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ABSTRACT

This paper presents a blueprint for creating a partnership between public television and the educational community in the provision of educational technology. As a first priority, the plan calls for the implementation of an advocacy effort to make educational, governmental, and corporate decision-makers, as well as parents, aware of the potential benefits technology holds for motivating and instructing children. While recognizing the local and highly autonomous nature of both schools and public television stations, the plan calls for building and/or strengthening partnerships between the two, aggregating and reallocating existing resources, and embarking on new collaborative initiatives in pursuit of new resources to accomplish shared local and national goals. In laying out responsibilities, the plan suggests continuation and significant enlargement of responsibilities for education and public television agencies at the local, state, regional, and national levels. In addition, the Public Broadcasting Service (PBS) is charged with taking on the tasks of national advocacy and coordination to foster a national climate conducive to the enhanced and invigorated use of technology in meeting educational needs. Five appendixes provide a glossary of terms, a list of groups involved in preparing the preliminary 1990s budget, related resolutions adopted by the PBS board, and acknowledgements. (EW)

Using Public Television and Instructional Technologies to Meet Educational Needs

A BLUEPRINT FOR COLLECTIVE ACTION

PBS cpb

Executive Summary

In an age when technology permeates every facet of American life and promises to be even more pervasive in the future, leaders of public television and education share a responsibility to harness this growing power in the service of the nation's school children. American schools, charged with the intellectual growth of children and youth and increasingly expected to address social, moral, and health problems as well, are the most important developers of the country's human resources, the foundation upon which the country's future progress and standing in the world community depend. "Using Public Television and Instructional Technologies to Meet Educational Needs" presents a blueprint for a strong dynamic partnership between the public television and education communities to assist schools in applying technology to accomplish their vital tasks.

Though public television and education have already successfully combined to address some needs, the record of accomplishment is uneven among geographic areas and inconsistent across school disciplines and grades. This Plan calls for a long-term, broad-based, proactive effort to determine educational needs that can best be addressed through technology and to develop strategies and programming to meet them.

To achieve an ambitious educational agenda that includes new research, programming, utilization, and distribution capacities for the 1990s, the Plan identifies areas of common purpose, suggests ways for assessing national needs, and proposes methods of collaboration and coordination to insure that instructional technologies are used to provide educational excellence to all of the nation's children in an equitable way. As a first priority, the Plan recommends immediate development and implementation of an advocacy effort to make educational, governmental, and corporate decision-makers, as well as parents, aware of the potential benefits technology holds for motivating and instructing children.

While recognizing the local and highly autonomous nature of both schools and public television stations, the Plan calls for building and/or strengthening partnerships between the two, aggregating and reallocating existing resources, and embarking on new collaborative initiatives in the pursuit of new resources to accomplish shared local and national goals.

In laying out responsibilities, the Plan suggests continuation and significant enlargement of responsibilities for education and public television agencies at the local, state, regional, and national levels. Additionally, PBS is charged with taking on the tasks of national advocacy and coordination to foster a national climate conducive to the enhanced and invigorated use of technology in meeting educational needs.

"Using Public Television and Instructional Technologies to Meet Educational Needs" provides a flexible base from which education and broadcasting agencies at all levels can develop operational plans to meet their specific objectives. From their collective actions and shared responsibilities can come a major new force in securing the nation's future, the excellent and equitable education of all of our children.

"Using Public Television and Instructional Technologies to Meet Educational Needs" was funded by the Corporation for Public Broadcasting and developed by the Public Broadcasting Service.

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Foreword

"Using Public Television and Instructional Technologies to Meet Educational Needs" was commissioned by the Corporation for Public Broadcasting as part of its ongoing commitment to encourage and promote the use of telecommunications technologies to serve education. The idea for it originated, however, from the grassroots ITV community, those who work with instructional television at local public television stations and within local schools.

The ITV community recognized that new developments in learning theory, information storage technology, and program distribution and use capacities could greatly expand the earlier abilities to serve education. To take advantage of these new opportunities, the ITV community would have to reposition itself within the new landscape of learning opportunities now available to schools and students.

The result of these insights was the ITV Futures Project, a planning process involving ITV professionals nationwide who systematically explored ways in which current and emerging technologies could be used more effectively to meet the learning needs of children. At the recommendation of the ITV Futures Planning Group, PBS took on the responsibility of building a national plan based on their deliberations and further input from a broader base of public television station management, national education organizations, and other special interests involved in utilizing television and other technologies in education.

The Elementary/Secondary Service of PBS designed "Using Public Television and Instructional Technologies to Meet Educational Needs" as a blueprint for collective action. As such, it can serve as a consensus builder and a common point of reference for ITV personnel, station managers, educators, and other constituencies involved in using technologies for instruction.

From this common base, each can develop operational plans and partnerships with others not only to meet individual needs, but also to help create a national synergy resulting in heightened awareness, new and increased funding, and essential new programming and services.

In this document, we have attempted to keep industry jargon to a minimum; for those special acronyms and terms that are included, a glossary is provided in the appendices. One special note: we do not distinguish between *television* and *video* in this paper. When we refer to *television programming* we mean programming that has been produced in video format and is available through any or all of several means, including broadcast television (open and closed circuit), cable, microwave, videotape, videocassette, or videodisc.

We wish to offer our sincere thanks to all who contributed their expertise to this document: the ITV Futures groups, the two PBS Elementary/Secondary National Advisory Committees, composed of representatives of public television, instructional television, and education agencies from around the country, specially convened review committees and groups of readers, and literally hundreds of our broadcasting and education colleagues who responded in writing, by phone, and in person to the various drafts of the document in development. (Please see Appendix E for the names of those who provided specific help as a part of a particular group.)

A special note of thanks goes to Doug Bodwell, Meg Villarreal, Mary Sceiford, and Ric Grefe at the Corporation for Public Broadcasting, and Chuck Marquis and Toby Levine at the National Association of Public Television Stations for their continued guidance and support, to Ted Lucas, Bill Meyers, Mary Lou Ray, and the regional instructional councils and constituents whose opinions they so adeptly represented; and to colleagues representing national education organizations: William Pierce at the Council of Chief State School Officers; Robert Harman and Gary Watt at the National Education Association; Jim Mecklenburger at the National School Boards Association; Milton Binns at the Council of the Great City Schools; and many others who counseled us wisely on the need for and methods of building partnerships with education.

PBS Elementary/Secondary Service

Bill Reed
Dee Brock
Chet Tomczyk
Joan Katz

Alexandria, Virginia
January 31, 1988

A Shared Vision

At a time when television and other technologies permeate every facet of American life and promise to become even more pervasive in the future, it is critical that public television form a strong and viable partnership with the nation's educational community to harness the power of technology in the service of education. When well designed and used, television and other technology applications have proven to be enormously effective instructional tools. Further, broadcast and non-broadcast technologies can make quality education equally available to all schools and children nationwide. While the nation's resources are strained and its problems are expanding, the direct application of technology can provide efficient and cost-effective solutions to many of the nation's most pressing educational problems.

There Are Important Educational Needs

During the past five years, a series of major reports from educators and policy makers painted a bleak picture of the nation's schools and the consequences of their problems. At a time when professionals from many fields proclaim the nation's future depends on its ability to develop an increasingly well-educated and trained workforce, twenty-five percent of all who enroll in high school in this country drop out before graduation. The United States today ranks a dismal forty-ninth in the world in adult literacy with over twenty million adult illiterates. And every year, new research indicates that U.S. youngsters overall rate lower in academic achievement than their counterparts in other developed countries.

Academic problems in school are the result of or can lead to other social ills. Thirty-four percent of American high school students abuse drugs, one out of four teenagers is a problem drinker in high school; four out of every ten girls are pregnant before the age of twenty; promiscuity leads to increased danger of contracting AIDS, one American teenager commits suicide every ninety minutes.

Teachers, often feeling themselves undervalued as professionals and overburdened with social problems and non-teaching jobs, are exiting teaching in record numbers, and the sum of new teachers entering the field falls well short of meeting the need. Further, practicing teachers are often undereducated in the subjects to which they are assigned or untrained in working with special populations—minorities, gifted, physically impaired. All of these problems are exacerbated in rural areas where it is often difficult to recruit and retain teachers.

Educators are responding to this national crisis with strategies for more effective schools. Education reform, however, requires not only planning, but systematic staff development; creation of new materials, acquisition of new equipment, and major efforts in implementation – functions requiring funding which many schools do not have. Thus, while affluent schools improve, those in inner cities and rural areas often continue to fall behind. Local, state, and federal policy makers can significantly increase their abilities to address both the need for excellence of instruction and the need for equity of access to educational excellence for all children through the application of television and other cost-efficient and instructionally effective technologies.

The Time Is Right For Technology-Based Solutions

Children and youth at all levels are increasingly technologically literate. Much of what they learn of the world, by accident or design, reaches them through television. According to a 1985 report from the Southeastern Educational Improvement Laboratory, there exists a great gap between print-oriented teachers and technology-oriented students, whose learning modes reflect the pace and style of the technologies that dominate their lives. As long as this dichotomy persists, there will continue to be a dysfunction between the way teachers teach and the way students learn. The proper application of technology could help close this gap.

Over the past quarter century, many American schools have been undergoing a quiet but profound evolution in the way skills are taught and knowledge is acquired. Media systems, broadcast and non-broadcast, linked into thousands of classrooms are helping solve critical problems in education. The most innovative teachers regard television and other instructional technologies as learning/teaching resources equivalent in value to (but not replacements for) books. They look to this full range of resources to empower them to assist every child to meet his or her learning potential.

As the avalanche of technological change and capabilities roars into the 1990s, public television must make instructional technologies more accessible to education. Educators and policy makers, in turn, must put television and other instructional technologies to work in a more comprehensive and central way than ever before to help effect educational reform and meet continuing educational needs. Such an effort requires an important, ongoing collaboration between public television and education at the local, state, and national levels.

Public Television and Education Are Natural Partners

Public television has a long and respected track record in providing educational services to schools. Indeed, the nation's public television system was created to provide educational programming, and much of the system continues to be funded for this purpose. Many of the innovative applications of technology to instruction in American education over the past twenty-five years have been the result of cooperation between local educators and local public broadcasters. Public television has pioneered many important contributions:

1. **A multiple transponder satellite interconnection system**, which delivers several channels of programming simultaneously to public television stations nationwide, thus expanding local programming options;
2. **Real-time instructional television delivery systems**, employing both open and closed circuit broadcast capacities to reach classrooms during the school day and overnight broadcast delivery of video programming to schools for automatic recording on videocassettes;
3. **A proven infrastructure of instructional television/technology specialists nationwide.** Eighty-six percent of public television licensees provide programming to elementary/secondary schools and dozens of related agencies. Public television stations and networks regularly bring together large numbers of local schools and school districts to plan, purchase, operate, and evaluate instructional resources on a common but locally controlled basis;

4. **Cost-effective instructional television programming** with preview, purchase, and distribution through local stations and regional public television organizations, which coordinate the processes and help education agencies aggregate their funds more productively. This collaborative effort delivers more than 1200 hours of instructional television programming each school year;
5. **National distribution of fully underwritten and member station supported programming**, including programs designed for instruction in schools, programming for children and parents at home, and instructional applications for general audience programming;
6. **Technological innovations** that enhance the educational usefulness of video including closed captioning for the hearing impaired; improved interactive videodisc applications, use of the vertical blanking interval to deliver data and to provide interactive components for videotape, electronic classrooms, interactive teleconferencing, on-line computer services providing electronic access to program information, curricular correlations, and opportunities for teacher conferencing, and others under development.

Each year, over eighteen and a half million students and their 790,000 classroom teachers across the United States make regular use of instructional television programming and supporting services provided through public television facilities. These materials run the gamut of curricular areas and grade levels and allow teachers and students to step beyond the bounds of the printed page to experience ideas, concepts, facts, cultures, places, people — learning to think, analyze, synthesize, and evaluate in ways that only television can engender.

One of the chief benefits of public television to education lies in its unique ability to affect learning in traditional and non-traditional learning settings. This vital aspect of public television's capacity can play a critical part in making parents and community leaders more aware of school progress and needs and in making learning opportunities pervasively available to everybody all the time.

For example, early intervention can be a critical determinant of a child's future learning success. A whole generation of learners from across the full socioeconomic spectrum has had access to *Sesame Street* (designed primarily for viewing at home) and, as a consequence, has entered the nation's kindergartens and primary schools with reading readiness skills markedly improved over those of the previous generation. Similarly, series such as *Reading Rainbow* provide motivation for children to read and to maintain their skills over the summer when school is not in session.

