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An Evaluation of Instructional Television in Maine

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AN EVALUATION OF
INSTRUCTIONAL TELEVISION IN MAINE

ADMINISTERED BY THE MAINE STATE
DEPARTMENT OF EDUCATIONAL AND CULTURAL SERVICES
AND THE UNIVERSITY OF MAINE

PREPARED BY:
Maine State Department of Audit
Division of Program Review and Evaluation
Completed April 1976



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June 7, 1976

Senator Richard N. Berry, Chairman
Representative Georgette B. Berube, Co-Chairman
Legislative Committee on Performance Audit
State House
Augusta, Maine 04333

Dear Senator Berry and Representative Berube:

I am hereby forwarding for your review and consideration the report of the Program Review and Evaluation Division on the subject of instructional television in the state. At the same time I am forwarding copies to other individuals as listed on the page of the report entitled "report distribution."

This evaluation is intended to aid the Department of Educational and Cultural Services and the Legislature in planning future strategies concerning the activities of the instructional television program which serves the school children of the State of Maine. The recommendations contained herein are offered with a view toward improving the effectiveness and efficiency of the instructional television service.

Very truly yours,

R. M. Rideout, Jr.
State Auditor

RMRJr:sv

SUMMARY

AN EVALUATION OF INSTRUCTIONAL TELEVISION IN MAINE

I. Statement of Study Objectives: This report presents the findings of an evaluation by the Division of Program Review and Evaluation of state-supported instructional television (ITV) programming. The review involved the assessment of several elements of this instructional service as well as the identification of expected trends in ITV utilization. The following considerations were pursued: (1) an analysis of delivery and receiving systems, (2) the demand for ITV by Maine's teachers, (3) the accessibility of ITV programming, (4) the usability and effectiveness of ITV programming, and (5) the efficiency of the present delivery system.

The survey instruments used in this evaluation integrated much of the current research in the field of ITV and were designed to reflect desirability, usage, and effectiveness of the ITV service.

II. Historical Background and Legislation: In 1961 the Maine Educational Television Network bill was passed; Maine's citizens ratified a \$1,500,000 bond issue for the construction of an ETV network. Channel 12, Orono, went on the air in October 1963 making educational television a reality in Maine.

III. General Description of ITV: The ITV service is a state-funded venture which provides 30 school weeks of broadcast instructional television for in-school use. The Department of Educational and Cultural Services' (DECS) budget supports staff, program acquisition costs, teacher guides and utilization materials, partial funding of a weekly program produced by MPBN, and a contract for air-time with privately owned WCBB-TV in Lewiston. Funds enabling broadcast coverage in the remaining parts of the state are appropriated for MPBN through the University of Maine by the Legislature. State agencies budgeted \$351,840 of state funds for fiscal 1976 to support ITV.

The potential value of TV as a teaching tool has been confirmed in literally hundreds of reports and educational journals. Research indicates that the TV medium has proven to be an effective educational tool when utilized by properly trained and enthusiastic teachers. However, as with any tool, ITV can be mis-used or poorly used.

IV. Maine Public Broadcasting Network: MPBN has continually increased its ability to respond to the educational needs of Maine in several service areas. MPBN accounts for 15% of Maine's ITV programming and is served by production and control facilities at the Orono campus. An extensive regional microwave network serves to reliably transmit signals originated at various points within the network.

Since normal accounting procedures employed by MPBN do not require the separation of the ITV service from the total MPBN operation, MPBN staff computed ITV operational expenses on a pro-rata basis (TABLE 3). EXHIBIT D is a bar chart which summarizes the relative costs of the ITV service as well as capital expenditures associated with the TV service in general.

V. Delivery Systems: This section reviews various delivery systems which can be used to transmit instructional programming to the school children of the state. Descriptions are given for over-the-air, cable, closed circuit, master-antenna, and satellite distribution systems. The video tape/cassette format offers a convenient method for secondary school utilization of instructional programming.

VI. Department of Educational and Cultural Services: The DECS has the goal of developing and improving a statewide educational technology program which involves libraries, television, and the standard audio-visual resources. However, lack of staff and budgetary limitations imposed by departmental priorities have impeded the effective utilization of in-school TV.

The Eastern Educational Network supplies most of the current instructional programming and has allowed relatively flexible recording rights for video tape replay in the classroom. The ITV industry has evidenced a surge in the production of programming software compatible with the capabilities that recorder/playback technology has introduced. However, without broadcasting or video library facilities, many individual schools would find the costs of instructional programming prohibitive. Reliable and economical methods for evaluating the effectiveness with which televised lessons teach skills and information to children present a major obstacle to the successful development of ITV programming. The cost-effectiveness of current Maine productions certainly cautions against uncritical adoption of local productions (TABLE 8).

The following recommendations are offered with a view toward improving the cost-effectiveness of selections for the ITV schedule:

- (1) that DECS formally conduct a comprehensive statewide assessment of programming needs in order to assist in the selection of programs for the ITV broadcast schedule,
- (2) that MPBN assure attention to activities which encourage and complement professional development of staff involved in instructional broadcasting, particularly in the areas of formative and usage evaluation,
- (3) that consideration of alternatives to "La Machine Magique" be initiated in an attempt to more cost-effectively serve and support the principle of cultural pluralism,

(4) that DECS should have final responsibility for programs broadcast for instructional purposes by functioning as the broad producer and supplier of instructional programming,

(5) that Media Services develop a procedure by which teacher programming needs may be categorized and assigned priorities for future action based upon factors such as: target audience size, cost, appropriateness with respect to DECS goals, availability of alternative media resources, and teacher interest.

VII. Current Programming: Programming is directed at both the cognitive and affective domains of the educational process. In-service teacher training and series utilization programs are offered in an attempt to improve teacher usage of programming. Approximately 14% of the teachers who use ITV report using it as a primary tool for direct instruction.

A study revealed that there exists a positive correlation between amount of training and the effective use of ITV. In view of this fact, the following are recommended:

(1) that a concerted statewide effort be promoted by the ITV staff to increase teacher awareness of the importance of the utilization component which accompanies certain series and that these utilization programs be broadcast more frequently throughout the school year,

(2) that DECS and the University of Maine College of Education continue to promote and offer media utilization courses which might be taken for recertification credits, or as electives by in-training teachers.

After 13 years of use in Maine, ITV has not attained its potential. However, Maine's teachers continue to evidence positive enthusiasm toward TV as an instructional tool. It is recommended that the ITV Questionnaire be modified to enable the ITV staff to quantitatively measure against acceptable criteria for continuance of specific series based upon an adequate sample of the suggested grade and/or subject matter teachers. TABLE 10 reviews current program usage by present ITV viewers. The major obstacle to ITV use is the difficulty encountered in scheduling over-the-air broadcasts.

It is recommended that DECS establish and monitor an operational overview or technical strategy for effecting maximum audience coverage in the state by utilizing the over-the-air, cable, closed circuit, and video recorder/playback resources of the state's school systems.

An analysis of reasons for non-use of the ITV service revealed that a substantial difference exists between grades K-6 and 7-12. Non-use at the elementary level results mostly from the unavailability to teachers of either adequate TV facilities, or acceptable programs. The effective delivery of secondary instructional programming requires more careful attention to factors such as scheduled class rotation, need of specific subject-area programs, and TV accessibility problems inherent in the secondary educational process.

90% of the teachers surveyed expressed interest in improving their professional teaching standards through televised programs. It is recommended that televised series exhibiting marginal utility be cancelled in order to make available funds and air-time for a comprehensive in-service teacher training module designed for after school use by Maine's teachers. A needs assessment survey could serve to set priorities for specific subject-area programs.

A high level of agreement was recorded by teachers on the usability and desirability of on-call programming. Whereas 90% stated they would use a centralized video library provided that their school possessed the proper playback equipment, it is recommended that the DECS establish, on a trial basis, a minimal video-service library under the supervision of Media Services. The objectives of this library service will include: (1) circulation of video tape/cassettes, (2) provide a video duplication service, and (3) promote utilization of video services particularly at the secondary level.

VIII. Statewide Inventory: It is estimated that schools of the state have invested \$2,189,000 in ITV related equipment.

Since only 4% of secondary teachers use ITV regularly, it is recommended that the over-the-air broadcast of secondary programming be phased out and that, until it is eliminated, one-time weekly showings be scheduled at convenient afternoon time slots for in-school teacher video recording. Implementation of a video library will easily accomodate the limited demand expected from secondary teachers.

The inadequate selection of TV equipment has impeded the effective utilization of ITV services. It is recommended that an ITV consultant position be established within Media Services. Responsibilities of such a position would include: (1) provide an ITV needs-costs service for planned and existing schools in the state, (2) provide assistance with respect to minor technical and/or reception difficulties, (3) conduct ITV utilization workshops throughout the state at the local level, (4) promote incorporation of ITV programming into curriculum planning, (5) assist the ITV Coordinator in a comprehensive programming needs-assessment project, (6) assemble a reliable inventory of ITV related equipment in Maine schools.

IX. Conclusion: The productivity of the ITV service has been measured primarily in terms of the effectiveness and efficiency of the delivery systems used to transmit instructional programs. In order to arrive at an overall performance rating for the ITV service, an ideal performance rating score was developed against which an actual teacher performance rating could be measured (EXHIBIT F).

Elementary teachers rate the performance of the present ITV service/delivery system at 70% and usage of the service was rated at 69%.

Secondary teachers rate the performance of the present ITV service/delivery system at 55% and usage of the service was rated at 7%. This reflects clearly the need for significant change in the secondary delivery mechanism.

The recommendations of this report are predicated upon the assumption that DECS and the Legislature will assign sufficient priority to the ITV service to allocate necessary funds for full commitment to its objectives. Unless a higher priority is assigned the ITV service, it is recommended that the present funding level be carefully weighed against the findings and recommendations offered in order to effect maximum educational productivity per expended dollar.

X. Appendices: Appendix A consists of the survey instruments and summarized findings. Appendix B contains the responses of administering agencies and others to staff findings and recommendations, along with staff comments where appropriate.

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GLOSSARY

Delivery System: the array of transmission lines, antennas, transmitters, miscellaneous hardware, software, and personnel used to transfer information from the source to the user.

Effective Radiated Power: the product of the antenna power (output from transmitter minus transmission line losses) times (1) the antenna power gain, or (2) the square of the antenna field gain.

ETV: the informal broadly based cultural and educational service provided by the state's public television stations.

ITV: that portion of ETV in service to the formal "instructional" community.

Network: a chain of transmitting and relay stations controlled and operated as a unit.

Software: any of a variety of instructional films, video tapes, guidebook materials, etc. used to support television programming.

Translator: a combination television receiver and low power transmitter designed to rebroadcast the signal on a new frequency. This transmitter can reach areas not effectively served by a station's main transmitter.

I.

STATEMENT OF STUDY OBJECTIVES

Purpose and scope of study: This report presents the findings of an independent evaluation by the Division of Program Review and Evaluation, within the Department of Audit, of state-supported instructional television (ITV) programming. The review involved the assessment of several elements of this instructional service as well as the identification of expected trends in ITV utilization. The following considerations were pursued:

- (1) an analysis of delivery and receiving systems,
- (2) the demand for ITV by Maine's teachers,
- (3) the accessibility of ITV programming,
- (4) the usability and effectiveness of ITV programming,
- (5) the efficiency of the present delivery system.

Since this evaluation is concerned primarily with the impact of ITV, as it exists today, on the students in the State of Maine, the scope of this report has been limited to three general areas. First, a brief review was undertaken of the role of the Maine Public Broadcasting Network (MPBN) as the primary vehicle through which instructional programming is transmitted throughout the state. It should be noted that the ITV service supplied by MPBN is only a part of the broad cultural and educational service of the network.

Secondly, an evaluation of the stated goals and objectives of the Department of Educational and Cultural Services (DECS) pertaining to ITV was undertaken, as well as a review of the mechanism designed to achieve these goals and objectives.

Thirdly, an extensive survey of Maine's teachers, principals, and superintendents was initiated in order to obtain basic data to be used in the evaluation of program objectives. This survey was conducted with reference to instructional programming available in the 1975-1976 academic year, although attitudinal data is certainly the result of cumulative experience with ITV programming.

Methodology: Preliminary interviews with the staffs of both the DECS and MPBN surveyed the basic goals and operations of these components of the ITV service. After sufficient background information was obtained, a search of ITV literature was conducted which investigated the historical origins of ITV in Maine as well as reports and current periodical literature purporting to evaluate the "state of the art." Summaries of all well-documented articles were used as a source to formulate criteria which could be used in analyzing the success of Maine's ITV program.

The ITV Coordinator made available the responses to his 1975 ITV Questionnaire to teachers and principals. These contained many insights regarding the benefits and difficulties of the ITV program and proved useful in ascertaining statewide ITV needs.

The primary research tools for the analytical portion of this report were questionnaires designed to reflect desirability, usage, and effectiveness of the ITV service (Appendix A). These survey instruments integrated much of the current research in the field of instructional television with information supplied by resource personnel throughout the state. Many of the questions were presented in a manner which allowed respondents to express their professional opinions in a numerically-scaled format, thereby encouraging analytical thought and greater precision in the communication of information.

