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ABSTRACT

Personnel at 48 colleges and universities completed a survey about the nature of the television system they use as an aid to instruction. The survey described various kinds of systems, including varieties of community antenna television (CATV), master antenna television (MATV), and closed-circuit television, and asked the respondent to indicate whether such a system was in use at his school. Results showed that no particular pattern of use was favored predominently. Although rumors had indicated that at least some institutions felt that instructional television (ITV) was on the decline, the survey did not bear this out. The conclusion was reached that on campuses where ITV has been integrated carefully into the administrative and academic situation, it shows no sign of being eliminated. On the contrary, it is now more than ever before an integral part of the curriculum. (JK)

Report on a Survey of CATV-MATV-TV Distribution Systems at Colleges and Universities

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January 1972

INTRODUCTION

Since the 1950's when colleges and universities started using television as an aid to instruction, both faculty and administration have wondered and worried about the type, quality and ownership of on-campus distribution systems. During the first half of the 1960's, many state-wide system studies were completed with nearly all of these concerned with intercity circuitry (Minnesota[1], Illinois[2], Ohio[3], Indiana[4]), and in some cases, with intracity (several institutions in a metropolitan area) circuitry (St. Louis, Los Angeles, Cleveland)[5]. Similarly, studies such as Educational Facilities Laboratories "Planning for Schools with Television" (1960, revised, 1968) have dealt with classroom design, location or receivers within the room, viewing conditions, etc.[6] Parallels can be drawn to the master antenna development for large living complexes as well as the burgeoning CATV developments.

In 1963, NEA published its Occasional Paper #10 dealing with the scope and consequence of closed-circuit ITV systems--not just a head count of installations but in addition, a review of uses of such systems. This study dealt with CCTV installations in educational settings ranging from kindergarten through college.[7]

However, no intensive study of campus (community college and university) distribution systems has been done that had any sort of publication or distribution. Patterns of development have followed largely the pattern here at Purdue. Here, a local committee built on the state of the art and devised a system to work in this situation. Some institutions have not gone through the committee structure and have developed systems with little or no planning.

Against this background it is evident that we should know more about what these systems are; thus, with the instigation of CIC/ITV, we developed a "case" instrument patterned after the copyright instrument distributed in February, 1971. It should be noted that this CATV-MATV-TV study was not an exhaustive survey and although it was not designed to present scientifically complete evidence, the findings should be of critical interest to those involved in present CCTV distribution as well as those contemplating such a facility in the future.

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[1] Report of the Minnesota Inter-Institutional Television Feasibility Study. Minneapolis, Minn: University of Minnesota, 1967.

[2] Report to the Superintendent of Public Instruction, State of Illinois on The Engineering Aspects of Establishing a State-Wide Educational TV System. Washington, D.C.: Jansky and Bailey, 1964.

[3] Report to the Ohio Educational TV Network Commission on the Engineering Factors Involved in the Establishment of TV Closed Circuit Distributions Systems and Interconnection Systems. Washington, D.C.: Jansky and Bailey, 1966.

[4] Engineering Report to Purdue University on a TV System Study and the Development of a Technical Design Utilizing the Telecommunications Media in Education. Washington, D.C.: Jansky and Bailey, 1966.

[5] "Instructional Television Fixed Service," Educational Product Report, 31:28-32,1971.

[6] Design for ETV: Planning for Schools with Television. New York: Educational Facilities Laboratories, 1960 (rev. 1968).

[7] Lee E. Campion, Clarice Y. Kelley, Studies in the Growth of Instructional Technology II. Washington, D.C.: National Education Association, 1963.

First, some facts regarding the survey and those surveyed.

A - Sample Size

26 States and 1 Canadian Province represented

60 Questionnaires sent

48 Questionnaires returned

80% Responding

B - Responses by Enrollment	#	%	Category
Less than 5,000	2	4	A
5,000 - 10,000	9	19	B
10,000 - 20,000	11	23	C
Over 20,000	26	54	D

C - Responses by Tenure	#	%	Category
Less than 5 years	4	8	1
5 - 10 years	14	29	2
10 years or more	30	63	3

NOTE: "Comments" within the compilation of answers are coded by the categories mentioned above, i.e., a respondent with 5 - 10 years of tenure at an institution with over 20,000 enrollment will be coded 2-D.