In the classroom, resources such as *All About You*, *Think About*, and *Community of Living Things*, and other traditional instructional television series aid the teacher in presenting and the learner in mastering and retaining academic concepts. Today, educational innovators like John Bransford, director of the Peabody College for Teachers at Vanderbilt University, are using television and computers in learning laboratories to give students the individualized attention and time they need to develop the comprehension and fluency necessary to master basic and higher level skills.

Effective instructional television programming depends on effective instructional design. Historically, the video programs used in classrooms have taken a long time to develop and are intended to have long shelf lives. Increasingly, students and teachers also want "live" programming. Teleconferences and two-way electronic classrooms and field trips link students to their peers across the nation and the world, to experts, and to real events that afford them the opportunity to interact with others via audio, video, and microcomputers.

The Partnership Between Public Television and Education Needs Strengthening

Yet, despite all of the positive progress made in the past twenty-five years, instructional television has never achieved the level of success predicted nor possible for it. While seventy percent of the nation's school districts report ITV signal availability directly off-air from public television (CPB *School Utilization Study*, 1982-83) and other schools use video through other distribution systems, an inequality of opportunity still exists. Thousands of schools remain unreached and unconnected to this powerful educational medium. A few are still beyond the reach of a public broadcasting signal. Some have no instructional services from their local public television station or have access for only one or two hours a day for all students across all grade levels and disciplines. Many have only one television set or one videocassette recorder to serve hundreds of students. Further, the nation's teaching force is not being adequately prepared by post-secondary institutions to use television and technology as teaching resources.

Most important, many educational planners and policy makers are overlooking the value of television and other instructional technologies to solve educational problems. Others are designing expensive new systems which bypass resources and expertise already in place. At the same time, some public television stations, charged with a multitude of community programming needs and burdened with uncertain financing, have been unresponsive and uncreative in the use of their programming, their technological systems, and their expertise on behalf of meeting the educational and instructional needs of their service areas.

Developing the highly educated and trained citizens the successful future of the nation requires demands a greatly enhanced collaboration between the education and the public television communities at local, state, and national levels. New breakthroughs in learning theory, in technology, in production techniques, in utilization services, and in easily accessible equipment and delivery systems offer unprecedented reasons to employ television and other instructional technologies (e.g., computers, interactive videodisc, VCRs, audio) to meet educational needs. What was once a dream can be a reality if public television and education seize the opportunity to forge a productive new partnership.

A Commonly Held Vision Is Essential

As educators and the public television system prepare to address the educational challenges of the 1990s, they need a commonly held vision of what the future of education in this nation would be like if technology were put to its fullest use to meet pressing educational needs. This vision would not be constrained by rigid parameters. Rather, it would be flexible enough to fit local needs and to take advantage of new opportunities. It would not only encompass the diverse stakeholders in education, but also the diverse needs of millions of children

nationwide. A "learner-centered" vision begins with a single school child whose teachers will have at their command a full library of video and related materials to assist the child in learning at her own pace and in her own way, individually, or in small or large groups, and across many educational disciplines and grade levels. The child will learn not only in classrooms, but also at home and in community learning centers through materials acquired in a variety of ways, including broadcast, cable, ITFS, direct satellite delivery, videocassette, computers, books, videodiscs, electronic databases, audiotape, telephone and computer hookups, interactive television, and ingenious combinations. Both local and national programming, preproduced and live, will allow this child to interact with experts and peers across the street and around the world.

To insure that this child meets her full potential, she and her teachers will be reinforced by counselors, librarians, and involved administrators. These professional educators will be backed by a cadre of public television professionals, instructional technologists, curriculum designers, and producers who will create new materials and insure that the programming and the technology really serve instructional purposes. And at home, with related materials and projects, supportive parents and others will help the child—and help the school to help the child—make the fullest use of her opportunities to learn.

The technology that delivers these resources will be important, because it must be equal to its task—convenient to use, affordable, and coordinated. But the technology will be seen for what it is—a pathway to deliver what the child needs, to places she needs it, in ways that make it convenient for her and the whole range of her supporters to use. In other words, technology will be valued as a tool to do the job that needs to be done.

Clearly, this vision cannot stop with a single child. This vision must extend to all children and youth and to the communities in which they live, whether in remote rural areas, inner cities, or affluent suburbs. Only by using the technology fully can the objective of full equity of access to educational excellence be met.

What's Needed To Bring The Vision To Reality?

Achieving this vision requires an unprecedented collaborative effort between public television and education on every level. The following pages lay out a blueprint to effect such collaboration and bring it to bear on meeting educational needs. The blueprint is based on the following goals:

1. To establish in cooperation with education a strong advocacy effort that persuades policy makers, educators, public television, students, parents, and others of the efficacy of public television and instructional technologies to make essential contributions to effecting and maintaining educational excellence and equity of access. (ADVOCACY)
2. To organize a systematic program of research and data collection that identifies needs, explores technological advances, and documents the provision, use, and effectiveness of instructional programming and services. (RESEARCH)
3. To facilitate a steady output of carefully targeted and effectively designed programming and related materials and services to meet identified educational needs. (PROGRAMMING)

4. To encourage the development of increased opportunities for teachers-in-training and inservice to use television and instructional technologies more effectively. (UTILIZATION)
5. To establish sufficient delivery pathways and the requisite receive and use capacity to insure that all schools and students have access to essential television and other instructional technology resources. (DISTRIBUTION)
6. To coordinate a system to use public television and instructional technologies to meet educational needs, a system of shared responsibilities among the locally based, independent agencies and organizations that make up the public television and education communities nationwide. (COORDINATION)
7. To secure the funding necessary to implement an important educational agenda for public television in the 1990s as the foundation for achieving the common vision. (FUNDING)

The following document lays out the cooperative efforts required to achieve the above goals and suggests where responsibilities for action should lie. Approval of this plan is only a first step. Success in achieving a commonly held vision of using television and other technologies to profoundly affect educational outcomes nationwide depends upon the development of operational plans by all of the education and public television agencies and organizations which subscribe to this overall blueprint.

Advocacy

For over a quarter of a century, many American teachers have been using television as an integral part of their professional work. They have used it to take their students beyond the bounds of the printed page, to speed up and compress time, to shed light on many of the mysteries of science, to introduce new neighbors from across the street and across the world, to motivate, to illustrate, to teach. Students, in their homes, as well as in their schools, learn from television every day.

Properly supported and used, this pervasive medium could provide highly effective educational materials, from short illustrations of individual objectives to full lessons and complete courses for many grade levels in numerous subject areas and deliver them equally to all schools nationwide to be used at the discretion of individual teachers and students. Wide utilization of these materials with their ancillary print, computer, and other components could make a significant, cost-effective, and quickly realized difference in educational quality, school productivity, and equity of access. Further, television could deliver professional development for teachers and other school personnel conveniently at the school site or wherever needed, consequently raising the overall quality of schooling in another significant way. Television could also provide general audience programming which would create closer ties among parents, schools, the business community, and policy makers.

Despite many examples of excellence, however, television and other instructional technologies have not been systematically considered and well utilized in the accomplishment of educational reform. Yet, unless television and other instructional technologies are central to educational functions in the future, some large-scale national educational objectives will be unduly costly, slow, or difficult to accomplish; others will not be accomplished at all.

Therefore, an advocacy campaign is the first priority for a long term plan. This campaign must gain for public television and instructional technologies the proper recognition for their past contributions to education and, more important, position them in an appropriate central role in local, state, and national educational planning for the future. Aimed at policy makers, educators, business leaders, students, parents, the general public, and funders, the advocacy initiative has three objectives:

I. **To foster awareness of the effectiveness of public television and instructional technologies to meet educational needs.**

II. **To develop collaboration among public television and education agencies and associations at national, regional, state, and local levels to meet identified educational needs through public television and instructional technologies.**

III. **To generate increased support — financial and other — from within public television, education, government, corporations, foundations, and the general public.**

I. Advocacy to foster awareness of the effectiveness of public television and instructional technologies in meeting educational needs

Television is the most researched of all instructional technologies. Literally hundreds of studies have probed its effectiveness, and it has proven itself repeatedly in formal and informal studies as an excellent instructional tool. (For example, see "The Effectiveness of Television for Learning: Highlights from Summaries of Research," Mary Sceiford, 1985, and *Electronic Learning: From Audiotape to Videodisc*, Jerome Johnston, 1986.)

The abilities of television to enhance and provide teaching have never been fully used nor fathomed. While technology is not going to replace teachers, it can change teachers' roles. It can make them more productive by freeing them from many repetitive chores and allowing them to spend more time working with students individually or in small groups. It can provide them with exciting and imaginatively engaging resources to invigorate the learning process. Educators, policy makers, parents, students, and the general public are not yet fully aware of what television contributes to the education process now and what it could contribute to educational excellence and equity, given sufficient support. One purpose then, of an advocacy effort is to raise the awareness among these groups about the ways television is currently meeting educational needs and to promote an understanding about television's potential to make even more significant contributions.

For example, television and other instructional technologies are already meeting many critical educational needs in many parts of this country, as the following, chosen from many statistics and examples, illustrate:

- Each year over eighteen million students spend a part of their school day learning from public television programming delivered to their classrooms;
- Students in rural schools in over a dozen states now have access to foreign language instruction for the first time because television delivers it via "electronic classrooms" to their schools;
- Computers and television are providing opportunities for students "at risk" to gain the individual proficiency they need to learn reading and mathematics;
- Test scores in science classes across the country show significant improvement for students using the public television series *The Voyage of the Mimi*.

Parents, teachers, and policy makers will demand new and creative uses of technology when they can recognize its capacity and see it as a problem-solving resource. Heightened expectations can help move television and instructional technologies into the mainstream of educational planning.

National Clearinghouse

The ongoing ability to demonstrate to various target groups how instructional technologies are meeting educational needs requires a "state of the field" database to provide ready access to information about what is happening, what is planned, and what has succeeded best. As a first step, this Plan proposes that PBS design and establish a national clearinghouse that organizes

information about the type and amount of instructional programming and services currently provided by local public television stations and related agencies, new programs and services planned; and pertinent data on utilization, training, costs, effectiveness, management, technical and operating factors. Additionally, the Clearinghouse would collect from the field published articles about local services, promotion campaigns and materials, manuals about special projects; and success stories that emphasize the benefits of television to schools and learners. (See the Research section for a fuller description of data to be aggregated nationally.)

This data would be available to ITV personnel, educators, and others through hard copy and electronic services, such as EDISON, for use in awareness and advocacy efforts at every level. Further, PBS would use this information nationally to provide assistance to NAPTS in preparing testimony; to develop articles for newspapers, magazines, and newsletters of national education associations, to publish case studies, success stories, brochures, and other informational materials.

While the information and materials need to be aggregated nationally for use at all levels, the collection and reporting of information demands active participation from local and state agencies. (See the Research section for details about responsibilities for submitting data.)

Public Awareness Campaign

This Plan proposes that CPB, throughout the rest of this century, significantly augment its public awareness campaign about the effectiveness of television for learning. Targeted to the education community, policy makers, and the general public, the campaign would provide, among other things, print, radio, and television materials for use nationally and locally. Additionally, the campaign would include various strategies to bring public television, education, parents, business, and the general public together and to raise the awareness of these various audiences about successful demonstrations and applications of television's contribution to excellence and equity of access in education.

II. Advocacy to develop collaboration among public television and education agencies and associations at national, state, and local levels to meet identified educational needs through public television and instructional technologies.

Identifying and addressing educational needs requires collaboration among public television and education at every level. This collaboration will position public television as an essential, responsive, problem-solving resource. One result will be the development within education of a growing number of champions for public television and learning technologies so that the users themselves – educators, teachers, and students – speak to the effectiveness of these learning tools. If public television is the only advocate, those efforts will appear (and may be) only self serving.

National and Regional Education Partnerships

To take advantage of the national image of PBS as a provider of quality education programming, this Plan proposes that PBS take primary responsibility for building strong relationships with key national educational agencies and organizations on behalf of public

television and the instructional technologies community. Among the duties will be convening and attending meetings for and with education, making presentations to various groups on behalf of educational uses of television and instructional technologies, and developing long- and short-term plans, proposals, and projects with national education leaders and organizations. Other responsibilities involve promoting the awareness and use of existing and new high quality video materials and gaining support for and utilization of instructional support networks, such as learning services divisions at local public television stations, and data services, such as Learning Link, Curriculum Connection, and the Software Communications Consortium.

