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The following organizations have agreed to serve on the Advisory Board of Project BEST to assist in the identification and implementation of project goals.

American Association of School Administrators

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Association of State Supervisors of Mathematics

Basic Skills National Technical Assistance Consortium/CEMREL, Inc.

The College Board

Council of Chief State School Officers

Education Commission of the States

ERIC Clearinghouse on Information Resources

International Reading Association

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National Council for Accreditation of Teacher Education

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National Governors' Association

National Science Foundation

Steering Committee of State Basic Skills Coordinators

Basic Education Skills through Technology

READING • WRITING • MATHEMATICS
LANGUAGE ARTS

Project BEST
Association for Educational Communications and Technology
1126 Sixteenth Street, N.W.
Washington, D.C. 20036
(202) 466-3361

What is Project BEST?

Project BEST (Basic Education Skills Through Technology) is a cooperative effort involving both the federal, state, and local governments and the private sector in the planning and use of modern information technologies to improve the effectiveness of basic skills teaching and learning. It is funded by the Division of Educational Technology of the U.S. Department of Education. BEST is a twenty-one month contract, which began in November, 1981.

What is the purpose of Project BEST?

A primary goal of the project is to create a network of states and professional organizations that will encourage the exchange of ideas, people and information, and that can continue to grow and to function even after the work of the project is completed.

Specifically, the project will provide training and technical assistance to State Education Agencies (SEAs) in the areas of basic skills and technology. Increasing the abilities of SEAs to utilize advanced telecommunications technology and adding to their awareness of successful applications in the field will, in turn, strengthen state efforts to improve Local Education Agency and school capabilities.

How will Project BEST accomplish its goals?

The project staff will develop a variety of products, services, and linkages with people and resources in the public and private sectors to accomplish the above goals. They will include:

- written materials on the use of technology in basic skills education
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- a series of ongoing working relations with industry, professional associations, state, regional, and local education groups

Technology will not only be the focus of the project, but also the means by which sharing and gathering of information will take place.

Satellite teleconferencing and *telecommunication linkages* will be used for rapid exchange of information; *microcomputers* will be used to access various data bases, and the *electronic mailbox* will be used to assist with the specific needs of members of the network.

What are the planned outcomes of Project BEST?

Outcomes can be expected at two levels. At the *state* level there will be:

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HHS com

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DAVID W. HORNBECK
STATE SUPERINTENDENT

SPECIAL EDUCATION TTY 659-2666
VOC-REHABILITATION 659-2252

MARYLAND STATE DEPARTMENT OF EDUCATION
200 WEST BALTIMORE STREET
BALTIMORE, MARYLAND 21201
(301) 659-2200

June 30, 1981

Dr. Howard B. Hitchens, Executive Director
Association for Educational Communications
& Technology
1126 - 16th Street, N.W.
Washington, D.C. 20036

Dear Dr. Hitchens:

The Maryland State Department of Education is pleased to be involved in the development of a proposal which addresses dissemination of information on using technology to improve basic skills in instruction.

We are committed in Maryland to both staff development at the state and local level and to the effective use of new technologies in basic skills instruction. This proposal is consistent with these interests.

Please convey my personal support for this project to all those involved and be assured that the Maryland State Department of Education will work enthusiastically to implement this program if awarded.

Sincerely,

DAVID W. HORNBECK
State Superintendent of Schools

DWH:s

Applied Management Sciences
Corporate Headquarters • 962 Wayne Avenue • Suite 701 • Silver Spring, Maryland 20910 • (301)585-8181

July 6, 1981

Dr. Howard B. Hitchens
Executive Director
Association for Educational
Communications and Technology
1126 Sixteenth Street, N.W.
Washington, D.C. 20036

Dear Dr. Hitchens:

Applied Management Sciences will be most pleased to work with the Association for Educational Communications and Technology in the Department of Education project to Disseminate Information on the Application of Technology to the Teaching of Basic Skills to State and Local Education Agencies.

We are confident that the long professional relationship among you, Lewis Rhodes of our staff and the proposed Project Director, Dr. Henry Ingle, will only serve to cement the close working ties necessary to support a successful effort.

We look forward to our collaboration.

Sincerely,

APPLIED MANAGEMENT SCIENCES, INC.

Todd S. Tucker, Ph.D.
President

TST/rcc

8388 Vickers Street • Suite 233 • San Diego, California 92111 • (714) 560-7402

NOTE FROM READER OF R F P 4/24/82: Computer Printout from Dept. of HHS which purports to list contracts made by that department in FY 1981 lists on p. 530 which was run on 2/12/82 a contract with the National Education Association, Department of Audio-Visuals, 1201 16th St., N.W., Washington, D.C. 20036, Contract #300-81-0421, signed 9/30/81. This RFP from AECT refers to that contract.

Rolland G. Billings, President
Harold B. Hitchens, Executive Director
Association for Educational Communications and Technology
1126 Sixteenth Street, N.W., Washington, D.C. 20036 • (202) 833-4180

July 6, 1981

Ms. Marie Beale
Contracting Officer
Department of Education
Office of Procurement and Assistance
Management, Application Control Center
General Services Administration Building
Room 5673
Seventh and D Streets, S.W.
Washington, D.C. 20202

Reference: RFP No. 81-94: "Dissemination of Information on the Application of Technology to the Teaching of Basic Skills to State and Local Education Agencies"

Dear Ms. Beale:

The Association for Educational Communications and Technology (AECT) is pleased to respond to the above-referenced request for proposals. Nine copies of the technical proposal and five copies of the business proposal are enclosed. This submission also contains Optional Form 60 from the Prime Contractor and both cooperating organizations, as well as three samples of relevant work:

1. A Handbook of Standard Terminology and a Guide for Recording and Reporting Information About Educational Technology (State Educational Records and Reports Series: Handbook X), prepared for the National Center for Education Statistics by AECT under Contract No. OEC-0-73-7057

2. Guide to Microcomputers, by Franz J. Frederick (AECT, 1980)

3. Sample Videotape, submitted by Maryland Instructional Television

AECT is THE professional association representing professionals whose activities are directed toward improving instructional technology--technology as process, not simply hardware. AECT is joined in this offering by the Maryland Instructional Television Division of the

Maryland Department of Education, whose dual expertise in planning televised curriculum and in the technical aspects of teleconferencing are nationally recognized; and by Applied Management Sciences, a highly-qualified policy research firm with extensive experience in the management and evaluation of programs in education and the other social sciences. The professional staffs of this Consortium are committed to working cooperatively and harmoniously to ensure that the important effort detailed in this proposal is completed successfully.

Should you have any questions about the enclosed proposal, of either a technical or a business nature, I will be happy to answer them.

Sincerely,

H B Hitchens

Howard B. Hitchens
Executive Director

TABLE OF CONTENTS (Cont.)

Chapter		Page
	Task C.4: Design and Maintain a Microcomputer Software Exchange	2.49
	Task C.5: Develop and Maintain Regional Pools of Experts	2.51
	Task C.6: Develop Supplemental Materials for the Information Services Phase	2.52
	Task D. Evaluation	2.54
	Task D.1: Plan and Implement State Needs Assessment/ Planning Process	2.55
	Task D.2: Design and Conduct Feedback on the Teleconferences	2.57
	Task D.3: Evaluation of the Toll-Free Telephone Line .	2.59
	Task D.4: Document the Utilization of the Software Exchange	2.60
	Task D.5: Document the Utilization of the Electronic Mailbox	2.61
3	Management Plan and Schedule	3.1
	3.1: Project Organization, Roles, and Responsibilities	3.1
	3.2: Management and Coordination of the Subcontractors	3.3
	3.3: Management of and Coordination with the Advisory Board	3.4
	3.4: Communication and Coordinatnon with DET	3.5
	3.5: General Management and Quality Control Methods . .	3.5
	3.6: Scheduling and Deliverables	3.6
4	Personnel Qualifications	4.1
5	Organizational Experience	5.1
	APPENDIX A PROJECT STAFF RESUMES	
	APPENDIX B PROJECT ABSTRACTS	

TABLE OF CONTENTS

Chapter		Page
1	Introduction	1.1
2	Procedural Plan	2.1
	Task A. Design Component	2.8
	Task A.1: Meet With the Project Officer and Other Members of the Division of Education Technology	2.9
	Task A.2: Establish and Convene an Advisory Board . . .	2.10
	Task A.3: Plan and Conduct Meeting of DET Contractors (Optional Task)	2.13
	Task A.4: Obtain State Agreements	2.15
	Task A.5: Develop State Participation Process	2.17
	Task A.6: Develop Objectives and Criteria for the Dissemination Program	2.22
	Task A.7: Identify, Review, and Select Available Materials	2.24
	Task A.8: Conduct Public Awareness Activities	2.26
	Task B. Training Material Development and Dissemination . .	2.27
	Task B.1: Organize and Conduct Design Team Meetings . .	2.27
	Task B.2: Schedule, Produce, and Present Teleconferences	2.30
	Task B.3: Develop Supplemental Training Materials . . .	2.39
	Task C. Information Services	2.44
	Task C.1: Create an Information Bank in the Use of Technology for Teaching Basic Skills	2.45
	Task C.2: Implement and Maintain Toll-Free Telephone Lines	2.47
	Task C.3: Implement and Support an Electronic Mailbox System	2.48

LIST OF EXHIBITS

Exhibit	
1.1	SUMMARY OF AECT'S EXPERIENCE
1.2	MITV TELECONFERENCE EXPERIENCE
2.1	SKILL AREAS TO BE REPRESENTED BY THE ADVISORY PANEL
2.2	PROJECT AND PARTICIPATING STATES RESPONSIBILITIES
2.3	LIST OF ASSOCIATIONS TO BE CONTACTED FOR PUBLIC AWARENESS CAMPAIGN
2.4	POSSIBLE TELECONFERENCE THEMES
2.5	BASELINE INFORMATION REQUIREMENTS
3.1	PROJECT ORGANIZATION
3.2	PERSON HOURS BY FUNCTION AND TASK
3.3	TASK AND DELIVERABLE SCHEDULE
4.1	PERSONNEL QUALIFICATIONS MATRIX
5.1	MATRIX OF RELEVANT ORGANIZATION EXPERIENCE
5.2	AECT'S ORGANIZATIONAL SERVICE DELIVERY NETWORKS

TABLE OF CONTENTS (Cont.)

Chapter Page

APPENDIX C ADVISORY BOARD LETTERS OF COMMITMENT AND RESUMES

APPENDIX D SAMPLE TREATMENT

APPENDIX E SAMPLE AECT REGISTRY OF CONTINUING EDUCATION FORM

APPENDIX F SAMPLE MITV TALENT AND RELEASE FORMS

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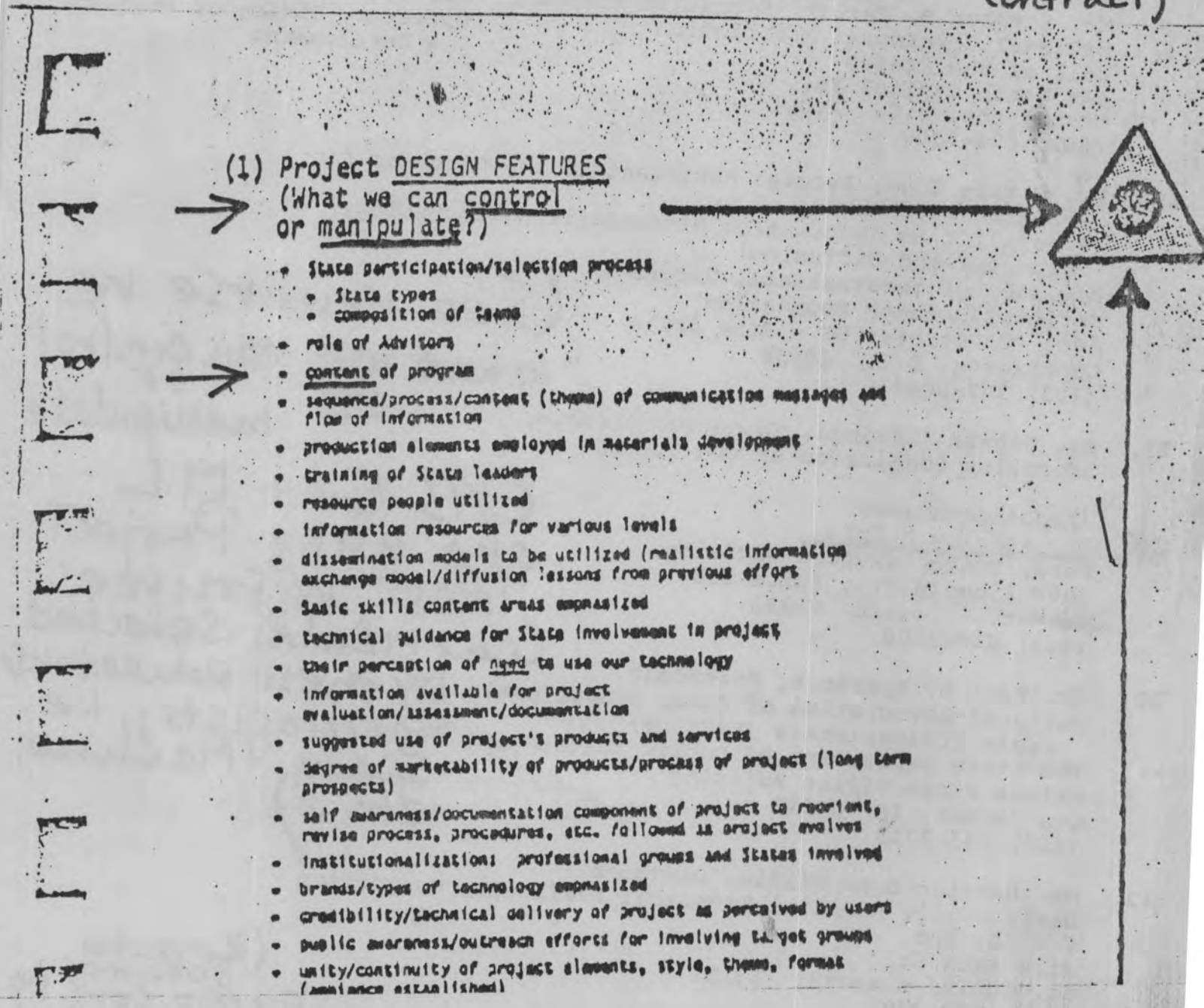
Note: This page is taken from DRAFT (For Comments) paper entitled "PROJECT BEST- WHAT, WHY, HOW, WHEN, AND FOR WHOM" - December, 1981. President Reagan must be asked how the PROJECT BEST Contract can be in the NATIONAL INTEREST? Federal re lations, Sec. 1-8.201 General states: (a) "Contracts shall be termina the convenience of the Govt. when action is in best interest of Gove

FIGURE 1: PROJECT BEST DISSEMINATION DESIGN CONSIDERATIONS ($855,282 contract)



$855,282 federal grant to AECT.

8. * Dr. Paul B. Salmon, Executive Director
(Dr. William Spady, AASA Representative)
American Association of School Administrators
1801 N. Moore St.
Arlington, VA 22209
(703) 528-0700

9. Mr. Stephen B. Farber, Executive Director
National Governors' Association
Hall of the States
444 North Capitol St., NW
Washington, D.C. 20001
(202) 624-5300

Ms. Jean Wills (Representative)
Director, Office of Research & Development

10. Dr. Carole Canz, Special Assistant to the Director for Program Assessment
(Specialist in Information Dissemination, Technology Transfer and Diffusion)
Division of International Programs
National Science Foundation
1800 "G" Street, NW - Room #1214
Washington, D.C. 20550
(202) 357-9824

(See reverse re "what WE can control = or manipulate"

11. Mr. Robert Andringa, Executive Director
Education Commission of the States

(Representative)
* Dr. Shirley McKune
Head, State Services Division
1860 Lincoln St., Suite 300
Denver, Colorado 80295
(303) 830-3600

O/B Ed + M.L are using Project BEST resources (curricula) selected by these educators/ Sociologists, i.e. McCune, Spady, etc.)

12. Mr. Paul L. Spurlock, President
National Association of State Educational Media Professionals (NASTEMP)
The State Department of Public Instruction
Grimes State Office Building
Des Moines, IA 50319
(515) 281-3715

13. Ms. Harriet Doss Willis, Director
Basic Skills National Technical Assistance Consortium
CEMREL, Inc.
3120 59th St.
St. Louis, Missouri 63139
(314) 781-2900

(Keynote speaker, '81 Gov. Conf. '82 Wichita KS)

* McCune #1 in ed "restructuring"
* See extensive referance to role of William Spady in Outcome-Based, Mastery Learning Ed - Iserbyt's "Back to Basics Reform... or Skinnerian Int'l Curriculum."

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MODEL STATE DATA BANK AND MANAGEMENT INFO SYSTEM TO IMPLEMENT LIFELONG LEARNING/COMMUNITY RE-EDUCATION (BACKDOOR SOCIALISM) UNDER UMBRELLA OF SCHOOL DISTRICT USING HANDBOOK VII OF NCES SERIES "COMMUNITY INFO IN EDUCATION." THIS IS UNITED NATIONS PLAN

This project is being funded by a Dept. of Education contract. * * * * *

HHS 2/12/82 computer printout lists Project BEST as a National Education Association Contract in amount of $855,282.

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Who is working on Project BEST?

The Association for Educational Communications and Technology (AECT) is the prime contractor for Project BEST. AECT has formed a consortium with two subcontractors—Applied Management Sciences, Inc. (AMS) and the Maryland Instructional Television Division (MITV). Each organization brings its special area of expertise to the undertaking.

A national advisory board (see roster on back cover) has been established to assist in the design of the project, to aid in its development, and to plan for the ongoing use of its products and services after the project concludes.

Dr. Henry Ingle is directing the project from AECT's National Office in Washington, D.C. under the aegis of AECT Executive Director, Howard Hitchens. Mr. Lewis Rhodes is serving as Associate Director for AMS; Dr. Dolores Deardorff is Associate Director for MITV, and Ms. Ann Erdman and Dr. Frank Withrow are overseeing the effort for the U.S. Department of Education.

Project BEST Advisory Board

The following organizations have agreed to serve on the Advisory Board of Project BEST to assist in the identification and implementation of project goals.

(William Spady)

American Association of School Administrators

(Spady, sociologist, involved in mastery learning

Association for Educational Data Systems D/B ed nationwide)

Association of State Supervisors of Mathematics

Basic Skills National Technical Assistance Consortium/CEMREL, Inc.

The College Board

Council of Chief State School Officers

Education Commission of the States

ERIC Clearinghouse on Information Resources

International Reading Association (whole language)

Joint Council for Educational Telecommunications

National Association of State Educational Media Professionals

National Association of State English and Reading Supervisors

National Council for Accreditation of Teacher Education

National Council of Teachers of English

National Council of Teachers of Mathematics

National Governors' Association (Carnegie Plan)

National Science Foundation

Steering Committee of State Basic Skills Coordinators

Basic Education Skills through Technology

READING • WRITING • MATHEMATICS
LANGUAGE ARTS

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'Secretary's Technology Initiative'

Bell's Education Department Betrays Reagan Policies

While President Reagan came into office with high hopes of breaking the stranglehold on public education wielded by groups like the National Education Association and their allies in the federal bureaucracy, HUMAN EVENTS has learned that his own secretary of education, Terrel Bell, is busily expending taxpayers' money to help perpetuate centralized control by the educationist network.

The vehicle for this effort is a four-year, $16-million program known as the "Secretary's Technology Initiative," whose purpose is to develop and disseminate computer-based curriculum materials to be used across the nation. Amazingly, this initiative, to be financed out of the secretary's discretionary funds and given top priority among the department's programs, goes directly against the President's clearly enunciated educational policy.