The sampling procedure was designed to obtain a representative listing of K-12 teachers in the state using weighted stratification techniques wherever appropriate. Since teachers have total control over the programming used in the classroom, a teacher-based sample was deemed to be most appropriate for the purposes of this study. The sample was selected to insure representativeness with respect to the following:

- (1) school administrative units,
- (2) student population density,
- (3) quality of ITV broadcast signals,
- (4) subject-areas broadcast for secondary teachers.

Thus, at the secondary level only teachers with programming available to them were included in the sample.

II. HISTORICAL BACKGROUND AND LEGISLATION

History of ITV in Maine: In 1952 the Federal Communications Commission reserved channel 12 in Orono for educational use. Subsequently, interested Maine residents organized the Educational Television Association of Maine. The goal of this group was to stimulate and encourage legislative, private, and school support for a tri-state educational network with broadcast facilities on Mt. Washington.

The Maine Citizens Committee for Educational Television was formed in 1954 to study outlets for educational programming through use of commercial stations, through activation of three non-commercial channels assigned the state, or through a cooperative venture with New Hampshire and Vermont. The tri-state plan was soon abandoned and attention was focused on Maine facilities.

The Educational Television Association, Inc. was chartered in 1956 and worked with a legislative committee to submit a bill to the 98th Legislature for the maintenance of an ETV station at the University of Maine which was to be constructed with funds raised by the ETV Association. The bill did not pass; however, much was done to enable the State Department of Education to broadcast several in-school programs on commercial stations.

On the basis of a 1960 ETV study subsidized by the Ford Foundation, the University of Maine successfully petitioned the FCC to reclassify the Augusta, Presque Isle and Calais channels from commercial to educational status. Thus, the groundwork was laid for a statewide ETV network.

Legislation: In 1961 the Maine Educational Television Network bill was passed in both houses, but it took a special session to finally approve a bond issue bill of \$1,500,000 for the construction of the network (Acts and Resolves of the 101st Legislature, Chapter 247). The people of the State of Maine ratified the bond issue in June 1962, making ETV a reality for the state. Plans to activate the network were based upon a technical report by Jansky and Bailey and suggestions from the Eastern Educational Network.

In October 1963, channel 12 in Orono went on the air with most programming supplied by National Educational Television. In-school programming served an estimated 80,000 school children and was provided by the State Department of Education. The establishment of the Colby-Bates-Bowdoin station and the Maine network precipitated the dissolution of the ETV Association in 1966 with the balance of funds being dedicated toward the purchase of equipment at the Orono studio.

In 1971 the Committee of Educational Television was renamed the Committee on Maine Public Broadcasting in anticipation of a public radio station in Bangor (20 M.R.S.A. § 2601-2606). Licensing requirements established by the FCC resulted in a further change in 1973 which limited the Committee's role to an advisory one.

III.

GENERAL DESCRIPTION OF ITV

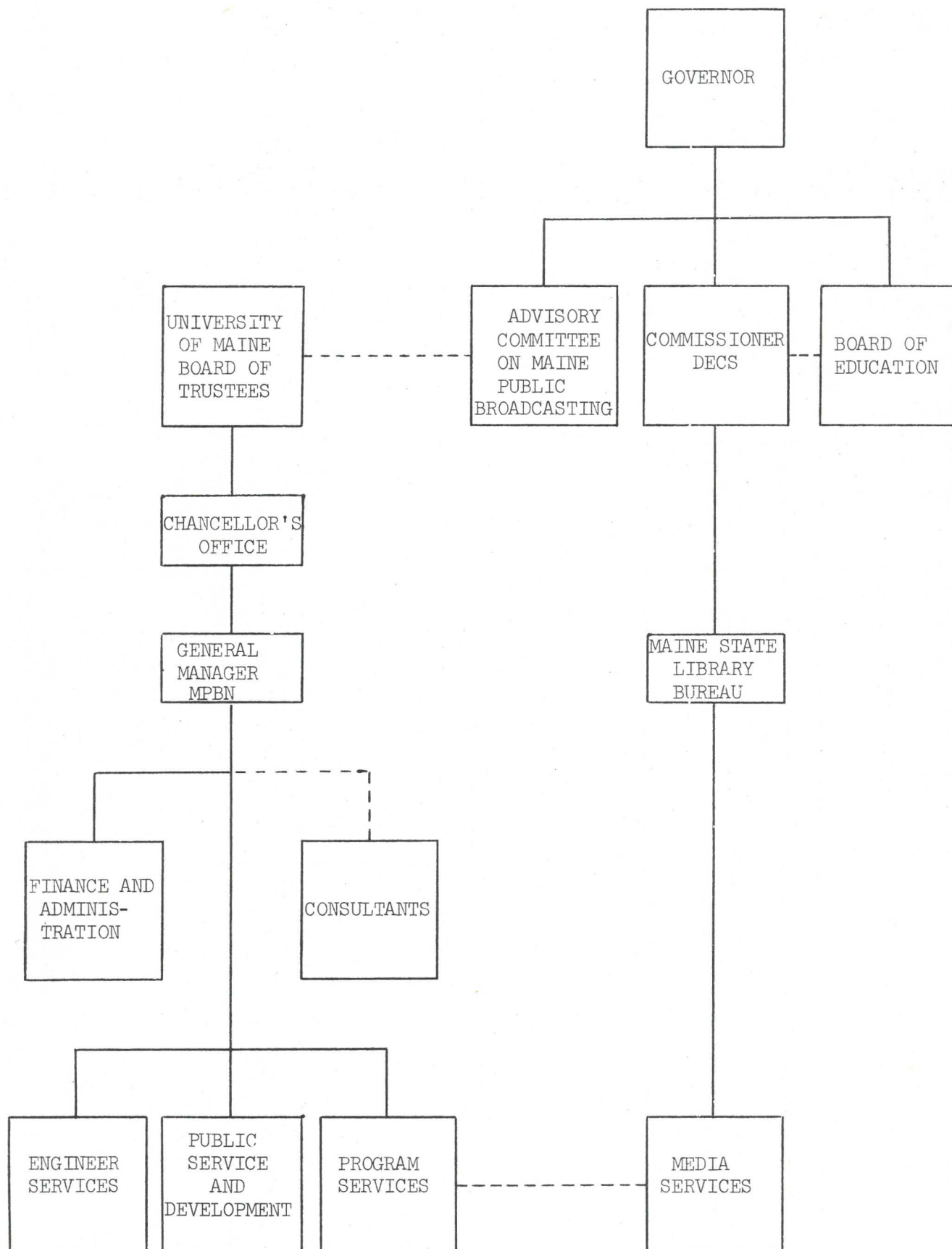
Introduction: The ITV service is a state-funded venture which provides 30 school weeks of broadcast instructional television programming for in-school use. Televised education at the elementary and secondary level is the responsibility of the Commissioner of Education. The DECS budget supports staff in Media Services, program acquisition costs, teacher guides and utilization materials, and partial funding of a weekly program produced by MPBN. Additionally, the DECS contracts for air time with WCBB-TV which serves a large proportion of the state's students in the central Maine area. Funds enabling broadcast coverage in the remaining parts of the state are appropriated for the Maine Public Broadcasting Network through the University of Maine by the Legislature.

The State Library Bureau acquires programs and works in cooperation with MPBN to arrange the broadcast schedule. Following an appraisal and preliminary screening of new programming by educational specialists, a "preview week" schedule is broadcast throughout the state. Teachers are encouraged by the ITV Coordinator through his yearly questionnaire to express their preferences as to both "previewed" and regularly scheduled programs. Thus, statewide instructional programming needs are ascertained through a teacher-based selection mechanism which is designed to support school curricula.

The following organizational chart (EXHIBIT A) depicts the inter-relationship between MPBN and DECS as regards the ITV service.

EXHIBIT A:

ITV ORGANIZATIONAL CHART



The basic mission of the ITV service is to disseminate instructional information. Hence, the necessity of transmitting information to the users through some form of delivery system. The three main components of a delivery system are defined by: (1) a variety of sources of information, (2) a means of distribution, and (3) a means of viewing. Since most of the objectives associated with ITV are contingent upon effective communication with a widespread audience, instructional broadcasting can be no more effective than its distribution system. Thus, a review of existing distribution systems, comparing their extent and quality against an ideal situation, will be undertaken. An analysis of the programming entering this system will include its nature, cost, and effectiveness.

Literature and research on ITV: The potential value of television as a teaching tool has been confirmed in literally hundreds of reports and educational journals in the last 10 years. Research indicates that the TV medium has proven to be an effective educational tool when utilized by properly trained and enthusiastic teachers. A broad survey of research published by the U. S. Department of Health, Education and Welfare in 1975 entitled Learning from TV: What the Research Says. Revised Edition concluded:

We have reviewed, up to 1966, 207 published studies in which television teaching has been compared to 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 . . . Finally it should be understood that many of the comparisons of television with conventional instruction are of classes taught completely by television vs. classes taught completely by conventional methods . . . therefore, the findings of "no significant differences" seem to mean that TV can do its part in this combination, and that one goal of future research and practice is to find what combinations will be more efficient than either classroom teaching or television teaching alone.

Advantages of televised instruction include the following:

- (1) the visual impact of televised lessons involves the learner and serves to motivate the learning experience,
- (2) current technology enables each learner to enjoy a "close-up" view of demonstrations and illustrations,
- (3) the exposure to teaching techniques employed by studio teachers encourages professional growth in classroom teachers,
- (4) curriculum can be significantly enriched by incorporating learning opportunities which would be otherwise unavailable due to financial constraints or the limitations of certain teachers,
- (5) televised instruction is an equalizer, providing greater equality of opportunity for all students, without regard to geographical location and/or community resources,
- (6) it can be used to provide systematic support to the classroom teacher when properly integrated into the curriculum,
- (7) ITV can be used in lieu of classroom teachers, or when a teacher is unavailable, in certain special areas such as art or music.

However, as a tool, instructional television can be mis-used or poorly used. Television is an electronic device, a one-way channel of communication, and is therefore subject to certain limitations inherent in all media. Several shortcomings of ITV programs have been enunciated: (1) broadcast television is rigid, children learn at different rates and do not proceed at a uniform rate through the subject matter in a course,

(2) teachers do not usually teach in the same way that broadcast television functions; they work under different circumstances and with uniquely different teaching personalities of their own,

(3) there is no opportunity for verbal interaction between the learner and the studio teacher,

(4) a studio teacher can only anticipate learner reaction to the objectives of a lesson and has no awareness as to which of the many learner-reactions are actually occurring in the classroom,

(5) frequent internal scheduling difficulties prevent classroom teachers from the regular use that is required of certain series to afford maximum effectiveness,

(6) very little programming has been offered which teaches basic skills such as reading, writing and arithmetic.

Costs of ITV service: Table 1 exhibits the income by source available to support the ITV service.

TABLE 1: ITV OPERATIONAL COSTS

FISCAL	STATE	OTHER	TOTAL
1971	\$245,675	\$	\$245,675
1972	253,407		253,407
1973	253,523		253,523
1974	299,137	19,800	318,937
1975	340,461	10,500	350,961
BUDGET			
1976	351,840	10,500	362,340

Table 2 reflects the expenditure of resources by agency in support of the ITV service.

TABLE 2: ITV OPERATIONAL COSTS

FISCAL	MPBN	DECS	TOTAL
1971	\$152,617	\$ 93,058	\$245,675
1972	163,107	90,300	253,407
1973	169,375	84,148	253,523
1974	214,420	104,517	318,937
1975	226,768	124,193	350,961
BUDGET			
1976	238,340	124,000	362,340

IV.

MAINE PUBLIC BROADCASTING NETWORK

Broadcasting facilities: MPBN operates 3 VHF TV stations, one UHF TV station, and 2 FM radio broadcast facilities, each licensed to the Board of Trustees of the University of Maine. The VHF stations are as follows: WMEB-TV, channel 12, is licensed to Orono and operates at maximum permissable power; WMED-TV, channel 13, is licensed to Calais operating into a directional antenna array at a power level of 70,000 watts in the main lobe of the antenna pattern; WMEM-TV, channel 10, is licensed to Presque Isle and operates at maximum permissable power. The UHF station is WMEG-TV, channel 26, licensed to Biddeford and operating at 700,000 watts effective radiated power. Three translators extend the WMEM-TV signal to several St. John river communities.

Exhibit B displays the effective transmission ranges of Maine's public television facilities, including WCBB-TV, channel 10, licensed to Augusta, a privately owned public television station.

MPBN has continually increased its ability to respond to the educational needs of Maine in several service areas. These include public educational radio and TV broadcasting, production of educational and cultural programs, and a variety of in-state telecommunications projects. MPBN participates in a nationwide communications system which provides direct 2-way communication with the Public Broadcasting Service as well as other public broadcasting organizations. A subscription to a Western Union TWX service assures a direct communications link with the Eastern Educational Network.