Among the many organizations with which PBS should establish or strengthen vital links are the following:

- **Education**
  American Association of School Administrators; American Federation of Teachers; Association for Supervision and Curriculum Development, College Board; Council of Chief State School Officers, Council of the Great City Schools; American Association of Colleges of Teacher Education; National Association of Elementary School Principals, National Association of School Administrators, National Association of Secondary School Principals; National Association of State Boards of Education; National Education Association; National Parents and Teachers Association; National School Boards Association; Office of Educational Research and Improvement; and others.
- **Public Television**
  Corporation for Public Broadcasting; National Association of Public Television Stations, Organization of State Broadcasting Executives; Central Educational Network, Pacific Mountain Network, Southern Educational Communications Association.
- **Funders**
  Department of Labor; Department of Education, National Endowment for the Humanities; National Science Foundation; corporate underwriters, private foundations; and others.
- **Facilitators of Technology Use**
  American Association of School Librarians, American Library Association; American Society for Information Science; Association for Educational Communications and Technology; National Association of Regional Media Centers; and others.
- **Curriculum Groups**
  Academy for the Advancement of Science; American Chemical Society, National Council of English; National Council for the Social Studies; National Geographic Society; and others, especially those associated with areas of greatest national educational need.

Additionally, PBS should work closely with appropriate regional education organizations, such as regional laboratories and media centers, and with producers and distributors of instructional programming.

State and Local Partnerships

The establishment or strengthening of vital, long-term working relationships between local and state public television stations and local and state education agencies and organizations is critical if technology is to be effectively used to meet educational needs. National needs reflect the problems of local communities, and, in reality, these problems must be solved at the local level in ways that build on the strengths and overcome the limitations that exist in each community. National efforts in this Plan are meant to provide those services and materials that local communities cannot easily or excellently provide for themselves. Thus, national advocacy, distribution, programming, materials, and services should help local communities better meet their needs. At the same time, it is the responsibility of local stations and educational agencies to develop and implement strong partnerships and joint strategies to promote awareness, demand, funding, and effective uses of television and technologies for instruction.

Ideally, parallel strategies and activities at the state, regional, and local levels will reinforce national advocacy and alliances and vice versa. For example, an American government project developed nationally with the National Council for the Social Studies would work most successfully if backed by local, state, and regional efforts in collaboration with that organization's chapters and members, as well as the essential support from state and local education agencies. At the same time, national partnerships will recognize exemplary local and state education efforts and seek ways to make the materials and/or services they initiate available to all who need them nationwide. For instance, a new training strategy for teachers for advanced placement physics courses in high schools developed by a local public television station in cooperation with the schools in its service area and the regional College Board office may warrant national attention and distribution for the benefit of schools nationwide. Insuring maximum progress toward meeting educational needs will require not only an increased level of effort, but also improved communication and coordination at every level.

Without strong, well established local alliances between public television and education, no national effort to use instructional technologies to meet educational needs can be fully effective. On the other hand, working through well established local alliances, a national initiative can expect to make a major impact on improving American education overall.

III. Advocacy to generate increased support — financial and otherwise — from within public television, education, government, corporations, foundations, and the general public.

In addition to targeted efforts designed to garner support from education, corporations, foundations, and the general public, a successful advocacy effort requires that public television and education lobby together to influence policy and funding at every level. One important purpose of PBS's role in building relationships with national educational leadership would be creating mutual agendas and priorities for federal funding. These efforts would forge the way for NAPTS to work with the legislative affairs officers of national education organizations to lobby the federal government for the mutually agreed upon purposes.

Local and state lobbying should also be undertaken mutually between public television and education, with the responsibility resting with local and state broadcast and education agencies. At the same time, national public television and education organizations should serve as resources for information, help in planning, and provide funding assistance.

Advocacy Tools

To assist in local, state, and national advocacy efforts, this Plan proposes that PBS develop a set of advocacy tools for use with policy makers, educators, parents, and the general public. Among other items, these tools would include a concise "how to" handbook; sample print materials for local adoption; a communication vehicle to share success stories; and a carefully designed national videotape with opportunities for inserts by and about individual stations and networks to serve local needs.

Activity	Primary Responsibility	Complementary Responsibility	Funding	Timeline
Advocacy to foster awareness of technology's effectiveness in meeting educational needs:				
Establish national clearinghouse	PBS	CPB/Natl., State and Local Television and Education Agencies/ Regionals/EDISON	Users (with CPB start-up)	Begin FY 89
Public Awareness Campaign	CPB	PTV Stations/ Regionals/PBS	CPB (with system support)	Ongoing, with increased effort through the end of century
Advocacy to identify and address educational needs:				
National collaboration between PTV and education	PBS/National Ed. Assocs.	CPB/State and Local PTV and Education Agencies	PBS/National Ed. Assocs.	Ongoing with increased effort beginning FY 89
Local and state collaboration between PTV and education	State and Local PTV and Ed. Agencies	National Organizations (PTV and Ed.)	Local Agencies	Ongoing with increased effort beginning FY 89
Advocacy to secure funding:				
Lobby—national	NAPTS	CPB/PBS/State and Local PTV and Education Agencies	NAPTS/ Education	Ongoing with increased effort beginning FY 89
Lobby—state and local	State and Local PTV and Ed. Agencies	OSBE/Regionals/with assistance from National PTV and Education Organizations	State and Local PTV and Ed. Agencies	Ongoing with increased effort beginning FY 89
Advocacy tools	PBS/PTV Stations	NAPTS/CPB/ Regionals/ State and Local PTV and Education Agencies	CPB (with system support)	FY 89

Research

An ongoing, systematic plan for conducting, analyzing, and reporting research is essential to the effective use of public television to meet educational needs, now and in the future. This research will assess widespread educational needs, describe the kinds of television programming and services currently provided and their utilization, effectiveness, and costs, and evaluate the characteristics and abilities of emerging new technologies, programming, and services to satisfy educational needs.

Local stations, state and local education agencies, and regional and national public television and education organizations require this information to demonstrate to policy makers, educators, funders, and parents the advantages of and necessity for exploiting public television and instructional technology applications as an essential way to achieve educational excellence and equity. The data will also provide information that will help stations and schools streamline current services and plan for the future.

Research goals in support of instructional programming and services are categorized by purpose:

I. **Advocacy research to serve as a basis for local, state, and national advocacy and funding efforts.**

II. **Management research to provide a basis for evaluating current products/services/ operations.**

III. **Development research to establish a basis for future products and services.**

Resulting data would be organized so that it would be possible to pull out information configured in several ways. Thus, stations and agencies could customize presentations to meet their local needs. For example, they could compare national utilization data to local, state and regional data or compare instructional financial data by type of licensee or budget size.

I. Advocacy Research

Accurate, up-to-date industry data that shows the utilization, costs, and benefits of instructional technology programming and services and documents the effectiveness of television and other instructional technologies for learning are essential. In presentations before Congress, state legislatures, local school authorities, and other potential funders and users such data are needed to support the case for new and sustained funding for instructional technology programming and services.

The type of industry data to be compiled would include the following:

Usage and Reach

The type and amount of current and planned educational programming and services provided by public television stations and state and local educational agencies and basic facts about the numbers of students, teachers, and schools served are needed.

Through an annual station and regional network profile survey, PBS, with the assistance of local stations and regional organizations, would collect and report this data each fall in the form of hard copy PTV Profile Fact Sheets and other means, including electronic databases, such as EDISON.

Financial Data

The costs and the sources of funding (overall) of instructional programming produced and distributed locally, regionally, and nationally by public television and the costs and the sources of funding of the instructional services supplied by stations and state and local education agencies are vital data.

CPB is required by Congress to collect audited financial information from stations on an annual basis. This Plan recommends that CPB also collect and report information annually about instructional revenues and expenses for stations and store it for dissemination through the national clearinghouse.

An assessment of where federal dollars go, the channels through which they move, and the purposes for which those dollars are spent is also essential. The Department of Education requires reports of expenditures from all states and schools receiving federal money. This Plan recommends that the federal Department of Education and the departments of education for each state report their expenditures in a way that isolates those funds specifically used for television and other learning technology programming and services and inputs this information into the national clearinghouse.

Research on Effectiveness/Impact

When seeking funds and/or promoting the use of instructional technologies for education, effects research that shows that instructional technology works is critically important. There is no shortage of research on the effectiveness of using television for learning. Over the past twenty-five years, extensive studies, experiments, critiques of the medium, and meta-analyses (i.e., research on the existing research) have appeared in scholarly journals, books, popular magazines, newsletters, and newspapers. What is lacking, however, is the distillation into salient points of the consistent evidence of television's utility in advancing learning opportunities.

This Plan recommends that CPB and DOE review the research on the effectiveness of instructional technologies for learning. They would then re-analyze and re-package the findings in a series of concise fact sheets or "Research Notes" that tie the research to implications for instructional design, production, utilization, support materials, and advocacy.

Additionally, an on-going survey of the literature about other important research with concise reports for educators would be extremely useful. A set of slides or transparencies encapsulating major points from both kinds of reports could be developed for the use of both stations and educators. These research findings and materials would then become a part of the national clearinghouse and advocacy resources for use by the system.

Success Stories of Effectiveness/Impact

The benefits of using television and technology to address specific educational needs (e.g., the student at risk, reading comprehension, critical thinking, mathematical fluency, etc.) can be best told through local success stories.

While NAPTS and PBS have collected success stories from around the country for presentations to Congress, the new advocacy plan calls for a more systematic and intensive collection of information from stations in the future. These success stories will be gathered as a part of the annual station and regional network profile survey and will include input from local and/or state educational agencies and institutions. The data will become a part of the national clearinghouse and complete advocacy file for use by the system in publications, presentations by and for local and national agencies, and station/agency planning.

II. Management Research

Management research is needed to provide information about and evaluation of the programming and services currently being provided. Carriage information that reveals which programs were carried by stations and other entities and how they were distributed to schools would provide valuable feedback on current distribution patterns and a basis for evaluating delivery options. Utilization research that documents who uses programming and services and their patterns of use would aid in determining the most efficient and effective methods of distribution. Formative and summative research would add to the knowledge base of instructional design and reveal the effectiveness of certain programming and services in teaching and learning. Management research would include the following:

Carriage Data

- Carriage data reports the type, amount, and distribution patterns of educational programming provided by public television and related entities. Data would be collected on all programs scheduled for instructional purposes, not just traditional ITV programs and not just open circuit delivery. This Plan proposes that PBS collect carriage data from stations and NISS and work with regional organizations to collect similar data from related entities (e.g., REMCs). Carriage data results would be disseminated in hard copy and mounted on electronic systems, such as EDISON.

Utilization Research

- Utilization research that documents who uses which programming and services and their patterns of use would aid in determining the most efficient and effective methods of distribution and contribute to decision making about future productions, equipment needs, and overall funding. This Plan recommends that CPB conduct periodic studies of the availability, use, and support of television and other instructional technologies in the nation's schools.

Formative and Summative Research

- Many series' designs have included either formative or summative research. To make such research available to those who need it, this Plan suggests that CPB prepare an annotated bibliography of available formative and summative research and disseminate it via hard copy and electronic databases.
- The community of users and funders could also require that new products be research-based. Further, it could document the use and the evaluation of material regularly and submit the results to the national clearinghouse and to ERIC for distribution.

III. Developmental Research

Determining future products and services requires research that identifies educational needs, research and development (R&D) that explores and takes advantage of technological opportunities to enhance the educational effectiveness of programming (e.g., interactive video/computer combinations, video indexing, and others); and competitive analyses that define strengths and weaknesses relative to the rest of the educational environment.

Needs Assessment

- There is no single agency that conducts a national needs assessment. However, to varying degrees, every state department of education, every school district, and every teacher assesses the needs of those they serve. Through the development of common formats, state and local education agencies could collect some basic data on needs. Through building relationships with education associations, PBS could encourage and help facilitate the development of common needs assessment forms and the regular aggregation of needs assessment data. Special events like FirstView also provide a unique opportunity to tap the expertise of instructional professionals and provide a mechanism for systematic aggregation of information. The resulting information would be accessible to all of education and public television through education agencies, PBS, and electronic information systems so that funders, producers and others would have access to the data.

Technological Research and Development

- Technological advances often provide opportunities for applications that can improve the effectiveness of instructional programming. A regular source of funds is needed for the development and demonstration of new technology applications. For FY'88 PBS earmarked $44,500 . . Engineering funds for new initiatives in instructional technology. CPB has provided similar R&D monies in the past. Because of the high cost of R&D, PBS and CPB should combine resources and work together to determine the best uses of R&D funds. Equipment and software manufacturers represent another source of funds for R&D, as do the National Science Foundation and corporate and private foundations.

Competitive Analysis

- To plan effectively for future programming and services, the field needs to understand the environment in which instructional technology resources will be operating. A competitive analysis should include identification of educational, technological, social, and economic trends that will influence the market, plus an analysis of data from several sources, e.g., PBS' survey of school districts with satellite dishes, data from research firms like Market Data Retrieval or Quality Education Data, CPB's periodic report on telecommunications and public broadcasting; and special studies. These analyses, plus bibliography and research abstracts, should be underwritten by CPB for distribution via hard copy or other information services, such as EDISON and ERIC.