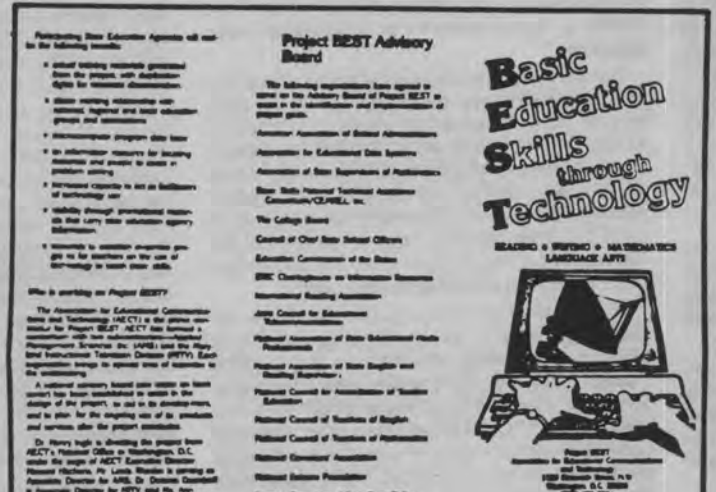
The central thrust of that policy, as described in the 1980 GOP platform, is to virtually eliminate the federal role in education. Convinced that the federal involvement vests ultimate control of American education in the hands of educationist ideologues bent on increasing their own influence and power, the Republican platform promised to decentralize educational decision-making. Every major element of the President's program—including block grants, tuition tax credits, and eliminating the Department of Education—is directed toward this end.

Yet it is precisely such decentralization that Secretary Bell's technology initiative is meant to counteract. A key part of this initiative, for example, is a program known as Project BEST (for Better Education Skills through Technology), which is being developed by the Association for Educational Communication and Technology (AECT), an NEA spin-off group, under a two-year grant of $855,282. A December 1981 draft outline of Project BEST, a copy of which has been obtained by HUMAN EVENTS, describes in vivid detail how its implementation will concentrate the development and control of curriculum materials in the very network of interest groups that has been responsible for the decline of the schools over the past two decades.

On page 2,7, for instance, the draft outline notes that an "effect of block grants is to alter an array of established relationships that have been woven around categorical programs, each of which has its own network of service providers and users, interest groups, legislative sponsors and professional associations. The move away from categorical funding will disrupt patterns of interaction at the national, state, and local levels...."

Of course, it was exactly the disruption of the interaction among these interest groups that the President had in mind when he proposed block grants. However, the draft outline goes on to describe how the common use of modern computer technology can keep this network functioning.

Among other forms of technology, Project BEST envisions the widespread use of "national teleconferences," "videotape modules," "audio conferencing," and "electronic mail" to both continue and enhance the existing educational power structure. On page 4.9, the report notes: "Simply stated, the electronic mail is a central computer that allows individuals in a prescribed network to send and receive messages to and from each other. Messages are 'sent' but not delivered until the recipient requests them. In addition, the system allows an unlimited number of 'bulletin boards.' These are usually lists of information that is stored and made accessible on-call to anyone wanting to read them (e.g., listings of new publications, announcements of upcoming meetings, etc.)."



The report adds that "Project BEST will develop four data bases" to be made available "through the electronic mail, toll-free telephone or by mail." These will include "an information bank of print and nonprint resources on basic skills and technology," "a directory of regional pools of experts," and "a microcomputer software exchange." When it is realized that "software" refers to curriculum materials put on computer discs for direct use by students in place of textbooks, it becomes clear that Project BEST is a blueprint for an unprecedented degree of educational centralization.

While the report frequently pays lip service to such notions as the need for local input and meeting local needs, the fact is that the curriculum materials, goals, "pools of experts," and so forth that are promoted by Project BEST's data banks will not be chosen by just anybody. On the contrary, only those state and local agencies, professional

(Continued on page 8)

In this issue...

Page

- Exclusive Interview With Donald J. Devine 10
- Red China Lobby Still Strong at State 4
- Symms' Cuba Resolution Undercut by Percy Panel 4
- House Piles $6 Billion Onto Deficit 4
- Graham's Incredible Trip to Moscow 5
- Radical Libertarians Stage Power Grab 6
- Also

How to Dispose of Nuclear Wastes
By M. Stanton Evans 7

I'll Miss "Barney Miller," But Not "Lou Grant"
By Morrie Ryskind 7

Debate with McGovern Reveals an Appalling Student Ignorance
By Max Rafferty 9

Govt. Management Finally Being Brought to Heel 10

"High Frontier": New Strategy for National Defense
By David S. Coker 11

Davis-Bacon Act: Candidate for Ax
By Daniel John Sobieski 12

Carmen's GSA: Leaner, Efficient Agency 16

Foundation for Economic Education: Citadel of Freedom 16

Reagan Relents on Voting Rights Extension
By Patrick J. Buchanan 17

Smith Cools Efforts to Halt High Court Activism
By William A. Rusher 19

Some Legislative Gems
From the Richmond *News Leader* ... 21

Democrats Playing Hardball On Social Security
By Scott Burns 23

Capital Briefs 2
This Week's News From Inside Washington 3
Politics '82 14
Conservative Forum 22
Media Notes 23
How's Your Political I.Q.? 19
Classifieds 20

systems, if they are built, should be reliable and ef- that ought to worry us, it's the idea. weapons."

Continued from page 1

organizations, and publishing firms that are specifically invited to participate in Project BEST will determine which "experts" and computer "software" (i.e., curricula) should be promoted through the various data banks, and which should be dismissed as unacceptable.

Nor should such fears of "Big Brother"-type control be chalked up to mere right-wing paranoia. For a chart on page 3.3 of the report is incredibly—even recklessly—explicit. Under the heading, "Project *DESIGN FEATURES* (What we can control or manipulate?)," the chart lists some 25 factors. These include "State participation/selection process," "role of Advisors," "content of program," "production elements employed in materials development," "training of state leaders," "resource people utilized," "suggested use of project's products and services," and "institutionalization: professional groups and States involved."

So who are these favored groups, which are to be given such extraordinary power to "control or manipulate" the future direction of American public education, all courtesy of tax monies made available by Bell's Education Department? Don't hold your breath looking for any Reaganites among them. As already noted, the project is being directed by an organization that was formerly a subdivision of the NEA, a group that has been vociferously opposed to everything Reagan stands for.

Also participating in Project BEST as members of its Advisory Board are some 18 NEA think-alike groups, including the American Association of School Administrators, the National Council for Accreditation of Teacher Education, the National Association of State Education Media Professionals, and the Council of Chief State School Officers (CCSSO).

As an indication of what these groups are like, the CCSSO board voted recently to take stands on such issues as the " 'New Federalism,' the federal role in education, tuition tax credits, the Department of Education, and federal budget cuts." Without exception, the CCSSO disagreed with Reagan Administration policy in each of these areas.

The draft outline of Project BEST is quite open in admitting that a major goal of the program is to enhance the future clout of its own participants, including "the U.S. Department of Education and the professional associations that are cooperating in the project." The Department will benefit, says the report, because it "will have a practical example of. . . a functional State-Federal *partnership*." And the participating organizations "will benefit in the eyes of their dues-paying constituents if they can provide appropriate and relevant" information on the role of technology in education.

In addition, the report notes that the centralized information network "will be continuable without Federal support after the Project ends," through the cooperation of state education agencies and the professional associations at the national level "with a vested interest in maintaining these resources."

For conservatives, the centralization of curriculum information and development under the aegis of such left-oriented groups would be outrageous at any time, let alone under the Reagan Administration. As the Republican platform noted, these are the very kind of groups that have severely harmed schooling in this country by indulging in "one fad after another," and by promoting the "manipulative and sometimes amoral indoctrination" of elementary and secondary pupils.

In an obvious attempt to dampen criticism, the technology initiative is concentrating in its early phase on promoting education in the so-called "basic" skills. But this is hardly reassuring to conservatives. The report on Project BEST notes, for example, that "Generalizations to other areas and technologies can be relatively easy, but only *after* the Project has been successful." The report adds that the same processes used for basic skills in the initial phase can be used in "other curriculum areas."

Also disquieting is the peculiar notion held by some as to just what constitutes improving "basic" skills. A summary of Secretary Bell's remarks before a July 14, 1981, meeting on information technology paraphrases him as listing the following among "[p]otential educational roles for technology":

"The sabre-toothed curriculum. Students have to be better educated and more competent than ever before. We don't want to use school time unnecessarily to teach students things that modern technology makes obsolete, e.g., accuracy in long-division." As many conservatives see it, it is precisely such dependence on technology at the expense of basic drill in the fundamentals that is chiefly responsible for the declining achievements of recent years. For Secretary Bell to promote such an approach in the name of "basic education" is mind boggling.

Veteran Reaganites in the government who have learned of Bell's technology initiative have reacted angrily and now believe he should be fired. They stress that this effort, which so thoroughly undercuts the President's goals, is not merely peripheral. Rather, it is the very cutting edge of Bell's program as secretary.

Bell is currently scheduled to participate in a special teleconference on the technology initiative to be held on June 22. An estimated 45 state education agencies will participate in the teleconference, which is being coordinated by the AECT at a cost of roughly $75,000. And that figure is over and above the original $855,000-plus grant received by AECT for Project BEST.

Also coming under fire from conservatives is Donald J. Senese, who, as assistant secretary in charge of the Office of Educational Research and Improvement (OERI), is directly responsible for conducting the technology initiative. A former staff member of the House Republican Study Committee whose appointment as assistant secretary was originally applauded by conservatives, he is now being strongly criticized for meekly following Bell's bidding, with critics using such harsh terms as "sell-out" and "squish." In addition to his efforts on behalf of the highly questionable technology initiative, knowledgeable conservatives within the Education Department say he has been acquiescing in the installation of liberals in key departmental posts.

In a telephone interview with HUMAN EVENTS Senese downplayed the significance of the technology initiative and of Project BEST that are being pushed by Bell. "There are some conservatives out there who just distrust anything new," he said. He indicated that he knew nothing about any plans for centralized data banks, adding that "What some people may describe as control, we would look upon as coordination. We believe there is a federal role in bringing together the states and the private sector."

However, a close reading of some of the Department of Education's own documents reveals that there is far more to Project BEST and the technology initiative than Senese's bland statements might suggest. That's why growing numbers of conservatives believe Bell must be replaced as secretary, and the sooner the better. Otherwise, the President's own plans for returning control of education to parents and local officials seem destined for total failure.

PROJECT BEST: WHAT, WHY, HOW, WHEN AND FOR WHOM?

A Project Planning, Design and Implementation Document

Table of Contents

		Page
I.	Project BEST: What Is It?	1.1
II.	Project BEST: What Prompted It?	2.1
III.	Project BEST: What Guides It and on What Basis?	3.1
IV.	Project BEST: What are Its Principal Components?	4.1
V.	Project BEST: What Happens, Who Does It and When?	5.1
VI.	Project BEST: How Will It Be Evaluated?	6.1

I. PROJECT BEST: WHAT IS IT?

Project BEST is a cooperative effort involving a number of professional associations and Federal, State and local governmental entities in the planning, specification and use of interactive information telecommunications technologies for enhancing the capacity of State Education Agencies to:

- access a variety of existing people networks, information resources, expertise, and state-of-the-art knowledge;
- become aware of tested and promising practices, problem solving approaches, and training opportunities related to priority program areas.

The project's emphasis is specifically on improving the teaching and learning of basic skills. The acronym BEST stands for Basic Educational Skills through Technology.

It is expected that the project's information technologies and telecommunications infra-structure, emphasizing video and audio teleconferencing, microcomputers, electronic data bases, the electronic mailbox and bulletin board, facsimile transmission and video technologies, could serve as a model for the States. They may wish to implement similar efforts in other priority areas of education and/or in such program areas as health, human services, housing, transportation, and energy. This possibility may become particularly important to States as the change from categorical to block grant Federal funding becomes fully operational and States take a stronger leadership role in the planning, design and implementation of their various program priorities. In support of this leadership role, modern information technologies can improve both the effectiveness and efficiency of gathering and making accessible information needed for new programs and policies.

For this purpose, Project BEST will:

- develop and assemble materials for use by states in assisting local schools;
- serve as a focal point for exchange of the most current information on the role of technology in basic skills instruction;

- In-service training;
- Special computer coordinators or projects;
- Teachers association;
- Intermediate school districts; and
- IHEs involved in pre-service and in-service teacher training.

Indirectly, many other individuals will also benefit from Project BEST. These are individuals who may be invited to attend one or several of the teleconferences conducted by the project and individuals who participate in subsequent SEA-directed training sessions that incorporate Project BEST materials. Thus, the project serves two different audiences: individuals who will serve as trainers and linkers and individuals who will be the ultimate recipients of training. The materials developed by Project BEST will be designed to respond to different needs of each target audience.

It should be noted that two other groups are likely to benefit from Project BEST, although they are not specific target audiences. They are the U.S. Department of Education and the professional associations that are cooperating in the project. The next section describes how each group is expected to benefit from or be affected by Project BEST.

Expected Project Outcomes

Direct outcomes of the project can be expected at both the State and national level. At the State level, the following outcomes are expected:

- expanded knowledge of the resources, including hardware, software, and experts available in the State to assist LEAs and schools in the selection and use of technology for basic skills education;
- a team of SEA experts who can provide technical assistance and training as required by and for LEAs and school personnel;
- an information base that can enable States to make effective use of block grant funding to support project planning for basic skills education and purchases of technology;
- a series of positive experiences in the use of technology for cooperative planning and in-service training; and
- familiarity with techniques and materials that rely on technology for use in in-service training programs.

- a series of written training materials with supplementary audio and visual modules will be collaboratively developed with the states for use by interested SEAs and LEAs.

At the national level, data bases will be made available on technology supported education in reading, communications skills, and mathematics. It is also expected that the network of States and professional associations developed for the project will provide an ongoing link among these organizations to support continuing exchange of ideas, information and readily useable products.

Other project outcomes include intangible benefits and changes in behavior or attitude that result from participation in the project. These benefits/changes include:

SEA Level

- Increased visibility of the SEA as a resource for information on the use of technology in basic skills education;
- Planned uses of the project materials in future SEA-sponsored training programs;
- Positive effect of the project on the use of technology in basic skills education in the State and on the quality of basic skills education;
- Increased perceived utility for technology in education;
- Institutionalization of the process, including:
  - -- Plans for continuation of the State Teams after the expiration of the project;
  - -- Plans to use a similar team approach within the SEA for other priority areas;
  - -- Plans for continuation of the information banks after the expiration of the project; and
  - -- Plans to apply a similar Federal-SEA technology model in other areas of education and/or other State priority areas.

Federal Level

The Education Department will have a practical example of:

- a functional State-Federal partnership;
- a relationship of decreasing dependence on the Federal Government as project services become part of the regular support that associations provide to their members.

- a model of appropriate Federal support of State government. One in which the government provides the mechanism that allows States to conserve their resources by ongoing exchange of functional information.
- a demonstration of the intention of the Department of Education to be an advocate of modern technology applied to local problems.

Professional Associations

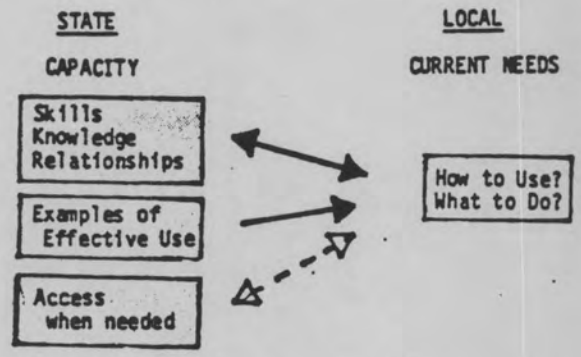
The associations whose members relate directly to basic skills teaching (NCTE, IRA, NCTM) and instructional technology (AECT, AEDS) will benefit in the eyes of their dues-paying constituents if they can provide appropriate and relevant answers to concerns about improvement of basic skills and technology's role in it. Their vested interest, therefore, in working with BEST are as follows:

- membership of the participating professional associations will have access to services that have been defined and developed with their needs in mind;
- participating professional associations will have developed the capability to provide similar support to their membership after the end of the project.

To summarize, graphically, the relationship of Project BEST to its goals and outcomes, one must start with the "end" conditions the project is intended to influence. At the local level, it is no longer a question of "whether" schools should use technology. The microcomputer and related video communication technologies have arrived, their numbers are increasing geometrically, and schools are actively seeking to find out how to use them.

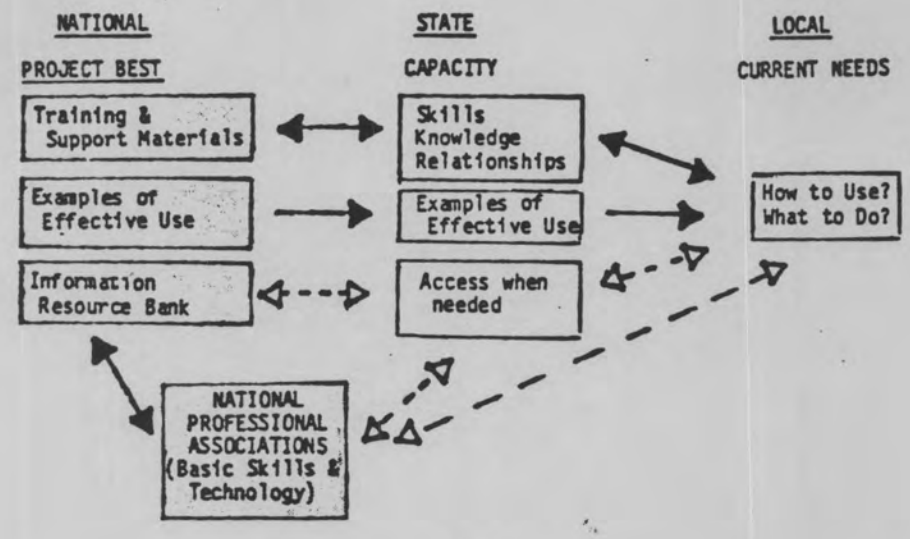
The Education Department has created Project BEST to help respond to those current needs. Recognizing the uniqueness of each state's situation, the federal government is entering into a partnership with the states to help them develop or expand their capacity to assist local

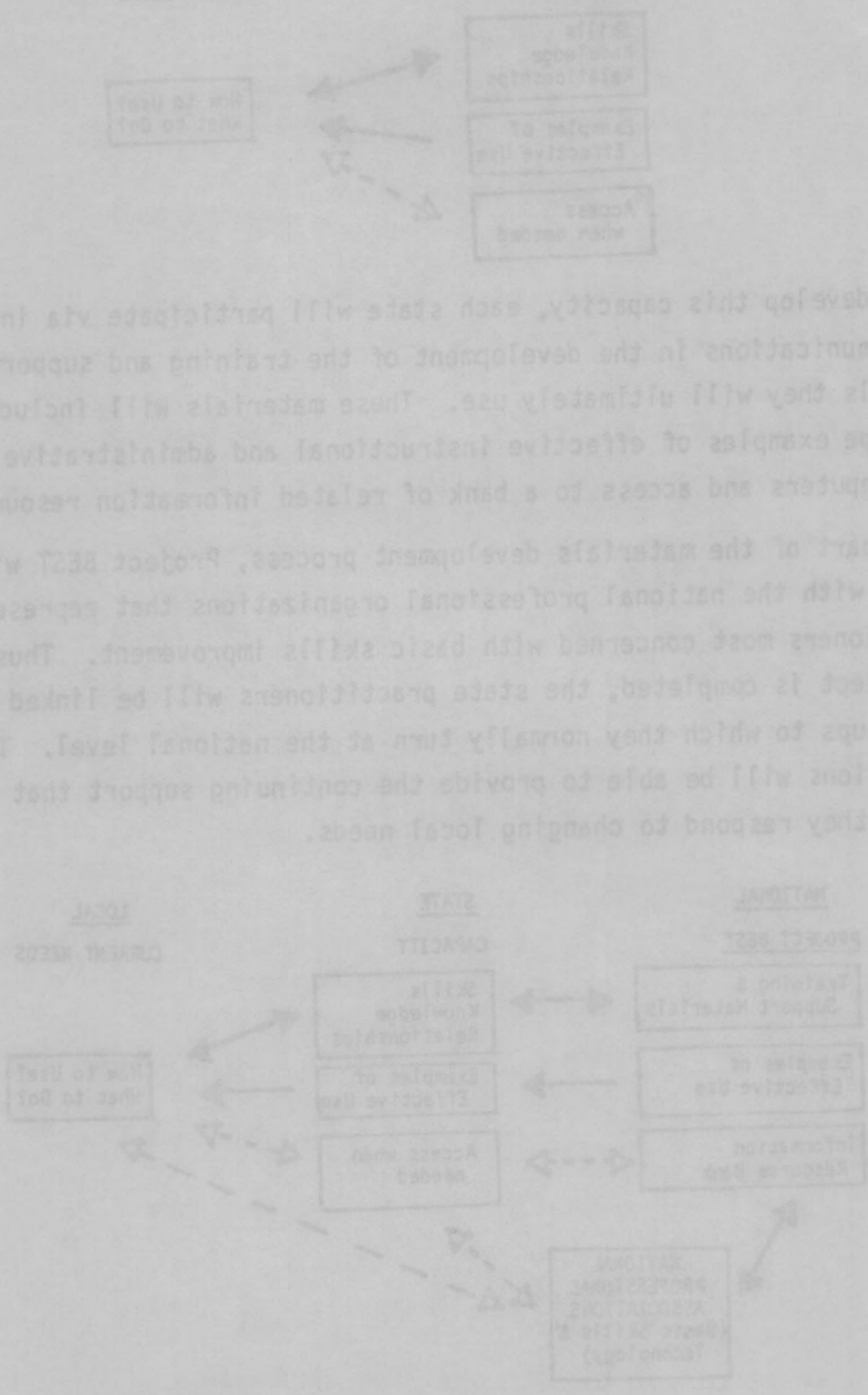
schools. This capacity includes specific skills, knowledge and relationships necessary to respond to local needs, examples of effective use of microcomputers for basic skills improvement, and continuing access to information resources.