Microwave network: Interconnection is the core of broadcasting. Maine utilizes state-owned and private inter-connection points. The microwave network serves to reliably convey TV signals originated at various points within the network to any other point within the system. The existing microwave network interconnects Maine with the complete Vermont ETV system as well as the New Hampshire ETV system at the Deerfield, N.H. relay site. Consequently, a direct live exchange of programs in the tri-state region is effected.

The network between Boston and Deerfield, N.H. is presently a one-way facility, but a 2-way connection is expected by Fall 1976. That portion of the network between N.H. and Orono is a simultaneous 2-way facility, while from Orono to Presque Isle and Calais it is a one-way microwave relay of the Orono signal. The microwave system between Litchfield and Lewiston is the property of WCBB-TV, Lewiston. A temporary microwave system connects Augusta with the Litchfield transmitter and has been used to broadcast legislative coverage at the State House using MPBN's mobile studio. The regional microwave network is shown in Exhibit C.

EXHIBIT B:

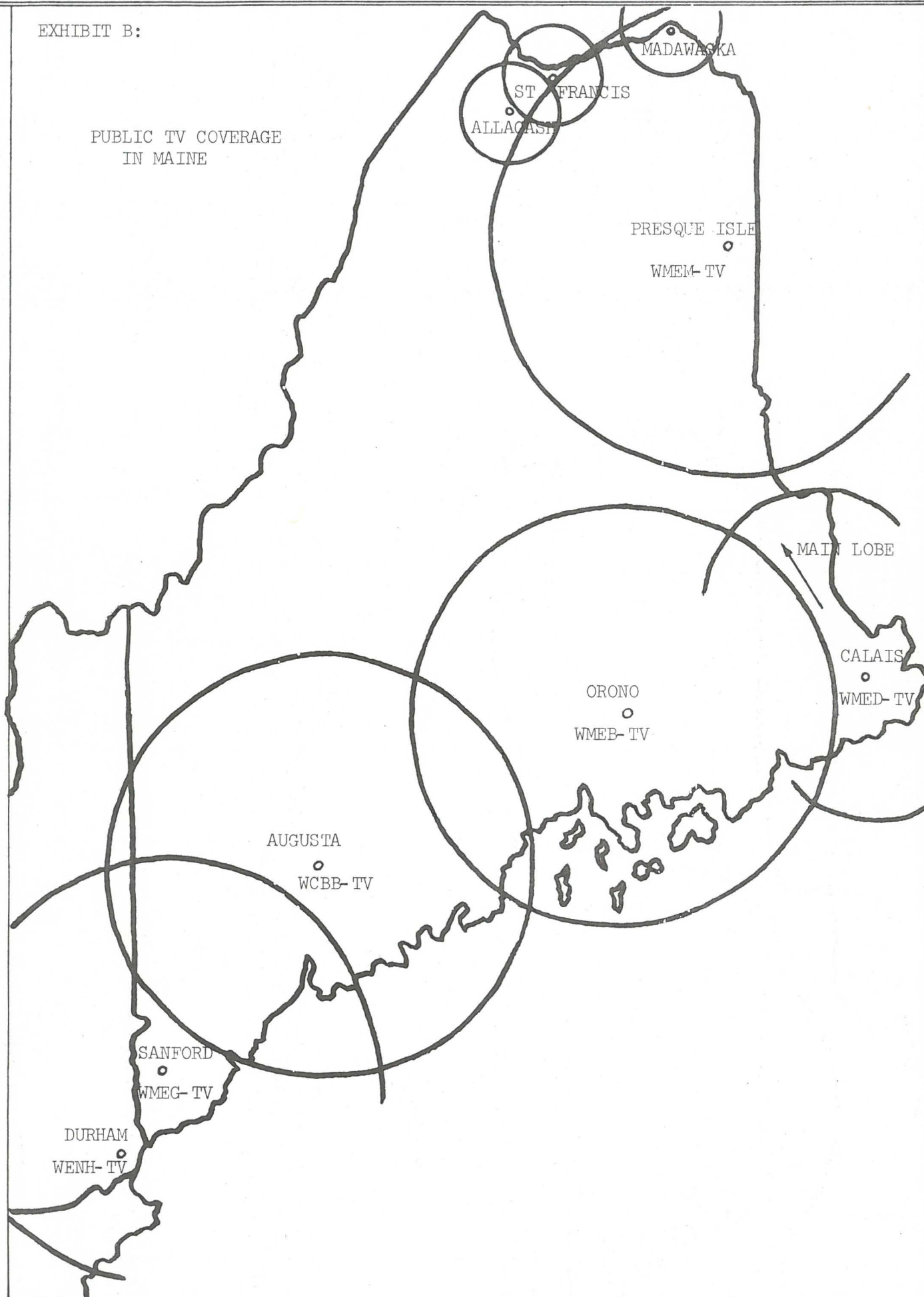
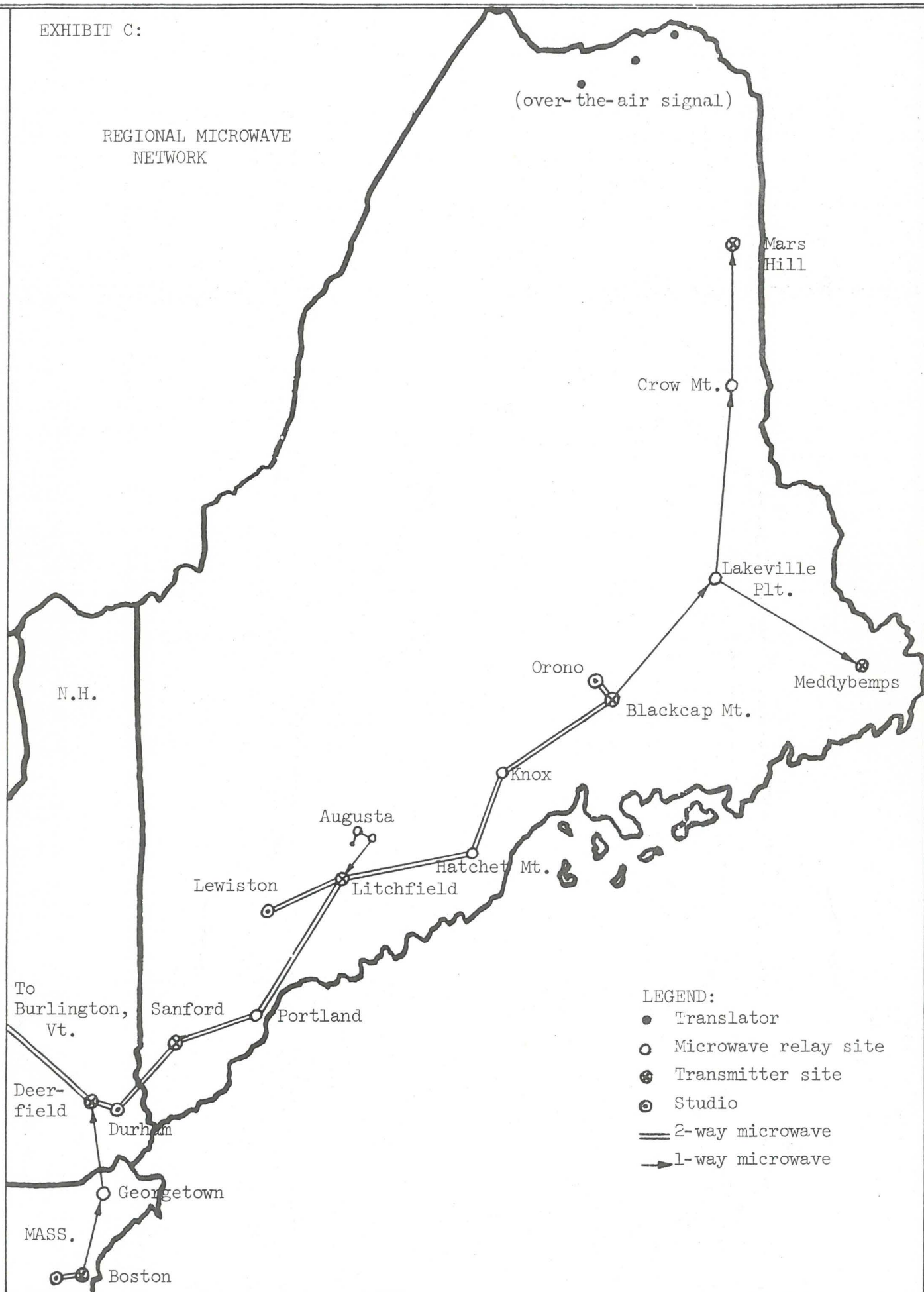
PUBLIC TV COVERAGE
IN MAINE

EXHIBIT C:

REGIONAL MICROWAVE
NETWORK

LEGEND:

- Translator
- Microwave relay site
- ⊗ Transmitter site
- ⊙ Studio
- == 2-way microwave
- 1-way microwave

Production facilities: MPBN accounts for 15% of ITV programming in the state. The MPBN stations are served by production and control facilities at the University of Maine campus in Orono. The production facilities consist of two studios, a master control room, and a production control room with a support audio control room. The production capabilities also include the MPBN climate-controlled mobile control room which is complete with color cameras, switching, audio, and video tape equipment. MPBN Program Services personnel work with the ITV Coordinator in planning, scheduling, and production of ITV programs for Maine's students.

MPBN TV expenditures: Since normal accounting procedures employed by MPBN do not require the separation of the ITV service from the total MPBN operation, it was necessary to compute ITV service operational costs on a pro-rata basis. It should be noted that federal operational monies available to MPBN are not utilized to support the ITV service, but are dedicated to non-ITV operational expenses. The method used to estimate the cost of the ITV service, developed by MPBN, was based on the percentage of broadcast time allocated to instructional programming. This percentage was then applied against available state operational funds, exclusive of radio service costs which account for 10% of the total fund. MPBN staff appropriately cautions that this method, though reasonable, should not be misinterpreted to mean that the actual cost of the ITV service can be computed in this way. Fixed costs associated with TV service, whether instructional or otherwise, can not be reflected accurately by this approach.

For the same reason, the analysis of capital expenditures makes no attempt to separate totals as to instructional vs. general use. Capital represents purchased equipment which is used for all broadcast service and can not be pro-rated based upon broadcast hours. Although some equipment could be depreciated on a pro-rata basis, such an analysis was unnecessary for the purposes of this study.

Table 3 exhibits MPBN expenditures by source for TV service as well as the pro-rated costs for designated ITV service.

Exhibit D is a bar chart which summarizes the relative costs of the ITV service and the non-ITV service as well as capital expenditures associated with the TV service in general.

TABLE 3:

MPBN TV EXPENDITURES INCLUDING
ITV EXPENDITURES (1)DESIGNATED ITV
EXPENDITURES

CAPITAL (2)			OPERATIONAL			OPERATIONAL (3)	
FISCAL	FEDERAL	STATE	FEDERAL	STATE	OTHER(4)	STATE	OTHER (5)
1971	\$ 72,000	\$180,500	\$ 37,500	\$484,500	\$124,100	\$152,617	\$
1972			35,000	517,800	135,500	163,107	
1973	35,800	11,900	55,400	537,700	146,500	169,375	
1974	180,000		149,900	680,700	112,500	214,420	
1975	254,000	181,300	171,300	719,900	135,700	226,768	
BUDGET 1976	NOT KNOWN	178,000	178,500	723,300	124,000	227,840	10,500

(1) Does not include DECS share of ITV service.

(2) Capital expenses can not be separated as to instructional vs. general use.

