors must be taken into account, any further cost breakdown could be the subject for future research.

CONCLUSIONS

The data collected in this survey support the following conclusions concerning the use of TV in Manitoba schools.

1. (a) Television is used by Manitoba school teachers to augment the teaching program. Some use was indicated by 46 percent of the teachers surveyed.

(b) Use of TV varied from once a day to once a year. If regular users of TV are defined as those teachers who use television in their classrooms once a week, then 26 percent of those who used TV may be considered regular users. This amounts to 12 percent of the total sample (Table 8). Extrapolating,

it would appear that 12 percent of Manitoba teachers are regular television teachers.

2. The use of television varied according to grade. Elementary grades used television most. Use of TV declined as grades increased.

3. The use of television varied according to subject. Social studies, science and mathematics had the most frequent use.

4. The frequency of television use did not apparently depend upon a teacher's age, number of degrees, total years of teaching experiences or training received.

5. Television was used mainly to supplement or enrich.

6. The main problem encountered by teachers was difficulty in scheduling programs.

7. (a) More suburban Winnipeg and rural teachers indicated receiving television training than did Winnipeg teachers.

(b) More suburban Winnipeg and rural teachers indicated operational knowledge of television facilities in their school than did Winnipeg teachers.

8. (a) Programs from the School Broadcasts Branch of the Department of Education were indicated by the majority of respondents to this survey as the type of television preferred.

(b) Concerning the use of School Broadcasts, more teachers appeared to prefer off air telecasts to videotaped versions.

(c) Although there was a significant relationship between number of degrees and use of School Broadcasts, no significant pattern of use emerged.

9. The use of television was related to a teacher's attitude

toward student achievement. Those teachers who used TV believed that students learned from it.

RECOMMENDATIONS

1. More specific training relevant to ITV is suggested.

A series of workshops, planned and presented jointly in cooperation with the University of Manitoba, the Manitoba Teacher's Society, The Department of Education and other interested bodies would increase professional competence in TV use. Hopefully this teamwork approach would bring about greater communication between these independent groups.

ITV emphasis is needed in teacher training courses. ITV training in Manitoba is currently found in a single course, Instructional Television and Radio (81.532, 6 credits) offered by the Faculty of Education, University of Manitoba. In addition, ITV is a component of several AV/media oriented courses offered at the Universities of Manitoba and Brandon and Red River Community College. Television should be included in the instructional resources of all subjects. An audiovisual course should be available to education students at the University of Winnipeg.

2. School Broadcasts should be attune to the current needs of teachers.

This branch should undertake a public relations program to create a greater awareness of their services. More contact with Special Area Groups of the Manitoba Teacher's Society, consultants, journal editors and department heads is needed.

For example, this department should inform teachers of the advantages and uses of videotapes. It appears that this would provide flexible scheduling so teachers could obtain and show programs when wanted. It would also provide an opportunity to preview programs. Videotapes could be repeated for several classes.

Videotapes should be circulated like books, not purchased by schools. A library of videotapes, like the film library, could be established. Such videotapes should be on a standardized format to encourage use of common equipment in schools. At the same time, school divisions should be encouraged to copy and bank tapes. Presently School Broadcasts dub only their own programs. They should also dub free programs and have these available on loan to schools. Duplicating rights to films should be purchased when the Department of Education buys new films.

Teachers and administrators must be aware of the coming developments in televised instruction, for example, the trend of School Broadcasts to move from $\frac{1}{2}$ inch open reel to $\frac{3}{4}$ inch cassettes. Such information could be printed in the various teacher publications.

School Broadcasts should produce free teacher guides, available by mail, containing introductory and follow-up program activities. This survey reported that the majority of teachers thought of television as "enrichment". This would be decreased if ITV were part of a systems approach. Such a "package" may mean more effective utilization.

Written evaluation of program content should be available to teachers. This could be written by other teachers and would assist in program selection by providing (a) a more detailed description of the contents and, (b) a judgment concerning the program. This could be coordinated by School Broadcasts as part of the suggestion for greater contact with various area groups.

More programming for senior high school grades and subjects should be considered by School Broadcasts. An analysis of their program calendar revealed the majority of programs directed at elementary and junior high levels. Teachers should be polled to indicate specific areas in which programs are wanted.

3. The Department of Education must be accountable for both (a) television equipment and, (b) television costs.

An inventory of the amount and type of television equipment now in Manitoba schools should be made. At one time every school division in Manitoba received from the Department of Education a Sony $\frac{1}{2}$ inch AV 3600 reel to reel VTR. Location of these units plus additional facilities would help assess the amount of viewing equipment in actual use.

A true and accurate report of the television costs per student per school division in Manitoba must be compiled by the Department of Education. Profiles and recommendations could be drawn that would be important to the future development of ETV in Manitoba.

4. The Government of Manitoba should provide financing for TV equipment in school divisions where needed.

Grants should be initiated for those divisions who want

to improve their facilities. Media centres with provision for television (dubbing facilities and audiovisual personnel) should be established in schools in all major communities in Manitoba.

The feasibility of color TV systems in the schools and the value of wiring schools for TV distribution should be investigated.

IMPLICATIONS

The following implications arising from this study are directed toward (a) further research, and (b) teachers.

IMPLICATIONS FOR FURTHER RESEARCH

1. This study could serve as the beginning for follow-up studies seeking further information. For example, a further study may examine cost-effectiveness of instructional television in Manitoba and elsewhere. A further study may consider program availability and content of programs as factors in the non-use of television.
2. This study could serve as a comparison with the November 1976 study done by the ITV Centre in St. James-Assiniboia. Similarities and differences could be compared to pinpoint patterns of television use.
3. This study could serve as the basis for similar studies in other locations.
4. A comparison might be made of those teachers who use TV as opposed to those who do not to reveal specific teacher characteristics.

IMPLICATIONS FOR TEACHERS

All teachers have a responsibility to know the tools of their profession. It is their job to know what is available and how to use it to most advantage. Teachers should be able to convince administrators of the need to provide TV facilities in the schools.