To develop this capacity, each state will participate via interactive telecommunications in the development of the training and support materials they will ultimately use. These materials will include videotape examples of effective instructional and administrative uses of microcomputers and access to a bank of related information resources.

As part of the materials development process, Project BEST will work closely with the national professional organizations that represent the practitioners most concerned with basic skills improvement. Thus, when the project is completed, the state practitioners will be linked to the peer groups to which they normally turn at the national level. These associations will be able to provide the continuing support that states need as they respond to changing local needs.





II. PROJECT BEST: WHAT PROMPTED IT?

Project BEST, in one sense, can be seen as a response to a set of separate, but related, trends in current educational practice--increased concern for achieving basic skill competencies in elementary, secondary, and adult student populations; the desire to use technology, especially the new information technologies such as the microcomputer and video technologies, to more effectively and efficiently teach such competencies; and the emergence of new roles for State agencies resulting from recent changes in Federal, State and local government relationships and funding arrangements.

Concern for the "Basic Skills"

Concern with basic skills in reading, mathematics and written communication has been a recurring theme in American education since the earliest of times. In recent years, the resurgence of interest in the teaching of basic skills, defined as that set of minimum tools needed for the rest of a child's education and life, can be traced to four major factors:

- Federal initiatives. Emphasis during the 1960s and 70's on compensatory programs for educationally disadvantaged children influenced the enactment of the Basic Skills Improvement Title (Title II, Education Amendments of 1978, P.L. 95-561), as well as its predecessors and related programs, such as the Right-to-Read program and Title I of ESEA.
- Declining test scores. Nationwide concern over low student test scores and inadequate levels of functional literacy that the public feels these scores reflect has sparked a number of responses. Among these are the enactment by State legislatures of minimum competency laws and the concomitant development of remedial programs for those who fail these tests and for those thought likely to fail them. Thirty-eight states now require some kind of minimum competency testing.
- Increasing costs of education. As inflation and competition for government funds have increased, the public has become concerned about "trimming budgetary fat." Some see "Basic Skills" as a "no-frills," cost-effective approach to education that delivers "more for less." Others see it as an opportunity to combine the latest teaching methods and "know-how" to promote efficient and effective instruction focused on the specific needs of students.

- Other perceived changes in the behavior of youth. In addition to the three educationally specific issues listed above, there is now public concern about trends such as the loss of respect for authority in the schools, as well as in the wider society, and increased alcohol and drug abuse among youth. These conditions are sometimes linked, rightly or wrongly, to the schools and often specifically associated with the proliferation of curriculum offerings that emanated from the experiments and reforms of the 1960s and 1970s. Although these innovations enriched the standard curriculum, they created a feeling that students were becoming "jacks of all trades and masters of none." This concern has led to pressures on schools to focus on a core set of skills needed to function on the job and/or continue one's education in the context of a rapidly changing society.

Regardless of the direction from which the concern comes, a common base of interest in the improvement of the teaching and learning of basic skills has emerged. Educators and the public seem to agree that students must be able to do certain things (read, write and handle numbers with a certain proficiency), even if they have yet to reach a consensus on exactly what the teachers and schools should do to accomplish this. These areas of agreement should serve as focal points in Project BEST's efforts to promote technology's role in basic skills instruction. However, the existence of this common ground should not be allowed to mask critical issues.

"Basic Skills" is not a single, coherent curriculum of standardized and generalizable teaching and learning principles. While there is general agreement that reading, mathematics and written/oral communication are the minimum building blocks of basic skills, the approaches and methods used by teachers in each of these areas are different. Each discipline has its own institutional domain with separate professional networks, and communication channels. Moreover, once you move past the minimum basic skills, other skill competencies (e.g. the arts, problem-solving, and computer literacy, etc.) argue for inclusion under an expanded definition of "basic skills."

Beyond the mechanics of curriculum assessment and revision efforts, however, improvement in basic skills instruction is dependent on the involvement of the classroom teacher. Teachers at each level may, and

often do, view basic skills differently. At the elementary level, many teachers have to be generalists in the 3 Rs. It is an important part of their job, tied to their perceptions of themselves as professionals and, when done well, a source of job satisfaction. For many secondary teachers, on the other hand, if one of the "basic skills" areas is not their professional specialty, time spent on basic skills education can be seen as an extra burden, one that reduces their ability to improve the quality of teaching their academic specialty (history, biology, economics, etc.). Clearly, then, significant and often different incentives need to be offered if teachers at all levels are to invest themselves in the upgrading of basic skills instruction. Teachers must feel that such efforts will have important professional and personal payoff in terms of the goals they wish to achieve. One way to facilitate this goal is to include teachers or their representatives in all stages of the planning and implementation of new initiatives in basic skills instruction.

Efforts to improve basic skills teaching in recent years have come from a variety of sources. Local Education Agencies (LEAs) and schools, with some assistance from the Federal government, have started basic skills programs for their jurisdictions. State Education Agencies (SEAs) and the professional associations in each of the basic skills content areas have assisted basic skills programs by working mainly in their particular disciplines (i.e., reading people have communicated with other reading people). In the last several years, the Department of Education, through its sponsorship of the National Basic Skills Improvement Program has promoted the exchange of ideas and materials across disciplines and among states. This use of State agencies as organizers and providers of information is a role Project BEST can build on.

In summary, concern for improvement of basic skills instruction is generally widespread. There are different teaching approaches for each of the basic skills content areas, different methods of delivering each subject to students, and a variety of professional networks that support basic skill improvements. Within this current reality, new information technologies that cut across curriculum differences have evolved and are increasingly being used to upgrade teaching and learning. Moreover,

State Education Agencies are beginning to become brokers of information and providers of technical assistance, activities which also cut across curriculum areas. These trends argue for a common core of techniques, approaches, and technologies for approaching problem areas in basic skills instruction.

Concern with the Use of Technology in Education and for Basic Skills

In applying new technologies in education, technologists have often stressed the potential of the technology itself rather than its use to solve problems or for creating new instructional design opportunities desired by the classroom teacher. The evolving history of the use of technology in the schools presents a mixed picture--some successes and some failures. As a recent National Science Foundation study indicated, the key to acceptance of a technological innovation in schools is the educational practitioners' perception of its link to outcomes of particular current interest to them--for example, elimination of disagreeable tasks or the increased potential for promotion,[1/] as well as substantive curriculum concerns. The intrinsic capabilities of the technology are of interest only to the extent that they fulfill the extrinsic purposes sought by the users. Thus, technology as an abstract concept, only becomes relevant and important to educators when thought of in very specific, concrete areas of immediate use and direct application to problems at hand.

To complicate matters, technological change has been so swift that most educators have little "hands-on" experience, as learners or teachers, with the newest information technologies. They may have read about them and have been told of their potential usefulness in the classroom, but have not had direct experience in using them. These general problems associated with new educational technologies will have to be overcome if the potential of new technologies, such as the puter, for improving basic skills are to be fully realized.

Robert K., "Life Histories of Innovations: How New Practices ne Routinized," Public Administration Review, January/February

In the field of information technology, the newest developments can be characterized as "revolutionary". The ability to miniaturize information storage and processing hardware has led to reductions in their size and cost that have made possible widespread utilization of microcomputers in the schools. The utility and power of this type of technology is further increased by the availability and reasonable cost of information distribution technologies (e.g., satellites, cable, and electronic data banks). For example, audio and video teleconferencing is expanding dramatically as energy costs make it preferable to move information rather than people. Finally, and of critical importance to educators, microcomputers add an interactive component to technology. That is, the user can react to the information provided or questions asked by the computer program and receive a response, and this question-and-answer pattern can be repeated over and over in sequences that facilitate learning and permit the use of a multiplicity of information sources. Instruction can be designed to fit the abilities of different learners who are progressing at varying speeds and can provide for the active participation of the learner in the process.

To the low costs, small size (and hence portability and ease of use), and the interactive nature of the microcomputer, we can add adaptability. Like a stereo system, new and different components can be added to upgrade both the quality and capacity of the system. For example, you can increase the capacity of the microcomputer memory unit, add graphic ability, or link the microcomputer to videotapes or videodiscs. Moreover, networks of terminals and memory units can be combined in a variety of ways so that a number of students can use the system simultaneously, thereby lowering per-user costs. Another aspect of adaptability is the multi-purpose functions the microcomputer can serve. Using the same hardware and different software, a microcomputer system can keep student records, record and project school financial figures, and be part of the instructional program.

Unfortunately, the software and its application to educational instruction is less well developed than the microcomputer hardware. This is true for basic skills education, as well as for other curriculum

areas. Commercial firms have concentrated more on the entertainment market than on the education market, partly because of the high cost of developing educational software and partly because the high rate of piracy of such software makes investment risky. These conditions make essential to upgrade the ability of educational users to develop their own software.

Professional associations in both technology and basic skills are attempting to respond to these needs. The National Council on the Teaching of Mathematics (NCTM), in response to requests from its member developed and distributed comprehensive guidelines for the evaluation of software. The National Council for the Teaching of English (NCTE) is receiving the same requests from its membership. Both groups, as well others throughout the education field, are actively seeking exemplary uses of the microcomputer in their respective disciplines.

Responding to this universal need for examples of <u>how</u> others are using microcomputers is a challenge. No one institutional entity can possibly know where all relevant applications are taking place. Nor ca it have dissemination channels that easily reach all those who need the information. What is needed is a way to link those organizations and instititutional entities that do have access to what is going on in schools and classrooms with those who can make the information accessib to the wide variety of professionals who need it. The SEAs are an appropriate <u>source</u> of information: SEAs in conjunction with institutio of higher education and national professional associations are appropriate <u>distributors</u>. To bring these organizations together and t link them with users requires the development of networks that link Federal, State and local levels in the exchange of information crucial the improvement of basic skills instruction.

Changing Federal-State Roles

The two most significant trends in Federal-State relations with respect to education are: (1) a general reduction in the amount of Federal funding for education programming; and (2) the replacement of categorical programs with block grants. These two developments will h

important effects on education. Both trends lead in the same direction - that is, increased competition among different educational programs and between education and other human service programs. Instead of having monies earmarked for their use only, programs will have to compete against each other for a piece of the smaller pie. Educational activities favored by the general public will, therefore, have a comparative advantage. In this regard, the basic skills area may have an advantage so long as the competency of secondary school graduates and, by extension, the adequacy of the schools which produce them remains a salient policy issue. To the extent that new educational technologies contribute to this comparative advantage, they will be viewed as an ally.

A second effect of block grants is to alter an array of established relationships that have been woven around categorical programs, each of which has its own network of service providers and users, interest groups, legislative sponsors and professional associations. The move away from categorical funding will disrupt patterns of interaction at the national, state and local levels that have provided much of the peer support necessary for improvement efforts.

Continued progress in basic skills instruction and increased use of technology in that effort require that the States adjust to these trends in Federal-State relations by developing new roles. It is particularly important that a State be able to coordinate its planning for basic skills improvements in all curriculum content areas, and to have the data and skills to broker the exchange of information on exemplary practices, implementation experience, expert/consultant data banks, etc.

Implications for Project BEST

If the above contexts represent "the world as it is," then Project BEST should:

- Reinforce and build on the educational agency and professional organization networks already committed to the improvement of basic skills teaching, e.g., SEAs, intermediate education agencies, institutions of higher education, professional associations;

- Focus on common areas of need that these support organizations have, such as
  -- examples of modern information technology use
  -- training (both pre- and in-service) strategies
  -- guidelines for software evaluation and selection;
- Provide functional experience with the new information communication technologies so that participants can experience the benefits and generalize them to their own situations;
- Insure that the State Teams are composed of the varying forces within the State with a specific interest in instructional improvement of the basic skills;
- Keep in mind that regardless of where the technology has the potential to take education, we must start by viewing it within the context of current concerns of teachers and administrators, which may vary from State to State and even within a State.

III. PROJECT BEST: WHAT GUIDES IT AND ON WHAT BASIS?

Principal Design Features and Parameters. The term "Technology Exchange Transactions" (TETs)* recently has come into use in the literature outside of education to describe a wide range of formalized procedures, technologies, and information exchange activities aimed at increasing the knowledge and capacity of groups and organizations to become aware of and to use promising new practices, techniques, procedures, methods and media.

Project BEST is building on these experiences and lessons to facilitate the improvement of basic skills instruction at the State Education Agency (SEA) level and to set in motion a new telecommunications infrastructure for the exchange of information, practices and results. These ends will be accomplished by outlining and defining a set of approaches, people networks, information resources, data bases, and technology facilities to support Project BEST training and technical assistance. The developments and ideas presented point to the need for Project BEST to emphasize a set of approaches that are very personal in nature from the viewpoints of both the recipients of the project's services and of the providers.

Research on the processes of information diffusion and dissemination over the past two decades focuses on three topics: (1) institutional realities and barriers to innovation; (2) the linkage and change agent function through which information and new technical "know-how" flows; and (3) the need for information dissemination and technology exchange efforts to focus on the contextual situation and needs of the information recipients. The emphasis is on practicality, timeliness, economy of scale, two-way interaction, human networks and immediate recipient needs.

Consequently, most approaches to information exchange today underscore the need to start with specific indicators and measures of who the recipient is and what the recipient wants to accomplish (Design

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* Rubenstein, Albert H. Designing Organizations For Integration Technology Exchange Transactions (TETs). Northwestern University, January 1976.

Criteria) as a result of improving or changing a situation or set of attitudes and behaviors. That is, start with the information user and the specific nature of his/her perceived problem. The second and third set of factors underscore the need to realistically specify those elements over which an information dissemination activity can have control and that are believed to have significant effects on the level of outcomes (Design Features), as well as those factors over which the information dissemination effort will have either limited or no effective control (Design Parameters or Givens).

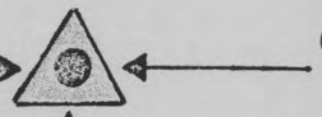
Figure 1 on the following page depicts the flow, interaction and convergence of these three sets of factors in terms of Project BEST. The factors converge to form a technology exchange triangle, with each set of factors influencing the outcomes of the proposed technology exchange transaction.

Past Experience and Practice--Lessons Learned.

The figure displaying dissemination concerns surrounding Project BEST reflects insights that emanate from the research literature and practical experience in the field of information dissemination and technology exchange efforts. Uppermost among these findings is a consensus in the literature that successful information and technology transfer experiences must incorporate the following ingredients:

- Be a user or need-oriented exchange -- that is, be developed from and concentrate on the potential users' interest and assist users in solving very immediate and specific problems of relevance to them. The focus, therefore, needs to be upon the people within the information receiving organization, their needs, idiosyncracies, etc.
- Provide users with extensive two-way interactive opportunities -- that is, permit sources and users/receivers of information to deal with each other in a variety of interpersonal communication contacts. Active information distribution programs alone fail to induce desired change and innovation; information dissemination programs only play a small role in fostering and stimulating awareness and initial interest. Frequent interpersonal communication between the information source and users is the most influential ingredient in inducing innovative behavior.

FIGURE 1: PROJECT BEST DISSEMINATION DESIGN CONSIDERATIONS



(1) Project DESIGN FEATURES (What we can control or manipulate?)

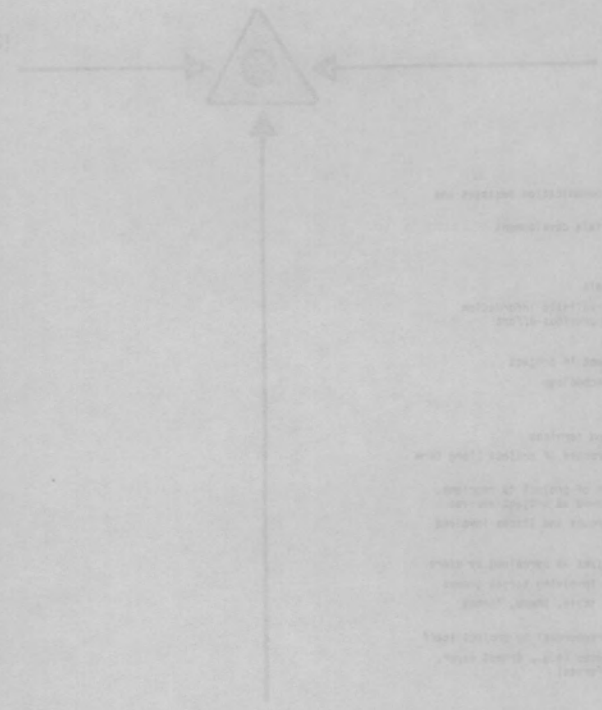
- State participation/selection process
  - State types
  - composition of teams
- role of Advisors
- content of program
- sequence/process/content (theme) of communication messages and flow of information
- production elements employed in materials development
- training of State leaders
- resource people utilized
- information resources for various levels
- dissemination models to be utilized (realistic information exchange model/diffusion lessons from previous effort
- Basic skills content areas emphasized
- technical guidance for State involvement in project
- their perception of need to use our technology
- information available for project evaluation/assessment/documentation
- suggested use of project's products and services
- degree of marketability of products/process of project (long term prospects)
- self awareness/documentation component of project to reorient, revise process, procedures, etc. followed as project evolves
- institutionalization: professional groups and States involved
- brands/types of technology emphasized
- credibility/technical delivery of project as perceived by users
- public awareness/outreach efforts for involving target groups
- unity/continuity of project elements, style, theme, format (ambience established)
- internal resource management (use of resources) by project staff
- use of moderators/host in teleconferences (e.g., Ernest Boyer, John Goodlad, Dorothy Stuckland, Ray Forbes)

(2) Project DESIGN CRITERIA (What we expect to happen or what we want to accomplish?)

- changes in benavior at SEA (new linkages, increased interaction)
  - among SEA & LEAs
  - within SEAs
  - between SEAs
- development of interactive telecommunications infra-structure for use in other problem information areas
- give Department of Education visibility and priority model for new Federal role
- development and dissemination of usable materials
- institutionalization of process, procedures, technologies, new practices, etc.
- development of a leadership training model
- sharing of collective experiences between and among participants
- improvement of Basic Skills
  - use of technology in basic skills improvement and appreciation of technology's role in basic skills education
- each State gets the specific benefits it specifies for itself
- other residuals of project:
  - tangible: useable products and use of project processes
  - intangible: new attitudinal awareness, possible benavior changes, etc.
- changes in way SEA does its work
- collaboration among public and private sector
- collaboration among States
- model for future Federal role/involvement in education and other sectors

(3) Project DESIGN PARAMETERS (What we must accept as givens or operating working conditions under which the project will evolve)?

