

DOMESTIC POLICY COUNCIL

**ARCHIVE FILES FOR MICHAEL T. SCHMIDT
BOX 1 OF 13**

Issue: Technology Learning Challenge Program
Contents: Memos, notes from meetings

Issue: Education, Training, and Reemployment Working Group
Contents: Background Papers on Workforce Development

Issue: Youth Programs in 1994 Crime Bill
Contents: Background papers and notes on programs

7339
ENCLOSURES FILED OVERSIZE ATTACHMENTS
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NARA - 5181

DOD Seminar - Planning Process

PHOTOCOPY
PRESERVATION

THE ETR SEMINAR ON IMPROVING THE PRODUCTIVITY OF LEARNING

The Education, Training, and Reemployment (ETR) Policy Working Group's Seminar on Improving the Productivity of Learning will be an action-oriented, hands-on session that will explore the types of learning technologies developed by the Department of Defense that can be transferred to the civilian education and training sector. The intent is to begin to look together at programs and strategies for accelerating the development and adoption of technologies that can achieve a major leap in the productivity and fun of learning.

Mission Statement

The information technology that has been used so successfully to improve productivity throughout the economy has the potential to create a revolution in learning both by increasing what can be learned in a given amount of time and by increasing the time spent learning. Technology can make time spent in learning more productive by making learning more like an individual tutorial than a mass-experience, and by creating apprentice-like experiences where individuals and teams are free to explore, play, and make mistakes. Technology can increase the amount of time spent in learning throughout a person's career by making compelling learning environments accessible in homes, offices, schools, and libraries. For young people, technology, if used properly, has the potential to revolutionize the way in which children and adolescents spend their out-of-school time by allowing round-the-clock access to interactive learning software (games, information, instructional videos, etc.). This same technology will give adults the flexibility of learning whenever and wherever they choose, whether over a lunch-break or late at night after the children are asleep. Perhaps most importantly, by linking homes, schools, and offices together, technology can reestablish links between parents and schools and between learning and the practical work needed by a community.

The purpose of this seminar is to agree on a vision of what can be accomplished in this critical area that the President can bring to the American people, and a concept for how he might create a sense of national excitement and purpose around this vision. This will require us to launch work on a series of practical programs and policies that can ensure that the opportunity is captured. Expected outcomes will include, but are not limited to, the following:

- . Ensuring that emerging technologies are used appropriately to meet the nation's commitments in education and workforce policy (Goals 2000, School-to-Work, the Reemployment Act, Income Contingent Loans, etc.);
- . Ensuring the coordination of defense and civilian research on development aimed at using learning technologies for learning productivity;
- . Ensuring universal access to the information superhighway that can connect homes, schools, and workplaces throughout the country to learning resources;

Ensuring that education and training services aimed at military and civilian federal employees use the most efficient methods possible.

It is difficult to imagine an opportunity more critical to America's future. Efficient education and training is essential for a competitive economy, and it is critical for individuals to enjoy the benefits and avoid the perils of a prosperous, rapidly-changing economy.

The Department of Defense and Learning Technology

In the past half century, the Department of Defense (DoD) has invested substantial amounts of money, energy, time, and thought to improve the skills and readiness of the armed forces. This investment has involved both the training process and its applications to learners of different backgrounds and ability levels. Technology has been key to this process, and is becoming even more essential. DoD has thereby learned a great deal in this area about what works and what doesn't.

The investments that DoD has made in this area are many, and cover a number of areas, including:

- . Active learning from a distance through interactive networks;
- . Portable learning that is available to personnel in classrooms, workplaces, and homes;
- . Simulation technology to replace expensive, environmentally harmful, and/or dangerous learning experiences;
- . Embedded instructional sequences in operational equipment.

These investments have also helped DoD better understand what it does well in the areas of education and training. Key areas here include:

- . Learning by doing;
- . Team training/collaborative problem solving;
- . Individualization and feedback with assessment built in;
- . Career-long involvement -- truly lifelong learning

This DoD investment can now be leveraged to enhance the productivity of learning in other sectors of the economy. The seminar will concentrate on the types of learning technologies developed by DoD and their applications to civilian education and training. Other issues that have arisen -- such as lifelong learning in DoD, post-military employment history and military training contributions to the workforce, and employment opportunities for minorities and women -- could be presented as background material in this seminar.

Draft Agenda

A draft outline for the seminar has emerged based on meetings between the White House and key agencies participating in the event:

I. Introduction and Welcome -- DoD

II. Overview -- DoL

Secretary Reich will give an overview of key workforce initiatives and opportunities for applying new technologies to improve learning productivity.

III. Overview -- DoEd

Secretary Riley will give an overview of technology implications and issues involved in implementing Goals 2000.

IV. Overview -- DoC

The Department of Commerce will give an overview of business development issues in the education and training technology industry, and discuss ways in which, through regulations and incentives, the National Information Infrastructure (NII) could be used to provide universal access to businesses, schools, and homes.

V. Improving the Productivity of Learning -- DoD

DoD will discuss their experience with leveraging technology for learning.