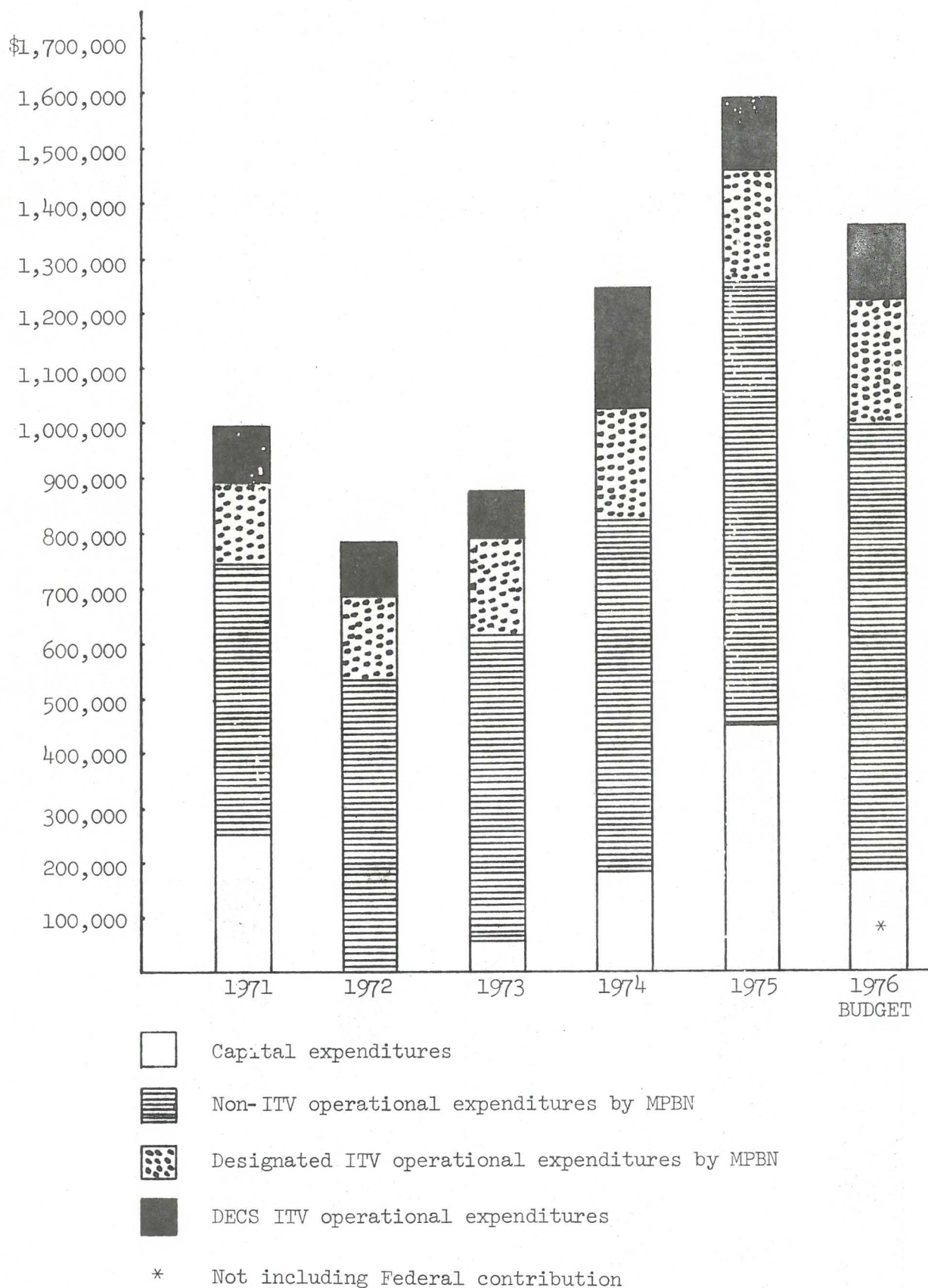
(3) Figures developed by MPBN on a pro-rata basis.

(4) Funds received from various sources, private and public.

(5) Organizations partly paying production costs for "La Machine Magique."

EXHIBIT D:

MPBN AND DECS TV EXPENDITURES



V.

DELIVERY SYSTEMS

Over-the-air broadcasting: Over-the-air broadcasting of ITV programs is available in two modes, the first of which is the VHF/UHF TV channels received by home TV sets, and a second service called ITFS which is the broadcasting of educational programs at microwave frequencies to specially equipped users. The UHF portion of the TV allocation, channels 14-83, is used in the southern Maine area by viewers of channel 26.

The FCC established ITFS, the Instructional Television Fixed Service, and allocated 31 channels for use by schools. In-school programs are transmitted from a single point, such as a school district headquarters, and are received by a special antenna at the schools. There the signals are translated so that conventional sets can be utilized.

CATV distribution systems: The rapid emergence of cable television (CATV) has benefited many Maine communities in recent years, particularly communities which suffered reception difficulties due to their location. Its present prime purpose is the delivery of quality TV signals to the home user, but many cable companies have made the service available to schools at minimal cost. The systems use single and double coaxial cable running from the "headend" of the system to each user in the familiar trunk and branch configuration. The headend of the system distributes signals from broadcast TV or from external cable systems through the cable network. The FCC has required that CATV companies in prime market areas set aside a percentage of channels for ITV. Approximately 20% of Maine schools are connected to a cable system; Exhibit E illustrates the distribution of cable companies in Maine.

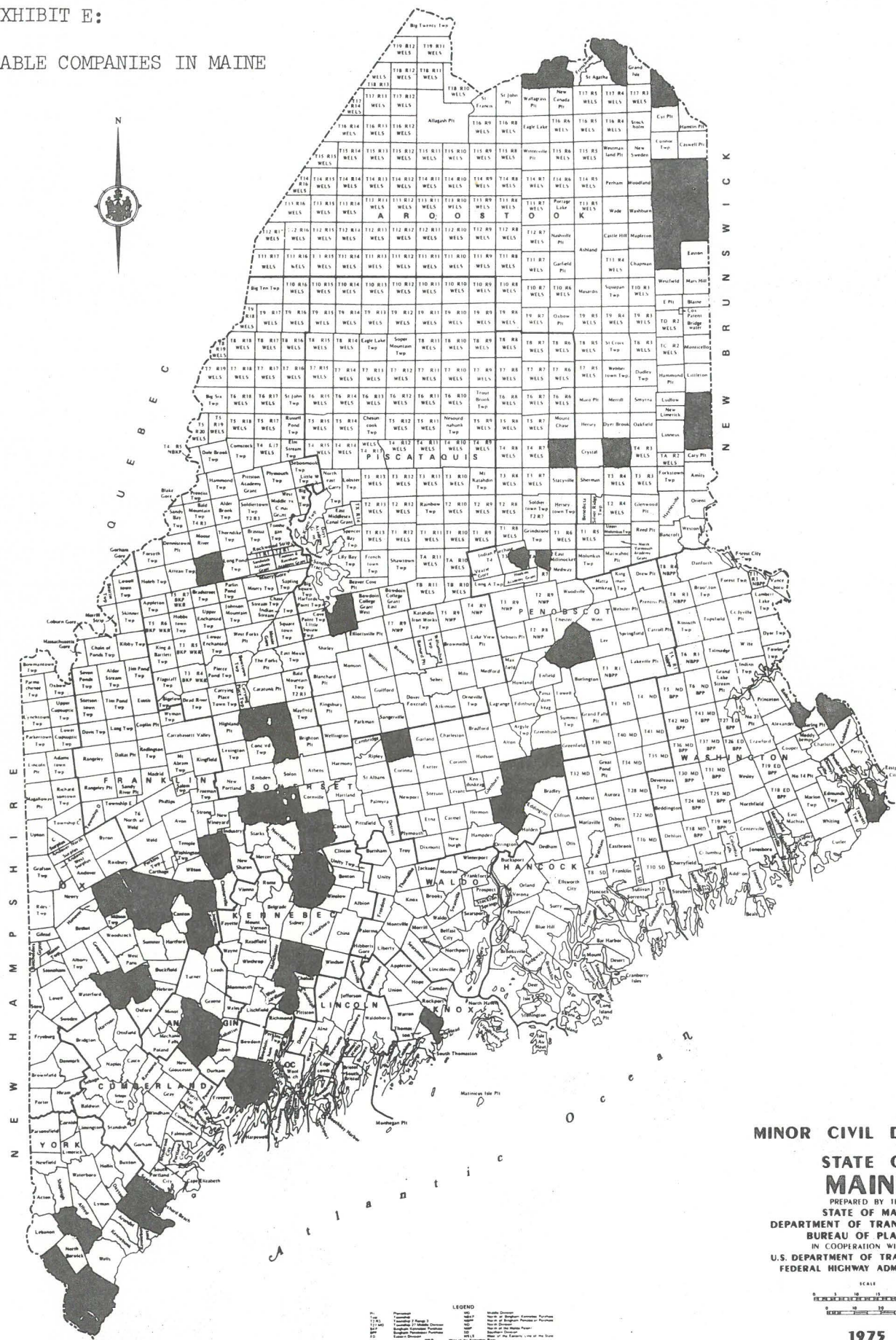
CCTV distribution systems: Whereas over-the-air (open circuit) broadcasts transmit signals through the atmosphere at frequencies which can be received by properly tuned receivers within range of the transmitter, closed circuit TV (CCTV) is a system of transmitting TV signals to receiving equipment directly linked to the originating facility by coaxial cable, microwave relay, or telephone lines. The basic CCTV systems consist of a TV camera, a video tape recorder, and the reproducing device which might be a standard TV receiver. Fewer than 10% of Maine schools presently enjoy CCTV facilities.

Master-antenna distribution systems: The master-antenna TV system is a form of CCTV. The system consists of an antenna system, distribution amplifiers to distribute the received TV signals throughout the school via coax cable, and taps along the cable for set connection.

Satellite distribution systems: Satellite transmission promises the "great antenna in the sky" similar to the aborted airborne experiments of early ITV. The cost of satellite transmission is formidable due to its short lifetime. Its immediate impact on education is not anticipated to be significant. Direct satellite transmission, aside from questions of cost, implies a separation of local and national programming, however, the local public broadcasting industry does not feel threatened by this

EXHIBIT E:

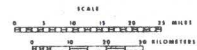
CABLE COMPANIES IN MAINE



MINOR CIVIL DIVISIONS

STATE OF
MAINE

PREPARED BY THE
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



1975

LEGEND
Cable Company
Service Area
City/Town
County
State Boundary
Water Body
Unlabeled Area

possibility.

Video tape: Video tape recordings in the $\frac{1}{2}$ " reel to reel and $\frac{3}{4}$ " cassette format represents a most convenient method to utilize ITV programming. Tape is being used with increased regularity in the secondary schools of the state. With more material being directly recorded on video tape and the cost of video cassette players being under \$2,000, it is expected that the video cassette player will someday replace the 16 mm film projector in the schools.

Video disc: Video disc promises one of the least expensive means of delivery of instructional programming directly to the consumer. Although the development of video disc is being aimed at the home market, ITV discs are expected to play a major role in reducing the costs of reproducing and distributing instructional material.

VI. DEPARTMENT OF EDUCATIONAL AND CULTURAL SERVICES

Goals/objectives: The Maine State Policies Plan published in January 1975 by the State Planning Office lists the following as the most pertinent ITV service-related goal for the Department of Educational and Cultural Services:

- GOAL I. Improve the breadth and quality of pre-school, elementary, and secondary education for all Maine youth.
- OBJECTIVE 5. Develop and improve a statewide educational technology program which involves libraries, television, and the standard audio-visual resources.

The ITV Coordinator has evidenced concern and commitment with respect to improving the ITV service in "A Plan to Improve ITV in Maine (FY1976, 1977)" which was submitted in 1974. Efforts to bridge the gap between the "potential service" and the "performing service" offered by ITV have been and continue to be commendable. However, lack of staff and budgetary limitations imposed by departmental priorities have impeded the effective utilization of in-school television. A limited number of workshops in media utilization have been favorably received by Maine teachers, but manpower limitations have precluded a comprehensive statewide utilization effort which would insure more effective use of available programming.

A Title IV, Elementary and Secondary Education Act, grant was awarded to MSAD #47 effective January 1976. The objectives defining the grant addressed themselves to: workshops promoting more effective utilization of video tape equipment, increasing awareness of potential use of cable TV channels, and establishing a video tape library supporting an on-call programming service for Augusta area schools.

Programming sources: Instructional programming is currently derived from several sources. A survey, made under the auspices of the U. S. Office of Education in 1961, revealed that some school systems were producing televised lessons which proved to be effective in the classroom. Some of these lessons were preserved on video tape. Subsequently, and quite naturally, the concept of centralized distribution agencies or libraries emerged.

These libraries have assumed the role of identifying, gathering, and distributing video taped instructional programming to educational organizations. Additionally, several agencies have initiated and organized programs in which a large number of educational agencies join to form national or international consortia. These consortia enable the production of high quality classroom series normally beyond the means of any one of the member production facilities.

For example, the Eastern Educational Network (EEN), which supplied over 50% of Maine's 1975-1976 ITV programming, is a regional network of 26 public TV stations and educational agencies in the Northeast and Middle Atlantic states. Membership includes MPBN and DECS. About 40% of the 118 series distributed by EEN are produced and shared by the member agencies. The remaining 60% of EEN programming derives from national TV and film producers and distributors. Table 4 exhibits the sources of ITV program material presented in the 1975-1976 ITV schedule.

TABLE 4:

ITV PROGRAMMING

Source	% of Total Hours Broadcast
Eastern Educational Network	51
Agency for Instructional TV	21
MPBN	15
WENH (New Hampshire)	5
Other	8

Producer/distributor policies: The advent of video tape recorders and playback equipment has introduced the capability of recording over-the-air broadcasts for use at more convenient times within the school day. However, several producer/distributors of instructional programming explicitly prohibit this "pirating" by reason of production or distribution rights restrictions. In order to alleviate difficulties associated with content copyright and other legal restrictions, some major agencies have jointly agreed on a general policy of authorizing supplemental school recordings of public and instructional programming, but subject to certain conditions.

Typically, these conditions assert that: recordings must be used in the schools where they were taped, recordings may not be used for profit, and school recordings may be used for only the 7 day period of the broadcast licensed by the distributing agency and will be erased at the end of the 7 day period except to the extent specifically authorized in writing and in advance by the agency.