- lack of communication between levels (State, Federal, local)
- competition among curriculum areas in the basic skills
- competition among technologies
- economic/political situation - possible misperception of project BEST as a luxury project because of the nature of the technologies being emphasized
- technology perceived as costly - project perceived as costly
- micro revolution - ever-evolving rapid change and development of hardware
- inadequate software
- many states not ready to help locals/not "into" technology yet
- varying local education initiatives
- limited ways for States to collaborate (no incentive to collaborate)
- teleconference boom in business/industry not fully exploited by educators
- varying range of State resources and readiness for Project BEST
- lack of software materials for important content areas
- working to compliment concomitant National Basic Skills Consortium networking effort
- pre-scheduling of transponder time/adapting project to available time
- location of reception sites for teleconferences
- existence/quality of courseware for micro-computers
- possible lack of good examples of classroom uses of technology
- NITY scheduling requirements for using satellite, as well as user scheduling for reception
- changing political climate at U.S. Department of Education
- varying interests of governments at Federal, State and local levels
- teacher preparation/receptivity for effort
- status of micros in schools
- current teacher education response to basic skills and technology in university settings and State certification requirements
- legislative/legal constraints re: technology
- technology seldom works flawlessly even though people expect it to
- information overload/information poverty in recipient organizations
- limitations in present educational dissemination/diffusion efforts



- Build on existing people networks for information exchange -- that is, network building activities for information exchange are best handled through accessing existing credible channels/sources of information that information user/receiver groups habitually use. Existing communication networks that are allowed to grow and perpetuate themselves side-by-side with the new structure most often are cited as the key to promoting desired change.
- Provide access to information and materials that are useable -- that is, provide information receivers/users with materials and products that have a life of their own and can be directly applied to a practical setting with little or no adaptation.

Contrary to caveats of the past, recent research efforts to document and understand information exchange activities in education also point to the need for partially "reinventing the wheel" among individuals working with innovations. This helps individuals to understand and adjust the innovation to local needs and to comprehend the implications and nuances of the innovation on a first-hand basis.

Another insight from research suggests that the most successful efforts are those that transcend a "project" status and become an integral part of an on-going problem-solving and improvement process within the information recipient/user organization. Also suggested is the fact that a "deficit" model, where information users/receivers are seen as needing training to upgrade their skills because they lack certain professional capabilities to perform successfully, is not appropriate for successful technology and information exchange efforts. Extensive user participation is advanced as a way to help project designers counter the "deficit" tendency. It suggests that one put a premium on starting where the information user/recipient happens to be without making value judgments.

Other major insights from the literature and personal experience of leading practitioners* in educational change and innovation further

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*Taken from internal NIE memorandum prepared for Harold Hodgkinson and Mike Smith by Jack Green and Senta Raizen of the NIE Dissemination Resources Group, 1974. Later presented as a hand-out for participants at the October 1981 Basic Skills Conference in Washington, D.C.

support the set of perspectives presented above. These include the following:

1. People use the information most readily available, whether or not it fully meets their needs. Practitioners prefer succinct, non-technical information and, if possible, first hand observation.

2. Interpersonal communication -- people-to-people interaction -- is the most important factor in effective dissemination. The human element is critically important in efforts to link research to practice.

3. Methods of seeking and using information vary greatly according to the user's role and specific need -- behavior ranges from random browsing to highly purposeful searching of an organized information base (alone or through an intermediary).

4. Adoption of innovation occurs in relatively distinct (though not necessarily linear) stages often cited as awareness, interest, evaluation, trial and adoption.

5. Several factors influence the speed with which new ideas are adopted. These include:

   - characteristics of the adopters (are they innovators, early adopters, laggards?)
   - characteristics of the adopting unit (is it open or rigid? does it reward innovation behavior?)

6. Educational innovations are seldom, if ever, "adopted." A process of mutual adaptation occurs in which both the innovation and the local situation undergo changes. If viewed as necessary and healthy, this process can deliberately be made to work for the desired improvement.

7. The most innovative schools make conscious arrangements to insure the use of new ideas: successful change seldom occurs haphazardly. Successful innovators do not all follow the same structure, but they all follow some structure.

8. Effective knowledge utilization is most likely to occur in settings where there is a willingness and a capacity to explore a wide range of alternative solutions to problems, i.e., openness to new ideas is virtually synonymous with innovativeness. Problem solving should be seen as an iterative process wherein greater clarity in problem definition occurs over time as perceptions of the "problem" itself change. High capacity systems (in terms of wealth, intelligence, power, status, education, size, sophistication) are more likely to be innovative, having more "risk capital" at their disposal.

9. Resistance to change is firmly entrenched and lies at both the rational and emotional levels. People change because the change is rewarding to them personally, to their group, or to their institution -- processes leading to successful innovation must have payoff value to all parties concerned.

10. Redundance is an important factor in innovation. A single exposure to a new idea is rarely a sufficient stimulus for innovation. Potential users require repeated exposure to an innovative idea, in the same medium or different media and from various sources, before becoming sufficiently motivated to innovate. This is one aspect of what Havelock calls the "synergy" factor.

11. Successful implementation requires early involvement of those to be affected and those who will share responsibility for carrying out the innovation.

12. Outside thrusts (e.g., Federal interventions) last for only a limited period of time. Sustained follow-through and local ownership (both psychological and financial) are required for sustaining an innovation or a new capacity. Rapidly changing Federal priorities can be destructive in this regard, particularly in efforts requiring a stable, sustained commitment to building capacity in the field.

13. In all fields, knowledge utilization occurs most frequently and most readily when there are open collaborative relations among researchers and developers, "linkers" such as SEA and teacher education personnel, and the ultimate users or client groups.

Implications for Project BEST

If Project BEST is to have the visible impact its designers desire, the effort will have to stay narrowly focused on the technologies defined by the Department of Education's RFP - modern information technology - and their application in the equally narrow area of basic skills. Generalizations to other areas and technologies can be relatively easy, but only after the Project has been successful. The more areas the project tries to cover, the more difficult it will be to show success.

With this need for specificity in mind, the effort must also stay aware of the "Stone Soup" nature of the project. We are using this "specific" experience to influence the States to make other changes in their processes. Our rationale comes from looking across the many and varied technology-based educational change projects since the late 1950's. It is clear that the real innovation and success factor in these projects was not the particular technology (e.g., television, programmed instruction, etc.) but rather the planning and utilization process that the technology required. This common factor in successful innovations: 1) brought educators together to identify problems and plan for their

resolution; 2) allowed them to develop a sense of control over part of their working environment (most projects required systematic management); and 3) let them see results. Thus, these processes of involvement helped educators meet personal psychological needs that are not adequately met in the usual routines of teaching and administration.

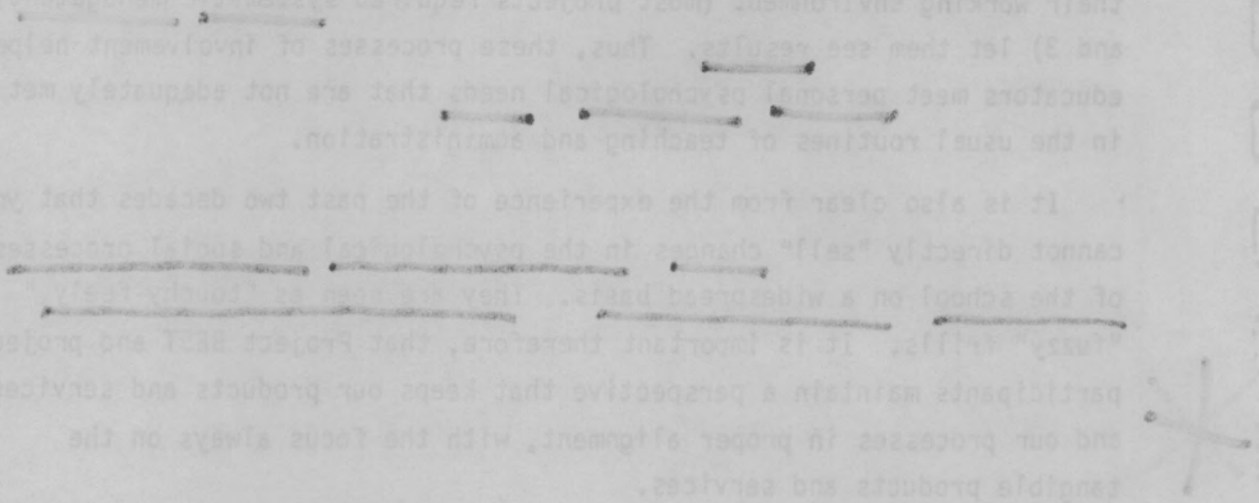
It is also clear from the experience of the past two decades that you cannot directly "sell" changes in the psychological and social processes of the school on a widespread basis. They are seen as "touchy-feely," "fuzzy" frills. It is important therefore, that Project BEST and project participants maintain a perspective that keeps our products and services and our processes in proper alignment, with the focus always on the tangible products and services.

As for the approach to the "concept" of technology, the foregoing suggests that it be very simple and practical. Project BEST should:

-- View the SEA staff members (and the eventual LEA personnel) as practitioners who face daily problems in managing their resources to accomplish their purposes (as we all do). "Long-range improvement" and similar goals only make sense when they start from this jumping-off place.

-- Deal with "modern information technology" as tools that can be used to address these on-going management problems. We know technology has other appropriate dimensions (preparing students for a technological society;" technology as "hardware", as "software"; technology as a "design process," etc.) - but these can blur the distinction necessary for an individual to see it in relationship to his/her own immediate, specific needs.

-- Get off the guilt trip. There are a lot of reasons why schools should use technology and we have heard them for 20 years - "the technological revolution in society will make the school irrelevant;" "equalize resources by flattening out the uneveness of teaching from classroom to classroom" (teacher-proof materials); "reach more students"; and improve the quality of materials". The issue is not whether these are valid reasons but rather the way they are presented. Being told what one "should" or "ought" to do can be a tremendous barrier to doing what one can do. These "shoulds" are usually broad goals that cannot be attained through simple actions. Thus, the practitioner is immobilized as she/he realizes that a desirable goal would require complex actions over which she/he has little or no control.



It is also important for Project BEST to be realistic about the experience with technology that the participants will bring with them. One of the biggest barriers to acceptance of technology is the assumption (expressed by those who promote and sell technology) that the reason to use it is that if you do it right, "it works without a hitch." Yet, this runs counter to the almost universal experience that things frequently don't work smoothly (from space shuttles, to cars, to film projectors). We need to let the participants know that their experience is right; that the reason to use technology is not because it will bring perfection, but because it can allow them to accomplish something that is important to them. Only against this criterion do the "problems" of technology-use become worth it. In other words, technology does not always work the way it is supposed to . . . but people don't either. (But in the latter case, we assume that, allow for it, and make adjustments when it happens.) Consequently, we should show technology in fallible and unfallible settings and prepare users to accept and understand both conditions and expect things to go wrong sometimes (Murphy's Law).

The Project BEST perspective on technology should try to keep in proper relationship the several interrelated decisions that have to be made before effective technology-supported teaching and learning can take place. The decision to use technology often is perceived as a trickle-down process. Because capital expenditures may be involved, those who make the major resource decisions -- administrators and boards -- usually are seen as the "gate-keepers". These decisions, however, only provide the hardware and software. The primary decision to use technology does not trickle down or up. It is made by the classroom teacher each time she/he weighs the needs of the student against the resources available for meeting them. It involves, not only needs and resources, but also the teacher's own purposes, role, and needs.

Video portions of Project BEST's proposed teleconferences of what schools are doing with technology should be honest about the learning that is taking place in each of these schools. The hardware does not come with a built-in set of "best uses." These have to be discovered

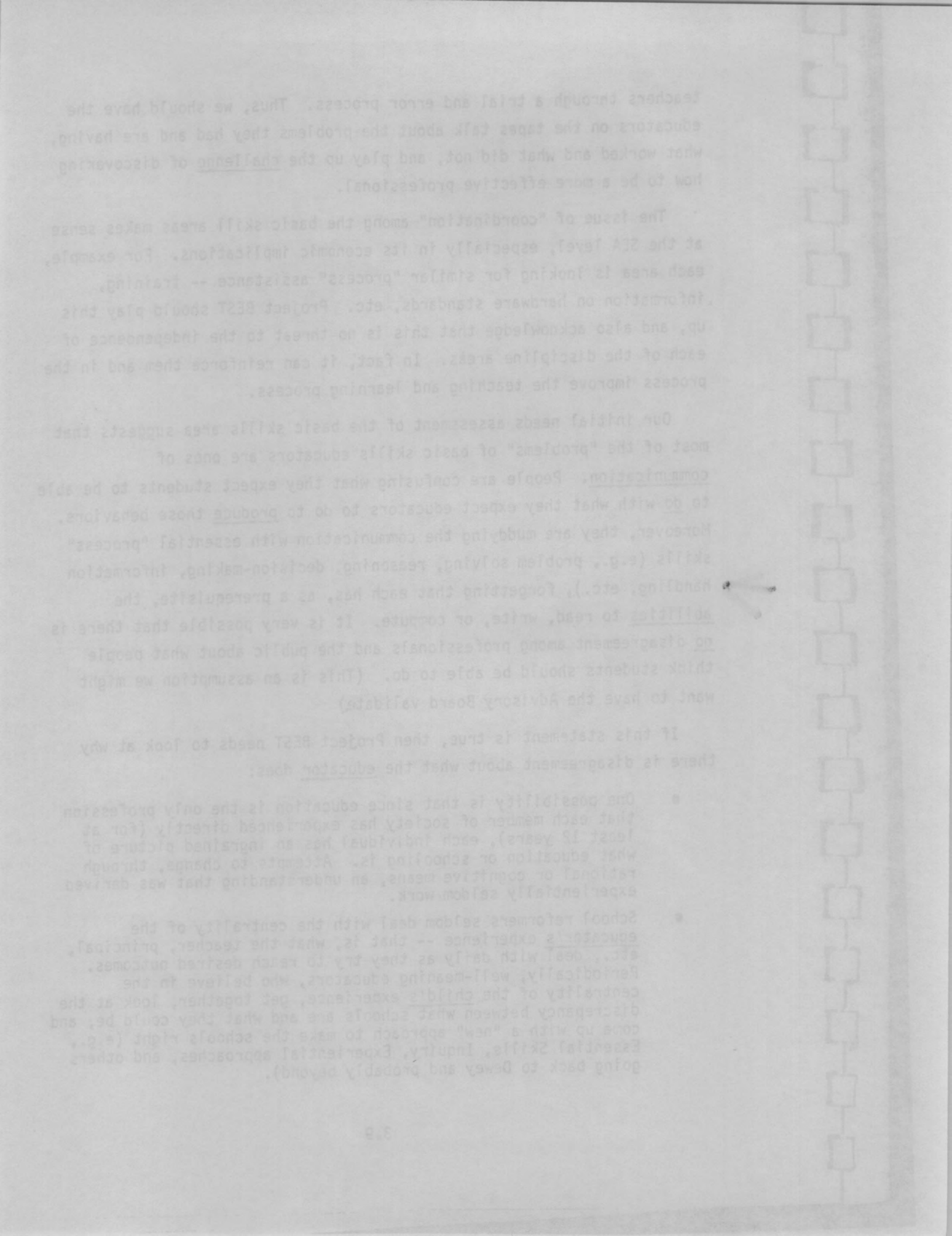
teachers through a trial and error process. Thus, we should have the educators on the tapes talk about the problems they had and are having, what worked and what did not, and play up the challenge of discovering how to be a more effective professional.

The issue of "coordination" among the basic skill areas makes sense at the SEA level, especially in its economic implications. For example, each area is looking for similar "process" assistance -- training, information on hardware standards, etc. Project BEST should play this up, and also acknowledge that this is no threat to the independence of each of the discipline areas. In fact, it can reinforce them and in the process improve the teaching and learning process.

Our initial needs assessment of the basic skills area suggests that most of the "problems" of basic skills educators are ones of communication. People are confusing what they expect students to be able to do with what they expect educators to do to produce those behaviors. Moreover, they are muddying the communication with essential "process" skills (e.g., problem solving, reasoning, decision-making, information handling, etc.), forgetting that each has, as a prerequisite, the abilities to read, write, or compute. It is very possible that there is no disagreement among professionals and the public about what people think students should be able to do. (This is an assumption we might want to have the Advisory Board validate.)

If this statement is true, then Project BEST needs to look at why there is disagreement about what the educator does:

- One possibility is that since education is the only profession that each member of society has experienced directly (for at least 12 years), each individual has an ingrained picture of what education or schooling is. Attempts to change, through rational or cognitive means, an understanding that was derived experientially seldom work.
- School reformers seldom deal with the centrality of the educator's experience -- that is, what the teacher, principal, etc., deal with daily as they try to reach desired outcomes. Periodically, well-meaning educators, who believe in the centrality of the child's experience, get together, look at the discrepancy between what schools are and what they could be, and come up with a "new" approach to make the schools right (e.g., Essential Skills, Inquiry, Experiential approaches, and others going back to Dewey and probably beyond).



- One of the problems with these movements is that they ap assume that the schools are doing "it" the way they are b they want to; that they (the reformers) are the only one believe in the importance of children and learning. Inst what exists is a situation where the overwhelming majorit school personnel believe in the same outcomes they do (e. process skills) but they don't know how to achieve them w the complex social, political, and economic constraints i they work.

- If one looks at education from the perspective of those t have to do it, several things become more clear. It is p to see why "evidence" that technology is "effective" is c for and when provided not used. It is also possible to e ways in which available technologies could be used to hel educator cope with the issues they really face, thus, giv them direct experience they can translate to working with children. (We might also validate with the Advisory Boar schools aren't doing what school practitioners say, on an individual basis, they want to do. What are the conditio influence this and in what ways can technology address th

The basic strategy for Project BEST, therefore, should be to wo cooperatively with existing national professional associations and State Education Agencies (SEAs) to strengthen their own stated neec encourage and support the use of telecommunications technology in t teaching of basic skills. Also, the project should endeavor to bri together currently scattered resources and efforts to use technolog teach basic communication and computational skills. Through sharin knowledge being developed nationally in the States, direct particip in the shaping and development of training materials, and provision modular materials and interactive modes of accessing information resources of use to States, Project BEST can offer SEAs a wealth of information and ideas to support State in-service training and tech assistance to schools. To this end, Project BEST needs to undersco approach that relies upon building State Teams comprised of basic s curriculum specialists and technology professionals who can ultimat plan and be the linkers who direct specific States' efforts. This requires participating States to commit the time and resources need make project materials useful within the context of their own environment, current needs and operating structures.

IV. Project BEST: What are Its Principal Components?

A. The Information Context

Project BEST, as an information dissemination project, is best understood within the context of the decisions facing schools today and the types of information needed to support those decisions.

Quite simply, things are changing. Once-appropriate relationships, priorities and assumptions are being questioned. Moreover, the particular information technologies with which we are concerned are in a state of rapid development and corresponding change. Decisions made in an environment like this are "risky" yet still have to be made. In many cases, what is not available to the educational decision-maker today is knowledge. The best that can be used is information[1/] and thus the more current and comprehensive it is, the better.

In this context, Project BEST is disseminating knowledge in the process of being developed. This is possible today only because technology provides the interactive links to gather and provide access to that information within realistic and practical costs and time frames. Project BEST, therefore, can be viewed as an information base of current experiences related to the improvement of basic skills teaching with technology. It employs modern information technology itself to 1) determine what current needs are for information; 2) gather it, and 3) make it accessible to those who can use it.