Summary of Responsibilities for Research

Activity	Responsibility for Aggregating Data	Responsibility for Submitting Data	Funding	Timeline
Advocacy Research:				
Industry profiles	PBS	PTV Stations	CPB/PTV	FY89 and Annual
Instruc. Financial Data — PTV	CPB	PTV Stations/ Regionals	CPB	FY89 and Annual
Instruc. Financial Data — Education	State DOEs	Local/State Ed. Agencies/ Regionals	Education	FY90 and Annual
Utilization Data	CPB	Schools,/PTV Stations	PTV/ Education	FY89 and Annual
Repacking of existing effectiveness research	CPB	CPB	CPB	FY90 and Periodic
Publish success stories	PBS	PTV Stations/ Regionals/Local/ State PTV and Ed. Agencies	PTV	FY89 and Ongoing
Gathering local success stories	Stations,/PBS	PTV Stations/State and Local Ed. Agencies	Stations	FY89 and Ongoing
Management Research:				
Carriage Data	PBS	PTV Stations/ NISS/Regionals	CPB/ Users	FY89 and Annual
Formative/Summative	CPB/DOE Producers	Producers/Users	Funders/ Producers	Periodic
Developmental Research:				
Needs Assessment	Education/PBS/ First-View/ Producers/ Distributors	Schools/State DOEs Producers/ Distributors	Federal/ State/ Local Ed. Agencies	Biennial
Technology R&D	CPB/ONTI	Varies	Varies	Ongoing
Competitive Analysis	CPB/PBS/ NAPTS/ONTI	Varies	CPB/PTV	Ongoing

Programming

Central to using television and instructional technologies to solve educational problems is the development and use of quality programming that addresses identified learning needs and motivates students to want to learn. In this Plan, *programming* means television programs, series, and segments, accompanied by the appropriate and integrated resources (print, computer, audio, and others for use by students) that insure effective teaching and learning.

Recent reports about educational needs indicate that basic skills (reading, writing, and computation), science, mathematics, foreign languages, cultural understanding, English as a second language, humanities, and career and vocational education top the list of critical needs. Quality programming and services could substantially assist education in meeting those needs. Additionally, current crises demand special programming in such areas as the student at risk of failure and dropping out, protection against health problems, such as AIDS and chemical abuse, and special strategies for educating black and other minority children, the physically impaired, and the gifted.

Television, which has proven to be both effective and convenient for reaching, teaching, and motivating many kinds of adult learners, could also play an increasingly important role in educating teachers and administrators. Further, it could help enlist the support of parents and the total community in achieving educational excellence and help provide continuity from elementary to middle to high school and beyond, a need clearly demonstrated by Harold Hodgkinson in "All One System."

To assure that programming meeting current and future educational needs is increasingly available, this Plan proposes an initiative built around three objectives:

I. To maintain and build upon the programming successes already achieved by public television and the instructional technology community.

II. To facilitate the creation of new instructional television programming and related materials and services and to advance the effective use of television and other learning technologies to meet specific instructional needs.

III. To encourage the production of the finest quality, highly visible television programming to address major social and educational problems.

I. To maintain and build upon the programming successes already achieved by public television and the instructional technology community.

Over the past two decades, public television stations and organizations and state and local education agencies have built a solid foundation for previewing, purchasing, and delivering instructional programming to classrooms. Over a similar period, many public television general audience and children's at-home series have also been critically important for learning in classrooms and at home. Some have been augmented by special instructional materials or reformatted to enhance their instructional utility.

Leasing Programs

Three public television regionals – CEN, PMN, and SECA – serve their membership with instructional services. Included in each is a group leasing process that provides for acquisition of commonly desired programming at significant savings in program dollars and staff time for stations and schools. This system also provides incentives for producers because it aggregates their market, simplifies their marketing processes, reduces their costs, and allows purchasers to buy more products at lower prices from a wide range of distributors. Under this Plan, the group lease system, which has evolved through the cooperative efforts of the regionals, stations, schools, producers, and distributors, would continue with all of the stakeholders continuously seeking ways to make more and better programming available to more students.

Previewing Programs

Educators need to preview programming in order to determine its quality and its utility to the instructional needs of their students. Thus, the PTV regional organizations have developed two major previewing functions, FirstView and SatScreen. FirstView, a PMN responsibility, offers program purchasers a national on-site opportunity to see new programming, to learn more about programming in progress, and to help producers learn more about the needs of purchasers. SatScreen, a CEN responsibility and a companion piece to FirstView, offers a wider national audience of classroom teachers and other media specialists the chance to preview new programming via satellite. Some of these mechanisms work well, thus, this Plan proposes they continue and continue to change, as they have to date, on the basis of serving identified educational needs from the field.

Distributing Programs

Much of the instructional television programming which requires lease fees from users is distributed through the National Instructional Satellite Schedule (NISS), an aggregation of the most often selected programming chosen through the regional previewing process. A SECA responsibility, NISS, under this Plan, would continue and continue to evolve, as it has in the past, in response to the identified needs of its users.

Fully underwritten instructional programming is distributed by PBS as a service to all public television stations and schools which can use it. Programming designed for children at home is also distributed by PBS. These programs are available through lease by stations while others are fully underwritten and thus available to stations at no charge. Under this Plan, PBS would increase its efforts to secure additional fully underwritten programs, obtain additional school rights, and facilitate development and distribution of materials for teachers, students, and parents to make programming designed for at-home use effectively serve formal instructional needs. Further, this Plan proposes that CPB require extended school use rights and instructional materials development for all of the educationally relevant projects it funds.

II. To facilitate the creation of new instructional television programming and related materials and services and to advance the effective use of television and other learning technologies to meet specific instructional needs.

Traditional Programming:

There is a need for major new television productions with well integrated print and computer components to help solve educational needs. New instructional programming should address high priority national needs in such areas as reading, writing, and arithmetic, science, health, global understanding, and American history and government, as well as higher order skills, such as eritical thinking, concept development, analysis, and synthesis. Whether the programming includes full programs, series, units, or single concept segments, it should be based on sound research in learning theory and subject content and embody sound instructional design, opportunities for adaptation to meet local needs, and effective teaching and learning strategies. As one example, current research makes it clear that television and computers can increase students' fluency and self-confidence in mastering basic skills. Such programming should move from test sites to national availability.

Attention should also be given to providing instructional materials to accompany the finest general audience and children's at-home programming and for adapting at home programming for formal instructional purposes. Further, new programming designed for use by students and parents away from classrooms and programs which help parents and other community groups interested and involved in local schools are among the uses of television encouraged by this Plan.

Live Programming:

In addition to traditional preproduced programming, the medium should also be used to provide timely, contemporary programming that keeps teachers and students abreast of current events, new thinking and trends and allows their use to interact live with their peers and with experts across the nation and the world. For example, live teleconferences can connect American children with children in China or government leaders in Latin America or political candidates across the nation to serve specific instructional needs, as well as broadly educational ones.

Direct Teaching:

Further, television can provide direct teaching of essential subjects — basic, remedial, and advanced — to children without other access to these special areas of concern. For instance, there are currently only about 7,000 teachers of physics in the nation's 16,000 high schools, yet physics is essential for science and engineering. Technology may be the only way that the nation will be able to prepare its young people to follow these careers so essential to regaining and maintaining American competitiveness. With instruction delivered by television, students can interact with experts, teachers, and peers through the use of satellite, audio, open and closed circuit broadcast, and computer networks.

Program Information and Management:

Programming is usable only when schools are aware of its availability and are able to employ it. Accordingly, in addition to traditional services, new information and communication strategies are necessary to insure that all schools and school children can access these resources. Among these strategies are computer networking; audio bridges; the use of the vertical blanking intervals (VBI) to deliver data simultaneously with television, correlation of

television and computer software with curricular objectives; and others. Additionally, sufficient promotional materials to make teachers aware of projects and sufficient utilization materials and services to make them convenient and successful to use are essential.

Local Programming Priorities:

Local and state providers of instructional technology programming have specific responsibility for determining the educational needs of their constituencies and locating programming that effectively addresses those needs. In many locales there are already dynamic working relationships between public television stations and educators. Where these associations exist, they need to be nurtured; where they do not, they need to be established. Committees of teachers, content specialists, and administrators can be a constant source of information about needs, trends, and special education initiatives taking place or projected. Armed with this information, program providers can be more effective lobbyists with ITV producers, thus making FirstView and SatScreen even more effective as needs assessment tools.

Further, knowing the specific educational needs and problems of the area it serves can be extremely valuable to a station in determining where to place its own production and delivery dollars and its energies. WTVS in Detroit, for example, working side by side with the Detroit school system, has targeted its resources to addressing the problems of youth. The drop-out problem, teen-age drinking, and teen-age violence are among the subjects the station has tackled with and on behalf of the community and the local school system. Kentucky Educational Television and Mississippi Educational Television combined forces to produce a GED series to assist high school drop outs prepare for their high school diploma equivalency examinations. Specific grassroots needs require specific grassroots action. Building local partnerships with education empowers both to better serve their communities by using television and technology to meet educational objectives.

Programming For High School Students at Risk

As an immediate national project, this Plan proposes a system-wide, multifaceted approach to the problem of the high school student at risk of dropping out.

Unchallenged, bored and uninformed youth are especially vulnerable to delinquency, teen pregnancy, sexual promiscuity and AIDS, drug and alcohol abuse, academic failure, and dropping out. Many experienced teachers, frustrated at spending more time coping with social and emotional problems than teaching, are also dropping out, leaving the students in the hands of inexperienced and, sometimes, poorly qualified educators. The result is a generation of high school students at risk of being disenfranchised from full participation in society and from developing their full powers of mind and spirit. The result is also a nation unable to regain and maintain its position of leadership in the world marketplace.

Because public television has the potential to offer significant help to education in addressing the problem of the high school student at risk of dropping out, this Plan proposes that a national effort involving public television and education develop a multifaceted umbrella project that effectively uses media to motivate, excite, challenge, inform, reinforce, and remediate students. Among the possibilities are these:

- State education and social welfare agencies would collaborate with public television and radio broadcasters to produce or to make better use of programs already available for use in traditional and non-traditional settings, including homes, schools, detention centers, churches, and workplaces. These might include literacy and GED materials for use by those who, due to teen parenthood, incarceration, or other reasons, are unable or unwilling to attend traditional schools, but who wish to complete high school requirements.
- Currently available college television courses could be reconfigured as advanced placement opportunities, particularly for students whose schools do not have the means to offer such courses. Direct delivery via satellite can make programs such as these available in rural areas or in smaller school systems that cannot otherwise offer such services.
- The Outreach Alliance could continue to wield its collective expertise and resources to deal with at risk students by expanding on previous successful projects such as "Chemical People" and "A Generation at Risk" and by mounting new projects addressing the needs of high school students. For example, current plans call for PLUS (Project Literacy U.S.) to focus on youth literacy in fall 1988. Tying schools and special teaching projects into this theme could make an important difference.
- Emulation of successful local projects to deal with drop out prevention and job training (such as those at WTVS, Detroit) could be adapted and undertaken by other communities.
- At the national level, partnerships with education, health, and broadcast agencies could be established to provide live, interactive seminars using examples of real situations to teach teachers and other school personnel how to deal more effectively with students at risk. Examples might include educating minority children, dealing with math and science anxieties; teaching reading comprehension and concept development.
- Other national partnerships could develop and deliver live, contemporary programs that deal with social and health issues and provide students and teachers with up-to-the-minute, factual information and opportunities to ask questions of experts and share experiences with others.
- A compendium of available video and other software addressing the academic needs and social problems of the student at risk of dropping out can be developed and distributed to state and local education and public television agencies.
- Direct teaching projects could offer special technical and vocational training to schools unable to afford such programs.
- Counseling services for students can be offered via VBI and other electronic data services; and training which helps young people learn to assess their own needs and develop their own potential can be offered by satellite to school counseling personnel.

The above projects could be started at once. But a major effort to address the high school student at risk of dropping out should also include planning for other targeted instructional programming and services. For example, specific remedial reading, writing, and mathematics curricula should be designed for individual use to allow students to work alone and at their own pace with programming that meets them on their own levels of sophistication and

proficiency. Through building the students self-confidence and fluency, this programming would also help students develop the skills they need. These and other instructional efforts call for careful instructional design and production.

To explore this concept further and, if it is feasible, to develop an operational plan for its development, this Plan recommends that PBS convene a special task force of education and public television leaders.