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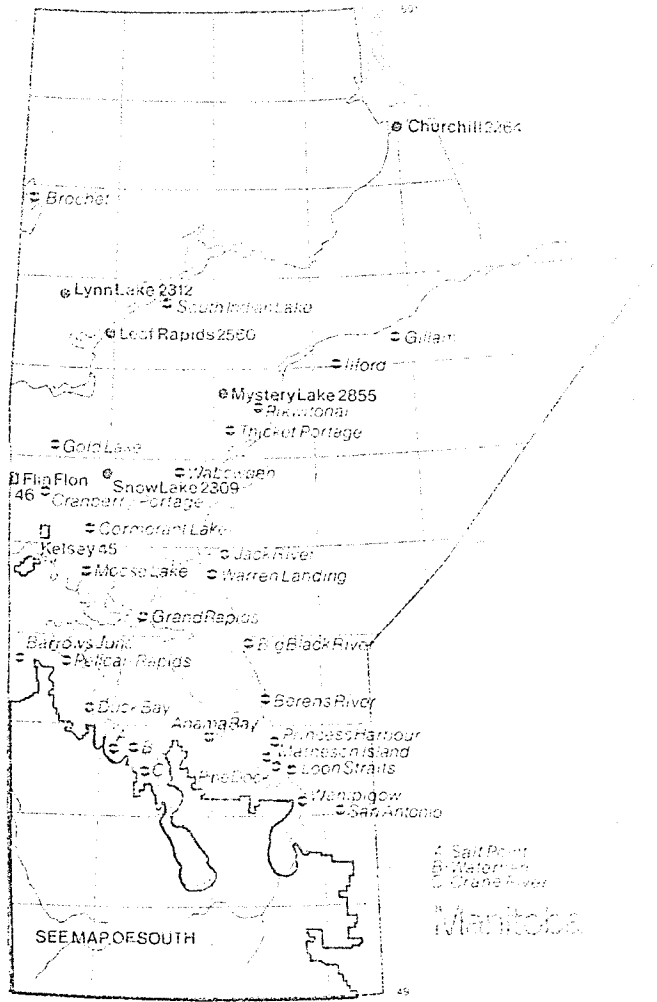
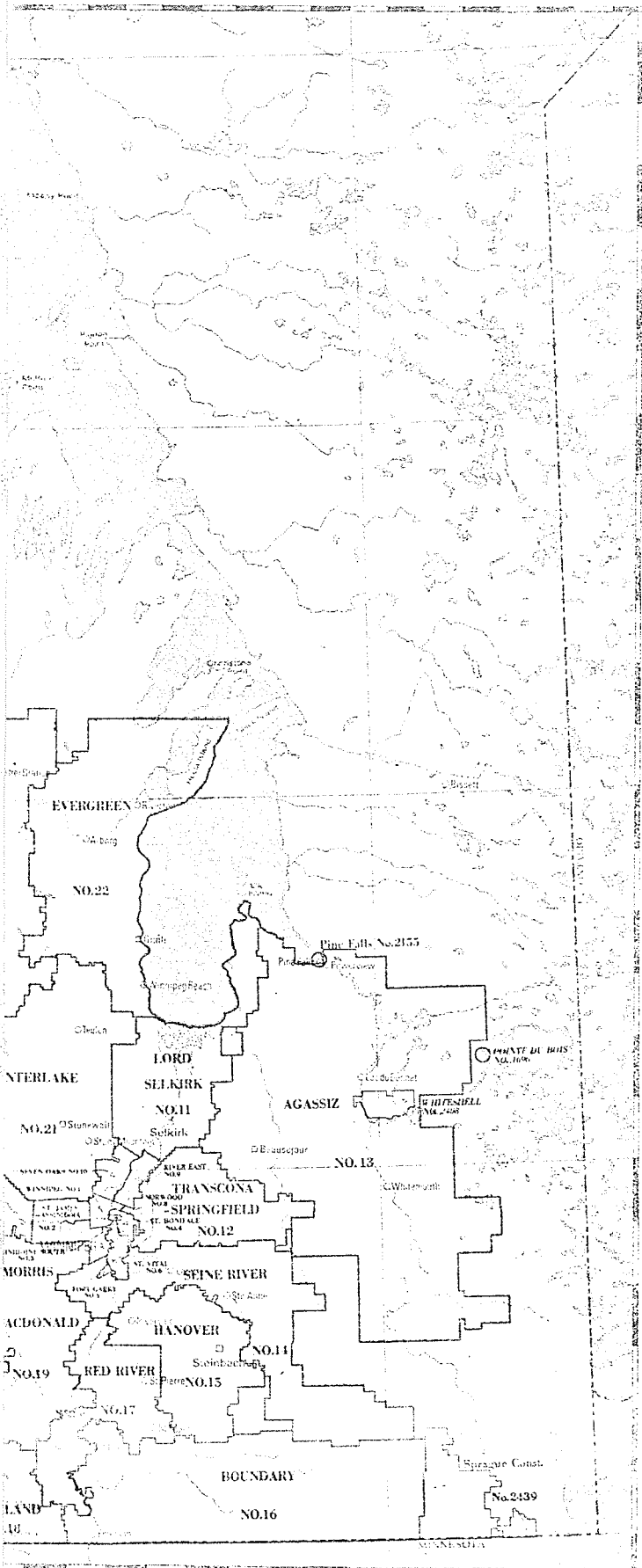
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APPENDIX A



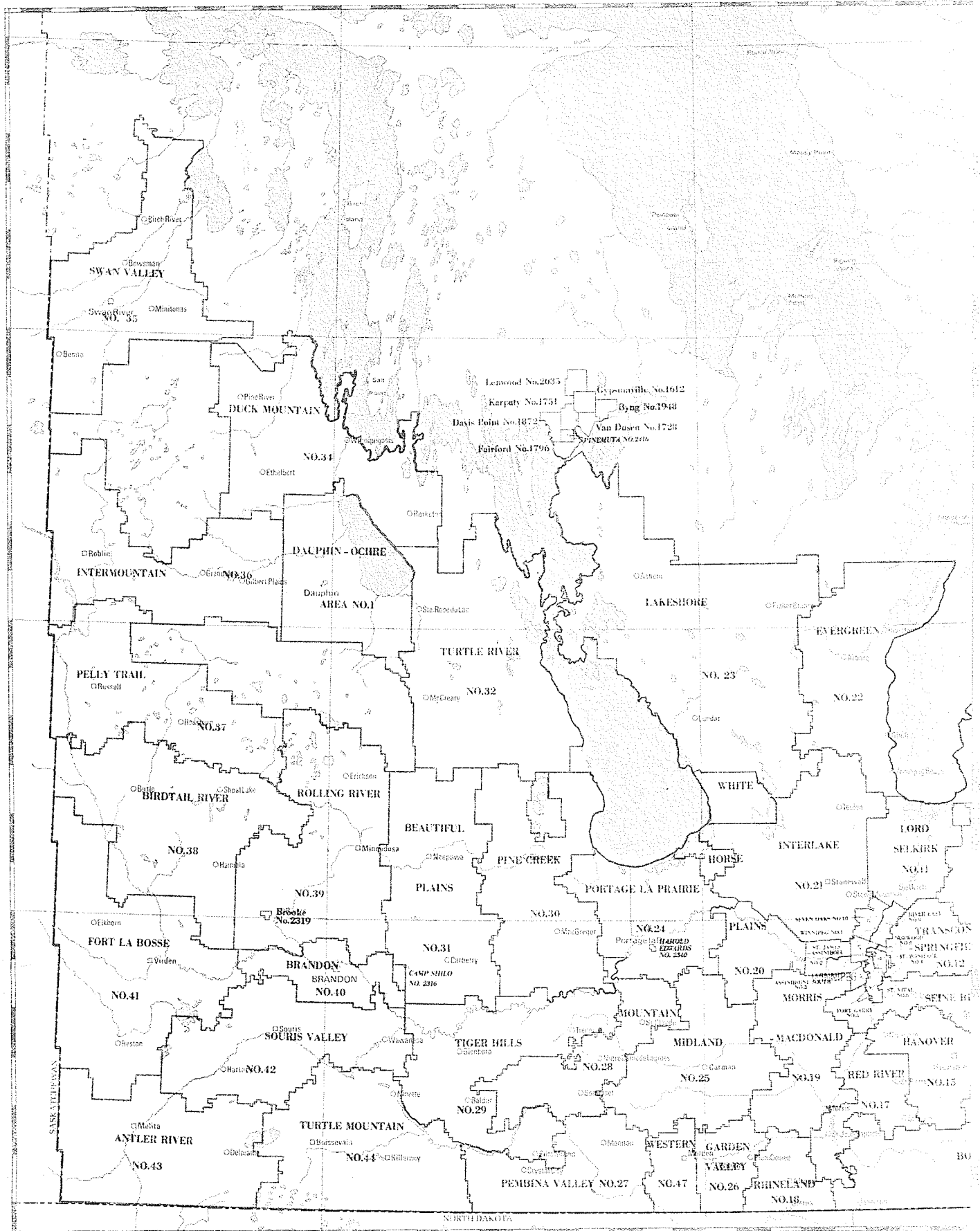
School Divisions & Districts

Map of Southern Manitoba shows School Divisions & Districts south of 53°N latitude except portions of Frontier Division No. 48