1--Identifying Information Needs--A basic project assumption is that needs change. The project, therefore, starts out with an initial set of assumed needs, then continually checks them out against reality via the Advisory Board and subsequent planned interaction with the participating

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1/ Knowledge specifies the relationship between variables and consequences; information relates variables to effects but the relationship remains hypothetical, untested by the results of actual decision. Knowledge is, therefore, a definitive statement of what will happen; information is an educated guess, a supposition, but a guess nevertheless. Knott & Wildausky, "If Dissemination is the Solution, What is the Problem?," KNOWLEDGE, June, 1980.

State Teams. For example, talks with basic skills personnel at SEAs and reviews of current literature suggests that schools are asking:

- o What do we do with microcomputers now that we have them?
- o How can they be used in specific curriculum areas?
- o How can they support more effective classroom, building and district management?
- o What should we consider in purchasing hardware and software?

Consequently, SEAs want to know the answers to those questions, and in addition:

- o How can we organize most effectively to respond to these LEA needs?
- o How are other states responding?
- o What does and does not work in training?
- o How can we use technology ourselves?

These types of State concerns will continue throughout the length of this project and can be expected, in fact, to increase in sophistication through the on-going exchange of information with the project. This is one of the reasons for the use of the State Team Experience Report (described in section 6) as a vehicle for regular communication of State concerns and changing conditions.

2--Gathering the Information--The bank of current experiences will contain, at a minimum, information about:

- o effective applications of microcomputers and other modern information technology in basic skills instruction and administration
- o current related articles and research
- o related meetings, events and other information opportunities
- o how SEAs and others are responding to LEA needs
- o materials and strategies that work in training and assisting LEAs
- o practical software in basic skills education
- o resource persons with current relevant experience
- o related reference and resource files

This information will be gathered on a continuing basis through:

a. regular review of current related periodicals;

b. The State Team Experience Report

c. regular and on-call interaction with state teams and others via the electronic mail and hotline;

d. participating in relevant meetings or access to their proceedings;

e. working agreements with each of the basic skills professional associations on the Advisory Board.

3--Accessing the Information--The information in this bank of current experiences will be provided in specific formats, as well as being accessible in response to specific needs. These would include:

a. Information about effective applications of the microcomputer in basic skills teaching and learning will be synthesized and packaged in video and print formats

b. Publications, representing what is being learned from current experiences, will be developed; e.g.--guidelines for hardware and software selection.

c. Participating States will be able to query the project via phone or electronic mail.

d. Information that requires more timely distribution (such as lists of meetings, current articles) will be "published" electronically as one of the electronic mail bulletin boards.

In order not to be duplicative, requesters will be referred to other sources for the information where appropriate. For example, a State may be referred to another State for more direct and personal communication about what did or did not work with a particular strategy. Or a requester may be referred to the information sources of one of the three to four cooperating professional associations, if the information is more appropriately found there.

B. Project Information Technologies

General Approach

> Despite information theory and processing, no one yet has actually seen let alone used, an 'information system,' or a 'data base'....this is the main conclusion to which our experience with communications--largely an experience of failure and all the work on learning, memory, perception, and motivation--point to: that is, communication requires shared experience...the effectiveness (of an information system) in other words, depends on the pre-establishment of communication."
>
> Peter Drucker
> Management

As a dissemination project, Project BEST is in the business of communication--communicating about technology. As Drucker notes, abo real communication is not created by technology. Technology can only provide the links or structures that extend, enhance, and/or connect certain mutual needs to exchange information. Each of the project's u of technology, therefore, will be determined within a broader context the purposes of the two-way communication of which it is part.

As noted earlier, it has not been possible to do this in the past even though it is theoretically sound. Traditionally, one medium has been asked to carry the complete communication load (i.e. motivate, hol interest, cover the range of needs of a diverse audience, etc.). With the information technologies to which Project BEST has access, and its approach to dissemination and capacity building, we have the flexibilit to use these technologies in ways that better ensure communication.

However, of even greater importance than the flexibility, Project BEST has a mandate to use them in new ways. As McLuhan noted about oth communication media in the past, their initial uses could be characterized as "rear-view mirror approaches." Instead of looking ahe to what the technology made possible, practitioners applied them to concerns and situations already being handled effectively in other ways. This phenomenon is already taking place in many current applications of the new technologies of satellite conferences, electronic mail and microcomputers.

It will be important, therefore that we approach our own technology planning processes with caution. We know that the "rear-view mirror" phenomenon affects producers as well as users of new media. Both research (Johnasen et al) and current experience suggests that, for example, television producers draw upon production techniques in curren vogue for one-way presentational "shows" without questioning the assumptions upon which those techniques were based (e.g. many assume th will have an audience that may not be interested and which has to be kep entertained to remain attentive). If Project BEST is to model

appropriate use, as well as try to advance the art of telecommunication, then its planning process must allow it to question the assumption behind each media choice and production technique.

Project BEST approaches this problem in two ways. First, we will choose our media against the reference point of what we are trying to accomplish and communicate (about both the content and the medium we are using to communicate it). Our choices also will be functionally appropriate to the task in which the Project and the States are engaged. Task-relating the technology is important in order to counteract the history of "technology demonstrations" where the participants' role is limited to observation or "playing" with the technology. Thus, they come away, possibly impressed, but with no personal experience that ties the technology to the real world conditions they face.[1/]

Our second way of addressing the "rear-view mirror" condition is by providng a mechanism that allows the State Teams to review, after each major use of the projects technology, their experience with it--their feelings and ideas, as well as possible applications to their current or future concerns.

Specific Technologies

Each of the information technology components of Project BEST is discussed briefly below. Additional information about their use is included in the strategy papers included with this document.

1 - Satellite Video Teleconferences

The development and delivery of up to eight video teleconferences is a major component of Project BEST's materials development strategy. However, the term "teleconference" is beginning to take on generic meanings that make it difficult to know what's being described when it is

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1/ For example, see "A Telemeeting That Missed The Mark," E-ITV, November 1981 ("Apparently the staff thought we would all want to know about the technology, not what it means to our own congregations.")

used. A review of selected teleconferences as well as current literature suggests that current usage falls into three classes:

One-way informational--These are designed like a speech or television presentation with the audience's role being to listen and learn. They may project an "authority"-"student" relationship instead of communication among peers.

These are used frequently to disseminate new information. For example, teleconferences we viewed dealt with understanding a new law, a new medical technique, a new curriculum, and a new educational approach for continuing education.

Although there is usually an opportunity for controlled call-in to handle "questions and answers," this only addresses one of the needs that questioning serves in face-to-face meetings. That is, the call-in can be used to clarify information already presented and thus prompt additional one-way information flow. It has not served well an equally-valid purpose of some questions which is to challenge a position, to present alternatives and to generate a two-way discussion.

Limited Participation--In this mode the information flow is still primarily one-way but feedback, reaction and response are necessary to meet the meeting's objectives. The members of the audience and those on the screen have a relationship that requires something from each other. Responses, however, are usually to the central presenting point rather than among all points.

Since audience response is an important element, a variety of ideas have been tried. One of the most effective has been having a break in the presentation while the viewing groups discuss or work with the information before responding.

This mode requires more integration of the teleconference portion with other activities and materials at the viewing site. A local leader with responsibilities for controlling the related activities at the viewing site is a critical element of this approach.

Full Two-Way Exchange--These meetings are primarily between or among parties who are working on a common task. They may be point-to-point or multi-point. If full video is required from each point, expense and complexity makes them impractical for most general uses. They have been approximated, in some areas, by using facsimile or slow-scan television to provide the visual element.

The nature of Project BEST's tasks and resources directs that our video teleconferencing will fall primarily in the "limited participation" category. The literature and experience, suggest some initial guidelines for working in that mode.

- The content of the teleconferences has to be important to those watching it, or the task of which it is part has to tap into some element of their job or personal self-interest.[1/] One industrial user notes "I am convinced that the value of the program content to the audience helps make allowances in speaker or production quality or in small technical problems". (J. M. Wright, TRW, Inc.).

- There is a danger of "over-production." Effective production, like a woman's makeup, should enhance what is there but not attract attention to itself. The production style and pacing should be appropriate to the type of communication in which we will be involved. It should support a sense of open communication among peers, with elements of informality, humor and serendipitous responses. The actual teleconference will be part of a larger sequence of communication much of which takes place "off-the-air." Open ended links can be built-in to these other activities. Since we will be talking with a finite group (state teams) we might even use names of individuals at the viewing sites.

- The individuals "on-the-air" should be comfortable with each other and confident about what they want to say. The host or moderator should be someone who "makes sense" from the point of view of the content and tasks in which we will be involved.

- Production should take advantage of the attributes the medium offers. We might include:
  - Examplary Basic Skills and Technology Practices emphasizing a "seeing is believing" approach
  - Problem Areas in Basic Skills where Technology Works Best and problem areas where it has not been as effective and reasons why.
  - Opportunities for two-way interaction with key authorities and experts
  - Showing the Project BEST processes and technologies at work
  - Status Reports on the evolving nature of the Basic Skills and Educational Technology sectors.

(For additional discussion, see strategy papers on the first Teleconference & Teleconferencing Approaches. A tentative schedule for the teleconferences is included on the following page)

1/ This factor also indicates why the composition of the state team is so critical. It has to include a hard core of individuals who have a direct interest in the use of the materials that they are helping to develop. Without this, the project's telecommunication links and services will have little use or relevance.

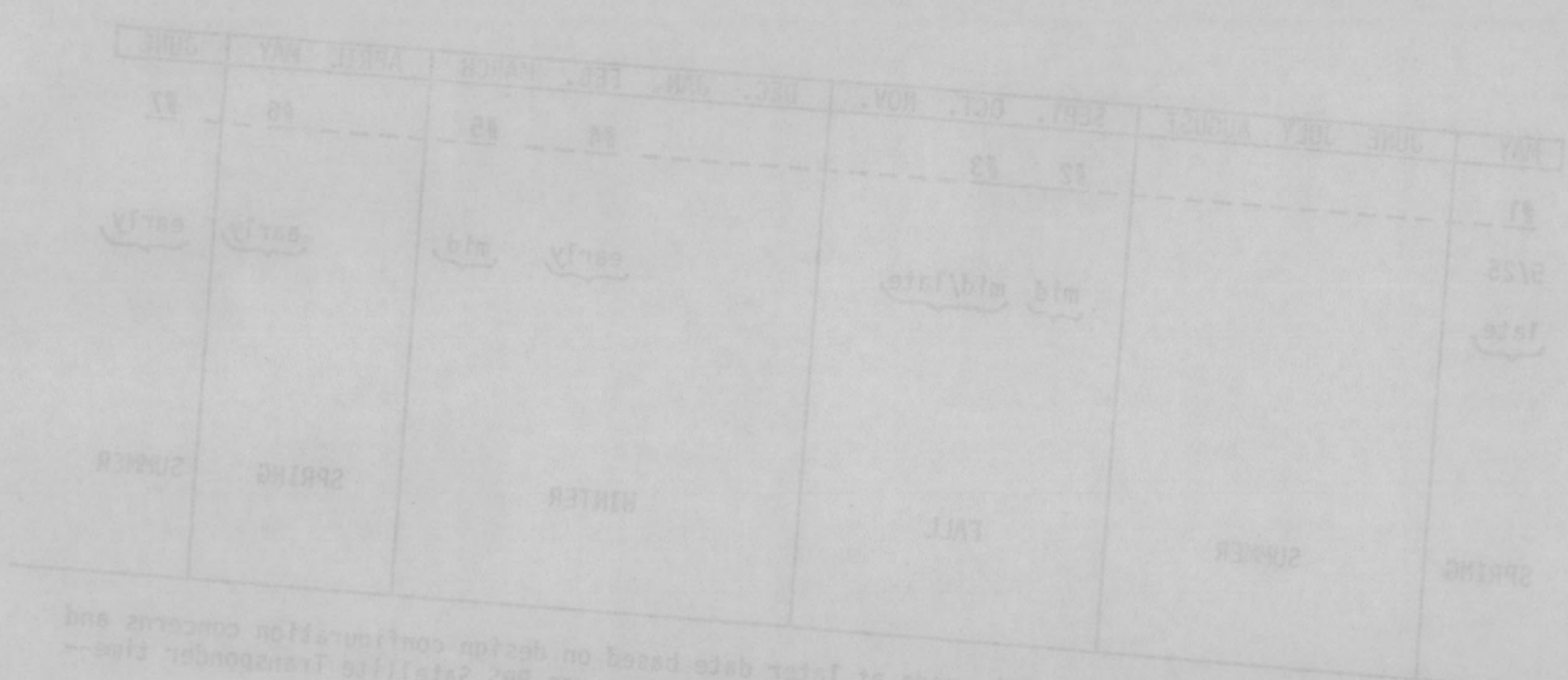
12/18/81

PROPOSED Teleconference Schedule *

PROJECT BEST

	MAY	JUNE JULY AUGUST	SEPT. OCT. NOV.	DEC. JAN. FEB. MARCH	APRIL MAY	JUNE
nference uence	#1		#2 #3	#4 #5	#6	#7
	5/25					
	late		mid mid/late	early mid	early	early
	SPRING	SUMMER	FALL	WINTER	SPRING	SUMMER

* Decision on Teleconference #8 to be made at later date based on design configuration concerns and experimental/demonstration needs of project. May or may not use PBS Satellite Transponder time--e.g. could be a video tape module only for playback at each site.



2 - Videotape Case Studies

These videotapes will document the key experiences of school practitioners who have been using microcomputers effectively in basic skills education. They will be short, organized in a manner that will allow variations in use and not become out-dated in a short time.

Each video module will be designed for an audience of adults who work in or with education. These people know what children look like and are not turned-on by pictures of kids being happy with hardware (although a review of most "demonstration" materials might suggest otherwise). What they seek instead (observe their behavior in meetings with peers) is information from others in situations like theirs, for example -

-- what the technology allows them to do or accomplish;
-- what's involved and how they handle it;
-- how they feel;
-- what didn't work and what they learned from it;
-- what constraints they had to deal with and how.

(For additional information, see the strategy paper on selecting sites for these mini-case studies.)

3--Audio Teleconferencing

The apparent simplicity of audio conferencing is deceptive. It is easy to view this medium as a simple extension of the telephone: if two people can talk to each other so easily, why not three, four, or even twelve? For many years, the telephone company has provided a "conference call" service that is, in effect, a basic form of audio teleconferencing. However, the telephone traditionally has been viewed as a two-party communications medium. It is used for "calling somebody up," not holding a meeting. People simply do not think of the telephone as a group communications medium. Furthermore, the design of the telephone handset does little to encourage its use for long periods, and speakerphones usually do not offer adequate quality to provide a genuine alternative. Nevertheless, telephone technology seems to be quite

adaptable to group conferencing needs, as demonstrated by systems developed specifically for this purpose.[1]

The advantages of audio teleconferencing on which we should capitalize then are its relatively lower costs, accessibility, relative simplicity in use and relative ease of setting up.

4--Electronic Mail

Of all the media Project BEST will be utilizing this may be the one that is least familiar to most participants. Simply stated, the electronic mail is a central computer that allows individuals in a prescribed network to send and receive messages to and from each other. Messages are "sent" but not delivered until the recipient requests them. In addition the system allows an unlimited number of "bulletin boards." These are usually lists of information that is stored and made accessible on-call to anyone wanting to read them. (e.g., listings of new publications, announcements of upcoming meetings, etc.)

Research suggests that after the initial novelty wears off, there is usually a decline in usage of electronic mail systems and that the technology should be matched to appropriate organizational tasks, rather than indiscriminately thrust into all communication activities.[2] This makes sense. Most professionals are not accustomed to operating in a style where they can interact with peers at other institutions on a regular basis. As much as they think they might like to do this, few make it a regular practice when given the opportunity. It can be a burden on others; one can appear dependent and unknowing, and it might take too much energy to describe to others just what you are looking for.

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[1]/Johansen et al.

[2]/Rice & Case, "Electronic Messaging in the University Organization" Stanford Institute for Communications Research, October, 1981.

In Project BEST we will be playing a "pump-priming" role for the electronic mailbox. We will be asking questions that require responses and giving State Teams reasons for contacting each other and us. The Bulletin Boards we maintain will be the States' primary access to the most current information in two areas--forthcoming meetings and current related articles. We will also use it to maintain an experience exchange around the problems of managing support services betwen SEAs and LEAs. One mode may be a Problem-of-the-Month in which solutions will be solicited by electronic mail messages and displayed on a special Bulletin Board. Users of the system could then react to the problem by providing approaches or solutions they have used and/or sharing experiences with similar types of problems.

For Project BEST, a network for electronic mail will be established with a mailbox address for each State Department Team Leader and the Project. Team leaders will provide their own video terminal and telephone connection (a telephone and modem) to send typewritten messages to the BEST project office and to each other. The Project will furnish the network and about 2 hours of use time per month. Additional use will be billed to the team participant at about $14.00 per hour of real time use.

5--Data Bases

Project BEST will develop four data bases that will be accessible through the electronic mail, toll-free telephone or by mail. These include:

- an information bank of print and nonprint resources on basic skills and technology
- a microcomputer software exchange
- a directory of regional pools of experts, and
- a collection of supplemental materials developed by the Project to facilitate use of the services.

Information Bank: Project BEST will house a reference and referral collection including a bibliographic source list and a collection of print and nonprint reference materials. This information bank will serve

to support State capacity-building needs, and through them, local needs for current information on materials, media and methodology. Materials and resources will be cited in teaching basic skills (including reading, mathematics and communications) and in utilizing modern communication technology (hardware and software) that support basic skills education (including telecommunications, computers and interactive systems). These data bases will be developed collaboratively with the national offices of the Basic Skills professional associations. Input from participating State Teams will also assure that the information bank remains current and comprehensive. In this manner the data base will provide information to address educator needs and at the same time keep Project Staff apprised of current programs, methodologies and effective strategies.

Microcomputer Software Exchange: The microcomputer software exchange will be a mechanism for sharing both the growing number of teacher produced microcomputer programs and information on commercial microcomputer programs in the teaching of basic skills. Project BEST will create its own data base for microcomputer programs dealing with the teaching of basic skills, building a national repository for locally developed, public-domain programs and providing a bibliographic listing of commercially-produced software for basic skills teaching. To stimulate submissions to the exchange, the Project will announce and carry out a national competition to identify and recognize authors of programs in the basic skills. SEAs will have access to this data base at the Project BEST office via phone, mail, or the electronic mailbox. However, the Project will encourage each State to develop its own software exchange to complement the National effort.

Regional Pools of Experts: The project will develop and maintain a list of individuals and organizations, identified by the States to others as having experience and expertise relevant to technology and the teaching of basic skills. Since Federal regulations will not allow the "system of records" that full documentation of each person's experience would require, the Project will develop a simple format for states to use to give us brief indexing data on the persons in each State's file.

After BEST has aggregated the various State indexes into regional or subject pools of expertise, the listing of experts will be accessible to SEAs from BEST's information service. Requestors then would seek additional information from the appropriate SEA. After completion of the Project, the index to current expertise can be maintained by state or regional organizations.

Supplemental Materials: As an outgrowth of other information services activities, the Project will develop supplemental materials--four print products--to facilitate the use of the services and to catalog its holdings. Sources will include AECT publications and accumulated knowledge, information learned in the project's design phase, and input from cooperating organizations, and SEA teams. The four products are:

1. How to Select Technology - a brief guide to help users select appropriate technology for their own needs;
2. How to Evaluate Microcomputer Software - a guide to selecting software;
3. "Promising Ideas and Practices" in Using Technology To Teach Basic Skills - a series of occasional papers giving case studies across the nation where technology is being used effectively and imaginatively to improve basic skills learning; and
4. Software Exchange Catalog, shortly after termination of national software competition - a categorized listing of holdings in the software exchange.

The project will provide camera-ready copy of these materials to the State Teams for duplication and dissemination to the LEAs.

In summary, Project BEST's information technologies both undergird and enhance the networking, services, and training activities of the project. All three phases interrelate to serve one purpose: building the capacity of the SEAs to support appropriate uses of technology in basic skills teaching.