Programming to Meet the Education and Training Needs of Teachers and Other School Personnel

One of the most urgent needs within education today is the need for professional development of teachers and other school personnel. Many school professionals have been out of college for many years with inadequate opportunities for updating in their disciplines. Others are now teaching outside the fields in which they have been educated. Few have access to discussions about or demonstrations of the latest pedagogical strategies or learning research.

Further, current efforts to update and improve school personnel are largely inadequate. A chemistry teacher returning to university to update scientific skills learns chemistry without necessarily receiving help on how to present the new concepts and information to students. Inservice training programs, partly because they must address the needs of teachers across many grade levels and subject areas, are usually too generalized to be of significant value. The summer workshops sponsored by prestigious organizations are usually rated as premiere experiences by the fortunate teachers selected to attend, but they are quite costly. To use the National Science Foundation workshops as an example, the events cost some $12 million and handle only about 2000 teachers each summer. There are, however, over two million school teachers, most of whom have professional development needs.

Television has proven its effectiveness in educating and training adults in general and teachers in particular. Over 200,000 adults will have enrolled in college credit courses delivered through their public television stations this academic year. Preproduced courses such as *Teaching Writing. A Process Approach* and live telecast seminars such as "Teaching Reading as Thinking" have a cadre of satisfied teachers and a strong demand for repeats. Through television, the nation could address the professional development of most teachers and administrators in a compelling manner and deliver it cost effectively and conveniently.

Thus, this Plan recommends that public television and education undertake to design and provide a national professional development programming service for teachers and other school personnel. This service would provide updating in disciplines, the latest strategies in pedagogy and classroom management, seminars on the latest issues in education, training, and information services, and other programming and services as determined by the users. As a next step, this Plan proposes that PBS, in close cooperation with the relevant national organizations and with the backing of the leadership in teacher training and education reform, undertake to provide an array of special programming for the professional development of teachers and other school personnel.

III. Produce highly visible programming to address major social and educational problems.

Among the programs about which public television is most justly proud are the educational series for children and youth at home. The documented successes of programs like *Sesame Street and Mr. Rogers' Neighborhood* make it imperative that new programs for these series be produced. Further, new series that display the same creativity and produce the same level of instructional gains need to be developed to address other areas of need.

While most national leaders would agree that education is fundamental to the nation's welfare, education rarely receives the coverage and care in the news or documentaries given to other critical issues. Further, the headlines and news stories often focus on the more negative aspects of current events – declining test scores, teacher shortages, high school drop-outs, etc. This Plan proposes that education be assessed regularly through an annual or semi-annual "report card," with at least some of the coverage capitalizing on how exemplary projects, schools, or systems are meeting specific educational needs.

In addition to programs that deal directly with education, this Plan recommends programs about issues that impact on education. For example, many of the social and health problems facing America today – problems such as adult illiteracy, crime, AIDS, despair, loss of American competitiveness in the manufacturing markets the nation once dominated, and the growing need for training and retraining the work force to regain and maintain America's international competitiveness – must be addressed, at least in part, through our schools. Educators and administrators are increasingly concerned that most adult illiterates were formerly students who passed through the system without acquiring adequate reading and communication skills. The increasing tide of immigrants has placed another strain on the society as it must deal with many citizens who do not speak English well or at all.

Certainly, schools are not due all of the blame, and they cannot accept all of the burden of correction. However, a concentrated, cooperative effort between educators and public television stations can pull people, communities, and the nation together to address these problems. PLUS and "The Chemical People," both cooperative projects including public television stations, the Outreach Alliance, hundreds of local and national organizations, and hundreds of thousands of individuals, provide examples of how television can be used to arouse national awareness and action and how local groups can use that awareness to achieve community objectives.

Activity	Primary Responsibility	Complementary Responsibility	Funding	Timeline
Maintain Existing Service:				
FirstView	PMN	NCC/Regionals/ Distributors/PTV and ITV Systems	Users/ Distributors	Annual
SatScreen	CEN	NCC/Regionals/ Distributors/PTV and ITV Systems	Users/ Distributors	Annual
NISS	SECA	NCC/Regionals/ Distributors/PTV and ITV Systems	Users/ Distributors	Ongoing
Extended Use of Programming for Education:				
Secure extended rights when possible for instructional use	PBS/CPB	Producers/Funders	Funders (including CPB)	FY88/ Ongoing
Create New ITV Programming:				
Facilitate the creation of new ITV programming and materials	PTV System/ Education Agencies and Organizations	Producers/Funders	Funders (including CPB)	FY89/ Ongoing
New Programming Initiatives:				
Establishing and implementing local programming priorities to meet educational needs	Local/State Ed. and PTV Agencies and Organizations	Assistance from Natl. Organizations and Agencies as needed	Local/State Ed. and PTV Agencies and Organizations	FY88/ Ongoing
Drop-out programming initiative	PTV System/ Education Agencies and Organizations	PBS/Outreach Alliance/OSBE/ Regionals/CPB	Funders/ Users	FY89/ Ongoing
Professional development for teachers and other school personnel	PBS/Education Organizations, Agencies and Institutions	OSBE/CPB/ Regionals/Local and State Ed. Agencies	Funders/ Users	FY88/ Ongoing
Social problems programming initiative	Outreach Alliance	OSBE/CPB/PBS/ Regionals/Soc. and Ed. Agencies/ Community Group	Funders/ Users	Ongoing

Utilization

Quality television programming has proven repeatedly over the past two decades that it can hold student interest, inspire student action and thought, advance student skills, and empower students to reach instructional objectives. This fact is not surprising, since learning theorists generally conclude that children learn more quickly and holistically and remember longer those concepts and facts they experience visually. Yet many current classroom teachers and teachers-in-training do not have adequate knowledge about the application of technology to the learning process to use it well; some cannot use it at all.

Media is often ignored entirely in an education degree, even media methods courses often fail to do more than demonstrate how the hardware works. Methods of using media as prime teaching resources and practice with their use in real teaching situations are often overlooked. Thus, new teachers are usually unable to integrate video and computer software into the total teaching and learning experience. Indeed, they may be unaware that these resources exist. Clearly, learning technologies needs to find a permanent home in teacher preparation curricula across all disciplines.

Further, teachers who have escaped the nation's post-secondary institutions without benefit of training in using instructional technologies must learn to use these resources while they are inservice. Such training, to be successful, must be tied to school board requirements, credits for advanced degrees, and other identified professional needs of teachers. Still another ongoing requirement is utilization training for specific products and programming.

Instructional television agencies are the traditional providers of ITV utilization training. The professional trainers within these agencies also have need for more information about specific products and technologies and the latest innovations in training techniques in order to have the most positive impact on the teaching force at the most economic expenditure of their resources.

To provide the current and future skills needed to use television and instructional technologies effectively, this Plan proposes two objectives:

I. **To encourage the development of increased opportunities for proficiency in the use of television and instructional technologies by teachers-in-training.**

II. **To maintain and build upon the current utilization services of the instructional technology community.**

I. To encourage the development of increased opportunities for proficiency in the use of learning technologies by teachers-in-training.

New teachers and other school personnel emerging from the nation's post-secondary institutions are often technology illiterate and thus unable to utilize successfully the range of instructional technologies available to them when they first enter the classroom. Reformatting the required educational curricula to include increased emphasis on the instructional uses of technology and to provide new professional educators with information about the wide body of resources available to them is an obvious need. Additionally, the curriculum should include opportunities for personal experience in using these tools in classrooms and other settings and in addressing the individual learning styles and abilities of students.

Local and state education agencies that are currently using technology are the appropriate catalysts to bring about this change. By exposing their state licensing agencies and teacher training institutions to the educational potential of learning technologies and the need for new teachers to be ready to use them effectively in the classroom, they can bring about increased technology training as a prerequisite to graduation and certification. This Plan proposes that these education organizations (with assistance from OSBE, PBS, and CPB) undertake to stimulate this improvement in teacher education now.

II. To maintain and build upon the current utilization services already achieved by the instructional technology community.

There are many providers of utilization materials and training. School districts, state and regional education agencies, producers and distributors of programming, and public television stations are the traditional providers of utilization training for general uses of technology and for specific uses of special programming. Among the traditional supports for utilization of instructional technologies are teacher guides, student worksheets, computer software, activity kits, video training tapes, and others. These utilization training sessions and materials are extremely valuable to the overall understanding and use of technology and to the effective use of specific programming.

This Plan recommends that these efforts not only continue, but that they be expanded to reach all appropriate teachers in an equitable way. Additionally, new materials, services, and methods of delivering them should be developed. Adequate professional training for media providers who work with educators in developing, delivering, and implementing media materials for the classroom is also an important need.

Utilization Support for School Personnel

School districts, regional education agencies, producer/distributors of programming, and public television stations are among those that provide utilization training sessions and materials to support the uses of television and other technologies in general and to support the use of specific products. Yet training is neither consistently available nor adequate across the nation. For greater efficiency, local and state PTV and education agencies should work closely together to aggregate resources and share responsibilities in order to provide more and better utilization materials and training in a more equitable way. Whenever possible, this training should assist participating teachers in meeting school board or state requirements for certification and/or career advancement, as well as offer them opportunities to secure college degree or certificate credits.

As purchasers and users of instructional television, state and local PTV and education agencies can insist that the programming they buy include utilization materials and training opportunities that insure successful classroom use. Such efforts might include better teacher and student guides with clear indications of learning objectives; computer software accompaniments; textbook correlations; video presentations by the designers explaining the purposes and uses of the programming and the needs they meet, video programs modeling the actual use of the programming with students; workshops; peer tutoring designs; teleconferences; and so on.

This Plan recommends that CPB, as a major funder of instructional and general audience programming, require an excellent information and utilization plan to accompany appropriate productions for at-home audiences as a part of all contracts for instructional programming and educational material development. Further, PBS should consistently urge the need for utilization plans from producers seeking PBS funds or other support for new program production.

Future development of utilization materials and services would include, ideally, serious attention to two new audiences: school administrators and parents. The research literature is clear that innovation and excellence in schools is quite dependent on active participation in and support for good classroom instruction and curriculum development by principals and other supervisors. Thus, special efforts to inform them about and to secure their endorsement for instructional technologies will speed up and improve the use of television and technologies to meet educational needs.

Bringing parents and other caretakers for children into a closer working relationship with local schools and the education process is a major need in education. Television is uniquely capable of reaching parents and children together at home. Indeed, the average family spends most of its time together watching television, and the majority of them rate watching television as their number one quality time activity. This propensity to watch television with children could be better utilized for educational purposes. Specific attention to educational support materials designed for parents and children to use at home could have dramatic and positive impact on student learning.

Electronic Information/Data Systems

Existing and emerging information/data systems can help teachers become better managers of students and educational resources. These systems can inform teachers and others (such as instructional technologists, media specialists, librarians, administrators, ITV professionals, etc.) about programming, instructional and utilization materials and services to complement programming, research, and other subjects to help assure the best use of instructional technologies. (See Research section for an overview of the kinds of information to be available.) Data can be accessed on-line; on computer diskettes, CD ROM; and in paper summaries to accommodate those who do not have ready access to other systems. These information systems will also be valuable resources for students – not only to provide data, but also to train them in the use of electronic data services. This Plan recommends that EDISON, the Curriculum Connection, Learning Link, and the National Clearinghouse work together to collect and make accessible the information needed to make television and instructional technologies effective teaching/learning tools.

Professional Development for Instructional Technologies Specialists

Each year the National Utilization Conference, presented by the SECA Center for Instructional Communications, affords professional development for instructional technologists. Additionally, CEN, PMN, SECA, AECT, and other organizations often provide utilization workshops and presentations at their annual conferences and at other interim functions. PBS and CPB also offer specific professional development and training opportunities, often in conjunction with other national and regional meetings. In addition, regional educational laboratories, state departments of education, and others work to assist their personnel and clientele to improve professionally This Plan recommends continuation of these professional development events and urges developers of conferences to recognize the continuing and varying needs of both new and long-term instructional specialists. A special emphasis on building marketing and sales skills is a current need. Further, the Plan proposes that these professional development activities be carefully coordinated in terms of themes and times to fit with national advocacy and programming agendas and to avoid unnecessary duplication and conflict. (See Coordination section.)