Compilation of answers

to the

CATV-MATV-TV DISTRIBUTION SYSTEMS AT COLLEGES AND

UNIVERSITIES QUESTIONNAIRE

CASE I

In 1955 XYZ University with professional engineering help devised a plan for a 3-channel low band VF coaxial cable instructional TV disbribution system using extant heating tunnels that would permit use of television receivers in any classroom in any building on campus. They recommended (1) that XYZ should install the system themselves using University Physical Plant personnel; (2) that a determination of need would govern which parts of the system serving extant buildings were installed first; and (3) that a directive should be issued by the XYZ President that all new buildings or those undergoing major remodeling should be connected to the system and all classrooms in those buildings should have a system outlet.

Question1 Does your University have such a comprehensive plan?

Yes 21 (43%) No - 26 (58%) No Answer - 1

Comments:

3-C Although outside professional help could not be contracted because of lack of funds, we did develop internally a rationale for phased development for an instructional TV system on campus. Outside help is necessary for surveying and planning for long-range development.

3-B Yes, we have a Master Plan which is divided into 3 phases, the first of which have been in operation for over a year and has proved successful. We want to do Phase II ourselves--design, purchasing and installation--to save consultant and outside engineering monies which can be put into additional equipment.

Question 2 If it does not have such a plan, is one needed?

Yes - 17 No - 7 No Answer - 1

Question 3 Is it in the development stage?

Yes - 9 No - 16 No Answer - 1

Comments:

3-C Yes, however, our plan is revised as additional information on use patterns, etc., becomes available.

3-B Phase I is operational. Phase II is now being developed.

Question 4 Did your University personnel install your instructional television distribution system?

Yes - 24 No - 1 (Several institutions indicating "no" to Question 1 do have some sort of system.)

Comments:

3-B Phase I was not however, since we feel there are definite advantages to a staff-installed system, our personnel probably will install additions to our system as they are developed.

Question 5 Does your University have the staff to install such a system?

Yes - 35 No - 7 Partially - 3 No Answer - 2

Comments:

3-B The truth is "no", but we are planning as if to install everything; in reality, we probably will need to contract out a few items.

CASE II

In 1967, XYZ University decided to upgrade the ITV service rendered to its most heavily used classroom building. It installed 3 coaxial cables and a 12-pair audio cable from its campus-wide distribution switcher; a 3 x 12 remotely activated video routing switcher in the classroom building; two coaxial cables and 12-pair audio cables to 12 classrooms; 2 color receiver/monitors and 10 black and white monitors and speakers in those classrooms, and a 12-position selector switch and service telephone in each classroom.

Question 6 Does your University concentrate a majority of its ITV utilization in one building?

Yes - 10 No - 36 No Answer - 2

Comments:

3 B Phase I was concentrated in one building because it was the only building on campus. Phase II and III will include the newly completed building, also.

Question 7 Does your University distribute high quality video to any significant number of classrooms?

Yes - 24 No - 21 No Answer - 3

Question 8 Do you feel an RF distribution system is of sufficient quality to permit maximum utilization of <u>all</u> of your ITV material?

Yes - 23 No - 20 ? - 4 No Answer - 1

Question 9 If not, what percentage requires a video distribution system?

<u>10%</u> - 6 <u>20-30%</u> - 5 <u>50-60%</u> - 5 <u>75-100%</u> - 3

CASE III

ABC University determined that the local telephone company would provide the least expensive ITV distribution system for its campus. A monthly rental per channel and per outlet was established. They now use 5 channels and 75 outlets in 20 different buildings.

Question 10 Does your University have a similar arrangement with your local telephone company?

Yes - 7 No - 39 No Answer - 2

Question 11 If so, does this arrangement satisfy your needs?

Yes 5 Generally - 1 "Not All" - 1

(Questions 12-21 on following page)

Comments on Case III:

3-D I am returning your questionnaire with all but one question answered. That is Case III having to do with contracting with the local telephone company. This is in fact what we do. The reason I have not answered your questions is that I believe they do not really make sense in the practical situation. One does not pay for a channel independently of where it goes and the cost of an additional channel is also dependent upon the same factor. Furthermore,outlets being activated cost differently depending upon where they are in relation to what outlets are currently activated. Similarly, from the standpoint of time, adding a channel or an outlet is dependent upon mainly where the new outlet is in relation to the outlets you already have.

In other words, while I could get this information it would be so highly specific to the present university distribution system (which is a little bit different than it was last year and may very well be a little bit different next year) that I hardly see how the information could do you any good.

I might say in general that I am satisfied with the decision we made sometime ago to go the rental route. The reason for this is that we have been able to add and delete outlets and channels relatively easily whereas my initial exploration of a university-owned system indicated that especially the addition of outlets and channels would require considerable time and administrative effort.