- Northern School Divisions & Districts
- Locations of Frontier School Division No. 48

Information dated 1973

SOUTHERN
MANITOBA



DIVISIONS

The following is a listing of school divisions in
Manitoba as of July 31, 1976:

WINNIPEG 1 1577 Wall St. E. Wpg. R3E 2S5.	AGASSIZ 13 Box 1206 Beausejour ROE 0C0
ST. JAMES-ASSINIBOIA 2 2574 Portage Ave. Wpg. R3J 0H8	SEINE RIVER 14 Box 160 Ste. Anne ROA 1R0
ASSINIBOINE SOUTH 3 3401 Roblin Blvd. Wpg. R3R 0C6	HANOVER 15 Box 2170 Steinbach ROA 2A0
ST. BONIFACE 4 50 Monterey Rd. Wpg. R2J 1X1	BOUNDARY 16 Box 118 Dominion City ROA 0H0
FORT GARRY 5 757 Lyon St. Wpg. R3T 0G6	RED RIVER 17 Box 219 St. Pierre ROA 1V0
ST. VITAL 6 255 St. Anne's Rd. Wpg. R2M 3A5	RHINELAND 18 Box 390 Altona R0G 1K0
NORWOOD 8 200 St. Mary's Rd. Wpg. R2H 1H9	MORRIS-MACDONALD 19 Box 400 Morris R0G 1K0
RIVER EAST 9 589 Roch St. Wpg. R2K 2P7	WHITE HORSE PLAIN 20 Box 147 Elie R0H 0H0
SEVEN OAKS 10 375 Jefferson Ave. Wpg. R2V 0N4	INTERLAKE 21 Box 549 Stonewall R0C 2Z0
LORD SELKIRK 11 205 Mercy St. Selkirk R1A 2C8	EVERGREEN 22 Box 1200 Gimli R0C 1B0
TRANSCONA-SPRINGFIELD 12 760 Kildare Ave. E. Wpg. R2C 2C3	LAKESHORE 23 Box 100 Eriksdale R0C 0W0

PORTAGE la PRAIRIE 24
400 Tupper St. N.
Portage la Prairie R1N 1W8

MIDLAND 25
Carman R0G 0J0

GARDEN VALLEY 26
Box 3000
Winkler R0G 2X0

PEMBINA VALLEY 27
Box 459
Manitou R0G 1G0

MOUNTAIN 28
Box 160
Notre Dame des Lourdes R0G 1M0

TIGER HILLS 29
Box 430
Glenboro R0K 0X0

PINE CREEK 30
Box 420
Gladstone R0J 0T0

BEAUTIFUL PLAINS 31
Box 700
Neepawa R0J 1H0

TURTLE RIVER 32
Box 309
McCreary R0J 1B0

DAUPHIN-OCHRE 33
505 Main St. S.
Dauphin R7N 1L3

DUCK MOUNTAIN 34
Box 400
Winnipegosis R0L 2G0

SWAN VALLEY 35
481-3rd St. N., Box 995
Swan River R0L 1Z0

INTERMOUNTAIN 36
Box 160
Grandview R0L 0Y0

PELLY TRAIL 37
Box 640
Russell R0J 1X0

BIRDTAIL RIVER 38
Crandall R0M 0H0

ROLLING RIVER 39
Box 1170
Minnedosa R0J 1E0

BRANDON 40
603-11th St.
Brandon R7A 4K5

FORT la BOSSE 41
Box 1420
Virden R0M 2C0

SOURIS VALLEY 42
Box 820
Souris R0K 2C0

ANTLER RIVER 43
Box 370
Melita R0M 1L0

TURTLE MOUNTAIN 44
Box 1330
Killarney R0K 1G0

KELSEY 45
Box 4700
The Pas R9A 1M1

FLIN FLON 46
Box 578
Flin Flon R8A 1N4

WESTERN 47
Box 1150
Morden R0G 1J0

FRONTIER 48
1402 Notre Dame Ave.
Wpg. R3E 3G5

APPENDIX B

Dear Teacher,

Your cooperation is requested in completing and returning the enclosed questionnaire. Your name has been selected from a random sample of Manitoba teachers. Your answers will assist greatly in assessing the use of educational television in our schools. I hope that you will take 5 minutes to answer this survey anonymously.

Please answer in pencil on the enclosed I.B.M. answer sheet, detailed information to be written in on the questionnaire. Do not fill in your name, address, etc.

Please return the answer sheet and questionnaire in the enclosed envelope within 5 days. I am counting on your help in this project.

Thank you.

Yours truly,

Diane Oades,

Teacher and Graduate Student

This survey attempts to discover how Manitoba teachers use educational television. Please answer the following questions by checking the appropriate responses.

1. Your age (check one)

- 1. 20-29
- 2. 30-39
- 3. 40-49
- 4. 50-59
- 5. 60 or over

2. Highest degree (check one)

- 1. Less than a bachelor's degree
- 2. Bachelor's degree
- 3. Teacher Certification
- 4. Master's degree
- 5. Other, Please specify _____

3. Total years teaching experience:

- 1. 1st year teaching
- 2. 2-5 years
- 3. 6-10 years
- 4. 11-20 years
- 5. 21 or more years

4. Division in which you teach:

- 1. Winnipeg
- 2. Suburban Winnipeg
- 3. Rural

5. Please check the type (s) of educational television you use in your classroom:

- 1. school broadcasts
- 2. videotapes
- 3. Your own "hands on" production
- 4. image amplification
- 5. other, please specify _____

6. If you use school broadcasts, please indicate which type:

- 1. live
- 2. taped

7. How do you use educational television in your teaching:

- 1. as the "body" of the lesson
- 2. to supplement the lesson
- 3. for independent study
- 4. for individualized instruction
- 5. Other, please specify _____

8. How often do you use educational television in your teaching:
- 1. once a day
 - 2. once a week
 - 3. once a month
 - 4. once a year
 - 5. Other, please specify _____
9. In which grades do you use educational television:
- 1. K-6
 - 2. 7-9
 - 3. 10-12
10. In which subjects do you use educational television:
- 1. music
 - 2. art
 - 3. social studies
 - 4. language arts
 - 5. science
11. In which subjects do you use educational television:
- 1. math
 - 2. home economics
 - 3. languages
 - 4. physical education
 - 5. other, please specify _____
12. What problems have you encountered in the use of educational television:
- 1. mechanical difficulties
 - 2. scheduling difficulties
 - 3. irrelevency of programs
 - 4. sets not available when needed
 - 5. other, please specify _____
13. Have you had any training in the use of educational television:
- 1. yes Please answer question 14.
 - 2. no Please skip question 14, go on to question 15.
14. Where have you had training in the use of educational television:
- 1. University course as a student teacher
 - 2. University course as a graduate student
 - 3. in-service
 - 4. division workshop
 - 5. other, please specify _____

15. What would encourage you to make better use of educational television in your classroom:

- 1. training in its use
- 2. opportunity to review programs
- 3. more equipment available
- 4. other, please specify _____

16. In your opinion is student achievement:

- 1. greatly increased by use of educational television
- 2. moderately increased by use of educational television
- 3. not affected by use of educational television
- 4. reduced by use of educational television
- 5. don't know

17. Experts say that the money spent on educational television equipment in Manitoba schools does not justify its use. Do you:

- 1. strongly agree
- 2. agree
- 3. disagree
- 4. strongly disagree
- 5. don't know

18. Are there any additions, deletions or changes you would make in this questionnaire: _____

Thank you for your time



Province of Manitoba
Department of Education
Program Development & Support Services

103
Robert Fletcher Building
1181 Portage Avenue
Winnipeg, Manitoba
R3G 0T3

January 3, 1977

Dear Teacher:

Your name has been selected from a random sample of Manitoba teachers and your cooperation is requested in completing the enclosed questionnaire. This questionnaire is intended to assess the use of educational television in Manitoba schools.