Summary of Responsibilities for Utilization

Activity	Primary Responsibility	Complementary Responsibility	Funding	Timeline
Train preservice teachers in the use of technology:				
Expansion/ improvement of educational methods courses	Local and State Ed. Agencies/ Schools of Education	State and Natl. PTV and Ed. Organizations	Schools of Ed./Students	Ongoing
Maintain and build on current utilization services:				
Utilization materials and training to accompany specific programming	Producers	Purchasers/Users/CPB	Purchasers/ Users/CPB/ PBS	Ongoing
Electronic info/ data systems	PTV System	ONTI/State and Local Ed. Agencies	CPB/Other funders/ PTV/Users	Ongoing
National Utilization Workshop	SECA	NCC/PTV System	Participants	Annual
Other utilization training for teachers and administrators	PTV stations/ State and Local Ed. Agencies	Regionals/CPB/PBS/ ONTI/Natl. Ed. Organizations	Funders/ Participants/ Ed. Agencies	Periodic
Other training for utilization specialists	CPB/ Regionals/ PBS	Local and State PTV and Ed. Agencies/ Distributors (e.g. TVO)	Participants/ Funders/State and Local PTV and Ed. Agencies	Periodic

Distribution

In many parts of the country, public television stations have been providing quality instructional, entertainment, cultural, and other enlightening programming to homes and schools for over twenty-five years via open channel broadcast. During that time, they have also developed a plethora of other delivery systems, primarily to supplement their educational services to schools. Some licensees have augmented their basic broadcast channel with an Instructional Television Fixed Service (ITFS) capability, some with cable, microwave, translators, direct satellite delivery, tape duplication, hard copy circulation of videotapes, videodiscs, film, computer software, and equipment, and some with the acquisition of additional broadcast channels. Well over one-third of the nation's students benefit from public television programming delivered directly to schools by these systems.

Yet, despite all these innovations and expansions of service, the current distribution capacities are inadequate to the needs of most schools. In some cases, there are insufficient channels of delivery. In a few cases, there are no channels at all because the schools are too remote or the community's telecommunications systems are under developed. In other cases, the schools are not sufficiently equipped to receive the channels that could serve them. While recent studies show that almost all schools have at least one television set and a majority have at least one recorder/player, they also show that twenty percent of the teachers who have access to television sets have only black and white sets, and that in most schools equipped with VCRs, one machine must serve hundreds of students.

Expanding and improving distribution systems are critical to the full use of television and other instructional technologies to meet educational needs. To guarantee that all teachers and students have timely, convenient, and cost-effective access to a variety of instructionally important television and other software and resources, this Plan sets forth three major objectives:

I. To expand national distribution capacities to insure that the finest instructional television programming, computer software, and information services are available nationwide.

II. To add sufficient new local pathways as supplements to traditional broadcast channels to insure that all schools have access to all relevant instructional television and other learning technologies programming relevant to their needs.

III. To equip every school with adequate hardware and materials to assure that every teacher and student has access to the video and other resources they need for successful teaching and learning.

I. Expanded national distribution capabilities

Insuring that the finest current and future instructional television programming and related materials are available for all students and school personnel requires a greatly expanded national distribution capability. This expansion begins with securing additional satellite transponder time dedicated to educational uses so that resources are available nationwide for local adaptation and use. However, this expansion cannot stop with the acquisition of transponder space. Managing this new technological capacity so that it provides uninterrupted service and meets educational needs equitably nationwide and informing

school personnel about the availability and the utilization of instructional and information resources are also critically important if the enlarged distribution system is to serve its purposes.

As a part of its planning for the satellite replacement for the public television system for the 1990s, PBS has taken into account educational needs. The RFP which has gone out to potential providers of the satellite not only identifies current educational use, but also requests proposals which allow for varying levels of expansion of services. To supplement these efforts, OSBE has undertaken a study of its members to discover education needs and services already provided and plans to undertake a more ambitious study to determine the feasibility of a shared educational satellite delivery system to serve its members. One course of future action would include new satellite capacities dedicated to education as a part of the public television satellite replacement plan. Another course of action would include new satellite capacities for education managed by OSBE, education agencies or others. In any case, this Plan recommends (1) that new delivery capacity be carefully planned by PTV and education and carefully coordinated with existing systems, and (2) that new satellite capacity be a major focus of the advocacy campaign. (See the Advocacy and Funding sections.)

The advent of low cost videocassette recorder/player and satellite receiving equipment and the increasing availability of other alternative local pathways make it important to acquire multiple satellite transponders dedicated to instructional and informational programming delivered to schools nationwide. The ability to record and store programs for later use means that schools are freed from the tyranny of the transmitter's schedule, and that schools can record and utilize programming for all disciplines and all grade levels. In addition to delivering the kind of instructional programming now largely available through NISS and PBS broadcasts, this new capacity could be used to provide programming narrowly targeted to specialized education needs, computer software, and information services needed, but not available, in most schools.

Because a satellite can reach from coast to coast, it can serve discrete purposes rarely touched today. As one example, specific needs of students in small rural schools are often impossible for local school districts to address satisfactorily because of costs, unavailability of teachers, and small numbers of students. Programming designed for such students becomes economically possible when it reaches large numbers of rural schools. As another example, teachers are rarely provided with inservice training that meets their particular needs, instead, typically, large numbers of teachers across grade levels and subject areas are provided with homogenized advice. A national delivery system, however, would allow specific inservice training for teachers – fourth grade arithmetic, eleventh grade American history, honors calculus, and others – to keep teachers current in their fields and alert to new teaching strategies already proven successful with students. As a further example, the crisis in educating, recruiting, keeping, and retraining teachers of science requires finding a way to touch the lives of thousands of teachers who are untrained or undertrained. Technology may be the only feasible way to meet these and other needs.

Computer software for instructional purposes can be transmitted simultaneously with television programming, information services, never before readily accessible to most school libraries, classrooms, and personnel, can also be transmitted along with the television and computer programming. Further, a national system makes immediate, interactive

communication possible among schools, students, professionals, and parents nationally and internationally. One such service emerging from public television is the Software Communications Service managed by the Central Educational Network and developed by a consortium of state educational and broadcast agencies. Still in the developmental stage, SCS hopes to tap the full educational advantage of both computers and satellites.

II. The addition of sufficient local pathways

Delivering essential instructional and informational services for each curricular area and every grade level, as well as professional development opportunities for teachers and other school personnel, requires that schools have access to several channels of programming. Possibilities include open circuit broadcast, ITFS, cable, new broadcast channels, direct satellite broadcast, hard copy distribution, and combinations of the above.

Choosing the appropriate delivery systems is properly in the purview of local communities. Thus, public television stations and their state and local education agencies should collaborate in an on-going planning effort which addresses the needs of every school in the state to insure that all students and teachers have access to essential instructional resources via television and other instructional technologies. The resulting plans should serve as foundations for advocacy for state and federal funds and perhaps as leverage for significant savings through large-scale purchases of equipment and videotape.

III. Adequate equipment and materials in every school

No matter how fine the national service and how plentiful the local pathways, instructional television cannot reach its full potential to serve students and teachers unless schools have adequate equipment and materials. The statistics that indicate that most schools have television sets, computers, and videocassette recorder/players can mislead school officials, boards, and policy makers into believing that schools already have what they need. However, schools are not adequately outfitted until every teacher has the hardware and the programming conveniently at hand for each relevant class period and until every student in need of special help has individual and small group access to these essential resources.

Securing federal money to outfit schools with distribution and receiving equipment and materials (such as blank videotape stock) is another focus of the national advocacy campaign. (See Advocacy and Funding sections.) Additionally, local and state education agencies, in collaboration with public television stations, should address this need through state advocacy efforts.

Activity	Primary Responsibility	Complementary Responsibility	Funding	Timeline
Development/ implementation of plans to replace the PTV Satellite Interconnection	PBS	NAPTS/CPB/Regionals/PTV System	PBS/CPB PTV Organizations/ Federal Government	FY88 thru FY92
Development/ implementation of plans for new satellite capacity for education	OSBE/PBS/CPB NAPTS/NISS	Regionals/PTV System Education Agencies and Organizations	OSBE/PBS/ PTV/Ed. Agencies and Organizations/Federal and State Govt.	FY88 Ongoing
Management of new satellite capacity dedicated to education	PBS on behalf of PTV System	Regionals/OSBE/ Local and State Ed. and PTV Agencies	Users	Ongoing (after acquisition)
Development/ implementation of plans for new distribution systems in local communities	Local/State PTV and Ed. Agencies	Regionals and National Organizations (as requested)	Users (with support from state and federal funding)	Ongoing
Equipping schools	Local/State Ed. Agencies	Local PTV Agencies/Regionals/ State and Federal Govts./PBS/ NAPTS	Users (with support from state and federal funding/ and from community groups, funders, and businesses)	Ongoing

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Coordination

"Using Public Television and Instructional Technologies to Meet Educational Needs" is a blueprint for collective action. As such, it lays out needs, establishes goals, outlines responsibilities, and suggests the appropriate agencies for undertaking those responsibilities. This Plan does not propose a national governance structure to manage either public television's contributions to education nor education's use of television and instructional technologies. Rather, it calls for a system of shared responsibilities and collaboration as a more realistic and responsive way to serve the locally based, independent agencies that make up the bulk of the public television and education communities.

At the same time, this Plan recognizes the need for and benefits from coordination among instructional technology providers and users. There are many examples of successful coordination and collaboration in place already in communities, states, and regions. However, expanded and enhanced use of public television and instructional technologies to address educational needs will require national coordination.

To take advantage of the unique abilities and resources extant among instructional technology agencies and to encourage close cooperation and clear lines of communication, this Plan proposes the following two objectives:

I. **To use PBS as the national focus for coordinating and facilitating the use of public television and instructional technologies to meet educational needs.**

II. **To encourage the development and enhancement of coordination efforts among education and learning technology agencies at the regional, state, and local levels.**

I. To use PBS as the national focus for coordinating and facilitating the use of public television and instructional technologies to meet educational needs.

This Plan proposes that PBS be assigned the responsibility for national coordination. As a national membership organization representing 327 public television stations nationwide, PBS is uniquely positioned to take on national coordination responsibilities. No other national organization represents so wide a segment of the constituency involved in using television and instructional technologies to address educational needs.

Education has always been and continues to be an integral part of PBS's mission. In 1986, the PBS Board of Directors passed a resolution reaffirming its conviction that "educational television programming and telecommunications services should play a central role in PBS's service"; and its determination that "PBS, in concert with its member institutions, can and should play a central role in the critical task of advancing the effectiveness of educational telecommunications services nationwide." (The December 1986, resolution is Appendix B in this document.)

The Board reiterated its commitment to the importance of education services at PBS and indicated its support for the long range planning effort, of which this Plan is a part, in December 1987. At that time, the Board passed a resolution endorsing the creation of a broadly based committee to advise PBS management on the further development and operation of the

Elementary/Secondary Service and authorizing the chair of the PBS Board to appoint members of the Board as liaison to the advisory committee. (The December 1987, resolution is Appendix C in this document.)

The structure of this PBS-Board-endorsed committee parallels the advisory committees in place for other important PBS services, such as the National Program Service, and insures that the committee advising elementary/secondary education will have a direct link to the PBS Board of Directors. It also underscores PBS's commitment to work in collaboration with the education community in designing and implementing the best possible ways to use public television and instructional technology to meet the educational needs of the nation's children and youth.

Coordination, including information sharing, brokering partnership projects, and consensus-building leading to system-wide action is a regular part of PBS's functions on behalf of its membership. To fulfill its coordination responsibilities under this Plan, PBS would embrace educational agencies and organizations in these efforts.

One of the most important tools for coordination would be the national clearinghouse proposed in the Advocacy and Research sections. Included in the clearinghouse would be the national calendar of events pertinent to the public television and learning technologies field that this Plan proposes CPB assemble.

An important coordination function would be to facilitate collaboration among the many agencies and organizations in the public television and education communities. Activities would include championing the effective use of instructional technology in schools, particularly through the auspices of public television, and brokering actual collaborative projects among public television and education agencies and organizations and other producers, providers, and users of television and instructional technologies in order to facilitate the creation of better programming, services, and utilization.

II. To encourage the development and enhancement of coordination efforts among education and learning technology agencies at the regional, state, and local levels.

Local and state coordination are vital to the success of this Plan. While there are many successful examples of local and state coordination, no single model emerges as the best way to handle these responsibilities. Nevertheless, it is clear that stations cannot effectively serve instructional needs without close coordination with the schools in their communities. Thus, this Plan suggests that local public television and state networks, in cooperation with state and local education agencies, increase their efforts to establish effective local models to insure the most effective use of television and instructional technologies to meet their particular educational needs. Through the components proposed in other sections of this Plan, such as advocacy tools, the national clearinghouse, communication about effective models, professional development activities, special collaborative projects, and so on, local and state agencies can expect an array of support services to assist their efforts.

Three regional public television organizations have well established instructional councils with representation from public television stations and state and local education agencies. This Plan recognizes these groups and urges their continuing efforts to provide regional coordination to serve the needs of their membership.