The purchase of video taped materials by schools does not include, in general, the right to reproduce it in whole or in part, or to be used on open-circuit or closed-circuit TV. In order to telecast many programs, a licensing agreement must be signed between the agency and the user. This may require the payment of a television broadcast fee. Users within a consortium broadcast area may have broadcast rights. Table 5 summarizes off-air recording restrictions for programs in the 1975-1976 ITV schedule. Recording rights have become an important factor in the selection of ITV programming.

TABLE 5:

OFF-AIR RECORDING RIGHTS	NUMBER OF SERIES	% OF SERIES
Permitted with no limitations, no charge.	23	56
Permitted for 7 days, no charge.	10	24
Permitted for 7 days, on premises use.	6	15
Permission of producer required.	1	2.5
Recording not permitted.	1	2.5

Now that schools possess the recording/playback technology amenable to more effective use of programming, some of the larger motion picture film distributors are considering flexible policies which will benefit school usage without affecting film sales. If these attempts result in diminished film sales, then it is expected that "no-record" policies will be reintroduced. There is professional support for the argument that those distributors who fail to introduce flexible recording policies will be forced through economics to abandon the ITV distribution business. Even TV agencies such as EEN are expected to adopt more flexible recording policies due to the expected increase in the availability of recording equipment.

Software costs: The ITV industry has evidenced a surge in the production of programming software compatible with the capabilities that recorder/playback technology has introduced. As evidenced in Table 6, which is intended for estimation purposes only, purchase and rental costs for instructional software can vary significantly. Without broadcasting or video library facilities, many individual schools would find the costs of instructional programming prohibitive.

TABLE 6:

RANGES IN PURCHASE/LEASE COSTS IN \$ FOR

NON-BROADCAST MODES OF PROGRAMMING (1)

Number Of Lessons	PURCHASE PRICE				LEASE PRICE			
	VIDEO-CASSETTE		VIDEO TAPE ⁽²⁾		VIDEO-CASSETTE ⁽²⁾		VIDEO TAPE	
	15 min. lessons	30 min. lessons	15 min. lessons	30 min. lessons	15 min. lessons	30 min. lessons	15 min. lessons	30 min. lessons
5	280-626	360-1000	280	345	380	655	160-325	185-360
10	560-1250	720-2000	560	690	760	1310	320-650	370-720
15 (3)	840-1825	1080-3000	840	1035	1140	1965	480-975	555-1080
30 (3)	1680-3750	2160-6000	1680	2070	2280	3930	960-1950	1110-2160

(1) Based on information from suppliers of ITV programming for Maine.

(2) Only one producer sampled offering this format within the given context.

(3) Most commonly used series length.

These fees do not, in general, guarantee reproduction or broadcast rights, but are intended to reflect ordinary usage by a classroom teacher.

Reliable and economical methods for evaluating the effectiveness with which televised lessons teach skills and information to children present a major obstacle to the successful development of ITV programming. Table 7 shows the costs for programming shown in 75/76 academic year.

TABLE 7: 75/76 ITV PROGRAM COSTS

	DECS	MPBN (1)	OTHER SOURCES
Elementary	\$24,998	\$75,000	\$10,500
Secondary	5,005		
TOTAL	\$30,003	\$75,000	\$10,500

(1) Estimated MPBN share of production costs for "News Machine" and "LaMachine Magique"

Local productions: Because of the high costs associated with quality programming, the production of such programs should not be undertaken without considering short-term performance accountability data. Production costs can be justified only when such data reveal successful teaching and substantial demand. Without evaluation data, the attainment of the primary objectives of ITV and the justification for the associated costs remain unknown. Table 8 lists several elementary offerings and suggests that local production of ITV deserves careful and objective justification.

TABLE 8: PROGRAM COST/USE DATA (1)

NAME OF SERIES	COST PER EXPOSED STUDENT IN THE SUGGESTED GRADE RANGE
La Machine Magique	\$44.50 (local)
News Machine	3.59 (local)
Primary Art	.15
Let's All Sing	.15
Tomorrow Starts Today	.06
Ripples	.06
World of B.J. Vibes	.06
Animals and Such	.05
The Metric System	.04
Word Workers	.03
Uncle Smiley	.02

(1) Does not include broadcast costs.

Although it has been proposed that local production of "priority basis" instructional lessons or pilot programs be funded, the cost-effectiveness of current Maine productions certainly cautions against uncritical adoption of such proposals.

RECOMMENDATION: That the DECS formally conduct a comprehensive state-wide assessment of programming needs in order to assist in the cost-effective selection of programs for the ITV broadcast schedule.

RECOMMENDATION: That MPBN assure attention to activities which encourage and complement professional development of staff involved in instructional broadcasting, particularly in the areas of formative and usage evaluation.

RECOMMENDATION: That consideration of elimination of and/or alternatives to "La Machine Magique" be initiated in an attempt to more cost-effectively serve and support the principle of cultural pluralism. MPBN's estimate for the total cost of this series is \$40,500 (\$30,000 state funds and \$10,500 from other sources.)

RECOMMENDATION: The DECS should have final responsibility for programs broadcast for instructional purposes. The department should function as the broad producer and supplier of instructional programming. Although MPBN production and programming staff provide technical expertise for local productions, the DECS should retain final responsibility for all programming broadcast through the ITV service.

RECOMMENDATION: That Media Services develop a procedure by which teacher programming needs, uncovered by a needs assessment project, may be categorized and assigned priorities for future action. The assignment of priorities should be a function of several variables including: target audience size, cost, appropriateness with respect to DECS goals, availability of alternative media resources, and teacher interest.

VII.

CURRENT PROGRAMMING

Types of programs: The ITV schedule presently makes available programming which is directed at both the cognitive and affective domains of the educational process. "Inside Out," for example, one of the more popular series, is designed to help 8-10 year olds achieve and maintain well-being through expression of feelings, thereby encouraging and developing important life-coping skills. Table 9 illustrates the distribution of ITV programming by subject-area.

TABLE 9:

SUBJECT-AREA	% OF TOTAL HOURS BROADCAST	
	K-6	7-12
Social studies	20.7	39.7
Music/Art	12.6	13.1
Language arts/Literature	17.7	12.4
Health/Nutrition/Safety	12.7	11.8
Math	4.3	8.6
In-service training	6.3	7.1
Career education	2.6	5.2
Science	12.7	2
Interdisciplinary	10.4	-

The ITV Coordinator relies heavily upon the participation of teachers in the yearly program selection process. 68% of Maine's elementary teachers avail themselves of this opportunity; 20% of the secondary teachers have responded to his questionnaire. Indeed, a survey of teacher "interest areas" revealed that programs have, in general, been selected to meet the subject-area demands of Maine's teachers. However, the "state of the art" as regards the software industry has certainly prevented many teachers from eagerly adopting programs broadcast within their asserted area of interest.

In-service teacher training and series utilization programs are offered in an attempt to lessen the effects of (3) in the following section entitled "Factors influencing use." The utilization programs introduce the teacher to a particular series and offer suggestions for effective utilization of the lessons within the series. The objectives, educational strategy, and role of the classroom teacher are typical items in the format of these programs. An in-service teacher training program entitled "Teaching Children With Special Needs" was aired this year for teachers expressing concern over the management of children with special learning needs. 20% of the teachers using ITV report viewing utilization/training programs.

Teacher guides are available upon request for most series and are supplied free of cost by the DECS. These are purchased from the series distributors and account for approximately \$5,000 of the annual acquisition budget. 80% of the state's ITV-using teachers request guidebooks and, if properly used, they certainly improve the effectiveness of program utilization based upon the findings of this and other studies. 14% of the teachers requesting guidebooks reported difficulty in receiving them.

RECOMMENDATION: That more careful attention be focused on the accurate and speedy processing of guidebook requests by ITV service staff, and that the availability of these guidebooks be continuously promulgated.

Factors influencing use: Approximately 14% of all teachers who use ITV report using it as a primary tool for direct instruction. There are several factors which influence this percentage:

- (1) 20% of the teachers surveyed report that the program content does not usually serve to achieve the objectives which they have set for their curriculum,
- (2) very few programs are specifically designed to teach basic cognitive skills, but rather to motivate, enrich, or reinforce the general education process,
- (3) only 13% of the teachers sampled acknowledged any formal training in the use of ITV and the integration of program material into the classroom,
- (4) scheduling difficulties within the classroom often preclude the regular use essential for sequentially presented material, for example, "The Metric System."

A correlation study was undertaken to determine the strength of the relationship between the amount of formal training in the use of media and effectiveness of "actual use" of ITV resources. Teachers were randomly selected from a group consisting of all those who reported no reception, scheduling, or equipment difficulties in order to minimize adverse effects of these factors on "actual use" ratings. The study showed that there exists a positive correlation of .404 between amount of formal training and effective use of ITV. This correlation coefficient is significant at the customary .05 level; 16% of the variation in effectiveness of actual use is accounted for by differences or degrees of formal training in media utilization.

RECOMMENDATION: That a concerted statewide effort be promoted by the ITV staff to increase teacher awareness of the importance of the utilization component which accompanies certain series; that these utilization programs be broadcast more frequently throughout the school year.

RECOMMENDATION: That DECS and the University of Maine College of Education continue to promote and offer media utilization courses which might be taken for recertification credits by the state's teachers, or as electives by in-training teachers.

Usability of programs: Research indicates that teacher enthusiasm, training, and commitment to ITV are essential for the quality of instruction to be fundamentally improved through televised instruction. Maine's teachers, for the most part, continue to evidence positive enthusiasm toward television as an instructional tool. Any widespread training or workshop activity in media utilization would do much to increase the commitment which Maine's teachers assign to the ITV service. After 13 years of use in Maine, instructional television has not attained its potential. It has contributed measurably to the traditional teacher-textbook approach to instruction, but mostly as a supplemental or motivational device.

Maine teachers agree that televised programs present information in an understandable manner. The extent to which instructional programming improves student performance was rated at an average value of 2.48 on a scale of 0 (never) to 4 (usually). This index expresses, perhaps more than any other such indicator, the desirability and usability of current programming. A similar index, based on the same rating scale, revealed an average overall "quality of current programming" value of 2.66; indicating a rather cautious appraisal of the programming industry by Maine's teachers. These statistics are consistent with a usability analysis offered by U. S. Commissioner of Education T. H. Bell in a speech delivered in April 1975 entitled, "A New Commitment to Instructional Technology." Salient portions of his speech follow:

Education is a labor-intensive industry. This means that almost all of its work must be done with human effort, with very little opportunity for automation and mechanization.... But we can use machines to perform some of the sub-functions of teaching.... But broadcast television has never caught on to the extent that many had hoped. The big problem is its rigidity. Teachers and students don't teach or learn in the same way that broadcast television functions. They do not proceed at a uniform rate through the subject matter in a course.... Children learn at different rates, and teachers work under different circumstances and with uniquely different teaching personalities of their own. It is extremely difficult to coordinate these many diverse factors in a way that leads to effective education where broadcast television is involved.... But, insofar as in-school television is concerned, we must shift our attention to individualized instructional television with machine and program totally responsive to the will of the teacher. Here is a powerful tool in the hand of the teacher - a slave mechanism - a telling, showing, demonstrating machine.... We will continue to need broadcast television in the field of education. But I believe that we will find the advantages to classroom teachers in individualized instructional television will be so great that we will shift our emphasis to this mode of bringing television to classrooms around the country. After this is done, there will still be many occasions when special broadcasts can be utilized in schools. And, of course, there will still be enormous demand for educational television in the houses of more than 200 million people.

In summary, the U. S. Commissioner states that individualized instructional TV via video tape cassette or disc is one of the answers to routine tasks in education, but educational leaders have not moved forward to take advantage of the capability. The video playback system allows teachers to select programs when and for whom they are needed.

User analysis: This analysis is based upon information provided by teachers who have used ITV in the 75/76 academic year. Hence all statistics presented are based upon teachers who actually watch ITV and not upon the total number of teachers who could utilize the ITV service.

The following assessment of 75/76 ITV program use, Table 10, suggests that a more formalized procedure be implemented to cope with the needs of Maine's teachers. A frequent complaint against the programs is that many are repeated from year to year, thus reducing the motivational component which derives from a "new" lesson. As Table 10 indicates, many programs have a rather wide target audience. It is not uncommon for children to be exposed to the same series for more than one or two years of schooling.

RECOMMENDATION: That the ITV Questionnaire be modified to enable the ITV staff to quantitatively measure against acceptable criteria for continuance of specific series based upon an adequate sample of the suggested grade and/or subject matter teachers. For example, if less than 20% total use by those teachers who view ITV in the suggested grades was the criterion, then 22 of this years series/specials would be replaced in the following year (See TABLE 10).

The average amounts of teacher usage, measured in various ways, follow for the four basic grade levels as well as a consideration of the frequency with which the series are used (TABLE 11). These results suggest that: (1) many teachers exercise personal selection criteria for lessons within those series which they select as useful; (2) there are external factors which prevent more extensive use of instructional programs. Among these other factors, the following were cited by present ITV users as deterring more comprehensive use:

- (1) 66% report difficulty in scheduling over-the-air broadcasts,
- (2) 37% consider program content inappropriate for their curriculum needs,
- (3) 13% claim that poor reception inhibits extensive use,
- (4) 9% do not have easy access to functional TV sets, and
- (5) 5% maintain that students do not learn at the same pace at which program material is presented.