The survey is being done by a teacher as part of graduate study and has the support of the Department of Education.

It is extremely critical that you complete the questionnaire no matter how frequently or infrequently you may use educational television. Ultimately the information received will assist teachers by indicating their needs and feelings toward educational television in the classroom. You will recognize the importance of obtaining your completed questionnaire as:

1. you represent the other teachers in your school division and
2. a high response rate is necessary to present an accurate picture of the use of E.T.V. in Manitoba.

Please answer anonymously. When unsure of your answer, please give the best estimate you can: 'close' or 'probable' answers are more useful than missing information.

Questionnaires should be returned in the enclosed, stamped addressed envelope within 5 days.

Thank you very much for your assistance.

Yours sincerely,

Reevan Cramer,
Assistant Deputy Minister

RC:am



Province of Manitoba
Department of Education
Program Development & Support Services

104
Robert Fletcher Building
1181 Portage Avenue
Winnipeg, Manitoba
R3G 0T3

January 5, 1976

Dear Teacher:

During the past two weeks you received, in the mail, a questionnaire on your use of educational television. If you have not completed and returned this form I would urge you to do so at once. If you have already done so, I thank you for your time and effort.

In the event your survey was misplaced, a duplicate is enclosed. Please answer it anonymously and mail it immediately in the enclosed stamped addressed envelope so that it may be counted in our results.

Thank you.

Yours sincerely,

Reevan Cramer,
Assistant Deputy Minister

RC:am
Enclosure

This survey attempts to assess Manitoba teachers' use of educational television i.e. television for teaching including videotapes, not radio or filmstrips.

Please answer the following questions on this sheet by checking the appropriate response. Only one answer per question please. Write in any further information you wish to offer.

1. Your age (Check one)
 1. 20-29
 2. 30-39
 3. 40-49
 4. 50-59
 5. 60 or over
2. How many degrees do you have? (Check one, do not count teacher certification or diplomas as degrees.)
 1. 1 degree
 2. 2 degrees
 3. 3 degrees
 4. 4 or more degrees
 5. none
3. Total years teaching experience (Check one)
 1. 1st year teaching
 2. 2-5 years
 3. 6-10 years
 4. 11-20 years
 5. 21 or more years
4. Where do you presently teach? (Check one)
 1. Winnipeg (Any school within the boundaries of Winnipeg #1)
 2. Suburban Winnipeg (eg. St. James)
 3. Rural Manitoba (All areas outside Suburban Winnipeg)
5. Is there television equipment in your school?
 1. yes
 2. no
 3. don't know
 (If you checked this category, skip question 6.)
6. Do you know how to operate the television equipment in your school?
 1. yes
 2. no
7. Do you use television in your teaching?
 1. yes
 2. no
 (If you checked this category go directly to question 37 on the other side of this sheet.)

HOW DO YOU USE EDUCATIONAL TELEVISION?

	Check:	
	Yes	No
8. To introduce a subject		
9. As the body of the lesson		
10. For review		
11. For "fun"		
12. To supplement or enrich the lesson		
13. For independent study and/or individualized instruction		
14. For remedial work		
15. For demonstration		
16. Other		
Explain _____		

WHAT TYPE OF EDUCATIONAL TELEVISION DO YOU USE?

	Yes	No
17. School broadcasts		
18. Videotapes		
19. Image amplification		
20. Your own or your students' productions		

IF YOU USE SCHOOL BROADCASTS PLEASE INDICATE WHICH TYPE

	Yes	No
21. Live		
22. Taped		

23. How often do you use educational television? (Check one)

1. once a day
2. once a week
3. once a month
4. once a year
5. Other Explain _____

IN WHICH GRADES DO YOU USE EDUCATIONAL TELEVISION?

	Yes	No
24. Kindergarten to Grade 6		
25. Grades 7-9		
26. Grades 10-12		

IN WHICH SUBJECTS DO YOU USE EDUCATIONAL TELEVISION?

	Yes	No
27. Music		
28. Art		
29. Social Studies		
30. Language Arts		
31. Science		
32. Mathematics		
33. Home Economics		
34. Physical Education		
35. Languages		
36. Other		

Explain _____

NON-USERS START HERE

EDUCATIONAL TELEVISION TRAINING

37. Have you had training in the use of educational television?
 1. yes 2. no (If you checked this category omit questions 38-43.)

Please indicate where you received training in the use of educational television:

38. University 1. yes 2. no (If no, omit questions 39 and 40.)
39. As an undergraduate 1. yes 2. no
40. At the graduate level 1. yes 2. no

	Yes	No
41. In-service		
42. Division Workshop		
43. Other		

Explain _____

WHAT PROBLEMS HAVE YOU ENCOUNTERED IN THE USE OF EDUCATIONAL TELEVISION?

	Yes	No
44. Mechanical difficulties		
45. Scheduling difficulties		
46. Irrelevancy of programs		
47. Sets not available when needed		
48. Other		

Explain _____

WHICH OF THE FOLLOWING WOULD ENCOURAGE YOU TO MAKE MORE EFFECTIVE USE OF EDUCATIONAL TELEVISION?

	Yes	No
49. Training in its use		
50. Opportunity to preview programs		
51. More equipment available		
52. Technician available		
53. Other		

Explain _____

54. In your opinion is student achievement in general (Check one)

1. greatly increased by use of educational television.
 2. moderately increased by use of educational television.
 3. not affected by use of educational television.
 4. decreased by use of educational television.
 5. greatly decreased by use of educational television.

55. In your opinion does the use of educational television equipment in your school justify the money spent on its purchase? 1. yes it does 2. no it does not

56. Any further comments _____

THANK YOU FOR YOUR COOPERATION.