Additionally, this plan recommends continuation of the National Coordinating Committee (NCC) which represents the education departments of the regional public television organizations (CEN, PMN, and SECA), PBS, and CPB. NCC would continue collaboration and coordination of nationally delivered services so as to provide mutual support for local and regional efforts, to avoid unnecessary duplication, and to share operational plans to make more effective use of television and instructional technologies.

Activity	Primary Responsibility	Complementary Responsibility	Funding	Timeline
ESS National Advisory Committee	PBS	Ed. and PTV Communities/ CPB/Regionals/ OSBE	PBS	Ongoing
Establish national clearinghouse on availability, use, support, costs, benefits of programming and services to meet educational needs*	PBS/Regionals	CPB/State and Local PTV and Ed. Agencies	Users (with CPB start-up)	Begin FY89
National calendar	CPB	PTV/Ed. Organizations and Agencies	CPB	Ongoing beginning FY89
Communication among and between various elements within PTV and education*	Natl. PTV and Ed. Organizations	State and Local PTV and Ed. Organizations/ Producers/ Distributors	Varies	Ongoing
National Coordinating Committee	Ed. Depts. of Regionals/CPB/ PBS	PTV and Ed. Agencies and Organizations	Regionals/ CPB/PBS	Ongoing
Maintain regional instructional councils	CEN/PMN/ SECA	State and Local PTV and Ed. Agencies	Regionals/ PTV/Ed. Assocs.	Ongoing
Local and state coordination between PTV and education*	State and Local Ed. and PTV Agencies	National Organizations (PTV and Ed.)	State and Local Agencies	Ongoing with increased effort beginning FY89

*This function was included in more detail in earlier chapters.

Funding

No matter how great the educational need, no matter how perfect the new technologies to meet those needs, no matter how bold and ingenious the dream, without access to significant new funds, the accomplishment of the goals of this Plan for advocacy, research, programming, utilization, and distribution are impossible to attain.

While the costs to accomplish the agenda this Plan proposes may seem high when viewed in isolation, they must be judged in the perspective of national need, national utilization, and the overall expenditures on education in this country. Last year, the Department of Education spent seventeen billion dollars on elementary/secondary education, some three billion dollars on instructional materials alone. Television programming, with its ability to serve students nationwide, is an extremely cost-effective way to provide essential education and to make it equally accessible to children in all schools, large and small, urban and rural, affluent and impoverished. Most major instructional television projects require an expenditure of only a few cents per child.

There are three ways to obtain the necessary funding: (1) reallocate some of the existing education and public television monies; (2) aggregate some of the existing education and public television monies to produce higher quality programming with national applications; (3) acquire new funding. While the first two courses of action must be pursued to realize the goals of this Plan, currently allocated monies are still quite inadequate to the need. Thus, significant new funds from both public and private sources must be secured.

The Funding section of the Plan includes two primary objectives:

I. **To develop and refine an inventory of and budget for essential new educational initiatives for public television and education;**

II. **To propose strategies for obtaining significant new funding and for reallocating and aggregating existing education and public television funds to accomplish the new initiatives identified in Objective I.**

I. To develop and refine an inventory of and budget for essential new educational initiatives for public television and education.

As part of a system-wide, long-range planning effort, CPB, NAPTS, and PBS, supported by input from OSBE and many others within the public television and education communities, have developed an agenda of new initiatives in education for public television in the 1990s. (A partial list of those involved in this planning effort is included in Appendix B.) The education initiatives include projections for public awareness, research, programming, utilization, and distribution, along with the proposed financial resources necessary to implement them. These sections in the budget relate directly to various sections of this Plan. The figures reflect the need for new or different funds beyond those currently available through CPB, state governments, and other sources.

It is important to remember that the following outline represents an industry-wide effort and that it is subject to ongoing refinement as we approach the 1990s. The amounts listed are projected for new initiatives, above current expenditures, on an annual basis, beginning in 1991, and include local, state, and national efforts.

Public Broadcasting's Educational Agenda for the 1990s: New Initiatives

Annual Dollars in Millions

I. Advocacy/Public Awareness .75

- A national campaign with local components to inform policy makers, educators, students, and the general public about the efficacy of television and other instructional technologies to improve student and teacher productivity and equity of access to curricular excellence.
- Development of collaborative relationships between the technology and education communities to achieve common purposes.
- Targeted efforts to gain increased financial support from government, corporations, and other funders.

II. Research 6.95

- Research to determine priority needs for instructional programming and services for children and youth in school and at home and for teacher and other school personnel.
- Exploration of how to use technology more effectively to meet the variety of learning needs of the nation's children and youth.
- Tracking the availability, use, and support for video, audio, computer, and related technologies in schools, as well as the barriers and facilitators to effective use of these instructional resources.
- Research and development for new technology applications.
- Research to measure the impact of social and education issue-oriented programming.

III. Programming/Utilization 158.2

(Dollars in millions for each subcategory are noted in parentheses.)

A. Instructional Programming for Children and Youth in Schools (100)

(In all of the following categories, formative and summative research; the design and development of print, audio, computer, and other integrated learning materials for students; promotion and awareness campaigns; utilization support for teachers; and materials for parents when appropriate are included as a part of the budget consideration for each project.)

- Development and production of 60 hours of new programming per year for primary, middle, and secondary grade levels. Video productions may include traditional series, single programs, segments, live feeds, etc , as mandated by educational needs.

- Planning and production of 40 distance learning courses, addressing needs across disciplines and grades. These courses, complete with interactive components, may be live or preproduced.
- Acquisition of additional rights for general audience programming; instructional design and materials development for students, teachers, and parents for up to six prime time series per year.
- Design and development of 100 hours per year of instructional programming developed specifically for students at high risk of academic failure or dropping out, targeted toward high school students, as well as toward early intervention in elementary and middle schools to prevent later problems.

B. Educational Programming for Children and Youth at Home (20)

Planning and production of up to 50 new hours of programming annually, including new episodes of well tested and successful series such as *Mr. Rogers' Neighborhood* and *Sesame Street* and the development of new series of the same high caliber.

C. Professional Development for Teachers, Administrators, and Other School Personnel (14)

Planning and production of 1,260 hours of professional development for teachers and school administrators. Programming will include full college credit courses, continuing education, special seminars and workshops, and other formats as needs dictate. Research, promotion, utilization, and integrated learning materials are included as a part of the budget considerations for each project.

D. Social and Community Issues (5)

- Planning, production, promotion, and national coordination of two outreach campaigns per year aimed at raising community awareness of and fostering corrective community action toward major societal problems, particularly those that impact on the education of children and youth. (Examples might include chemical abuse, teen-age pregnancies, suicide, etc.)
- Planning, production, and national promotion of up to four hours of programming per year on major educational issues. Supportive print and other materials for use in schools, at home, and in community centers is included in the budget considerations for this category.

E. Local Outreach Support (9.6)

Assistance for local public television licensees to provide personnel, local promotion, materials development, distribution and other services in community outreach efforts. This figure represents an average of $50,000 per PTV licensee (192 projected for the 1990s), although it is assumed that funds might be disbursed according to a different formula.

F. Local Utilization Support (9.6)

- Assistance to local public television licensees to provide personnel, awareness campaigns, materials development and distribution, utilization workshops, training and other services for local schools. This figure represents an average of $50,000 per PTV licensee (192 projected for the 1990s), although it is assumed that funds might be disbursed according to a different formula.

IV. Distribution Support 1.49

Sufficient transponder time to provide for the delivery of the programming listed above in a timely, efficient, cost-effective manner to schools and other learning sites. Figures represent approximately 4,950 hours of programming delivered at a cost of $300 per hour.

TOTAL FUNDING NEEDS **$167.39**

II. To propose strategies for obtaining significant new funding and for reallocating and aggregating existing money to accomplish the new initiatives identified in Objective I.

Accomplishing the initiatives outlined in the Educational Agenda for the 1990s will require the acquisition of new funding, the reallocation of existing education and public television funds, and the aggregation of existing local and state funds so that the highest quality projects can be mounted and shared nationwide. There should be no illusions that securing funds through any of these means will be easy. Although the ability of television to make essential and cost-effective improvements in education is evident, the fact remains that such improvements require extensive collaboration, which means not only hard work, but also compromise.

Securing money from established channels and putting it into new ones will be fraught with political difficulty. Undoubtedly, it will arouse opposition from those who fear change. Persuading government, private, and corporate sources in today's economic and political climate to put up large sums of new money for education projects will require persistent, long-term, and labor-intensive effort. Nevertheless, imperative education needs and the proven capability of public television and instructional technologies to help solve those needs make the effort mandatory.

New Funding

To guide public television and education in securing large sums of new money, this Plan proposes that PBS convene a prestigious committee from the corporate, foundation, and philanthropic communities to guide public television and education. The function of the committee would be to develop a strategic plan for long-term and consistent financial support from non-federal sources for using public television to help meet educational needs, to serve as champion for public television's educational agenda, and to assist in putting the chosen strategies to work to collect the targeted funds.

Increased federal funding will almost certainly play a large part in funding new initiatives in instructional technology. The development of new initiatives, including the educational agenda, was taken into consideration when CPB requested a significant increase in funding for public television for 1991 from the Office of Management and Budget. This Plan additionally proposes that NAPTS (1) lobby to reinstate a highly placed, well funded office within the Department of Education to champion and guide the educational uses of television and technology and to fund state, local, and national projects; (2) continue to urge enabling language in all appropriate legislation and guidelines for project funding to insure that public television agencies are considered to be education providers and that television and other technologies are recognized as educational media and thus eligible for government education funds; (3) continue to push for funds for which program production is a top priority; and (4) develop new federal funding strategies.

However, should the CPB request be realized and NAPTS lobbying successful, there would still be a need for additional federal funding to accomplish the new educational initiatives outlined above. If major new education funding is to occur, public television and education must bond together to create and support a common agenda which they will move forward cooperatively within federal and state legislatures. Thus, the efforts detailed in the Advocacy section of this Plan are critical to funding success.

Reallocation of Existing Money

Enormous sums of federal and state monies already go toward education. Since better, more extensive uses of television and other instructional technologies will result in more effective and efficient patterns of instruction for students, there is little doubt that some presently allocated monies could be beneficially redirected. There is also little doubt that such a proposition will cause ill will if the blueprint for such change is not based on true collaboration between education and public television, formed with the overriding purpose of making the best possible use of resources to meet the educational needs of children and youth. With this principle in place, change will still not be easy, it may, however, be possible.

Approximately ninety percent of all federal appropriations for education go directly to states as block grants; about ninety percent of block grants to states go directly to school districts. In other words, most education funds in this country are budgeted and spent by states and by schools within them. Thus, the reallocation strategy depends upon the efforts of state and local public television stations and education agencies. This Plan calls for public television stations to take the lead in strengthening relationships with local schools and State DOEs where they currently exist and in establishing relationships where none exist now. A carefully designed plan for local services that meet local needs to improve student learning and teacher productivity can result in funds for better research, programming, utilization, and

distribution. Further, PTV stations within states will find it productive to develop a joint approach with their other state counterparts and the state DOE to secure state funds. At the same time, it is the responsibility of the regional and national organizations to provide assistance as needed in the way of planning, sharing successful strategies, and providing a base of information and research upon which local and state efforts can build their cases.

Aggregation of Existing Funds

Television, like a fine textbook, is a cost-effective instructional medium when it is used for large numbers of students; but careful design and creative production are beyond the means of most individual schools and even beyond the means of most individual states in terms of meeting needs for all children in all essential subjects. Thus, it is critical that state and local education and public television agencies that have common instructional needs and funds available for producing television to meet those needs aggregate their resources to make the best possible products.

Through the years, consortia of state agencies which were organized to produce discrete projects have developed excellent television products for in-school use. While honing the design and development of the materials to insure that they meet the needs of all of the partners has not been easy, there is a collection of such projects to prove that they can be created with the requisite flexibility to be useful not only in the funding states, but also in many other states and communities.

Certainly, these consortia should continue to develop. But there is also a need for an ongoing and overlapping schedule of design, production, evaluation, and distribution of instructional television projects with several underway and at various stages in the cycle at one time. This need cannot be met by ad hoc groups alone. To meet burgeoning needs, this Plan recommends a permanent collaborative relationship among agencies that can regularly allocate funds for production.

An obvious starting point for the development of such a collaboration is the Organization of State Broadcasting Executives (OSBE), which has access to significant production resources annually and the authority to administer them. Using OSBE members as a core, the group could incorporate other state and local public television and education agencies with similar assets. Other potential organizers include the Agency for Instructional Technology, which has pioneered building consortia for instructional television production, or a national education organization, representing states or districts.