TABLE 10:

ASSESSMENT OF 75/76 ITV PROGRAMS
 BASED ON RESPONSES OF TEACHERS WHO USE THE SERVICE

NAME OF SERIES	Suggested grade range	% of using teachers in suggested range utilizing program:			Total use as % of suggested users
		Regular	Sporadic	Rare	
All About You	1-2	42	14	5	61
Cover to Cover I	4-5	33	19	4	56
The Letter People	K-1	34	11	5	50
The Metric System	4-9	33	10	3	46
Inside Out	3-5	25	17	1	43
Cover to Cover II	5-6	29	11	1	41
National Mulch	7-9	7	33	0	40
Let's All Sing	K-2	22	10	3	35
A Matter of Fiction	7-12	12	18	3	33
Ripples	K-2	17	9	6	32
Mulligan Stew	4-6	19	7	2	28
Electric Co./Sesame St.	3-5, K	11	11	6	28
Alive and About	1-4	11	10	5	26
Animals and Such	4-6	8	13	3	24
Way to Go	K-2	15	6	1	22
News Machine	K-3	10	7	3	20
Bread and Butterflies	4-7	9	9	2	20
American Heritage	7-12	6	7	7	20
Places in the News	5-8	4	11	5	20
Picture Book Park	2-4	15	2	2	19
Primary Art	K-2	3	7	8	18
Earthkeeping	7-12	0	18	0	18
Stories Without Words	K-6	11	4	2	17
Western Civilization	7-12	4	6	7	17
Uncle Smiley	K-6	12	3	0	15
A Matter of Fact	7-12	3	9	3	15
Self Inc.	5-8	6	5	3	14
Word Workers	K-3	6	6	1	13
World of B.J. Vibes	4-7	4	6	2	12
How a Bill Becomes Law	7-12	4	4	4	12
Children of the World	4-7	2	9	1	12
Many Americans	4-9	2	7	1	10
Three Ages of Whitman	7-12	0	6	3	9
U. S. Foreign Relations	7-12	2	4	2	8
You Be the Judge	7-12	1	4	2	7
Tomorrow Starts Today	3-6	4	2	1	7
Images and Things	3-8	1	2	3	6
Withit	K-6	3	2	1	6
Economics in Maine	7-12	1	0	0	1
La Machine Magique	K-3	1	0	0	1
Play Chess	7-12	0	0	0	0

TABLE 11:

ITV USAGE BY THOSE WHO VIEW ITV

Grades	min/wk Viewing ITV	# lessons used on yearly basis	Frequency of series use		
			Regular	Sporadic	Rare
K-3	50	60	75%	21%	4%
4-6	40	50	78%	17%	5%
7-9	20	16	25%	50%	25%
10-12	15	10	29%	50%	21%

In an attempt to minimize scheduling difficulties, the broadcast schedule repeats most lessons from 2 to 7 times per week. This does prove helpful to most teachers in alleviating some of their schedule conflicts, but 21% of the ITV-using teachers insist that little or no benefit is derived from this repetition.

RECOMMENDATION: That DECS establish and monitor an operational overview or technical strategy for effecting maximum audience coverage in the state by utilizing the over-the-air, cable, closed circuit, and video recorder/ playback resources of the state's school systems.

Role of ITV: Several distinct roles have emerged for ITV. Although each of these roles bears close relationship to the educational process, an individual analysis of their importance for Maine teachers shows that:

- (1) 25% regard ITV as an opportunity for student enrichment,
- (2) 42% utilize ITV mainly to reinforce or supplement their teaching,
- (3) 19% view ITV programming as a motivational tool to be integrated with other classroom routines, and
- (4) 14% use ITV as a direct instructional device.

Although many, including U. S. Commissioner of Education T. H. Bell, regard individualized TV learning as an important educational strategy for the future, the relative scarcity of video cassette systems in Maine has hindered the development of this role for ITV, particularly at the elementary level.

Non-user analysis: An analysis of reasons for non-use of the ITV service revealed that a substantial difference exists between grades K-6 and 7-12. Some teachers registered several reasons for their non-use. The responses of 240 non-users are tabulated in Table 12.

TABLE 12:

REASONS FOR NON-USE OF ITV

Grade Level	No TV Access	No easy TV Access	Scheduling Problems	Reception Problems	Content not Appropriate	Non-Uniform Learning Rate	TV is not Appropriate
K-3	4	7	28	9	9	1	2
4-6	6	11	21	5	5	0	1
7-9	13	26	59	11	32	2	15
10-12	13	21	54	8	33	2	13
TOTAL	36	65	162	33	79	5	31

Clearly the scheduling of over-the-air broadcasts with classroom routines is the predominant obstacle to ITV use by teachers. Whereas only 4% of K-6 non-using teachers deem ITV as an inappropriate educational tool, 16% of non-using teachers in grades 7-12 consider television, in general, as an inappropriate method of instruction. This latter response, along with the remaining reported difficulties, suggests that the effective delivery of secondary instructional programming requires more careful attention to factors such as: scheduled class rotation, need of specific subject-area programs, and TV accessibility problems inherent in the secondary educational process.

9% of the 4,881 secondary students represented in the survey reported viewing at least one televised instructional program. Some secondary schools, in order to overcome the inherent problems associated with over-the-air use of broadcast programming, have responded by utilizing video tape recordings of both public and commercial station broadcasts. This "solution" for improving secondary use of instructional programming has received limited acceptance due to the fact that video equipment is costly and the "pirating" of many programs is illegal.

Non-use of the ITV service at the elementary level results mostly from the unavailability to teachers of either adequate TV facilities, or acceptable programs rather than to objections regarding the general acceptability of TV as a pedagogical device. 79% of the 7,311 elementary students represented in this study were exposed to ITV. Thus, there does not seem to exist any inherent difficulty which might prevent the adaptability of the present delivery system to elementary school use.

General observations: The potential effectiveness of ITV is rated by elementary teachers at 3.2 on a scale of 0 to 4 (low to high), and secondary teachers rate its potential at 3. Thus, there continues to exist an openness to the concept of televised instruction despite the objections raised against its present quality or availability. For example, 93% of Maine's teachers agree that ITV can be beneficial in that studio teachers have more resources available than do most classroom teachers.

Further evidence of the openness which teachers exhibit toward the concept of ITV is manifested by the fact that 78% registered moderate to high interest in attending an ITV utilization workshop. 90% of the teachers surveyed expressed moderate to high interest in improving or maintaining their professional teaching standards through televised programs.

RECOMMENDATION: That televised series exhibiting marginal utility be cancelled for the next few years in order to make available funds and air time so that a comprehensive in-service teacher training module may be acquired for after school use by the state's teachers. A needs assessment survey of Maine's teachers could serve to set priorities for specific subject-area programs.

A high level of agreement was recorded by teachers on the usability and desirability of on-call programming. Since scheduling is the most common obstacle to ITV use, it is not surprising that 93% of those surveyed expressed moderate to high enthusiasm for on-call programming; that is, the capability of having a specific lesson viewed when the teacher has need for it. This capability could be effected by an easy-access video cassette library which could supply tele-lessons to teachers on a demand basis. 98% of the teachers surveyed projected the effectiveness of such an easy-access video library as moderate to very high. A video library and associated equipment would improve usage by many teachers. Libraries are expected to become a good market for video-cassette TV in the next 5 years. 96% of the surveyed teachers stated they would utilize a centralized video library provided that their school possessed the proper playback equipment.

RECOMMENDATION: That the DECS establish, on a trial basis, a minimal video-service library under the supervision of Media Services. The objectives of this library service will include: (1) circulation of video tapes and cassettes, (2) provide a video duplication service, and (3) promote utilization of video services particularly at the secondary level.

VIII.

STATEWIDE INVENTORY

ITV equipment: Principals and superintendents were surveyed to ascertain administrative attitudes towards ITV as well as ITV-related inventory data. Results indicated that the schools in the state have invested approximately the following amounts in ITV-related instruction (See TABLE 13).

TABLE 13:

\$ INVESTED IN ITV		
GRADES	SAMPLED SCHOOLS	STATEWIDE PROJECTION
K-6	\$100,078	\$1,430,000
7-12	151,800	759,000
TOTAL	\$251,878	\$2,189,000

Table 14 exhibits several indices illustrating the average number of classrooms per type of ITV-related equipment in the state. Most apparent from these indices is the fact that until the recent advent of the video tape recorder, secondary schools have not evidenced great commitment to the television concept. However, the trend is emerging in secondary schools to adopt video recorder/playback machines to compensate for over-the-air scheduling difficulties.

TABLE 14:

GRADE	# classes B&W TV	# classes color TV	# classes VTR	# classes video tape
K-6	3	28	70	7
7-12	15	232	36	2

Presently, about 20% of broadcast time is devoted to secondary programming. In view of the fact that only 4% of secondary teachers use ITV on a regular basis, the following is offered as a suggestion to efficiently use valuable broadcast time.

RECOMMENDATION: That over-the-air broadcast of secondary programming be phased out; that until it is eliminated, one time weekly showings be scheduled at convenient afternoon time slots for in-school teacher video-recording.

Implementation of a video tape library will easily accomodate the limited demand expected from secondary teachers. The following is excerpted from a May 1975 publication by DHEW entitled Evaluation of the Market for ITV and the Effects of Changes in the Communications Industry. Current and Potential Use of ITV. Final Report Vol. I:

Although many secondary school educators have acclaimed it as a very important innovation, ITV has not received the utilization originally anticipated. This has been due primarily to limited funds and staff for it in the schools and among producers of ITV equipment and materials. The role of ITV in secondary schools is expected to remain limited in the future.

It should be noted that 67% of the secondary schools surveyed reported having video tape/cassette capabilities and thus the latter recommendation is not unreasonable. Only 17% of the elementary schools surveyed enjoy the use of video tape equipment.

Need for technical services: 88% of those principals and superintendents sampled indicated that they would support a service designed to offer assistance with respect to any technical problems associated with ITV reception in their schools. Also of interest to superintendents is a service designed to assess ITV equipment needs in existing and planned schools within their jurisdiction.

Several factors contribute to the unattained potential of televised lessons, not the least of which is the inadequate selection of TV equipment for most effective utilization. The effect of the televised lesson suffers unless the signal broadcast from the transmitter can be adequately received and viewed under favorable learning conditions. Such considerations as: screen size, number of students viewing, height of set, room acoustics, sufficient light for note taking, elimination of glare, teachers who can properly tune a set for optimum sound and picture quality, and antenna direction are certainly not awesome, but each contributes to the effectiveness of the lesson.

27% of the teachers sampled do not believe that TV equipment has been adequately selected with respect to educational specifications and 17% registered "no opinion." 11% reported that the TV equipment to which they have access is not normally maintained in a functional condition.

RECOMMENDATION: That an ITV consultant position be established within the Media Services section of the Maine State Library. Responsibilities of such a position would include the following:

- (1) provide an ITV needs-costs service for planned and existing schools in the state,
- (2) provide assistance with respect to minor technical and/or reception difficulties,
- (3) conduct ITV utilization workshops throughout the state at the local level,
- (4) promote incorporation of ITV programming into curriculum planning through personal contact with the schools of the state; particularly those without the services of a media specialist,
- (5) assist the ITV Coordinator in a comprehensive programming needs assessment project,
- (6) assemble a reliable inventory of ITV related equipment in Maine schools.

IX.

CONCLUSION

Overall performance rating of ITV service: The productivity of the ITV service has been measured primarily in terms of the effectiveness and efficiency of the delivery systems used to transmit instructional programs. The design of an educational distribution system should reflect considerations such as: availability to target audience, classroom schedules, and equipment inventories. The one-channel nature of broadcasting inhibits availability of over-the-air programming. This limitation explains the current usage patterns of ITV; skewed sharply toward the elementary grades, where classroom routines are not as rigid as the secondary grades. Secondary teachers are more burdened with routine chores. Consequently, they have resorted to the more traditional methods of instruction, having little time to include ITV planning into their curriculum and instructional development.

In order to arrive at an overall performance rating for the ITV service, an ideal performance rating score was developed against which an actual teacher performance rating could be measured. Exhibit F presents the various criteria used to rate: (A) the ITV delivery system, and (B) the usage of the ITV service. The performance rating for each part was computed separately for elementary and secondary teachers and was defined by the ratio of the actual score to the ideal score. It should be noted that ratings for the five general criteria in Exhibit F are all within 12% of the overall rating for each grade level; that is, no one criteria significantly affects the overall rating.

Elementary teachers rate the performance of the present ITV service/delivery system at 70% and usage of the service was rated at 69%.

Secondary teachers rate the performance of the present ITV service/delivery system at 55% and usage of the service was rated at 7%. This reflects clearly the need for significant change in the secondary delivery mechanism.