The intent is to aggregate existing resources (information and expertise), establish a process for accessing the hard-to-get-at knowledge and experience that reside among individual teachers, and create a mechanism for sharing information directly among the States.

The information services are structured in such a way as to reinforce the SEA professionals' visibility as the source of information and assistance. Therefore, these information services will be continuable without Federal support after the Project ends, through the cooperation of SEAs and the participating professional associations with a vested interest in maintaining these resources.

V. PROJECT BEST: WHAT HAPPENS, WHO DOES IT AND WHEN?

Who Is Involved?

Project BEST is being undertaken as a contract with the U.S. Department of Education (Division of Educational Technology) in a consortium arrangement involving two subcontracting entities -- Applied Management Sciences, Incorporated (AMS) and the Maryland Instructional Television Division (MITV) -- with the Association for Educational Communication and Technology (AECT) serving as prime contractor. Each member of the Project BEST Consortium brings her/his own special areas of expertise to the joint undertaking:

- AECT contributes:
  - -- Information dissemination capabilities and expertise,
  - -- State of the art awareness of the application of technology to instruction,
  - -- Firmly established relationships with state, regional and national professional organizations in education and communications,
  - -- Project management, design and implementation experience.
- MITV contributes:
  - -- Nationally recognized capability to produce high quality television videotapes,
  - -- extensive experience producing live teleconferences,
  - -- in-depth experience introducing educators to the uses of technology in classroom settings,
  - -- experience using technology to develop basic skills instructional programs.
- AMS contributes:
  - -- Extensive experience in needs assessment,
  - -- Expertise in evaluation design and implementation,
  - -- Extensive experience in telecommunications design,
  - -- Extensive experience delivering technical assistance workshops to State, Federal and local groups,
  - -- Recognized capabilities in curriculum module and workshop development.

A National Advisory Board has been established to support the activities of the project, assist in its design, solicit participation from State and local education agencies, and provide information to guide

its development. The Advisory Board includes the following individuals, representing associations, organizations and groups who are leaders in the various pertinent areas:

- Bernard O'Donnell, Projects Coordinator
  National Council of Teachers of English
- Ralph C. Staiger, Executive Director
  International Reading Association
- James D. Gates, Executive Director
  National Council of Teachers of Mathematics
- William F. Pierce, Executive Director
  Council of Chief State School Officers
- Robert Scanlon
  Chief State School Officer
  Pennsylvania State Department of Education
- Frank Norwood, Executive Director
  Joint Council for Educational Telecommunications
- Sylvia Charp, Past President
  Association for Educational Data Systems
- William Spady
  American Association of School Administrators
- Joan Wills, Director
  Office of Research and Development
  National Governors' Association
- Carole Ganz
  Special Assistant, Directorate for Program Assessment
  National Science Foundation
- Shirley McKune
  Head, State Services Division
  Education Commission of States
- Paul Spurlock
  President
  National Association of State Educational Media Professionals
- Harriet Doss Willis
  Director
  Basic Skills National Technical Assistance Consortium, CEMREL
- Bill Hammond
  President
  National Association of State English and Reading Supervisors
- Barbara Wickless
  President
  Association of State Supervisors of Mathematics

- James Smith
  Steering Committee, State Basic Skills Coordinators
  State Department of Education, California

- Don Ely
  Director
  ERIC Clearinghouse on Information Resources

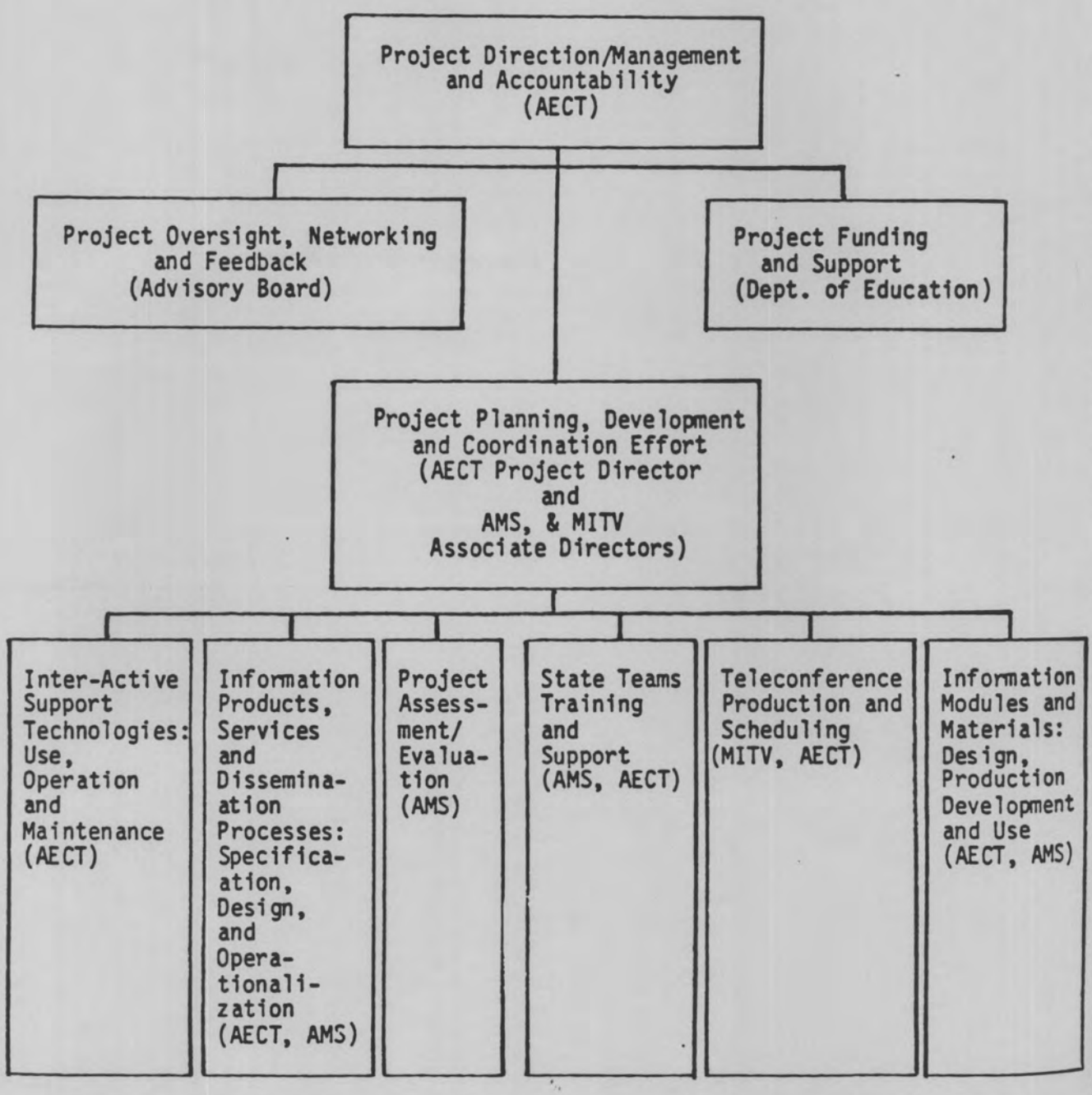
- Lyn Gubser, Director
  National Council for Accreditation of Teacher Education

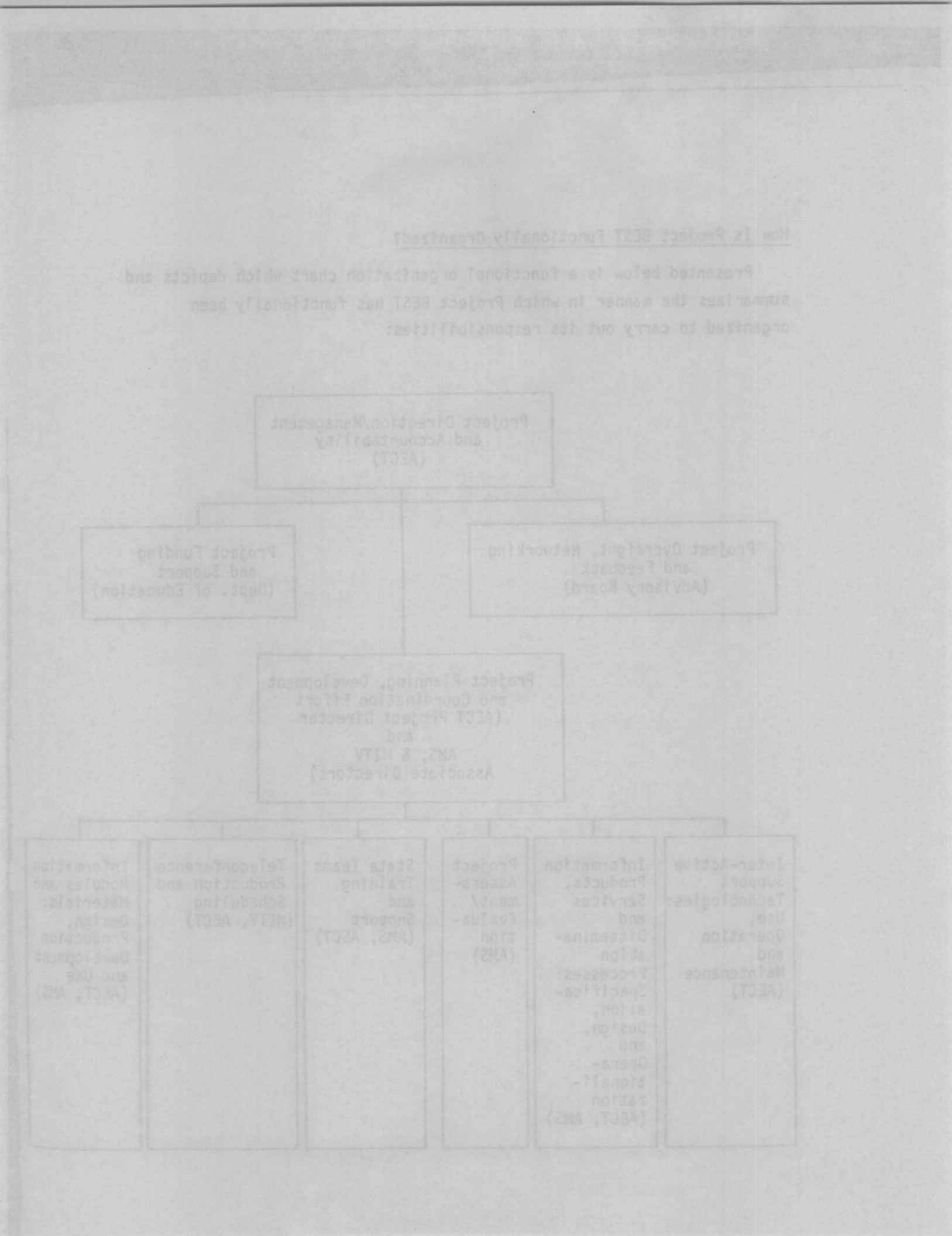
- Peter Kelley, Director
  Center for Telecommunications Study
  George Washington University

- Adrienne Y. Bailey
  Director
  Project Equality and Vice President for Academic Affairs
  The College Board

How Is Project BEST Functionally Organized?

Presented below is a functional organization chart which depicts and summarizes the manner in which Project BEST has functionally been organized to carry out its responsibilities:





What Happens When?

Project BEST has been designed on the basis of a life-line of twenty-one months, beginning in late October, 1981 and concluding in late July, 1983. The project encompasses a series of planning, design, materials development, implementation, service delivery and evaluation stage of work. Briefly, the Project's major tasks are the following:

- A Project Planning and Design Stage
- The Detailing and Implementation of the State Selection and Participation Process
- Specification, Selection and Development of Informational Materials and Delivery Processes (Data Bases, Software Exchange, Electronic Bulletin Boards, Video/audio/print modules)
- Orientation, Preparation, Training and Support of State Leadership Teams
- Development and Promotion of Information Services, Public Outreach and Project Awareness Effort
- Establishment and Operationalization of Project Information Services and Interactive Support Technologies (Electronic Mailbox, Audio teleconferences, Video teleconferencing, Facsimile)
- Design, Development and Dissemination of Project Informational Modules and Ongoing Interactive Information Services and State Support Activities
- Evaluation, Feedback, Documentation and Reporting.

VI. Project BEST: How Will It Be Evaluated?

Evaluation involves documenting: (1) the baseline, or starting point, for the project; (2) the experiences of participants as they work within the project; (3) the use of project resources; and (4) the outcomes produced as a result of project participation. The evaluation design must include methods for obtaining all four types of documentation as part of regular project management (as opposed to a separable activity of lower priority). Project BEST will approach these tasks as indicated below.

Collecting Baseline Data

The baseline data provides the project and the U.S. Department of Education with a summary of the status of each State at the time of their initial involvement with Project BEST. The baseline data will be used by:

- The State Team to determine: (1) resources available within the State that can be tapped for capacity building; and (2) areas of weakness or need that the state can address with or without the assistance of Project BEST;
- Project BEST as a reference point to identify change over time.

Information that State Teams will be asked to collect and share will include both statistical data and impressionistic information, where hard data do not exist. Specifically, State Teams will provide information about:

- Technologies available at the State level;
- Current use of available technologies including new technologies, such as microcomputers and videodiscs in schools throughout the State. (i.e., How many microcomputers do the schools have? Are they used primarily for computation and drill work?);
- Specific applications of technology to basic skills education;
- Training and experience of teachers and administrators in applying technologies to classroom use (Do the state, LEAs, or IHEs sponsor any workshops or in-service training on technology applications to classroom learning? What are they? Who are the contacts?);
- Anticipated future expenditures for acquiring new technologies (hardware) for use in LEAs (What is the planned budget for updating or acquiring new equipment or technologies? Is this acquisition primarily to support administrative or classroom uses?);

- Procedures used by SEAs to establish course credit for in-service or continuing education programs;
- In-state examples of appropriate and effective uses of technology to teach basic skills;
- Personnel within the State or region who are viewed by the SEA as experts in the field of technology and basic skills;
- Information gaps/needs regarding technology applications;
- Current level of interaction among State Team members and their respective organizations, including:
  - frequency of interaction
  - typical purposes or topics for interaction;
- Current level of interaction with other States concerning the use of technology and/or basic skills education, including:
  - frequency of contract;
  - purpose of contract;
  - organization (i.e., LEA or SEA) initiating contact.
- Current level of interaction with LEAs and teachers concerning technology and basic skills education, including
  - frequency of contact
  - purpose of contact
  - organization (LEA or SEA) initiating contact.

State Teams will be given an outline of the baseline data they should collect and will be asked to develop the information for their internal use. They will be asked to share the results with the project, although this will not be a requirement, to avoid the need for OMB clearance.

Documenting Project Experiences

In order to be sure that the information all participants of the BEST Network agree is needed is accessible when needed, Project BEST will utilize a self-monitoring and experience documenting technique that will function at the level of the State Teams and at the Project staff.

A State Team Experience Report, will be used to regularize the documentation and reporting of much of a State Team's experience and the anecdotal evidence of impact that is usually shared informally. This format for documentation can be the source of unique and valuable information, first for a project's own learning and use but, equally

important, for sharing with States with similar concerns. The reports would be transmitted to Project BEST as part of regular progress reporting. This experience recording review mechanism has been used successfuly in several national programs and has been adapted by several States for their own internal use.

The State Team Experience Report is designed to accomplish two primary objectives:

- to serve as a mechanism for a group to document its efforts to resolve a specific issue or solve a particular problem while also facilitating the group's task by generating better information; and
- to serve as a reporting mechansim that would facilitate experience-sharing and learning.

The following discussion may help illustrate the different nature of this "reporting" tool.

The approach to a project's problem-tracking is based upon management and psychological principles. The fundamental concepts in the approach are:

- Understanding of an experience--what happened, why and how--can best be derived after it is over.
- To do this requires a reference point on which to focus awareness--something to look back at to create a structure for the review. "Planned" objectives serve this purpose well, for example: "What did we intend to do? What actually happened? Why? What were the influences on it?" Thus objectives serve as a way to generate the needed discrepancy data that feeds project problem-solving.
- The more points of view or experiences of a situation that are fed into the review, the better the picture of what happened. Therefore participating in this review process provides a way for various role groups or agencies involved in a project to collaborate on a meaningful task--that is, to contribute to the solution of problems that relate to their mutual concerns. Meetings can serve as a major source of process data for the documentation.
- This process of identifying what was important in an experience, analyzing it, making generalizations and documenting these learnings so that they can be used in future actions lets a staff or board experience the "ah ha's" of discovery and learning that external evaluators usually reserve for themselves.

- A key element in the process is frequency of review. An analogy can be drawn from the process of navigation. Even though the original course (plan) is laid out as a straight line between two points, the navigator is accountable for continuous and frequent checking to determine where the ship actually is; ascertaining what unanticipated forces caused it to be there and suggesting a new course based upon where it is now, which takes into account the previously unanticipated influences. In this process, knowing where you are is more important for planning than knowing where you thought you would be. Checking frequently is essential because the longer the time between check points, the larger the possible "error" and the possibility of forgetting some of the dynamics of the events.

The strategies that support this process consist of self-monitoring "forms" that permit a project staff to articulate and understand their own processes and to document their own growth. Thus they produce a usable report for themselves before giving information to anyone else. The process can also serve as a focal point for interagency cooperation by requiring that the self-monitoring problem-tracking forms be completed as part of a monthly or quarterly meeting at the site, which would bring together the multiple agencies or departments concerned with the problem at hand.

The State Team Experience Report is designed to provide a each team with a means for generating and collecting experiential information about how it accomplished its tasks, what it had to overcome in doing this, what it learned in the process, and how it applied the learning. It is both a planning and a self-reporting system that surfaces problems before they become unmanageable and then challenges agency or program staff to look for ways to deal with the problems. The State Team Experience Report in one sense provides a "formative" evaluation tool. But it is a tool designed to document the outcomes of a group's ongoing formative decision-making processes, not one that requires that it produce and send the data to others for analysis before getting any value from the information.

At the periodic review meetings at which a group works through the questions, the focus is on looking back at a previous plan (expectations) and comparing it with actual accomplishments in order to learn from the positive or negative discrepanices. Note that this differs from MBO-related discrepancy evaluations where discrepancies are bad. Here a

discrepancy is defined as an experience (what actually happened and why). There is no such thing as a good or bad experience, since it is possible to learn from both, and so-called "bad" experiences frequently provide more useful information than the "good" ones. It is also possible to pick up information about serendipitous occurences, which seldom show up in MBO reporting because they were not planned.

This type of strategy facilitates a group's ongoing assessment and planning. Furthermore, time is a most important dimension of these reports. No single report is significant except in terms of its relationships to earlier or later information. It is this picture of change or growth over time--and the reasons for it--that provides a process picture frequently impossible to capture through traditonal forms of documentation. A periodic (quarterly) review across a series of reports can permit perception of patterns or trends that may be significant. Further, it allows identification of areas of concern for additional probing and data collection by the project, or for telephone contact and person-to-person assistance by others.

The State Team Experience Report also serves as the mechanism that provides Project BEST with the information it needs for its own management.

- The information provides a link between the State Team's ongoing management problem-solving process and the Project BEST staff who can support it with technical assistance, information about resources, and referrals to other teams dealing with similar concerns. Thus it supports Project BEST's capability to serve as a broker.
- The information on the forms serves as flags or indicators. It describes the outcomes of processes and is usually in skeletal, key word form. This allows Project BEST to use these as catalysts for more interactive communication with a State Team by phone.
- It can facilitate the cross-state analysis of information.
- By having an access point to the current experiences of the States, timely and valuable information is available. Trends can be perceived and other indicators identified for use in shaping project services.

Measuring Use of Project Resources and Results

An effort will be made to document ongoing use of project resources, including the teleconferences, the information bank, and the electronic mailbox, by participating States. The emphasis will be on determining how frequently the resources are used, by whom, and for what purposes. Specific measures associated with each resource are described below.