QUESTION	INSTITUTION					
	I	II	III	IV	V	VI
12. What do you pay per month for the first channel?	$187.00	(1) $120.75	$15/per qtr mile	$101.00	$85.00	$6/per 1/10 mi.+ $15 input chg. $7.50 term."
13. Each additional channel?	$ 40.00	(2) $64.00 (3) $53.00	(2) $5.00 (3) $4.00 (5&6) $2 per qtr mile	$21.25	N/A	$2.00 $1.20 ..0 + $15 + $5 term.
14. Each outlet activated?	$1.25	$1.25	$1.25	varies	$7.50	N/A
15. What installation or start up charge do you pay per channel?	---	--	--	(1) $4400 $1125 add.	2 yr. min.	--
16. Per outlet?	---	—	$8.80	varies	$15.00	--
17. What is your 'vacation" or short time 're use' charge per channel?	1/2 rate	used full period	none	never used	not est.	--
18. Per outlet?	1/2 rate	--	.62	unknown		--
19. How many channels will the system carry?	7	6	12	9	6	12
20. How quickly can you add a channel?	2 mos.	6 mos.	2 days	90 days	30 days	5 days
21. An outlet?	1 week	6 mos.	30 days	90 days	30 days	N/A

No details given by one respondent.

CASE IV

In 1962, XYZ University determined that in order to serve the 25 buildings and 125 classrooms (outlets) now connected to its RF system it needed and installed a versatile input/output switcher (10x10) which would easily permit input from any of its 5 VTRs, 2 tele-cines and 2 live studios to be fed to any of the 3 RF channels and to 5 video terminations (outputs) on the system.

Question 22 Does your University have such a switching system?

Yes - 31 No - 17

Question 23 What is the input/output capability of your switcher?

Input range from 3 to 38 Output range from 3 to 42 (no two alike)

Question 24 How many outlets are served by the system?

Range from 6 to 632

Question 25 How many input sources do you have?

Range from 3 to 30

Question 26 How many output RF channels do you have?

Range from 0 to 12

Question 27 How many output video terminations do you have?

Range from 0 to 135

CASE V

In 1962 the Biological Sciences Department at XYZ University created a committee to develop a long-range plan for an instructional television system to serve the laboratories and classrooms used by their department. These rooms were in one large building then under construction. The University Television Services group was asked to supply technical and administrative advice. Implementation of the plan has progressed only slightly behind schedule. Today the department operates a small 20' x 20' studio with 2 Telemation 2100V cameras, lighting and switcher/fader/effects control; 3 Ampex 7500, 3 Ampex 5100, 4 Sony 3600 and 2 Sony 5000A VTRs; a 12 x 12 output switcher serving 6 laboratories and 10 classrooms with individual coax's running to each room; a full-time producer/director/supervisor and 2 FTE technical and production assistants. The University Services group recruits and recommends all personnel used by the department and coordinates their professional growth.

Question 28 Does your University have any departments or schools operating such a system?

Yes - 34 No - 13 No Answer - 1

Comments:

3-B The size of our campus permits ITV services to be rendered by one ITV department. We work together; however, we encourage the instructor to take the lead.

Case V (Continued)

Question 29 If so, how many?

1-4 - 27 8-10 - 3 20 - 1 40 - 1 Unusable responses - 4

Question 30 Are they larger or smaller?

Smaller 23 Larger - 3 Same - 2 ? - 6

Question 31 Do these Departmental ITV units have any relation to your University Television Services group?

Yes - 24 Varies - 2 Little - 2 No - 6

Question 32 Is this relationship administrative? Supervisory? Consultative?

	Administrative	Supervisory	Consultative	All Relationships
Administrative		1		
Supervisory		1	2	
Consultative	3		14	
All Relationships				7

CASE VI

XYZ University after intensive study determined that it would be most economical to form a self-supporting enterprise and operate an RF entertainment television distribution system (Master Antenna System) for all dormitories, apartments, hotel-type rooms and other housing owned by the University and used by students and guests. They added a small crew to their Physical Plant electrical group to install and maintain the system. They collect a small fee per outlet per month which pays for installation and maintenance. The system is capable of carrying 12 channels. They currently supply 6 channels--2 of these imported from a city 150 miles distant. Recently they made a channel available to the campus television service for origination of campus events and repeats of ITV materials.

Question 33 Does your University have such a system?