APPENDIX C

TABLE 10

TELEVISION UTILIZATION AS RELATED TO TEACHER'S AGE

		Var 1 Teacher's Age					
Count							
Row Pct		20-29	30-39	40-49	50-59	60+	Row Total
Col Pct							
Tot Pct		1	2	3	4	5	
Var 7	1	40	34	22	7	3	106
TV use		37.7	32.1	20.8	6.6	2.8	46.5
	yes	39.2	51.5	56.4	43.8	60.0	
		17.5	14.9	9.6	3.1	1.3	
	2	62	32	17	9	2	122
		50.8	26.2	13.9	7.4	1.6	53.5
	no	60.8	48.5	43.6	56.3	40.0	
		27.2	14.0	7.5	3.9	0.9	
Column Total		102	66	39	16	5	228
		44.7	28.9	17.1	7.0	2.2	100.0
$\chi^2 = 4.79754$		df = 4		Significance = 0.3087			

TABLE 11

TELEVISION USE AS RELATED TO NUMBER OF DEGREES

		Var 2 Number of Degrees					
Count		1 dg	2 dgs	3 dgs	4 or more	none	Row
Row Pct	Col Pct	1	2	3	4	5	Total
Tot Pct							
Var 7	1	40	28	4	1	32	105
		38.1	26.7	3.8	1.0	30.5	46.7
	yes	39.2	46.7	50.0	50.0	60.4	
		17.8	12.4	1.8	0.4	14.2	
	2	62	32	4	1	21	120
		51.7	26.7	3.3	0.8	17.5	53.3
	no	60.8	53.3	50.0	50.0	39.6	
		27.6	14.2	1.8	0.4	9.3	
Column	Total	102	60	8	2	53	225
		45.3	26.7	3.6	0.9	23.6	100.0

$\chi^2 = 6.32289$ $df = 4$ Significance = 0.1763

dg = degree

TABLE 12

TELEVISION USE AS RELATED TO
TOTAL YEARS OF TEACHING EXPERIENCE

		Var 3 Total Years of Teaching					
Count		1st yr	2-5yrs	6-10yrs	11-20yrs	21+	Row
Row Pct	Col Pct	1	2	3	4	5	Total
Col Pct	Tot Pct						
Var 7	1	3	34	34	23	12	106
TV Use		2.8	32.1	32.1	21.7	11.3	46.3
	Yes	23.1	42.0	53.1	48.9	50.0	
		1.3	14.8	14.8	10.0	5.2	
	2	10	47	30	24	12	123
		8.1	38.2	24.4	19.5	9.8	53.7
	No	76.9	58.0	46.9	51.1	50.0	
		4.4	20.5	13.1	10.5	5.2	
Column		13	81	64	47	24	229
Total		5.7	35.4	27.9	20.5	10.5	100.0
$\chi^2 = 4.89187$		df = 4		Significance = 0.2986			

TABLE 13
 TELEVISION USE AS RELATED TO
 LOCATION OF SCHOOL

		Var 4 Location of School			
Count					
Row Pct	Col Pct	Wpg.	Suburbs	Rural	Row Total
Tot Pct		1	2	3	
Var 7	1	11	46	48	105
TV Use		10.5	43.8	45.7	46.1
	Yes	39.3	50.0	44.4	
		4.8	20.0	21.1	
	2	17	46	60	123
		13.8	37.4	48.8	53.9
		60.7	50.0	55.6	
	No	7.5	20.2	26.3	
Column		28	92	108	228
Total		12.3	40.4	47.4	100.0
$\chi^2 = 1.20551$		df - 2		Significance = 0.5473	

TABLE 14

TELEVISION USE AS RELATED TO
TELEVISION TRAINING

		Var 37 Television Training		
Count				
Row Pct		Yes	No	Row
Col Pct				Total
Tot Pct		1	2	
Var 7	1	22	42	64
TV Use	Yes	34.4	65.6	35.4
		37.3	34.4	
		12.2	23.2	
	2	37	80	117
	No	31.6	68.4	64.6
		62.7	65.6	
		20.4	44.2	
Column	Total	59	122	181
		32.6	67.4	100.0

$\chi^2 = 0.4480$ $df = 1$ Significance = 0.8324

TABLE 15

TELEVISION USE AS RELATED TO
TEACHER OPINION AS TO
STUDENT ACHIEVEMENT VIA ETV

		Var 54 Teacher Opinion as to Student				
Count		Greatly	Moderately	Not	Row	
Row Pct	Col Pct	Increased	Increased	Affected	Total	
Tot Pct		1	2	3		
Var 7	1	10	69	7	86	
TV Use		11.6	80.2	8.1	51.2	
	Yes	58.8	58.0	21.9		
		6.0	41.1	4.2		
	2	7	50	25	82	
		8.5	61.0	30.5	48.8	
	No	41.2	42.0	78.1		
		4.2	29.8	14.9		
Column		17	119	32	168	Missing 61
Total		10.1	70.8	19.0	100.0	N = 229

$\chi^2 = 13.60049$ $df = 2$ Significance = 0.0011 $P < .05$

TABLE 16

TELEVISION USE AS RELATED TO
TEACHER OPINION OF COST JUSTIFICATION OF
TELEVISION EQUIPMENT IN THEIR SCHOOL

		Var 55 Cost Justification		
Count				
Row Pct		Yes	No	Row Total
Col Pct				
Tot Pct		1	2	
Var 7	1	67	17	84
TV Use	Yes	79.8	20.2	50.9
		67.0	26.2	
		40.6	10.3	
	2	33	48	81
		40.7	59.3	49.1
	No	33.0	73.8	
		20.0	29.1	
Column Total		100	65	165
		60.6	39.4	100.0
				Missing: 64

$\chi^2 = 24.68974$ Df = 1 Significance = 0.0000 P < .05

TABLE 17

TELEVISION TRAINING AS RELATED TO TEACHER'S AGE

		Var 1 Teacher's Age					
Count							
Row Pct		20-29	30-39	40-49	50-59	60+	Row Total
Col Pct		1	2	3	4	5	
Tot Pct							
Var 37	1	33	16	7	3	0	59
TV		55.9	27.1	11.9	5.1	0.0	32.8
Training Yes		38.4	32.0	21.9	27.3	0.0	
		18.3	8.9	3.9	1.7	0.0	
	2	53	34	25	8	1	121
		43.8	28.1	20.7	6.6	0.8	67.2
		61.6	68.0	78.1	72.7	100.0	
	No	29.4	18.9	13.9	4.4	0.6	
Column		86	50	32	11	1	180
Total		47.8	27.8	17.8	6.1	0.6	100.0
$\chi^2 = 3.60050$		df = 4		Significance - 0.4628			

TABLE 18

TELEVISION TRAINING AS RELATED TO NUMBER OF DEGREES

		Var 2 Number of Degrees					
Count							
Row Pct		1 dg	2 dgs	3 dgs	4 or more	none	Row Total
Col Pct		1	2	3	4	5	
Tot Pct							
Var 37	1	27	17	3	0	12	59
TV	yes	45.8	28.8	5.1	0.0	20.3	33.3
Training		31.4	37.8	50.0	0.0	30.8	
		15.3	9.6	1.7	0.0	6.8	
	2	59	28	3	1	27	118
		50.0	23.7	2.5	0.8	22.9	66.7
	No	68.6	62.2	50.0	100.0	69.2	
		33.3	15.8	1.7	0.6	15.3	
Column		86	45	6	1	39	177
Total		48.6	25.4	3.4	0.6	22.0	100.0
$\chi^2 = 1.91073$		df = 4		Significance = 0.7522			

dg = degree

TABLE 19

TELEVISION TRAINING AS RELATED TO
TOTAL YEARS OF TEACHING EXPERIENCE

		Var 3 Total Years of Teaching Experience					
Count		1st yr	2-5yrs	6-10yrs	11-20yrs	21+	Row Total
Row Pct	Col Pct	1	2	3	4	5	
Tot Pct							
Var 37	1	7	23	15	12	2	59
TV		11.9	39.0	25.4	20.3	3.4	32.6
Training Yes		58.3	35.9	27.8	33.3	13.3	
		3.9	12.7	8.3	6.6	1.1	
	2	5	41	39	24	13	122
		4.1	33.6	32.0	19.7	10.7	67.4
No		41.7	64.1	72.2	66.7	86.7	
		2.8	22.7	21.5	13.3	7.2	
Column Total		12	64	54	36	15	181
		6.6	35.4	29.8	19.9	8.3	100.0
$\chi^2 = 7.05579$		df = 4			Significance = 0.1330		