Information Modules: After each teleconference the State Teams will discuss the teleconference and provide feedback to Project BEST about the material presented and their reactions to the teleconference process. The feedback will include:

- Number of individuals attending the teleconference;
- Responsibilities/titles of individuals in attendance;
- Assessment of the teleconference process
  - Effectiveness of presentation format
  - Adequacy of time available for questions
  - Adequacy of responses to questions
  - Suggestions for improving future teleconferences.
- Assessment of the teleconference content
  - Effectiveness of audio-visual presentation
  - Completeness and accuracy of written materials
  - Utility of suggestions for future use of the audio- visual and written materials
  - Appropriateness of content to meeting the needs for training materials in the use of technology to support basic skills education.
- Applications of the material
  - Possible uses in training workshops and courses
  - Specific discussions or exercises that could be developed based on the materials
- Feasibility of implementing similar ideas or approaches in their State
  - Necessary modifications or adaptations
  - Resources/skills that would be required
  - Appropriateness of technologies and their applications to basic skills education.

Feedback can be provided via telephone, memorandum, or electronic mail. The advantage of electronic mail is that ideas/suggestions will be instantaneously available to all participating States and may generate additional comments and suggestions. The input will be summarized by Project BEST and sent back out to participating states.

Information Bank: Project BEST is organizing an information bank containing information about current projects, available software, training materials and programs, experts in the field, and journal articles of interest. The information bank can be accessed via a toll-free telephone number, letter, or electronic mail. Measures of the use of the information bank will be generated from internal data. The following information will be compiled:

- Method of access: number using the toll-free telephone number, the electronic mailbox, postal service.
- Types of individuals requesting information
  - Status of the requestor
    - -- State Team Leader
    - -- State Team member
    - -- Individual from participating State
    - -- Individual from non-participating State
  - Responsibilities of the requestor;
- Questions being asked/hot topics;
- Total number of requests received per month;
- Intended use(s) of the information;
- Type of information provided:
  - Bibliography
  - Reprint
  - List of experts to consult
  - Other;
- Turnaround time for responses;
- User satisfaction data can be collected, if desired by ED and approved by FEDAC, using a questionnaire that would be enclosed with a sample of responses. It would cover:
  - Timeliness of response;
  - Completeness of response; and
  - Pertinence of the response to the initial request.

- Experience with other information services indicates that some unsolicited feedback is received without the enclosure of response cards. This response can be augmented by inviting comments in the cover letter sent with the package. This approach would alleviate the need for FEDAC clearance.

Electronic mailbox: In addition to using electronic mail to access the information bank, it will also be used as a method of communication between project staff and participating States and among participating States. It will serve as a "bulletin board" for listing current information on topics of interest, as a means for quickly querying all participants in the project for information on a given topic, and as a method for communicating about project materials and activities. Because electronic communication is relatively new, the uses of this medium will be separately documented; the following data will be collected:

- Number of entries per week
- Organization initiating the entry
  - Project BEST
  - State Team, by state;
- Organization to which message is sent
  - Project BEST
  - State Team, by state;
- Types of entry
  - Request for information on a specific topic
  - Response to information request on a specific topic
  - Entry to a "bulletin board"
  - Reading a "bulletin board" (if this can be measured)
  - Request for feedback about project related materials or activities
  - Project related feedback
  - Private message among limited number of network participants (if this use is allowed).

Project Outcomes

Project outcomes include anticipated and unanticipated results/ benefits of the project and changes in behavior or attitude as a result of participating in a project. This type of evaluation is typically known as summative evaluation. Rigorous experimental or

quasi-experimental designs are required if planned and unplanned outcomes and results are to be quantified and attributed to a project. This type of information was not requested in the RFP, nor did our response include provision of this type of information.

Nevertheless, knowledge about effects and results is of great interest to policymakers who must decide whether to continue a project or to apply similar methods in other contexts. In fact, it is this type of information that research suggests has the most influence on their decisons. We therefore propose to informally document anticipated and unanticipated outcomes and results to the extent that they can be measured throughout the course of the project. It must be emphasized that the information collected will not meet the standards of statistical reliability required to generalize the findings, but it should provide policymakers with an indication of merits of the networking approach being used by Project BEST. The following information will be collected:

1. Using the baseline data provided by each State Team, the Teams will be asked to monitor their own progress and assess learning resulting from changes in:
   - The frequency and quality of interaction among members of the State Team;
   - The frequency and quality of interaction among the units represented on the State Team;
   - The frequency and quality of interaction with other States; and
   - The SEA's level of knowledge and ability to respond to the needs and questions posed by LEAs.
2. Uses of the materials developed by Project BEST, including:
   - Distribution of audio-visual materials to LEAs, intermediate service agencies, or IHEs for use in teacher training programs;
   - Use of audio-visual materials by the SEA
     - For replay to individuals unable to attend the teleconference
     - As part of an SEA-sponsored training program;
   - Distribution of the written materials to LEAs, intermediate service agencies, or IHEs for use in teacher training programs; and
   - Inclusion of written materials in SEA-sponsored training programs.

3. Increased visibility of the SEA as a resource for information c the use of technology in basic skills education.

4. Planned uses of the project materials in future SEA-sponsored training programs.

5. Anticipated effect of the project on the use of technology in basic skills education in the State and on the quality of basic skills education.

6. Effect on the perceived utility of technology in education.

7. Institutionalization of the process, including:

   - Plans for continuation of the State Team after the expiration of the project;
   - Plans to use a similar team approach within the SEA for other priority areas;
   - Plans for continuation of the information bank after the expiration of the project; and
   - Plans to apply a similar Federal-SEA model in other areas of education.

ABSTRACT

Effective accomplishment of this proposal's objectives would be impossible to achieve within allowable time and resources without using modern information technology to carry out project tasks.

The Association for Educational Communications and Technology, in collaboration with Maryland Instructional Television Division of the Maryland Department of Education and Applied Management Sciences, Inc., proposes to actively involve the basic skills and technology professionals at SEAs in developing materials that they themselves will use to assist local schools in applying technology to basic skills teaching. Our own technological expertise (satellite videoconferencing, electronic mail, and interactive audio and video teleconferencing) will be used to support project activities that will ensure that:

- State curriculum supervisors in the basic skills areas of reading, mathematics, and language arts will have direct experience learning via technology about how they can use technology in their own work;
- State supervisors themselves will be able to use technology appropriately to teach local school staffs;
- A core of new inservice instructional resources will be developed through this project (including appropriate video formats, computer software, and print materials) that will fit easily into credit and non-credit inservice training throughout the state;
- Each state will have a functional working team consisting of specialists in the three basic skills areas and the state's media/technology staff, with the likelihood that this relationship will be maintained after the assistance contract ends;
- SEA basic skills staff can use electronic mail systems to maintain regular access to and interaction with peers in other SEAs who are working with similar problems related to the applications of technology to teaching basic skills;
- Each state will have the capability to maintain its own microcomputer exchange for (at a minimum) the basic skills areas;
- Each SEA will have an increased awareness of related basic skills and technological resources available through other Division of Educational Technology/OERI contracts.

The national strategies we propose are most significant. They assure that the information resources and services will continue to be accessible to the field without Federal government support after the project ends.

STRUCTURE OF THE PROPOSAL

In responding to the RFP, we have structured the proposal to represent a logical sequencing of events to accomplish the tasks. Since the ordering of these tasks is different from the presentation in the RFP we present the following Matrix to guide the reader to the appropriate and relevant discussions.

RFP	Proposal		Page
V. Tasks	Chapter 2 Procedural Plan		
A. Design	Task A. Design Component		
1. Establish Advisory Board	A.2	Establish and Convene an Advisory Board	2.10
2. Obtain State Agreements	A.4	Obtain State Agreements	2.15
3. Establish Specific Criteria	A.6	Develop Objectives and Criteria for the Dissemination Program	2.22
4. Select Commercially Available Materials	A.7	Identify, Review, and Select Available Materials	2.24
B. Teleconferences	Task B. Training Material Development and Dissemination		
1. Establish Procedure for Course Credit	A.5	Develop State Participation Process	2.17
2. Establish Teleconference Training Session	B.2	Schedule, Produce, and Present Teleconferences	2.30
3. Make Available Print, Pre-recorded Materials to States	B.2	Schedule, Produce, and Present Teleconferences	2.30
	B.3	Develop Supplemental Training Materials	2.39
	C.6	Develop Supplemental materials for the Information Services Phase	2.52

RFP	Proposal		Page
4. Public Awareness Campaign	A.8	Conduct Public Awareness Activities	2.26
C. Information Services	Task C. Information Services		
1. Maintain Telephone Information Lines	C.2	Implement and Maintain Toll-Free Telephone Lines	2.47
2. Establish Microcomputer Software Exchange and Design an Electronic Mailbox	C.4	Design and Maintain a Microcomputer Software Exchange	2.49
	C.3	Implement and Support an Electronic Mailbox System	2.48
3. Develop List of Regional Experts	C.5	Develop and Maintain Regional Pools of Experts	2.51
VI. Evaluation	Task D. Evaluation		
1. Needs Assessment of Participating States	D.1	Plan and Implement State Needs Assessment/Planning Process	2.55
2. Evaluation of the Teleconferences	D.2	Design and Conduct Feedback on the Teleconferences	2.57
3. Evaluation of Information Service	D.3	Evaluation of the Toll-Free Telephone Lines	2.59
4. Evaluation of Microcomputer Software Exchange and Electronic Mailbox	D.4	Document the Utilization of Software Exchange	2.60
	D.5	Document the Utilization of the Electronic Mailbox	2.61

1

INTRODUCTION

The Promise and Threat of New Technologies

Technology that could be used by schools to enhance the teaching and learning processes has been available for some time. Its effectiveness has been proved in research and demonstration and, more significantly, in continued application outside formal public education, such as in industry and military training. It is no secret, though, that regardless of proven and scattered examples of effective use, technology has not made a major impact on procedures in American public education.

This situation may change qualitatively because of a number of breakthroughs in microelectronics in recent years that have revolutionized information technology. With a decrease in size and cost, an "each-one-have-one" possibility is approaching reality. Already we have witnessed an unanticipated increase in the number of microcomputers in schools and in homes for storing information. In the area of information distribution (e.g., satellites, cable, data lines) a wider range of high quality information is becoming accessible. These changes will clearly have consequences for education, some of which will become apparent only through experience.

On the positive side, the classroom professionals will have more "control" over the selection and use of technology-supported materials for their students. The lack of this control has heretofore deterred widespread use of technology. Also the school, because it will increasingly have assurance of home techhnology resources, will be able to develop practical ways to support learning as a result of the home-school partnership rather than as a function of the school alone. On the negative side, the rapid spread of these newer technologies carries with it a potential for enlarging the body of students who are turned off and tuned out of American public education. (For example, teachers of children "educated" by Sesame Street in pre-school years report that these children have trouble adjusting to traditional information presentation methods when they enter school.)

A major consequence of the microelectronic revolution thus may be that education will soon lose the choice of "business-as-usual" (teaching without technology). In this case local practitioners and those who influence their

continuing training and curriculum support must begin to adapt these new tools to their teaching and administrative needs.

In response to these developments the Division of Educational Technology, OLLT/OERI envisions a program of technical assistance and information resources for State Education Agencies to help them assist schools in their states in applying modern information technology to teach basic skills. Most significantly, the government recognizes that this technical assistance and materials dissemination must at the same time create a capability in the state to carry on the local support once this project ends. Thus it prescribes a technical assistance relationship built on a partnership between the states and the Federal Government.

Responding to the government's request, the Association for Educational Communications and Technology (AECT) in consortium with the Maryland Instructional Television (MITV) division of the Maryland State Department of Education and Applied Management Sciences (AMS) proposes a team, and assistance strategy, uniquely matched to the purposes of this contract and the conditions that will affect its implementation. Before presenting these particular strategies we want to discuss the outcomes that this approach can deliver, and the economic, political, and social conditions that make the strategy necessary. We purposefully start "at the end" because we believe that judgements on the success of this important Division of Educational Technology effort will be based more on its visible products and lasting effects on permanent educational services than on the particular methods used by the contractor.

Outcomes

Evidence of the success of this two year assistance project will be visible at three levels--the State Education Agency (SEA), the local education agency (LEA), and nationally.

At SEAs there will be:

- State curriculum supervisors in the basic skill areas--reading, mathematics and language arts who have had direct experience learning via technology about how they can use technology to accomplish their purposes.
- State supervisors who can, themselves, use technology appropriately to teach local school staffs.
- A core of new inservice instructional resources developed through this project that will include video formats appropriate to their situations, computer software and print materials. The state supervisory personnel will feel some sense of "ownership" in these

resources because they have been involved in their development; they will easily be able to fit them into credit and non-credit inservice training throughout the state.

- A functional working team consisting of specialists in the three basic skills curriculum areas (reading, mathematics, and language arts) and the state's media/technology staff, plus a strong possibility of a continuing relationship after the assistance contract ends.
- SEA basic skills staff using electronic mail systems to maintain regular acccess to and interaction with peers in other SEAs who are working with similar problems related to the applications of technology to teaching basic skills.
- The capability to maintain a state-based microcomputer software exchange for, at a minimum, the basic skills areas.
- An increased awareness of basic skills and technological resources related to their needs that are developed or being developed through other Division of Educational Technology/OERI (DET) contracts.

At LEAs there will be:

- Teachers, administrators and board members with an increased awareness of how the new information technologies relate to their particular concerns--an awareness developed from seeing practical demonstrations of what others are doing.
- Knowledge of how to get additional support--both information and human resources--to improve their present applications or to explore new ones.
- Continuing opportunities to interact with other practitioners with similar interests and to exchange resources.

At the national level there will be:

- Information resources and services (e.g., toll free telephone, exemplary software exchange, etc.) that can continue to be accessible to the field, without Federal government support, after the technical assistance project is completed.

Conditions that Influence the Assistance Strategy

The outcomes listed above can evolve in a variety of ways. The approach that the AECT consortium proposes is one that uniquely reflects our understanding of several fundamental conditions of the educational, political, social, and economic context in which we will work. These include:

1. How technology has been offered and communicated to educators over the years;
2. The present state of development and future potentials of the "newer" technologies such as microcomputers, videodiscs and the combination of the two in interactive video formats;
3. How decisions in education are made and supported at state and local levels;

4. The types of assistance most effective for developing the capacity of educational agencies;

The descriptions of each of these conditions (below) are derived from this contract consortium's direct experiences in the major content and procedural activities of this contract:

- teaching about technology;
- facilitating the exchange of current information about technology;
- developing mediated basic skills inservice and student instructional materials;
- providing technical assistance and dissemination services nationally.

The general approach in the following section describes how we will respond to each condition.

1. Communicating and Teaching about Technology. For almost two decades demonstrations and research have shown that various technological approaches and equipment could achieve educational results at least equal to traditional methods. That they have not been given the opportunity to produce these results on a regular and large scale basis may be attributed to two factors. First, "teachers teach the way they are taught" and most educational professionals have not had direct experience as learners with these tools. (What one knows about a medium from learning through it can be entirely different from what one knows when one's only experience is using it for teaching). Second, a major resource for communicating and teaching about technology applications has been research and demonstration. By definition, demonstrations and experiments usually require some isolation from the web of influences (economic, social, and political) that constrain the everyday processes of schooling. Thus while studies continue to find that technology can be effective, two decades of experience suggest that this effectiveness often cannot be maintained in the complex school environment and that technological approaches have seldom addressed the variety of practical problems that confront educational staff and decisionmakers. Other factors have also made it difficult for the educator to grasp fully the potentials of technology. Much of the information about technology focuses on what the technology can do. Yet communication research suggests that effective understanding begins with being able to perceive something in terms of one's own needs and experience. Recent National Science Foundation research on the acceptance of technology by schools and other human service organizations supports this:

> ...the effectiveness of the innovation usually had to be proved in practitioner terms--e.g., convenience, reduced physical effort, additional sense of safety on the job, greater potential for promotions, or elimination of distasteful tasks--which are different from the criteria typically used by external evaluators.1/

What has been missing from communication and teaching about technology is a recognition that many decisions are influenced by the technology's consequences--personal, organizational and economic. The focus should be not only on what technology can do, but also on what technology can let the educator do (have free time for more direct student contact, attend meetings without burdensome time and travel costs). Thus, both technologists and educators are frustrated. The technologist knows the inherent potential of the technology and has seen them applied in commercial or consumer areas. The educator, on the other hand, does not deny the possibility of better ways to operate, but looks for someone who is willing to start the process where she or he is.

The curriculum materials and services developed under this contract must, therefore, represent not only an understanding of technology and of basic skills but must also be designed to communicate realistically to practitioners who face the everyday problems of running schools.

2. Present Status of Technology Development. The microelectronic revolution has made highly sophisticated technology economically feasible for most schools. Technological change, however, takes place at three levels--hardware, software, and applications. In the past we may have assumed that the easy availability of hardware would carry with it the development of high quality software and expanded educational utilization. That this has not happened in education suggests that each of these three aspects of the "revolution" needs to be considered separately.

Hardware

The large number of microcomputers now in schools was unanticipated. A panel of more than 150 experts (Nelles, 1980) projected that between 5000 & 8500 microcomputers would be in public schools by the end of 1980, but a recent (March 1981) NCES Fast Response Survey found more than 30,000 used for student instruction alone. The videodisc situation is a little different.

1/ Yin, Robert K., "Life Histories of Innovations: How New Practices Become Routinized," Public Administration Review, January/February 1981.

The hardware itself is just entering the home market and is rapidly being accepted in the corporate training world. A recent market study (ITVA, 1980) predicted that real acceptance in the corporate and institutional market will not be achieved until 1985. The interactive videodisc, representing a combination of computer and video technologies, is also being accepted first by the worlds of business, military and continuing education.

Software

The growth of microcomputer hardware, however, has not been paralleled by a concomitant development of quality software or courseware. Commercial software developers did not see education as a viable market until there was sufficient hardware. Now that the hardware is appearing, commercial developers find that the ease by which programs can be copied and pirated still makes the venture risky. Thus, much of the software/courseware being used is home-grown. Some educational programs are being written by people who are not educators; some are being written by educators who lack good program analysis skills. In fact, the National Council of Teachers of Mathematics recently counseled its members to beware this "software jungle that users enter at their own risk."

The software for videodiscs, on the other hand, cannot be easily pirated, and is relatively inexpensive to reproduce from masters. (A 30-minute 16mm educational film that would cost $425 would sell for $280 on videotape and only $6 on videodisc.) Outside of the schools videodiscs are gaining great acceptance as alternatives for film and tape for training, communication and entertainment purposes. Competition for this growing and potentially lucrative market unfortunately directs producer attention away from an education market that appears insignificant by comparison. However, within months the National Education Association and the American Broadcasting Company will provide schools an educational "videodisc-of-the-month".

The highly promising area of interactive video presents another dimension of the software-courseware dilemna. It is not merely a recording or transmission format; it is an instructional methodology with vast implications for direct instruction. Unlike conventional video, interactive video is nonlinear. Its images are presented in an order determined by and appropriate to the learner's responses and needs. Because of this complexity it is fortunate that a number of government agencies are helping to support the development of interactive videodisc software (e.g., Division of Education Technology/OLLT,

Office of Special Education, Corporation for Public Broadcasting, and the National Science Foundation).

Applications

One additional element of the present condition is relevant to the present state of technology. We noted earlier that few adults in education have had the experience of learning via the technologies they will use to help children learn. Even the "younger" professionals who may have been educated by the "new" technologies of the 1960s and 70s may not have experienced the highly interactive and individualized media available today. Thus they may not fully perceive the range of effective applications possible.

3. Decisions and Decisions about Technology. The contractor for this project has to negotiate agreements with separate states to commit their own resources and follow through on the purposes of this effort. Moreover, courseware must be designed to impact basic skills practitioners in the full range of local educational situations. To develop and maintain a system that will support these varying conditions and needs requires a sensitivity to how educational agencies at state and local levels operate, the factors that influence decisions, and in particular, how decisions to use technology are made.