Yes - 5 No - 42 No Answer - 1

Comments:

3-B Student center served via our CCTV system which includes local CATV.

Question 34 If so, how many channels?

12 - 2 7 - 2 6 - 1

Question 35 How many outlets?

600 - 2 315 - 1 60 - 1 15 - 1

Case VI (Continued)

Question 36 Charge per outlet?

In rent - 1 None - 4

Question 37 Can your campus television service originate material for distribution over this system?

Yes - 4 No - 1

Comments:

3-C Our head-end has been mounted on a high-rise dorm, and we have always supplied 4 commercial and one educational channel, as well as our closed-circuit channels, to dorms and classroom buildings. We are negotiating for connection of our system to 100 married student apartments opening next fall--students would pay $2/month.

CASE VII

DEF University, after study, determined that entertainment TV service could best be provided their students and guests by accepting the offer of the local CATV system to extend their system to all campus outlets. They make no installation charge and the charge per outlet is the same as for commercial motel rooms.

Question 38 Does your University have such an arrangement?

Yes - 7 No - 39 No answer - 2

Comments:

3-C A new CATV company plans to connect with our campus head-end for pickup of campus material sometime in 71-72.

In 1963, Campion and Kelley commented that the expanding potential of community antenna TV warrants a serious look at the growth and development of such a facility.

QUESTION		INSTITUTION					
		III	VII	VIII	IX	X	XI
39.	If so, how many outlets?	1400 of 2400 potential	35	300	1 per apt.	--	--
40.	Channels?	12	1	12	5	12	6
41.	Charge per outlet?	$5/month $5 install.	$4.50 $1.50 add.	$1.50	$4.50/mo.	$4.95	$5.50
42.	Does the contract with the CATV system run a specified length of time?	Yes	No	No	Yes	--	No
43.	If so, how Long?	10 years	Require 18 hrs.wk. programming	--	Monthly	--	--
44.	Can rates be adjusted?	No	No	Yes	No	No	Yes

CASE VIII

In 1970, XYZ University again made a study of its telecommunication needs with professional engineering help. It was determined that (a) the satellite departmental ITV installations should be video and audio interconnected with the campus television system so that ITV materials originating in these departmental installations could be distributed to the rest of the campus; (b) the audio lines installed by the Radio Station should be interconnected with the campus television system; (c) the campus-wide computer network (pairs and coax) should be interconnected with the campus television system. All pairs and coax's should be available for whatever service (computer, radio, audio-visual, television) needed them. A scheduling committee was established to determine priorities and use patterns.

Question 45. Is any such plan in operation on your campus?

Yes - 5 Partly - 3 No - 37 No answer -3

Comments:

3-B No, all ITV programs are distributed through out ITV Central Control Room. Programs originate in 10 different locations on campus which are equipped with cable runs to Central Control where VTR's and consoles are operated by the engineer.

3-B Our administration is considering these aspects in relation to projections for the next five years--we have nothing concrete at this time.

Case VIII (Continued)

Question 46 If not, is one under consideration?

Yes - 11 No - 23 No Answer - 6

Question 47 If not, do you believe such a plan is needed?

Yes 24 Partly - 4 No - 6 No Answer - 9

Question 48 Do you think such a plan is workable on your campus?

Yes - 23 ? - 5 No - 2 No Answer - 4

Comments:

3-B Likely not. It seems overly cumbersome to allow all services to use all lines; however, multiple use of a portion of the lines should be planned for maximum utilization of lines.

3-C We are currently installing computer-processor equipment to control our network of cables at the university. We are in our program developing the capability to connect any classroom through both video and audio cables with any type of information terminal in it to any of the various sources of information on campus. Our network consists of a number of small mini-computers tied also to a large computer and will be used for producing various kinds of functions in our learning system.

CASE IX

ABC and XYZ Universities determined that they should provide full-time two-way audio/video interconnection between their main campuses and a full-time two-way audio/one-way video interconnection to their regional or satellite campuses. These interconnections are being used to exchange audio and video instructional materials, educational television and radio programs, computer programs and services and audio and video administrative information and programs.

Question 49 Is any such plan in operation between your campus and another university?

Yes - 9 Partly - 1 No - 36 No Answer - 2

Question 50 If not, is one under consideration?

Yes - 17 ? - 2 No - 17 No Answer - 1

Question 51 If not, is one needed?

Yes - 24 ? - 1 No - 7 No Answer - 5

Question 52 Do you think such a plan is workable?