Instructional television can be helpful in serving a teacher's limited and specific needs. Developing technologies promise to be more useful to secondary schools, particularly video playback systems which are more adaptable to the rigid secondary process.

Future developments: Several developments in ITV utilization are expected to become prominent within the next decade. These include: individualized ITV program use, in-service teacher training presentations offered for credit, and video library and services offered by media centers.

Maine teachers have, in general, relegated ITV programming to a supplementary role in the traditional teaching process. Generally, this is due to the failure of educational strategists to anticipate the interface of a technological advance such as ITV with traditional teaching methods. Implementation of ITV utilization programs will do much to increase the educational productivity of the ITV service. The proper proportion of textbook teaching and video technology required to yield optimum results must be a question posed by each educator.

EXHIBIT F:

(A) OVERALL PERFORMANCE RATING OF
ITV SERVICE/DELIVERY SYSTEM

(B) RATING OF AMOUNT OF USE

EVALUATIVE CRITERIA				ELEMENTARY		SECONDARY	
(A) ITV SERVICE/DELIVERY SYSTEM:	Relative weight	Ideal score	Total ideal score	Actual score	Weighted score	Actual score	Weighted score
EFFECTIVENESS:							
teacher's rating of actual effectiveness	4	40	160	28	112	24	96
extent to which performance improved	4	40	160	25	100	24	96
extent to which students motivated	2	40	80	30	60	25	50
QUALITY OF USE:							
rating of teacher's enthusiasm	3	40	120	27	81	18	54
% teachers with formal training	1	100	100	15	15	12	12
usually precede/followup programs	1	100	100	93	93	87	87
% viewing in-service/teacher training	.5	100	50	22	11	14	7
% who request guidebooks	.5	100	50	88	44	32	16
QUALITY OF PROGRAMMING:							
teacher's rating of quality	3	40	120	29	87	22	66
serves to achieve curriculum goals	1	100	100	92	92	60	60
presents information understandably	2	40	80	31	62	28	56
offers otherwise unavailable programs	2	40	80	31	62	30	60
% teachers involved in selection	.25	100	25	68	17	20	5
AVAILABILITY OF PROGRAMMING:							
% teachers with access to TV	1	100	100	90	90	66	66
% claiming EX-GOOD reception	1	100	100	66	66	66	66
everyday awareness of programming	2	40	80	29	58	16	32
effectiveness of repeat programming	2	40	80	28	56	20	40
			<u>1,585</u>		<u>1,106</u>		<u>869</u>
				RATING = $\frac{1106}{1585} = 70\%$		RATING = $\frac{869}{1585} = 55\%$	
(B) AMOUNT OF USE:							
% students exposed to programming	1	100	100	79	79	9	9
% teachers using on regular basis	1	100	100	59	59	4	4
			<u>200</u>		<u>138</u>		<u>13</u>
				RATING = $\frac{138}{200} = 69\%$		RATING = $\frac{13}{200} = 7\%$	

A 1970 planning report, Trends in Instructional Television, maintained that: "little change can be expected in the schools in their adoption of instructional technology, and that such adoption that did occur would be random and ill-defined, and that there might even be retrenchment in the adoption of innovative techniques because of lack of financial support." The recommendations of this report are predicated upon the assumption that DECS and the Legislature will assign sufficient priority to the ITV service to allocate necessary funds for full commitment to its goals and objectives.

A \$27,000 budget cut levied against Media Services this year resulted in reducing the contract for air time with WCBW-TV; thereby, jeopardizing full ITV broadcast coverage by the station which serves more school children than any of the MPBN stations. WCBW has, at its own expense, continued the 75/76 ITV schedule. At the time of this writing, it is questionable whether DECS will be able to appropriate sufficient funds for full ITV coverage by WCBW in the 76/77 academic year.

Unless a higher priority is assigned to the ITV service by DECS and the Legislature, it is recommended that the present funding level be carefully weighed against the findings and recommendations offered in order to effect maximum educational productivity per expended dollar.

Acknowledgments: Finally, the staff gratefully acknowledges the generous and full cooperation extended to it by the ITV Coordinator, MPBN administrative staff, and the state's teachers, principals and superintendents. It is sincerely hoped that the findings and recommendations of this report will be used to better serve the needs of Maine's dedicated educational community.

TEACHER'S QUESTIONNAIRE

1. Have you used instructional television in your teaching this year? ☐ Yes ☐ No
52% 48%
2. If your answer to (1) above is no, which of the following best explains your situation: (check more than one if applicable)
- 15% ☐ do not have access to a TV set,
 - 17% ☐ do not have easy access to a TV set,
 - 68% ☐ difficulty in scheduling programs,
 - 14% ☐ poor reception makes it impractical,
 - 33% ☐ program content not appropriate to class needs,
 - 2% ☐ students do not progress at a uniform rate through program content,
 - 13% ☐ ITV, in general, not deemed appropriate.

QUESTIONS #3 through #23 TO BE ANSWERED BY ALL TEACHERS:

3. If you have now or in the past utilized ITV, do you believe that it serves to aid in achieving the objectives which you have selected for your curriculum?
☐ Usually ☐ Rarely ☐ Never
80% 17% 3%
4. How do you rate your enthusiasm regarding the use of ITV in its present state as a teaching tool?
HIGH —————> LOW
4 3 2 1 0
average = 2.4
5. How do you rate the potential effectiveness of ITV as a teaching tool?
HIGH —————> LOW
4 3 2 1 0
average = 3.1
6. If you have used ITV, how do you rate the actual effectiveness of it as a teaching tool?
HIGH —————> LOW
4 3 2 1 0
average = 2.7
7. Do you believe that ITV can be beneficial in that a studio teacher has access to teaching devices which you would normally not have at your disposal? ☐ Yes ☐ No
93% 7%
8. With what frequency does instructional programming accomplish the following:
(circle the most appropriate score)
- | | USUALLY | NEVER |
|---|---------------|-----------|
| (a) provide presentations otherwise unavailable | average = 3.1 | 4 3 2 1 0 |
| (b) improve performance | average = 2.5 | 4 3 2 1 0 |
| (c) motivate students | average = 2.8 | 4 3 2 1 0 |
| (d) present information in an understandable manner | average = 3.0 | 4 3 2 1 0 |
9. How do you rate your everyday awareness of available programming and scheduling?
(circle most appropriate score)
- | WELL INFORMED | UN-INFORMED |
|---------------|-------------|
| 4 3 2 1 0 | 4 3 2 1 0 |
| average = 2.3 | |
10. How do you rate the overall quality of the program content currently available?
HIGH —————> LOW
4 3 2 1 0
average = 2.7
11. In your opinion as an educator, has TV equipment in your school been adequately selected for effective utilization? (screen size, antenna systems, amplification systems, etc.)
☐ Yes ☐ No ☐ No Opinion
56% 27% 17%
12. Is the TV equipment to which you have access normally maintained in a functional condition? ☐ Yes ☐ No
89% 11%

13. How do you rate reception on the set to which you have access?

☐ Excellent ☐ Good ☐ Fair ☐ Poor
20% 47% 27% 6%

14. Have you ever received formal training in the use of ITV and the integration of program material into the classroom?
☐ Yes ☐ No
14% 86%

15. Indicate your level of interest in participating in a workshop designed to examine the methods, advantages and disadvantages of ITV utilization?
HIGH → LOW
4 3 2 1 0
average = 2.3

16. Indicate your level of interest in programs designed to maintain and improve your own professional teaching standards?
HIGH → LOW
4 3 2 1 0
average = 2.9

17. With reference to the previous question, what particular subject areas do you believe would benefit you most? Science 17%, Social Studies 15%, Metrics 13%,
Language Arts 11%, Reading 9%, Teaching Methods 7%, Special Education 6%

18. Do you take advantage of the opportunity presented by the State Coordinator of Media Services to participate in the selection of ITV programming by means of his questionnaires?
☐ Yes ☐ No
47% 53%

19. If your school possessed equipment that provided on-call programming instead of reliance upon scheduled over-the-air broadcasts, how would you rate your enthusiasm towards its use?
HIGH → LOW
4 3 2 1 0
average = 3.2

20. Do you believe that an easy-access video tape library and associated equipment would enhance and improve the teaching process?
VERY MUCH → NONE
4 3 2 1 0
average = 3.3

21. If centralized video tape libraries existed, would you utilize the service, provided that your school possessed the proper playback equipment?
REGULARLY → NEVER
4 3 2 1 0
average = 3.2

22.(a) For elementary and non-departmentalized teachers:

1. How many students are there in your classroom? 7311
2. How many of your students watch ITV in school? 5788

(b) For secondary and departmentalized teachers:

1. How many students are there in your homeroom? 4881
2. How many of your homeroom students report the use of ITV in at least one of their courses? 418

23. Your comments regarding questions #1 through #22: _____

QUESTIONS #24 THROUGH #34 TO BE ANSWERED ONLY BY THOSE TEACHERS ANSWERING YES TO QUESTION #1:

24. Which station(s) do you utilize most frequently?

95 ☐ WMEB (12) ORONO 5 ☐ WMED (13) CALAIS 11 ☐ WMEM (10) MARS HILL
143 ☐ WCBB (10) LEWISTON 8 ☐ WMEG (26) BIDDEFORD 19 ☐ WENH (11) DURHAM

25. (a) How many lessons did you want to use this year? 4114

(b) How many of these were unavailable to you because of scheduling difficulties? 979

26. To what extent does repeat programming alleviate scheduling difficulties?

(circle one score)

VERY MUCH → NONE
4 3 2 1 0
average = 2.6

27. Utilize the following to reflect your usage of ITV: (see last page)

(a) 948 : Number of series used

(b) 95 : Number of specials used

(c) 12920 : Total lessons used (estimate or actual)

(d) Estimate the time consumed viewing ITV: average = 21 minutes
week

28. Briefly describe the role of ITV in your teaching: Reinforcement 42%

Enrichment 24% Motivation 19% Direct Instruction 14%

29. Do you utilize the in-service teacher training and/or utilization programs that are being broadcast?

☐ Yes ☐ No
20% 80%

30. Do you precede and follow-up instructional programming with appropriate discussions or other pedagogical techniques?

☐ Always ☐ Usually ☐ Rarely ☐ Never
25% 67% 5% 3%

31. (a) Do you request guidebooks for programs that you use?

78% ☐ Yes ☐ No 22%

(b) Have you had difficulty in receiving requested guidebooks?

14% ☐ Yes ☐ No 86%

32. Check those programs listed on the attached sheet that were viewed by your class(es) during this academic year. Be certain to check the appropriate frequency column.

33. Which of the following, if any, prevent you from more extensive use of ITV programming? (check more than one if applicable)

66% ☐ difficulty in scheduling programs,

37% ☐ program content not appropriate to class needs,

13% ☐ poor reception makes it impractical,

5% ☐ students don't progress at a uniform rate through program content,

9% ☐ do not have easy access to a TV set.

34. Your comments regarding questions #24 through #33:

Please note any thoughts and/or recommendations you may have regarding instructional television:

ATTACHMENT TO QUESTION #33

Note: Figures in parentheses denote total number of lessons in the series. *

ART/MUSIC SERIES				TOTAL	HEALTH/NUTRITION SERIES				TOTAL
1	2	3			1	2	3		
<input type="checkbox"/> Images and Things (30)	2	6	5	13	<input type="checkbox"/> Inside Out (30)	33	23	2	58
<input type="checkbox"/> Primary Art (30)	3	10	8	21	<input type="checkbox"/> Self Inc (15)	7	5	4	16
<input type="checkbox"/> Let's All Sing (30)	25	11	5	41	<input type="checkbox"/> Mulligan Stew (6)	27	13	2	42
<input type="checkbox"/> World of B.J. Vibes (6)	5	8	3	16	<input type="checkbox"/> National Mulch (11)	1	5	0	6
SCIENCE/MATH SERIES				TOTAL	INTERDISCIPLINARY SERIES				TOTAL
1	2	3			1	2	3		
<input type="checkbox"/> Tomorrow Starts Today (6)	7	4	2	13	<input type="checkbox"/> Withit (6)	10	5	2	17
<input type="checkbox"/> Uncle Smiley (7)	35	9	1	45	<input type="checkbox"/> Ripples (30)	20	11	8	39
<input type="checkbox"/> Alive and About (26)	19	18	11	48	<input type="checkbox"/> Way to Go (5)	17	7	1	25
<input type="checkbox"/> All About You (30)	35	16	6	57	<input type="checkbox"/> Bread and Butterflies (15)	13	13	4	30
<input type="checkbox"/> Animals and Such (4)	11	17	4	32	<input type="checkbox"/> Play Chess (13)	0	0	0	0
<input type="checkbox"/> Earthkeeping (3)	1	2	0	3	SOCIAL STUDIES SERIES				TOTAL
<input type="checkbox"/> The Metric System (15)	44	15	5	64	<input type="checkbox"/> American Heritage (13)	7	8	6	
LANGUAGE ARTS SERIES				TOTAL	<input type="checkbox"/> Economics in Maine (3)	1	0	0	1
1	2	3			<input type="checkbox"/> Children of the World (6)	3	12	2	17
<input type="checkbox"/> The Letter People (30)	25	10	4	39	<input type="checkbox"/> Many Americans (8)	4	11	2	17
<input type="checkbox"/> Picture Book Park (15)	21	3	2	26	<input type="checkbox"/> La Machine Magique (30)	1	0	1	2
<input type="checkbox"/> Stories Without Words (8)	33	12	7	52	<input type="checkbox"/> Places in the News (30)	5	12	5	22
<input type="checkbox"/> Word Workers (25)	9	9	2	20	<input type="checkbox"/> Western Civilization (15)	4	6	6	16
<input type="checkbox"/> Cover to Cover I (30)	31	19	4	54	<input type="checkbox"/> How a Bill Becomes Law (2)	4	4	3	11
<input type="checkbox"/> Cover to Cover II (30)	26	9	1	36	<input type="checkbox"/> You Be the Judge (1)	1	3	2	6
<input type="checkbox"/> A Matter of Fact (15)	3	4	1	8	<input type="checkbox"/> U. S. Foreign Relations (3)	2	4	2	8
<input type="checkbox"/> A Matter of Fiction (15)	7	7	1	15	<input type="checkbox"/> News Machine (30)	18	13	5	36
<input type="checkbox"/> Three Ages of Whitman (3)	0	2	1	3	<input type="checkbox"/> Electric Company	11	10	5	26
<input type="checkbox"/> Sesame Street	10	9	5	24					

* A check in column 1 denotes regular use.
A check in column 2 denotes sporadic use.
A check in column 3 denotes rare use.