Summary of Responsibilities for Funding

Activity	Primary Responsibility	Complementary Responsibility	Timeline
Plan for 1990's			
Refine Public Broadcasting's Education Agenda for 1990s	CPB/NAPTS/PBS	OSBE/PTV System/ Education	FY88/89
Find New Money:			
Convene special committee to develop funding plans	PBS	CPB/Education/ PTV/NAPTS	FY89
Increase federal funding for PTV	NAPTS	CPB/PBS/OSBE/ PTV Stations	Ongoing
Increase federal education funds for technology	NAPTS/Natl. Ed. Associations/DOE	Natl., State and Local Ed. Agencies/PBS/ CPB/PTV System	Ongoing
Reinstate an office within DOE to advance production and use of instructional technology to solve education needs	National Ed. Associations/NAPTS	National/State/Local Ed. and PTV Agencies/ PBS/CPB	FY89
Reallocate Existing Money:			
Redirect education funds at state and local level	State/Local Ed. Agencies	Education Leadership/State/ Local PTV agencies (with assistance from national organizations)	Ongoing
Aggregate existing funds to ensure excellence and equity	State/Local Ed. and PTV Agencies	Funders (with assistance from national organizations)	Ongoing
Mount campaigns for state and local funds	State/Local Ed. and PTV Agencies	OSBE, Regionals and National Organizations as requested	Ongoing

Using Public Television and Instructional Technologies to Meet Educational Needs

Glossary

CEN
Central Educational Network (see Regionals).

CPB
The Corporation for Public Broadcasting is a private, nonprofit corporation authorized by Congress, established in 1968, to encourage and promote the development of noncommercial telecommunications services for the nation, including public television and public radio.

Curriculum Connection
Curriculum Connection, designed by WVIZ-TV, is a computerized database service that matches more than 2400 individual ITV programs to specific elements of the curriculum. Entries include program descriptions, library catalog subject headings, 10,000 key words and information about ancillary materials and is accessible by microcomputer and modem.

EEN
Eastern Educational Network (see Regionals).

EDISON
EDISON is an acronym for Educational Information Services ON-line, an electronic communication system offered by CEN which provides current educational technology information on hardware, software and professional development to learning technology managers via microcomputer and modem. EDISON contains on-line searchable databases, electronic mail services, content specific forums, survey processing, daily announcements.

FirstView
FirstView is the annual, national instructional television program fair where ITV directors, state department of education specialists, and representatives of local and regional educational agencies preview new K-12 programming for school use. Coordinated by PMN, FirstView includes discussion of national issues and future planning in addition to the screenings.

Group Lease or Group Buy
Group Lease or Group Buy refers to processes which provide for the acquisition of commonly desired instructional programming at a savings in program dollars to stations and schools. The processes provide incentives for producers because it aggregates their market, simplifies their marketing, reduces their costs, and allows purchasers to buy more products from a wider range of distributors.

ITV
ITV is an abbreviation for instructional television.

ITV Futures
ITV Futures is the moniker given to the long-term planning process initiated in 1984 by public television's ITV community and directed by the Corporation for Public Broadcasting from 1984-86. The ITV Futures Planning Group and its nine working groups explored the ways new and advanced technology would change both the landscape of learning

opportunities and their roles in providing media-based learning resources in the future. The aim was to define the issues, needs and potential for expansion of ITV and learning technology services and to position the ITV community for competing in this market into the 1990s. The work of the ITV Futures project served as the foundation for this planning document.

Instruction

Instruction is a process whereby the environment of an individual is deliberately managed to enable him/her to learn to emit or engage in specified behaviors under specified conditions or as responses to specified situations (Cory); to impart knowledge in a systematic manner.

Instructional Technologies

Instructional technologies refers to learning resources that are prestructured in design or selection and utilization to bring about purposive learning. In this document the phrase, "instructional technologies" refers to the plethora of such learning resources including.

Broadcast TV (direct via satellite, open or closed circuit, ITFS, cable, etc.)
Videocassette, videotape
Videodisc (linear and interactive)
Video teleconferencing
Broadcast Radio
Audio conferencing
Audio cassettes
Computer-assisted instruction
Computer conferencing
Computer databases

Learning Link

Learning Link, designed by WNET-TV, is an interactive electronic communications system designed to aid teachers (and others) in using broadcast TV, VCRs, video libraries, microcomputers and other technologies to meet instructional needs. The system links users with PTV stations to share information on instructional resources and program schedules.

Learning Technologies

In this document learning technologies is used as a synonym for instructional technologies.

ncc

ncc is the abbreviation for the national coordinating committee. The ncc is comprised of the regional learning services vice presidents and education representatives from CPB and PBS. It coordinates national ITV activities.

NAPTS

The National Association of Public Television Stations, the lobbying arm of public television, represents public television licensees before Congress and federal government agencies.

National Education Organizations

National education organizations refers to a group of national organizations which represent school professionals, school boards, other education administrators and interested others, and includes such organizations as:

American Federation of Teachers (AFT)
American Association of School Administrators (AASA)
Association for Supervision and Curriculum Development (ASCD)
Council of Chief State School Officers (CCSSO)
Council of the Great City Schools
National Council for the Social Studies
National Education Association (NEA)
National Parents and Teachers Association (PTA)
National Association of State Boards of Education (NASBE)
National School Boards Association (NSBA)
National Association of Elementary School Principals (NAESP)
National Association of Secondary School Principals (NASSP)

NISS

NISS is an acronym for the National Instructional Satellite Schedule, an aggregation of more than 1200 hours of the most often selected instructional television programming, delivered via satellite by SECA to NISS subscribers. The programming is selected by public television stations and related agencies through the FirstView program fair and SatScreen national satellite preview mechanisms.

ONTI

ONTI is an acronym for the Office of New Technology Initiatives, a cooperative planning effort to help PTV stations develop new service opportunities based on changing technologies.

OSBE

OSBE is an acronym for the Organization of State Broadcasting Executives, an organization of public broadcasting entities in 34 states and territories which hold the licenses for over 200 public television stations. OSBE was formed in recognition of the need for members to coordinate and pool fiscal and educational program resources at the state network level.

PBS

The Public Broadcasting Service is a private, nonprofit corporation whose members are the nation's public TV licensees. Founded in 1969, PBS operates American television's first (1978) and most extensive satellite program distribution system and provides TV programming and related services to 327 membership stations serving the United States, Puerto Rico, the Virgin Islands, Guam and Samoa.

PMN

Pacific Mountain Network (see Regionals).

PTV

Abbreviation for public television.

Programming
In this document, programming refers to television programs, series and segments accompanied by appropriate, integrated resources (including print, audio, computer) to enhance effective teaching and learning.

Regionals or Regional Public Television Organizations
The regional public television organizations are membership organizations comprised of public television stations and education agencies, usually in specific geographic regions of the country. The regionals provide public television programming and related services requested by their memberships. The regional public television organizations are: the Central Educational Network (CEN); Eastern Educational Network (EEN); Pacific Mountain Network (PMN); Southern Educational Communications Association (SECA).

SatScreen
A CEN responsibility, SatScreen offers a national audience of classroom teachers and other media specialists the opportunity to preview new instructional programming via satellite.

SCS
The Software Communications Service provides large volumes of high quality instructional computer software and databases to classrooms at a fraction of the cost of conventional distribution. Public broadcasters operating SCS will use TV, satellite, microwave and radio facilities to transmit licensed computer software to classrooms equipped to pick up and store multiplexed signals. SCS also provides support services such as in-service training and routine technical maintenance.

SECA
Southern Educational Communications Association (see Regionals).

State and Local Agencies
In this document, "State and Local Agencies" refers to state and local public television stations and organizations and state and local education agencies.

Television
In this document, television and video are used synonymously regardless of whether the programming is delivered via broadcast or non-broadcast means. Television, then, refers to video programming delivered via the open or closed circuit broadcast signal, directly by satellite, Instructional Television Fixed Service (ITFS), cable, videocassettes, or by any other broadcast or non-broadcast mode.

VBI
Vertical Blanking Interval (VBI) is the 21 non-visible lines at the top of the television picture. The VBI can be used effectively and efficiently for both text and data transmission. Closed captions are transmitted using the VBI.

Groups Preparing 1990s Budget

Groups Involved in Preparing Preliminary Budget for 1990s

1. National Association of Public Television Stations
2. Corporation for Public Broadcasting
3. Public Broadcasting Service
4. Organization of State Broadcasting Executives
5. 1986-87 PBS Elementary/Secondary Service Advisory Committee:
   (See Appendix E for a complete roster.)
6. PTV managers and other public broadcasters assembled in Alexandria, VA, June 23-24, 1987:

   Henry Cauthen, SCETV
   Ward B. Chamberlin, Jr., WETA
   Burnill F. Clark, KCTS
   James A. Fellows, CEN
   W. Wayne Godwin, WKNO
   Lloyd Kaiser, WQED
   Sue T. Keene, Oregon Public Broadcasting
   Gary Knell, WNET
   Ted Kirchels, KBDI
   Jack McBride, Nebraska ETV
   F. Lee Morris, MAETV
   James R. Needham, WIPB
   Richard Ottinger, Georgia PTV
   Warren S. Park, Jr. NHPTV
   W. Boyd Rooney, KUAT
   Noel T. Smith, KNCT
   Paul J. Steen, KPBS
   Jerome K. Trainor, WTVS
   Arnold D. Wallace, WHMM

December 1986, PBS Board Resolution

Public Broadcasting Service
Board of Directors
Williamsburg, Virginia
December 4-5, 1986

RESOLUTION: EDUCATIONAL SERVICES

By motion duly made, seconded and unanimously carried, the Board of Directors affirmed its pride in PBS's educational services for children, youth and adults, at home, in school and in the workplace; its conviction that educational television programming and telecommunications services should play a central role in PBS's service; and its determination that PBS, in concert with its member institutions, can and should play a central role in the critical task of advancing the effectiveness of educational telecommunications services nationwide.

December 1987, PBS Board Resolution

Public Broadcasting Service
Board of Directors
Charleston, South Carolina
December 3-4, 1987

RESOLUTION: ELEMENTARY/SECONDARY SERVICE ADVISORY COMMITTEE

WHEREAS, PBS Education Services can and should play an increasingly important role in the progress of both public television and public education in the United States; and

WHEREAS, the Board desires to provide support and encouragement for the PBS Elementary/Secondary Service and its long-range strategic plan for meeting educational needs through public television and instructional technologies; and

WHEREAS, the Board endorses PBS management's proposal to organize a broadly based committee to advise management on the further development and operation of the Service and in the implementation of the long-range plan;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors:

(1) authorizes PBS management to organize a broadly based committee, comprised of professional representatives from public television and from education, to provide advice and counsel to management on the further development and operation of the PBS Elementary/Secondary Service and implementation of the long-range plan; and

(2) authorizes the Chairman of the Board to appoint members of the Board to serve as the PBS Board's liaison representatives to the committee.

Acknowledgements

"Using Public Television and Instructional Technologies to Meet Educational Needs" was developed with the input and advice of literally hundreds of education and broadcasting professionals. PBS Elementary/Secondary Services would like to extend its sincere thanks to all who shared their time and expertise either in person, by telephone, in writing, or on the formal response vehicles provided with the various drafts of the Plan. We are especially grateful to the more than one hundred educators, ITV specialists, and public broadcasters involved in the ITV working groups, and to the following individuals who participated in PBS meetings and served on committees.

Distributors' Forum

Agency for Instructional Technology (AIT)
David Shaw, Manager of Television and Marketing
Francis Thompson, National Representative of Television and Marketing

Arts and Sciences Teleconferencing Network (ASTN)
Ginny Pearson, Program Manager
Bob Spurrier, Associate Director

COE Film Associates
Mignon Levey, Operations Manager

Centre Productions
Ron Meyer, Managing Director

Children's Television International, Inc.
Ray V. Gladfelter, President and Executive Director

Children's Television Workshop (CTW)
Joseph Accongio, Director of School Services

Davenport Films
Tom Davenport, Producer and Director

Encyclopedia Britannica Educational Corp.
L. H. Burdett, Regional Manager

SECA Educational Program Service
Peter Pantsari, General Manager

GPN Instructional TV Library
Gaylen Whited, Broadcast Sales and Acquisitions Specialist
Larry Aerni, Product Manager

International Telecommunication Services, Inc.
William M. Barnhart, President

KIDSNET
Karen Jaffe, Executive Director

Media Action Research Center
Brian Brightly, Consultant

Phoenix Films, Inc.
James C. Otis, Director of TV Marketing and Distribution

Raintree Publishers
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WETA-TV
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WILL-TV
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Western Instructional Television (WIT)
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WHRO-TV
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Education Forum

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Council of Chief State School Officers (CCSSO)
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Council of the Great City Schools (CGCS)
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U.S. Department of Education
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International Technology Association (ITEA)
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National Association of Elementary School Principals (NAESP)
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