Yes - 28 ? - 1 No - 4 No Answer - 3

Case IX (Continued)

Comments:

3-B Such plans are clearly logical, but when they will be made workable is the question. The state ETV network is attempting to aid inter-institutional cooperation by supplying closed circuit interconnection, and a multi-university committee is making slow progress.

3-C The system under consideration here would provide simultaneous two-way video and audio between the institutions as well as sufficient additional band width for computer sharing, library services, facsimile transmission, etc. The interconnection of the first two institutions will provide a backbone system which may be expanded to other institutions when they wish.

3-B Our administration is considering these aspects in relation to projections for the next five years--we have nothing concrete at this time.

3-C State wide university TV networks have been studied frequently here; however, a computer network appears to be receiving emphasis at present.

2-B Two universities are connected by two-way microwave. ETV programming and elementary and secondary broadcasts are carried; there is no arrangement for sharing of faculty, computer programs, etc.

3-D Legislation permitting such a state network has passed the State Senate and is now before a House Committee.

2-D There is very little cooperation between the two state institutions; therefore, I would be inclined to believe that interconnection would increase rather than decrease the degree of competition and/or lack of cooperation.

3-C I try to avoid large grandiose plans on paper. I like to develop pilot projects, and if successful, expand them. We are still, after a start in 1962, growing so rapidly, we cannot do an adequate production job.

Discussion

Several respondents were speaking as directors of state-wide systems rather than individual campus systems. The difficult job of administering a system becomes even more complex in this situation. Perhaps, it does not make sense to be concerned or surprised at the variety of ITV systems within a state system, university system or even among individual schools, for they may be an outgrowth of the varied types of educational development particular to individual needs of various institutions. Because of the various systems, any attempt to impose state-wide restrictions is a difficult battle.

University systems (including several campuses of one university) have many of the same difficulties as indicated by the following comment: "My responses deal only with the Health Sciences Center which operates four schools and a hospital. We are separated from the Main Campus by distance, administration and operation." (3-A)

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Rumors have indicated that at least some institutions feel that ITV is on the downgrade. Two respondents to the survey present the first evidence of this feeling by stating, "The climate for larger scale use of ITV is less favorable today than in the past. I see little likelihood that a TV system will be developed." (3-C) "We are eliminating TV for instruction." (2-B) Under the current circumstances of economic belt-tightening while trying to "keep up with the Joneses," it is not surprising that some find this decision to be educationally proper. We have seen reactions of this sort relating to methodologies and other technologies in the past.

Certainly, on campuses where ITV has been integrated carefully into the administrative and academic situation, it shows no signs of being eliminated. On the contrary, it is now more than ever before an integral part of the operation.

———0———

"We do not fit the mold described; I would prefer an instrument that did not rely on a role playing technique. It would seem the narrative descriptive variables might be difficult to collate and report." (3-C) Admittedly, it is difficult (more difficult than faculty rights and copyrights of Questionnaire #1); however, it was felt that a descriptive survey would be more beneficial to our needs than a statistical study using frequencies of various installations. This is in no way a statistical sample; it was not randomly chosen and is biased to the extent that it is based on applications

about which the author is aware. Therefore, data should not be extrapolated to any local operation. Although not a scientifically precise instrument, this format appears to be useful. If we are concerned with systems, their many components, and our similarities as well as differences, this method seems to be the most useable that we, at least, have discovered.

———o———

Because of the lack of published information, we have attempted to begin to meet the need by collecting data via the "case" instrument. We purposely have not attempted analysis; we prefer to leave interpretation to you, the reader.

However, any casual reader can see that few if any patterns develop. While this may be discouraging to those looking for "right answers," nevertheless, it seems there are adequate historical precedents for exploring patterns of systems in numerous fields.

It is obvious that we have many imaginative answers to local problems which is, as Alvin Toffler says, as it should be:

> "In dealing with the future, at least for the purpose at hand, it is more important to be imaginative and insightful than to be one hundred percent 'right.' Theories do not have to be 'right' to be enormously useful. Even error has its uses. The maps of the world drawn by the medieval cartographers were so hopelessly inaccurate, so filled with factual error, that they elicit condescending smiles today when almost the entire surface of the earth has been charted. Yet the great explorers could never have discovered the New World without them. Nor could the better, more accurate maps of today been drawn until men, working with the limited evidence available to them, set down on paper their bold conceptions of worlds they had never seen."[8]

Let us hope a clearer map will emerge for us as it did for the cartographers of old.

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[8] Alvin Toffler, Future Shock, Page 6.