TABLE 20
TEACHER TRAINING AS RELATED TO
LOCATION OF SCHOOL

		Var 4 Location of School			
Count					
Row Pct	Col Pct	Wpg.	Suburbs	Rural	Row Total
Tot Pct		1	2	3	
Var 37	1	1	30	28	59
TV Training	Yes	1.7	50.8	47.5	32.6
		5.0	38.0	34.1	
		0.6	16.6	15.5	
	2	19	49	54	122
		15.6	40.2	44.3	67.4
	No	95.0	62.0	65.9	
		10.5	27.1	29.8	
Column Total		20	79	82	181
		11.0	43.6	45.3	100.0
					181 Missing: 48
<hr/>					
$\chi^2 = 8.06206$		df = 2	Significance = 0.0178		P < .05

TABLE 21

SCHOOL BROADCAST USE AS RELATED TO TEACHER'S AGE

		Var 1 Teacher's Age					
Count							
Row Pct		20-29	30-39	40-49	50-59	60+	Row Total
Col Pct							
Tot Pct		1	2	3	4	5	
Var 17	1	27	29	18	4	3	81
School		33.3	35.8	22.2	4.9	3.7	78.6
Broadcast		67.5	87.9	85.7	66.7	100.0	
Use	Yes	26.2	28.2	17.5	3.9	2.9	
	2	13	4	3	2	0	22
		59.1	18.2	13.6	9.1	0.0	21.4
	No	32.5	12.1	14.3	33.3	0.0	
		12.6	3.9	2.9	1.9	0.0	
Column		40	33	21	6	3	103
Total		38.8	32.0	20.4	5.8	2.9	100.0
$\chi^2 = 6.58482$		df = 4		Significance = 0.1595			

TABLE 22

SCHOOL BROADCAST USE AS RELATED TO NUMBER OF DEGREES

		Var 2 Number of Degrees					
Count		1 dg	2 dgs	3 dgs	4 or more	none	Row Total
Row Pct	Col Pct						
Tot Pct		1	2	3	4	5	
Var 17	1	30	15	3	1	31	80
School		37.5	18.8	3.8	1.3	38.8	78.4
Broadcast		75.0	57.7	100.0	100.0	96.9	
Use	Yes	29.4	14.7	2.9	1.0	30.4	
	2	10	11	0	0	1	22
		45.5	50.0	0.0	0.0	4.5	21.6
	No	25.0	42.3	0.0	0.0	3.1	
		9.8	10.8	0.0	0.0	1.0	
Column		40	26	3	1	32	102
Total		39.2	25.5	2.9	1.0	31.4	100.0
$\chi^2 = 14.42371$		df = 4		Significance = 0.0061		P < .05	

dg = degree

TABLE 23

SCHOOL BROADCAST USE AS RELATED TO
TOTAL YEARS OF TEACHING EXPERIENCE

		Var 3 Total Years of Teaching Experience					
Count							
Row Pct		1st yr	2-5yrs	6-10yrs	11-20yrs	21+	Row
Col Pct		1	2	3	4	5	Total
Tot Pct							
Var 17	1	3	23	26	18	11	81
School		3.7	28.4	32.1	22.2	13.6	78.6
Broadcast Yes		100.0	67.6	78.8	81.8	100.0	
Use		2.9	22.3	25.2	17.5	10.7	
	2	0	11	7	4	0	22
		0.0	50.0	31.8	18.2	0.0	21.4
No		0.0	32.4	21.2	18.2	0.0	
		0.0	10.7	6.8	3.9	0.0	
Column		3	34	33	22	11	103
Total		2.9	33.0	32.0	21.4	10.7	100.0
$\chi^2 = 6.38156$		df = 4		Significance = 0.1724			

TABLE 24

SCHOOL BROADCAST USE AS RELATED TO
LOCATION OF SCHOOL

		Var 4 Location of School			
Count					
Row Pct	Col Pct	Wpg.	Suburbs	Rural	Row Total
Tot Pct		1	2	3	
Var 17	1	8	32	40	80
School		10.0	40.0	50.0	78.4
Broadcast		88.9	71.1	83.3	
Use	Yes	7.8	31.4	39.2	
	2	1	13	8	22
		4.5	59.1	36.4	21.6
	No	11.1	28.9	16.7	
		1.0	12.7	7.8	
Column		9	45	48	102
Total		8.8	44.1	47.1	100.0
$\chi^2 = 2.68909$		df = 2		Significance = 0.2607	

TABLE 25

SCHOOL BROADCAST USE AS RELATED TO
TYPE OF BROADCAST (LIVE VS. TAPED)

		Var 21 Live Programs		
Count		Yes	No	Row Total
Row Pct				
Col Pct				
Tot Pct		1	2	
Var 17	1	61	17	78
School		78.2	21.8	87.6
Broadcast		95.3	68.0	
Ues	Yes	68.5	19.1	
	2	3	8	11
		27.3	72.7	12.4
	No	4.7	32.0	
		3.4	9.0	
Column		64	25	89
Total		71.9	28.1	100.0
				Missing: 140

$\chi^2 = 9.98762$ $df = 1$ Significance = 0.0016 $P < .05$

TABLE 26

TELEVISION FACILITIES AS RELATED TO
LOCATION OF SCHOOL

		Var 5 Television Facilities			
Var 4	Count	Yes	No	Don't Know	Row Total
	Row Pct				
School Location	Col Pct	1	2	3	
	Tot Pct				
1		26	2	0	28
Wpg.		92.9	7.1	0.0	12.3
		12.4	14.3	0.0	
		11.4	0.9	0.0	
2		86	3	3	92
Suburbs		93.5	3.3	3.3	40.4
		41.1	21.4	60.0	
		37.7	1.3	1.3	
3		97	9	2	108
Rural		89.8	8.3	1.9	47.4
		46.4	64.3	40.0	
		42.5	3.9	0.9	
Column		209	14	5	228
Total		91.7	6.1	2.2	100.0

$\chi^2 = 3.36141$ $df = 4$ Significance = 0.4993

TABLE 27

TELEVISION FACILITIES AS RELATED TO
OPERATIONAL KNOWLEDGE OF THOSE FACILITIES

		Var 6 Operational Knowledge		
Count				
Row Pct		Yes	No	Row
Col Pct		1	2	Total
Tot Pct				
Var 4	1	16	10	26
School		61.5	38.5	12.8
Location Wpg.		9.9	24.4	
		7.9	4.9	
	2	70	13	83
Suburbs		84.3	15.7	40.9
		43.2	31.7	
		34.5	6.4	
	3	76	18	94
Rural		80.9	19.1	46.3
		46.9	43.9	
		37.4	8.9	
Column		162	41	203
Total		79.8	20.2	100.0

$\chi^2 = 6.50408$ $df = 2$ Significance - 0.0387 $P < .05$

TABLE 28

STUDENT ACHIEVEMENT AS RELATED TO
COST JUSTIFICATION OF TELEVISION EQUIPMENT

Var 55 Cost Justification				
Count				
Row Pct		Yes	No	Row
Col Pct		1	2	Total
Tot Pct				
Var 54	1	9	2	11
Student		81.8	18.2	7.3
Achieve-	Greatly	9.6	3.6	
ment	Increased	6.0	1.3	
	2	81	30	111
	Moderately	73.0	27.0	74.0
	Increased	86.2	53.6	
		54.0	20.0	
	3	4	24	28
	Not	14.3	85.7	18.7
	Affected	4.3	42.9	
		2.7	16.0	
Column		94	56	150
Total		62.7	37.3	100.0