PRINCIPAL'S QUESTIONNAIRE

- Would your school avail itself of a service designed to offer assistance with respect to any technical problems associated with instructional television operation, if such a service existed?
☐ Yes ☐ No
88% 12%
- In your opinion as an administrator, has the selection of receiving and/or video recording equipment in your school been adequate with respect to educational requirements for effective and economical utilization? (ex. screen size, amplification systems, antenna systems, etc.)
☐ Always ☐ In most cases ☐ Rarely ☐ Uncertain
9% 70% 16% 5%
- How do you rate the overall attitude of your teachers toward instructional television as a tool for instruction? (circle most appropriate)

POSITIVE → NEGATIVE
4 3 2 1 0
average = 2.5
- Which of the following instructional TV systems does your school possess?
☐ over the air broadcast ☐ closed circuit ☐ cable TV
☐ video tape playback capabilities ☐ none
- Please complete and verify the following inventory chart for your school:

	Number of Black and White Sets	Number of Color Sets	Number of VTR's	Number of Video Tapes
Presently Working	344	32	55	1008
Not Working	23	1	2	0

- How many classrooms are there in your school? 2320 total in sample
- What is the estimated total capital investment for television-related instruction in your school? (include antennas, wiring, items from previous question, etc.)

K-6: \$ 100,078 (sampled schools)
7-12: \$ 151,800 "
- (a) Does your school have an art teacher who conducts a formal art program?
☐ Yes ☐ No
69% 31%
- (b) Does your school have a music teacher who conducts a formal music program?
☐ Yes ☐ No
89% 11%
- What new or additional audio-visual equipment or system does your school plan to acquire in the next 2 years?

- How much do you expect to be budgeted for the previous question?
\$ 37,980 for 1TV related equipment in sampled schools.

Comments on the use of instructional television in your school: _____

SUPERINTENDENT'S QUESTIONNAIRE

1. Would your office avail itself of, or support, a service designed to assess the television needs, as pertains to the installation of systems, in existing and planned schools within your jurisdiction, if such a service existed?

☐ Yes ☐ No
88% 12%
2. Would your office avail itself of, or support, a service designed to offer assistance with respect to any technical problems associated with poor reception in your schools, if such a service existed?

☐ Yes ☐ No
88% 12%
3. In your opinion as an administrator, has the selection of receiving and/or recording equipment in your schools been adequate with respect to educational requirements for effective and economical utilization?

☐ Always ☐ In Most Cases ☐ Rarely ☐ Uncertain
7% 68% 15% 10%
4. How would you rate your attitude toward the use of instructional television as a teaching tool? (circle one score)

POSITIVE		NEGATIVE	
4	3	2	1
		0	
average = 2.9			
5. How would you rate the overall attitude within your school system, including your school board, toward instructional television as a medium for instruction? (circle one score)

POSITIVE		NEGATIVE	
4	3	2	1
		0	
average = 2.7			

Comments: "Our elementary schools presently make extensive use of educational TV."

"Instructional TV is used throughout this system. In general, the attitude is that it has some, but not major value. Specific programs are used by individual teachers. Full commitment to ITV would not be an easy concept to implement."

"I don't think the general public recognizes the impact, however, the Director would if they had informational feed on its values and effects."

"We may be interested in a building installation for ETV in our proposed new high school."

"ITV quite well accepted and used in elementary school. Finds little or no acceptance or use in secondary."

UNIVERSITY OF MAINE

June 1, 1976

Anthony J. Neves
Research Associate II
State of Maine Department
of Audit
Augusta, Maine 04330

Dear Mr. Neves:

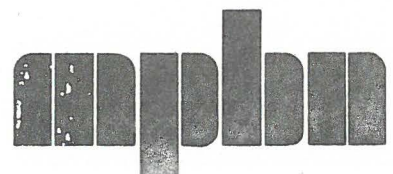
I have read with great interest your program evaluation of the instructional television service in Maine. We at MPBN share many of the conclusions which you have reached regarding the potential of the service in the educational process.

In general, we support the conclusion which you have reached that in order to reach its potential that the service needs to be placed higher in the priority list than its current position.

I attach hereto a listing of comments which along with this letter reflect our "corporate" view of the report, its conclusions, and its recommendations. In response to several suggestions made in the report, we are preparing a plan which, in concert with current activities with DECS and MPBN, will work toward the end of "improving the effectiveness and efficiency of the instructional television service".

We hope to present these ideas to the Governor's Advisory Committee on Public Broadcasting during the June 1976 meeting for their discussion and action.

I should add, relative to the use of television as a classroom tool, that although the current assessment may be accurate in 1976, the technological explosion has been and will continue to be a factor of great importance. Thus any decisions made today must of necessity be reviewed periodically to assure its continued validity over a longer term.



-2-

In conclusion, we stand ready to provide continuing support and information toward the end of strengthening the value of this educational tool in the service of Maine children.

Thank you for the opportunity to comment on the draft of the evaluation.

Sincerely,



Thomas Petry Strauss
General Manager

TPS:jdr

MPBN COMMENTS

Pg. S-2

IV. Para. 1. The network system is connected by microwave to the national and the regional system which plays an important role in ITV origination.

VI. Para. 1. In connection with this assessment that DECS provide funding in order to meet need for which existing programs do not exist. Thus these programs would be produced by MPBN with support and cooperation of DECS.

Para. 3. The use of La Machine Magique is relatively small and thus the per student cost is relatively high. However in broadcasting for a minority audience a higher cost must be expected. Certainly alternatives must be examined.

Pg. 1

I. Para. 2. It should be noted that independent station WCBB, although not a part of MPBN, operates with MPBN to provide the ITV service to schools in the central Maine area.

Pg. 6

III. Para. 6. As the above limitations seem to indicate, the television lesson must be integrated into the classroom program by a classroom teacher using it as a resource in the educative process with students.

Pg. 13

V. Para. 2. Although two basic ITFS transmitters exist as a part of the MPBN facilities, they have not been used in the ITV service. ITFS exists which might serve the Bangor and Portland areas.

Para. 6. Development in satellite transmission recently has been phenomenal. Cost benefit ratio has improved dramatically to the point where this system will significantly replace "land lines" in the near future. The unfortunate comparison to "airborne ITV" is at best misleading.

Pg. 15

V. Para. 2. Lest the reader be misled, videodisc development has at this time severe limitations not inherent in current technology (video cassette for example) in that it can only play back discs recorded at a limited number of recording companies. Future developments in video disc may overcome this problem.

Pg. 16

VI. Para. 3. MPBN is a Class A member of EEN, paying annual dues which entitles it to share the EEN membership benefits. DECS is a Class D member (non dues paying), entitling it to purchase, under the MPBN-DECS relationship, programs for broadcast to the schools over the MPBN-WCBB stations.

Pg. 19

TABLE 8. Comparison is indicative of rental costs versus production of Maine programs to meet unique Maine needs with a product in which children participate locally.

Although the comparison is unfavorable, it might well be improved by other measures such as better utilization which has benefited other ITV series. Even so, with 100% of subject children using La Machine Magique for example will never reach the low cost of a nationally distributed "non-custom" program service. In addition the series LMM, TNM are produced on a current, continuing basis rather than used year after year, responding to criticism of some teachers of "year after year" programs. (on Pg. 24.)

Pg. 20 Recommendation

Para. 1. Production funds should be appropriated to serve the needs assigned a priority, after a careful examination of needs, cost, benefits, alternatives, etc.

Para. 4. Agree, with the recognition that serving minority groupings will be inherently more expensive than larger groups. Cost cannot be the sole determinant. Educational and longterm benefits must also be considered.

Pg. 28 Recommendation

Para. 4. It is suggested that the "minimal video-service" proposed be contracted with MPBN so that during the "trial basis" need and cost effectiveness for the service can be established.

Pg. 30 Recommendation

Para. 5. Because of the diverse nature of the jobs to be performed, requiring technological expertise and educational knowledge and background, curriculum design, etc., it is suggested that two or more persons be either hired (or contracted for with MPBN) to accomplish the tasks listed. One person would be unable to meet demands for the new services, thus causing disenchantment, frustration.

STATE OF MAINE

Inter-Departmental Memorandum Date June 4, 1976

To Anthony Neves, Research Associate II Dept. Audit
From H. Sawin Millelt, Jr., Commissioner Dept. Educational & Cultural Services
Subject An Evaluation of Instructional Television in Maine

I have had a brief opportunity to review the draft copy of your evaluation of instructional television in Maine. Further, John Boynton has reviewed the document in some detail and has provided me with some specific comments on some of your recommendations. A listing of those comments follows:

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"RECOMMENDATION: "Although it has been proposed that local production of 'priority basis' instructional lessons or pilot programs be funded, the cost-effectiveness of current Maine production certainly cautions against uncritical adoption of such proposals."

Although I agree that the need for Maine-produced programs must be well founded before fundings, I would oppose the total elimination of locally-produced programs. Although the costs may be high, they serve needs that are unique to Maine students. There is currently a critical shortage of Maine-related media resources. Television productions dealing with such areas as Maine careers, history, or environment have high potential impact in developing the students' pride and understanding of their own state. The Maine Public Broadcasting Network has the facilities and staff capable of producing high quality programs with adequate financial support.

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"RECOMMENDATION: That more careful attention be focused on the accurate and speedy processing of guidebooks requested by ITV service staff, and that the availability of these guidebooks be continuously promulgated."

According to the study, 14% of the teachers requesting guidebooks reported difficulty in receiving them. Because I was not previously aware of the problem, I was appalled of the high percentage. This situation probably exists because guide orders are coordinated locally by school principals. This system helps to cut down on handling individual orders and mailing costs. Perhaps we should investigate the feasibility of serving individual teachers.

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"RECOMMENDATION: That the ITV Questionnaire be modified to enable the ITV staff to quantitatively measure against acceptable criteria for continuance of specific series based upon an adequate sample of the suggested grade and/or subject matter teachers. For example, if less than 20% total use by those teachers who view ITV in the suggested grades was the criterion, then 22 of this year's series/specials would be replaced in the following year (See TABLE 10)."

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June 4, 1976
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First of all, the cost of repeating programs from one year to the next is greatly decreased after the first year. The initial costs such as purchase of videotape, duplicating, and cost of the guide materials are a one time expense except for additional guides supplied to new teachers. Many of the programs falling under the 20% cut off suggested in the report are designed for specific target audiences and deal with specialized subject areas. For example, art and music programs are fulfilling a need which exists at schools where instruction in these areas is otherwise not available. A coordinator at the local level can assure that students do not see repeated programs.

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"RECOMMENDATION: That over-the-air broadcast of secondary programming be phased out; that until it is eliminated, one time weekly showings be scheduled at convenient afternoon time slots for in-school teacher video-recording."

Although I feel that limiting secondary programming to one-time only broadcasting for recording purposes merits consideration, I do not think that programming for secondary use should be eliminated entirely. It is more cost-effective to offer programming through broadcast television for the purpose of taping locally than it would be to distribute programs solely via a video tape library. Library use rights would remain approximately the same as on-air rights, while shipping tapes would increase the costs of distribution.

It is obvious to me that some of your recommendations have implications for increased funding at the State and local levels. This Department has supported such requests in the past, specifically the request for full funding of WCBB contract costs, and will likely continue to support this endeavor as a high priority. However, I think it should be understood that this issue must be considered in relation to all of the Department's funding priorities in our funding requests for the upcoming biennium.

Jack Boynton and I would appreciate an opportunity to discuss the report in more depth with you at such time as it may be mutually convenient.

HSM:pdg