Decisions to Participate

A letter of commitment from a Chief State School Officer is not the sole component of the agreement that will form the partnership between a state and this Federal effort. Of equal importance is the underlying commitment of those who will carry out the agreement--the SEA's professionals in basic skills and technology.

In this time of restricted resources any commitment of professional time and resources must be evaluated carefully. Both the Chief and the staff will have one basic concern: what will the benefits be for our state, how can involvement make us more effective? The politically astute Chief, recognizing that each curriculum specialist "represents" a constituency of practitioners, will check out the consequences of the decision with his/her staff. In many cases s/he will ask the staff to make a recommendation about participation in this program.

To obtain the state staff involvement that will ensure the desired outcomes of this contract, each "partnership agreement" should represent the culmination of thoughtful planning and not be just a one-person decision.

Basic Skills Coordination Decisions at the State Level

Traditionally education is managed as a fragmented enterprise. Each discipline functions practically as a self-contained unit. Different levels (e.g. elementary, secondary, higher education) seldom coordinate the learning pathways they construct for learners. Thus non-cooperation among curriculum areas at the SEA is not uncommon, especially when they may compete for the same budget dollar. Educational media and technology, though not comparable curriculum content areas, have also been affected by the history of fragmentation. Technology professionals have not been included in curriculum decisions, and many decisions have been seen as curriculum or technology rather than curriculum through (or because of) technology.

This situation has changed in recent years, thanks to a great extent to the Federal government. Title II (Basic Skills Improvement) of PL 95-561 has had a major influence on reorganization of the three communication and computational skills areas at the state level. This Federal commitment to a coordinated approach for improving basic skills teaching can be continued and reinforced through this assistance effort. Moreover, this contract can bring a new member to the team to enhance further the state's coordinated basic skills effort: the educational technology professional.

Decisions to Use Technology

A number of factors influence what otherwise might be simple purchase and application decisions.

An analysis of how technology has been applied in human service programs, conducted by Applied Management Sciences for the Office of the Secretary, DHEW,[1/] noted that the decision to use technology is affected by several conditions. First is immediacy of need. In matters of health or safety, immediate results are often necessary. Similarly, technology can be justified in instructional situations outside the school (such as in industrial or military training) where it "pays" to achieve outcomes in the shortest possible time. In school, on the other hand, students usually complete terms, semesters, and years on a pre-established schedule, regardless of when specific learning "results" are achieved.

1/ Rhodes, L.; Report on Workshop on Use of Telecommunications for HEW Services, Applied Management Sciences, 1979.

Technology adoption is affected also by the number of realistic, available alternatives, each of which has certain strengths, weaknesses and consequences. The alternative chosen is often related to the consequences that come with it rather than the unique characteristics of the alternative itself.

Third, technology can make new outcomes possible[2/]. Advances in technology usually make it possible to achieve old objectives more efficiently and, if desired, to reach goals not possible before. Because the "old" goals and outcomes are firmly established as "givens," educators often overlook the potential of technology to achieve what they believed to be the "impossible dreams."

Another factor affecting the adoption of available technologies is costs, especially for technologies requiring widespread application to get economies of scale. These often require some form of cooperative planning and implementation among schools within an LEA and many times among LEAs. This form of collaboration is perceived as time-consuming and not easily maintained over long periods of time.

A fifth factor relates to the rapid rate of change in technology. The explosion of inventiveness that occurs until a market develops frequently produces noncompatible equipment (e.g. Beta, VHS video recorders) and makes it a risky proposition for a conscientious decision maker to spend public funds for equipment that may be outdated by more powerful or less expensive variations within a year or two. This factor also hampers attempts to share or develop software cooperatively, thus increasing the operating cost for each use.

Another set of "factors," some of which are symptoms of the above, relate to the structure of public education. These include:

2/ This has been termed the "elevator phenomenon." When elevators were first invented they were put into three and four-story buildings. In these instances there was always a practical alternative available--the stairs. But the elevator made a new outcome--the skyscraper--possible and once these became standard, stairs (except for emergency use) were no longer a practical option. More immediate examples of this phenomenon in our own experiences are the telephone and the office copier. Each made it possible to operate organizations in ways that soon become standard. Today telephones and copying machines are basic "have-to-have" tools, not "nice-to-have" frills, and many organizations are currently undergoing this experience once more with word-processing and other microcomputer technologies.

- decentralization and departmentalization of LEAs/schools, which results in fragmented decision making and lack of systems planning;
- personnel management policies and bargaining agreements, which seldom include incentives for staff based on results and limit the hiring (or retention) of staff with the skills and expertise to use technology effectively;
- state accreditation on the basis of impacts (e.g., ratios) and subsequent funding formulae, which inhibit the funding of technology solutions;
- purchasing and budgeting conventions and practices.

In summary, if the assistance and materials provided by this contract are to be immediately useful and supportive of state and local needs, the contractor must understand and have direct experience working with state and local practitioners and, in particular, with technology applications and basic skills.

4. Technical Assistance for Capacity Building. Technical assistance is a term applied to a variety of strategies for providing resources to LEAs and SEAs. The direct experiences of the three members of this consortium as deliverers and receivers of assistance is our basis for defining technical assistance as "any resource provided by an outside agent to help an organization and its personnel accomplish their goals."

We know, however, that when technical assistance is provided as part of a Federal program several conditions can limit its effectiveness:

- Project length--by the time the local agency is ready to ask for help the project is over or has been discontinued with no provision for continuation of services.
- Assumption of needs--information and materials are prepared to meet needs as perceived by "others."
- Identification resources--frequently the clients for the assistance also have access to the resource most wanted by others--practical experience. Many TA systems provide local clients with access to experts, but not to each other.
- Scheduling of assistance to meet the service provider's needs--technical assistance is pre-scheduled and if the local agency does not want to lose the resource it has to accept it regardless of whether or not it is ready for it.

One result of situations like these is that LEAs and SEAs lose their trust in the assistance system and stop seeking help after the first try. To avoid this situation the technical assistance system developed to disseminate and provide the ongoing information services on this contract must:

a. have the capacity to be responsive to differing needs at differing times; and

b. use strategies that decrease dependency on the Federal contractor; build the capacity of the state and local agencies, and link them to peer agencies for continuing exchange and mutual support.

This concept of assistance has several implications for the desired outcomes of this contract. It requires that the services offered be related to the needs and wants felt by participating States. The curriculum and information services need to be perceived and planned as interrelated parts of a coordinated effort. They cannot be fragmented or one-shot endeavors. Finally, the information services need to be planned and implemented in a manner that will facilitate their continuance after the two-year contract period. Our strategies for accomplishing these objectives are presented in the General Approach section of Chapter 2.

Experience and Capabilities

To fulfill the government's purposes in light of the conditions discussed above, the Association for Educational Communications and Technology (AECT) has formed a working consortium with:

-- the Maryland Instructional Television (MITV) division of the Maryland State Department of Education in association with the Maryland Center for Public Broadcasting and the National University Consortium;

-- Applied Management Sciences (AMS), a nationally-known research, communications, and educational support organization.

What is most significant about this functional partnership is the creation of a base of complementary knowledge and experience in both the content of this contract--the teaching of basic skills and the application of technology to it, and also its processes--the production of national audio, video and audio-interactive teleconferences; the provision of capacity-building technical assistance; and the teaching about technology using technology.

The consortium members' experience and capabilities are addressed in more detail in a later section of the proposal, but we note here several key elements of organizational and staff experience that directly relate to the major tasks of this contract.

AECT is the professional association for people with a concern for technology and the experience of putting technology to work in instructional problem solving. Its members already are working, at all education levels, to provide instructional design and development of curricula, as well as facilitative support, for the classroom. On state, regional, national, and international levels, AECT's cooperative relationships with other

organizations with common interests serve as an established network for soliciting assistance and disseminating information.

Exhibit 1.1 points to the association's long history of noteworthy endeavors in promulgating educational technology.

AECT's extensive experience in educational technology and its organizational liaisons situate it ideally for this project. AECT has the knowledge of technologies and methodologies central to the project, the organization to support its dissemination, and the people to serve as resources for its implementation.

Maryland Instructional Television brings to this effort direct experience in national teleconferences and in the production of basic skills curriculum materials for students and teachers. Its association and co-location with the Maryland Center for Public Broadcasting (MCPB) facilitate access both to PBS distribution systems and to the understanding of the problems of developing credit procedures amomg diverse institutions of higher education that reside in The National University Consortium. The placement of MITV within the State Education Agency provides additional sensitivity to the complex relationships necessary for the development of curriculum and technology partnerships at the state level. The Maryland Center for Public Broadcasting has been involved in teleconferencing and other telecommunications projects since 1976. Beginning with experimental two-way interconnects, MCPB has expanded its teleconferencing activities to the national level. One of the most recent was a two-hour teleconference for the National University Consortium featuring panelists from the University of Maryland and the Maryland Center for Public Broadcasting and funded through a Carnegie Corporation grant. The program simultaneously used two satellites (Westar I and Westar III) and intercut live segments from public television stations in Portland, Oregon, and University Park, Pennsylvania, as well as Owings Mills, Maryland. Viewers questioned the panelists during the second part of the program using direct telephone lines. Other teleconferences and clients served by the center are shown in Exhibit 1.2.

MITV is presently conducting a statewide school utilization survey modeled after Peter Dirr's 1977 CPB study.

Applied Management Sciences and its staff bring to this partnership their understanding and skills in the design and provision of technical assistance, school and state educational management procedures, technology applications in human services, and program evaluation.

EXHIBIT 1.1: SUMMARY OF AECT'S EXPERIENCE

1. AECT has pioneered in the educational use of large-scale media. It was the first national association to use closed-circuit television to broadcast general sessions at its national conventions. It has experimented more recently with nationwide live teleconferencing: in cooperation with the Appalachian Community Satellite Network, it telecast a 1980 convention session, "Videodiscs in Education," with telephone-interactive followup questions and answers.

2. AECT has long been active in investigating educational uses of computers. In the early 1960s, the association (then the Department of Audiovisual Instruction of the National Education Association) published two volumes on Teaching Machines and Programmed Learning that are seminal resources antedating and strongly influencing the computer-assisted instruction movement. In 1972 AECT published (under an agreement with the U.S. Department of Health, Education, and Welfare) an early look at instructional uses of computers in classrooms, Computer-Assisted Instruction: A Selected Bibliography. It currently has a Microcomputer Task Force, and last year published the monograph, Guide to Microcomputers.

3. AECT has worked to collect and disseminate information about research and about practical applications of instructional technology. It has had a close working relationship with the ERIC Clearinghouse on Information Resources since the clearinghouse was founded; AECT Executive Director Howard Hitchens is chairman of the clearinghouse's Advisory Board.

4. AECT has a diversified publications program of periodicals, research reports, and monographs, as well as filmstrips and slide/tape packets. The production and marketing of these materials attest further to the association's continuing effort to expand the knowledge about and use of educational technology. This publications rogram provides AECT with continuing state-of-the-art information on new technology applications, which will contribute significantly to several aspects of the project.

5. AECT has practical experience in working with a large number of autonomous organizations to attain common goals. For example, in the mid-1970s, under contract from the U.S. Department of Health, Education, and Welfare, the association developed a handbook of terminology, definitions, and units of measure in educational technology. The handbook--for use by the National Center for Education Statistics in compiling state reports on technology capability and use--was published as A Handbook of Standard Terminology and a Guide for Recording and Reporting Information about Educational Technology, Number X of the State Educational Records and Reports Series. Thus, AECT already has relationships with many of the organizations that contributed to that project--notably the Council of Chief State School Officers with its Committee for Evaluation and Information Systems, the American Association of School Administrators, the Association for Educational Data Systems, and the Corporation for Public Broadcasting.

EXHIBIT 1.2: MITV TELECONFERENCE EXPERIENCE

Organization(s)	Topic(s)
University of Maryland/ Ohio Northern University	Schools of Law Moot Court Competition
Institute for Emergency Medical Services American Trauma Society	Emergency Medical Teleconference
Health Sciences Communications Association	John Hopkins Surgical Demonstrations
Federal Interagency Committee/Shock Trauma Center	Emergency Medical Communications
National Education Association/American Library Association	Copyright Law
Institute for Emergency Medical Services Army Burn Center/ Veterans Hospital	Airport Catastrophes
Mayors' Conference	Intercity Satellite Cabinet Meeting
Maryland State Department of Education/State Board of Education	School DIALogue Education Issues & Citizens' Concerns
University of Maryland/ Maryland Center for Public Broadcasting and PBS licensees	A National College of the Air

TABLE OF CONTENTS

Chapter		Page
1	Introduction	1.1
2	Procedural Plan	2.1
	Task A. Design Component	2.8
	Task A.1: Meet With the Project Officer and Other Members of the Division of Education Technology	2.9
	Task A.2: Establish and Convene an Advisory Board . . .	2.10
	Task A.3: Plan and Conduct Meeting of DET Contractors (Optional Task)	2.13
	Task A.4: Obtain State Agreements	2.15
	Task A.5: Develop State Participation Process	2.17
	Task A.6: Develop Objectives and Criteria for the Dissemination Program	2.22
	Task A.7: Identify, Review, and Select Available Materials	2.24
	Task A.8: Conduct Public Awareness Activities	2.26
	Task B. Training Material Development and Dissemination . .	2.27
	Task B.1: Organize and Conduct Design Team Meetings . .	2.27
	Task B.2: Schedule, Produce, and Present Teleconferences	2.30
	Task B.3: Develop Supplemental Training Materials . . .	2.39
	Task C. Information Services	2.44
	Task C.1: Create an Information Bank in the Use of Technology for Teaching Basic Skills	2.45
	Task C.2: Implement and Maintain Toll-Free Telephone Lines	2.47
	Task C.3: Implement and Support an Electronic Mailbox System	2.48

TABLE OF CONTENTS (Cont.)

Chapter		Page
	Task C.4: Design and Maintain a Microcomputer Software Exchange	2.49
	Task C.5: Develop and Maintain Regional Pools of Experts	2.51
	Task C.6: Develop Supplemental Materials for the Information Services Phase	2.52
	Task D. Evaluation	2.54
	Task D.1: Plan and Implement State Needs Assessment/ Planning Process	2.55
	Task D.2: Design and Conduct Feedback on the Teleconferences	2.57
	Task D.3: Evaluation of the Toll-Free Telephone Line .	2.59
	Task D.4: Document the Utilization of the Software Exchange	2.60
	Task D.5: Document the Utilization of the Electronic Mailbox	2.61
3	Management Plan and Schedule	3.1
	3.1: Project Organization, Roles, and Responsibilities	3.1
	3.2: Management and Coordination of the Subcontractors	3.3
	3.3: Management of and Coordination with the Advisory Board	3.4
	3.4: Communication and Coordinatnon with DET	3.5
	3.5: General Management and Quality Control Methods . .	3.5
	3.6: Scheduling and Deliverables	3.6
4	Personnel Qualifications	4.1
5	Organizational Experience	5.1
	APPENDIX A PROJECT STAFF RESUMES	
	APPENDIX B PROJECT ABSTRACTS	

TABLE OF CONTENTS (Cont.)

Chapter Page

APPENDIX C ADVISORY BOARD LETTERS OF COMMITMENT AND RESUMES

APPENDIX D SAMPLE TREATMENT

APPENDIX E SAMPLE AECT REGISTRY OF CONTINUING EDUCATION FORM

APPENDIX F SAMPLE MITV TALENT AND RELEASE FORMS

LIST OF EXHIBITS

Exhibit	
1.1	SUMMARY OF AECT'S EXPERIENCE
1.2	MITV TELECONFERENCE EXPERIENCE
2.1	SKILL AREAS TO BE REPRESENTED BY THE ADVISORY PANEL
2.2	PROJECT AND PARTICIPATING STATES RESPONSIBILITIES
2.3	LIST OF ASSOCIATIONS TO BE CONTACTED FOR PUBLIC AWARENESS CAMPAIGN
2.4	POSSIBLE TELECONFERENCE THEMES
2.5	BASELINE INFORMATION REQUIREMENTS
3.1	PROJECT ORGANIZATION
3.2	PERSON HOURS BY FUNCTION AND TASK
3.3	TASK AND DELIVERABLE SCHEDULE
4.1	PERSONNEL QUALIFICATIONS MATRIX
5.1	MATRIX OF RELEVANT ORGANIZATION EXPERIENCE
5.2	AECT'S ORGANIZATIONAL SERVICE DELIVERY NETWORKS

December 15, 1981

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DRAFT Withrow 4/7/82

Drs. Howard Hitchens and Henry Ingle will make a presentation to Dr. Senese on Friday April 9th concerning their PROPOSED program development for the SECRETARY'S TELECONFERENCE.

Preconference training of site directors:

This will take place on May 10 to 13 at the Maryland Center for Continuing Education. The Department will have an opportunity to have input and feedback from this meeting. Part of the meeting will be devoted to the process of conducting teleconferences and the preparation needed for local program activities.

Conference Design:

Preconference recording Studios Site visitation to schools by either or both the Secretary and Assistant Secretary

Preparation of Written Materials for handouts

Editing of existing taped materials, e.g. tapes from the Educational Forum, existing taped materials from other sources.

Possible interviews with other experts in the field including private sector personnel.

Panel response to the Secretary: Dialogue with representatives from CSSO, AASA, Governors Conference, Teacher's organizations School Board Associations etc.

Post Audio regional conferences on the second day:

It will be possible for the Secretary and or other Department personnel to participate from their offices in any or all of these second day programs. They will form a reaction to the previous days work to the issues in technology as they see it.

Local Site Programs:

In addition to the 90 minute teleconference each site will have their own local program that includes experts and relevant personnel involved in the development of their state plans for technology. It is anticipated that many more people than those directly involved with the state plans for technology will be involved in the 90 minute teleconference. It is also assumed that other groups both in local and regional groups will participate in the 90 minute conference.

Department and OECD activities:

The Capitol Children's Museum has indicated a willingness to host a Washington down link. They can accomodate up to 300 people. A special program designed for Department and OECD personnel will be developed for the Washington program.

MEMORANDUM

UNITED STATES DEPARTMENT OF EDUCATION
WASHINGTON, D.C. 20202

TO : Assistant Secretary, OERI

DATE: APR 6 1982

FROM : Acting Deputy Assistant Secretary, OLLT

SUBJECT: National Technology Conference Weekly Report

Summary of Activities

- Meeting of the Technology Planning Group, March 29, 1982, 2:00 p.m., to review conference content and format. Memorandum of March 30th to Assistant Secretary, OERI summarized the revised plans.

- Meeting with Dr. Robert Billings, March 29, 1982, 3:30 p.m., to discuss involvement of the regional offices in the national teleconference. It was agreed that the Regional Office dissemination directors would attend the May 10-13 pre-teleconference training activities at the University of Maryland.

- Dr. Frank Withrow met with Richard Werksman, General Counsel's office - to review the AECT Contract Amendment. Mr. Werksman will attend the meeting of the Non-Competitive Review Board with us. (Upcoming Activities)

- Meeting with AECT, Project BEST staff Friday, April 2, 1982 to prepare a proposal for the teleconference based on recommendations from the March 29th meeting.

- Arrangements are being made to have the Capitol Children's Museum serve as the Washington Site of the National Technology Teleconference for Department of Education invited quests and international visitors from the OECD.

- Arrangements are also underway to provide a downlink of the National Teleconference to the annual meeting of the AASA (American Association of School Administrators) at the Crystal City Hyatt Regency.

Upcoming Activities

- Thursday, April 13, 1982, 1:00 p.m., ROB#3-Room 5680. Meeting of the Non-Competitive Review Board to approve the proposed ammendment to the AECT Project BEST contract for the National Technology Conference.

- Friday, April 9, 1982, 2:00 p.m., Dr. Senese's office. AECT, Project BEST, proposal for National Technology Conference/Teleconference, to be presented by Dr. Howard Hitchens and Dr. Henry Ingle, accompanied by Dr. Malcolm Davis and Dr. Frank Withrow.

Malcolm D. Davis