$\chi^2 = 34.77798$ df = 2 Significance = 0.0000 P < .05

TABLE 29
HOW TELEVISION WAS USED

	Responses				No Response	
	Raw Score	Yes%	Raw Score	No%	Raw Score	%
* to supplement or enrich	98	(92.45)	7	(6.60)	1	(.94)
to introduce a subject	57	(53.77)	43	(40.56)	6	(5.66)
for "fun"	51	(48.11)	49	(46.22)	6	(5.66)
for "review"	48	(45.28)	53	(50.00)	5	(4.71)
for demon- stration	43	(40.56)	57	(53.77)	6	(5.66)
as body of lesson	34	(32.07)	66	(62.26)	6	(5.66)
independent study and/or individual instruction	14	(13.20)	86	(81.13)	6	(5.66)
remedial work	14	(13.20)	85	(80.18)	7	(6.60)
other	10	(9.43)	86	(81.13)	10	(9.43)

N = 106

(%) of score

*Majority Response to this item.

TABLE 30
TYPE OF TELEVISION USED

	Responses				No Response	
	Raw Score	Yes%	Raw Score	No%	Raw Score	%
* School Broadcasts	81	(76.41)	22	(20.75)	3	(2.83)
Videotapes	45	(42.45)	51	(48.11)	10	(9.43)
Own or Students' Productions	13	(12.26)	77	(72.64)	16	(15.09)
Image Amplification	4	(3.77)	86	(81.13)	16	(15.09)

N = 106

(% of Score)

*Majority Response to this item.

TABLE 31
GRADES IN WHICH TELEVISION WAS USED

	Responses				No Response		Total Pop.
	Raw Score	Yes% Raw Score	No% Raw Score	No% Raw Score	Raw Score	%	%
* K-6	70	(66.03)	34	(32.07)	2	(1.88)	(30.56)
7-9	23	(21.69)	80	(75.47)	3	(2.83)	(10.04)
10-12	16	(15.09)	87	(82.07)	3	(2.83)	(6.98)
No response							(53.71)
N = 106							N = 229

(% of Score)

*Majority response to this item.

Pop. = population

TABLE 32
SUBJECTS IN WHICH TELEVISION WAS USED

	Responses				No Response		Total Pop. %
	Raw Score	Yes%	Raw Score	No%	Raw Score	%	
Social Studies	77	(72.64)	25	(23.58)	4	(3.77)	(33.62)
Science	57	(53.77)	44	(41.50)	5	(4.71)	(24.89)
Mathematics	44	(41.50)	56	(52.83)	6	(5.66)	(19.21)
Language Arts	37	(34.90)	63	(59.43)	6	(5.66)	(16.15)
Music	27	(25.47)	70	(66.03)	9	(8.49)	(11.79)
Languages	21	(19.81)	79	(74.52)	6	(5.66)	(9.17)
Art	15	(14.15)	82	(77.35)	9	(8.49)	(6.55)
Other	15	(14.15)	83	(78.30)	8	(7.54)	(6.55)
Physical Education	10	(9.43)	85	(80.18)	11	(10.37)	(4.36)
Home Economics	3	(2.83)	97	(91.50)	6	(5.66)	(1.31)

N = 106

N = 229

(% of Score)

Pop. = population

TABLE 33
TYPES OF TELEVISION TRAINING

	Responses				No Response	
	Raw Score	Yes%	Raw Score	No%	Raw Score	%
University	41	(17.90)	25	(10.91)	163	(71.17)
In-Service	14	(6.11)	46	(20.08)	169	(73.79)
Other	14	(6.11)	47	(20.52)	168	(73.36)
Division Workshop	10	(4.36)	48	(20.96)	171	(74.67)

N = 229

(% of Score)

TABLE 34
LEVELS OF UNIVERSITY TELEVISION TRAINING

	Responses				No Response	
	Raw Score	Yes%	Raw Score	No%	Raw Score	%
Undergraduate	25	(10.91)	12	(5.24)	192	(83.84)
Graduate	10	(4.36)	24	(10.48)	195	(85.15)

N = 229

(% of Score)

TABLE 35
 PROBLEMS ENCOUNTERED IN THE USE OF TELEVISION

	Responses				No Response	
	Raw Score	Yes%	Raw Score	No%	Raw Score	%
Scheduling Difficulties	98	(42.79)	59	(25.76)	72	(31.44)
Irrelevancy of Programs	81	(35.37)	72	(31.44)	16	(6.98)
Sets Not Available	60	(26.20)	87	(37.99)	82	(35.80)
Mechanical Difficulties	47	(20.52)	96	(41.92)	86	(37.55)

N = 229

(% of Score)

TABLE 36
 SUGGESTIONS FOR MORE EFFECTIVE USE OF TELEVISION

	Raw Score	Responses		No Response		
		Yes%	Raw Score	No%	Raw Score	%
Opportunity to Preview Programs	129	(56.33)	33	(14.41)	67	(29.25)
More Equipment Available	76	(33.18)	76	(33.18)	77	(33.62)
Training in its Use	70	(30.56)	81	(35.37)	78	(34.06)
Other	43	(18.77)	108	(47.16)	78	(34.06)
Technician Available	32	(13.97)	113	(49.34)	84	(36.68)

N = 229

(% of Score)

APPENDIX D

PREPARING FOR LEARNING WITH TELEVISION

This section will provide practical assistance to teachers using TV in the classroom. The information is based primarily on the following sources: Using Television in the Classroom, Midwest Program on Airborne Television Instruction, Mary Howard Smith (ed) 1961, A Guide to Instructional Television, Robert M. Diamond (ed) 1964, Teaching with Television, Lawrence F. Costello and George N. Gordon 1965 and The Professional Teacher's Handbook, Kenneth H. Hoover 1977.

Teachers are responsible for creating a climate favorable to TV learning. An element in this climate is readiness for the telecast. That is, readiness of the teacher and the student. Regardless of the extent of use to be made of a television lesson, the classroom teacher will want to make sure that his students learn as much from it as possible. To this end he will see to it that he himself is prepared for the lesson and for his role in it - that is, he will ascertain its general content and its place in the total series and will have decided upon its role in his over-all plans for teaching the subject involved. He will want to be sure that his students are ready to learn by television and ready for the telecast itself.

TEACHER PREPARATION

To a large degree the classroom teacher is autonomous in determining the role of the televised units in his handling of a subject in the classroom. However, there are several

factors that should be considered.

If a selected television series has been prepared outside his local school system, the teacher must consider the curriculum and the relationship of the television programs to that course of study.

If available, a teacher's guide for each program should be studied.

Whenever possible the teacher should preview the TV programs.

The teacher should know his students in order to utilize the telecasts in ways that will best suit the needs, interests, strengths, and limitations of his particular group.

An entire series or one part of a series may be selected.

The teacher can then decide what will be viewed, by whom, where and when. Additional work in the form of reading or assembling supplies needed by the class when viewing can be done by the teacher.

STUDENT PREPARATION

The classroom teacher should create an interest in the program by giving information on what the students will be seeing. The students' responsibility regarding behavior, class participation, notetaking, homework, assignments and evaluation should be defined. The teacher may find it helpful to set a pattern for seating and to appoint students to help with equipment, lighting, ventilation, collecting and distributing papers and other similar duties.

Even more than conventional teaching, television teaching

demands that students learn to listen. Students should clearly understand the purpose of the telecast, the main ideas and specific items for which to listen. They should be able to analyze and evaluate the evidence presented in support of the purpose and the main ideas.

AROUSING STUDENT INTEREST

The classroom teacher, as the one who has the final responsibility for whether or not the students learn, will want to do all he can to promote and sustain student readiness. He will therefore want to make sure that the class is adequately prepared for the telecast and for the classroom activities that precede or follow it. For a few minutes on the day before the telecast, or on the same day if time permits, the teacher can build interest among the students. Is there something curious or unusual in the content? With what can the students identify themselves in the telecast? Are there connections with local problems or people? A question on the overhead projector or chalkboard could indicate the purpose of the lesson.

Having secured interest in the forthcoming telecast, the classroom teacher needs to check the students' readiness for content. New vocabulary necessary to understanding the lesson should be presented and key events or facts may need review.

During the telecast the classroom teacher performs the dual job of being aware of the class while being attentive to the program.

SEATING

Seat students no closer than 8 feet from the screen, no farther than 21 feet from a 21-inch screen. The teacher will want to try out visibility from various spots in the room. Students with vision difficulties and shorter students should be placed in the more advantageous seats. The seating plan may also reflect the teacher's plan for meeting individual differences within the class and the physical limitations of the surroundings.

SOUND

Sound projection should be aimed at the viewers. The teacher should try out the sound from various places in the room as too loud or inaudible sound will frustrate students. Try to anticipate and eliminate noise from other sources.

TEMPERATURE

The viewing room should have adequate ventilation and a comfortable temperature.

UTILIZING THE TELEVISION LESSON

In addition to preparing himself, the class and the classroom, there is another aspect to the role of the classroom teacher using television. This phase of working with television includes all the functions necessary to guide the learning experiences of his students and to make sure that they have meaning for all members of the group. The extent and kind of activity required of the teacher by these functions will depend upon the nature of the material in the telecasts, the

program's methods and the aptitudes and interests of the class itself. The following suggestions should be assessed according to individual situations.

INTERACTION

Students learn by doing, the classroom teacher will therefore want to do all he can to encourage student interaction with the material presented. The classroom teacher must judge whether interaction with the telecast has been sufficient for learning or whether more is needed. An appraisal of the success of the TV lesson will point out which areas need reinforcing, clarifying, or expanding. A few penetrating questions will supply the answer. This estimate of accomplishment is necessary in order to know what to reinforce and to avoid the boredom and waste of time which result from reteaching something already successfully taught. To stimulate the students' thinking and learning to the maximum, the classroom teacher should be alert to open-ended questions and problems the television lesson has posed.

Most television lessons lend themselves to some type of individual or group activity to achieve student participation in the classroom. The nature of student activities depends on a number of variables. The teacher should use the kind of activity he thinks most appropriate for his group. The activity should be planned with a definite purpose to expand on what has been presented on television.

Three types of activity may be used to reinforce the televised lesson: total group activity, small-group activity,

and individual activity.

TOTAL GROUP ACTIVITIES

In this form of activity the whole class is involved in the same process; listening to a lecture or a report, participating in a question-and-answer period, supervised study, work sheets, choral reading, discussions, etc.

SMALL-GROUP ACTIVITIES

In this type of activity the group is divided into smaller units of four to ten students each. The size depends upon the nature of the activity and the physical arrangements. Small groups can motivate other activities, share experiences or summarize. Since a feeling of belonging can be developed if the student believes he is of value to his group, often the diffident student can be drawn out in small-group work. The brighter student can be used in leading such work.

Samples of small-group activities include the following suggestions. Groups may fill in the blanks for ten prepared questions. Answers may be shared in class afterward. In a brief time students could write a paragraph on what they believed was the most important point in today's TV lesson. These answers could be read within the group which will then select the best one. The author of the paper selected by each group will read to the whole class what he has written. Each group may list the important points in today's telecast giving reasons for the importance of each. Each group could discuss the day's TV lesson and make up two questions for the class.

INDIVIDUAL ACTIVITIES

These activities may include projects, reports and exhibits as well as experiments in school or at home, making maps or charts, reading special materials and writing original reports or stories.

LOCAL RESOURCES

A creative classroom teacher can enrich the TV lesson by bringing in local resource persons, taking the class to see interesting and pertinent things in the community, and bringing in materials the community has to offer. Relating local resources to ideas contained in a TV lesson is especially important if the school is using a TV series prepared outside the community. The lesson is in this way "brought home" to the students and its applicability to their own lives is made clearer.

EVALUATION

Teachers' guides that accompany the TV program may suggest assignments. Occasionally tests may be provided by the broadcasting center upon request. However the teacher should not feel bound by these suggestions.

PUPIL EVALUATION

Evaluation is one of the most significant aspects of the role of the classroom teacher. It is in this phase of class work that he receives the least help from the telecast. To be effective, evaluation must be continuous. This is particularly important when the classroom teacher uses television as a major

resource. If he relies solely on infrequent testing for evaluation, he will soon be confronted with the fact that, although the tests may show deficiencies in learning, he will not have time to go back and reteach the unit of study. Frequent evaluation devices must be adopted to spot problems early so that the classroom teacher can make the most of the time available to augment or reteach the ideas of the lesson.

To be effective the evaluation must have a direct relationship to the purpose of the telecast lessons. If the purpose of the lesson is to teach problem-solving, the evaluation must be designed to test the ability to solve problems. Among techniques, paper and pencil tests are one means. Students can evaluate their own or classmates' work. Teachers should also use observation and oral testing as well. Assignments are another form of evaluation. Assignments provide an additional opportunity to extend and reinforce the learning that has been stimulated in the TV unit and continued in the classroom follow-up. In-class assignments permit more direction and supervision by the teacher and the chance to use special equipment or materials such as those of the science or language laboratory. Out-of-class assignments make possible increased time for the student to learn and present opportunities to use resources not available in the classroom.

The classroom teacher should provide a measure of student progress which is adequate and consistent with the purposes of the lessons being taught. General group reaction to the telecast should be noted by the teacher.

PROGRAM EVALUATION

Teachers should be encouraged to complete volunteer evaluations of TV programs. Such forms are often supplied by the department responsible for the programming.

The foregoing general principles are intended to assist teachers with TV utilization. Once this basic information has been internalized, application can be made to any subject area or grade.

TEACHER CHECKLIST

Program _____

Viewing Date _____ Time _____

Class _____

PLANNING - IDENTIFYING THE LEARNING PROBLEM

- _____ Formulate student objectives
- _____ Select appropriate program
- _____ Schedule viewing equipment, space, videotape

PREVIEWING THE PROGRAM

- _____ Watch for and identify: overall concept, specific ideas, vocabulary, discussion questions, relationship to other topics
- _____ Study program guide

PREPARING APPROPRIATE MATERIALS

- _____ Determine student knowledge of subject
- _____ Create interest
- _____ Assemble teaching aids (bulletin boards, worksheets, supplies)
- _____ Prepare class (specific ideas to observe, role expectations)

SHOWING

- _____ Prepare classroom
- _____ Adjust equipment

FOLLOW UP

- _____ Discuss program to relate to other concepts, clear up possible misunderstandings
- _____ Provide suitably related activity
- _____ Evaluate program