VI. Interactive Learning Technology Demonstrations -- DoD

VII. Action Plan For Improving Learning Productivity -- TBD

Three interagency "tiger teams" have been established to develop plans of action in a number of related areas:

Procurement and Programmatic Opportunities. This team will identify ways to use the federal procurement process to test and promote learning technologies and increase the productivity of Federal training programs. The Federal government spends huge sums on training. How might the types of technologies used by DoD be used to spend this money more effectively? The team will also identify programmatic opportunities (ie -- Goals 2000, School-to-Work, the Reemployment Act, Job Corps) to use DoD learning technologies to:

1) increase the efficiency of the programs, and; 2) speed the development and disbursement of this technology by using federal program funds to leverage the utilization of learning technologies.

Research and Development in Education and Training. This team will come up with a plan to focus, coordinate, and plan federal R&D spending in education and training. This effort will include defining and assessing current federal R&D efforts, and providing policy guidance about the federal investment in R&D to enhance teaching, learning, and training. The group will also look at ways to promote the widespread use of technology to enhance lifelong learning by coordinating federal efforts to support state and local use of advanced technologies, foster collaboration among federal agencies, coordinate the identification, promotion, and expanded demonstration of exemplary practices, and encourage the formation of public/private research and development consortia to develop new learning technologies.

The NII and Lifelong Learning. The National Information Infrastructure (NII) promises every business, hospital, home, library, and school in the nation access to a wide range of communications technologies, including voice, data, full-motion video, and multimedia applications. The impact of these capabilities on learning -- for children, higher education students, and adult learners could be substantial. If developed and implemented properly, the NII could be an ideal vehicle for improving the productivity of learning throughout America. This group will examine ways to ensure that the implementation and development of the NII will provide incentives for the continued development and disbursement of learning technology and ensure universal access.

VIII Creating a Vision for the Future

To conclude the seminar, a discussion will be held on the creation of a message/challenge that the President could bring to the nation in a major public event. The message should probably include the following:

- a reiteration of the Administration's commitment to ensuring that all Americans can benefit where growth and prosperity require constant change, and our competitiveness hinges on innovation and lifelong learning;
- an explanation of how new technologies can support this mission by doing things no one thought possible;
- a statement about how businesses, schools, and communities can work together to meet critical social objectives while creating large and

profitable business and employment opportunities in an area where America currently has a clear, worldwide competitive advantage;

- an identification of specific programs and new initiatives that could be announced/introduced in a national event built around the vision -- this might include a "new communities" award which could be given to one or more teams of local governments, local businesses, schools, information technology providers, community colleges, and other groups which propose to develop and introduce learning technologies in ways that can demonstrate the potentials described in the vision; and a "new curriculum" award for major innovations in the use of technology aimed at achieving the Goals 2000 missions.

6-1-99

OVERVIEW OF THE LEARNING PRODUCTIVITY SEMINAR

PRESENTED BY LOU FINCH

RM 3E752 FROM 11:00 TO 12:00

5 minutes

• INTRODUCTION AND WELCOME - DoD

- include objectives, mission

• EDUCATION GOALS - DoED

• WORKFORCE INITIATIVES - DoL

• BUSINESS DEVELOPMENT OPPORTUNITIES - DoC

• DOD EXPERIENCE WITH LEARNING TECHNOLOGY

• SCOPE OF DOD TRAINING

• FIVE TECHNOLOGY BASKETS FOR LEARNING PRODUCTIVITY:

• HIGHLY INTERACTIVE SELF-PACED LEARNING

- 2 std dev shift

• TEAM TRAINING

- DIS

• WIDE ACCESS THROUGH DISTANCE LEARNING

still struggling
ARPA - Asynchronous
Learning
Nat Guard

• ENTERTAINING AND MOTIVATIONAL

• AIDS FASTER AND EASIER LEARNING

• Labor Market Technologies

• DOD LEARNING TECHNOLOGY DEMONSTRATIONS

• PROPOSED VISION

Why is gap out there, what can we do? How?
where do we do from here

• ACTION PLAN

• PROGRESS OF TIGER TEAMS (?)

- Reporting date

end result: agreement to goals
sign-off on working groups/Tiger Teams

Sat 1st of July?

POD Seminar - IDA Sim G-2-14

hands-on, "entertainment value"

- Julia Cockcroft - IDA - Project Coordinator

Date: ^{now} - Looking at 7 July

Agenda

↳ Lou & Anita ^{meeting} agreeing on roles in seminar

- Tank team Training
- Maintenance Sim
- Virtual Reality

DIS → Advanced Distributed Simulation

- Effort to limit Group
- No more than 20 can fit in main room
- need overflow room - unrealistic

↳ [⊗] Suggest mty take place in Bond Room - has side room.

↳ In ADS ~~Sim~~ Simulation -- Move to stretch Room

- Tech overview
- Transferability
- Do wrap up

→ Last Demo -- Wrap up session in Secure Room --

→ From Stealth Room to

→ What have you learned?

→ how does it apply to civilian sector

→ how will this improve learning productivity

CTTA - Teachers Aid

California - Wired magazine - Business Competition

PSS - Performance Support system

↳ Job Aid

Working title: TRAINING & TECHNOLOGY: A COMBINATION THAT WORKS!

1. Since its inception, America's military has had a single mission: remaining trained and ready to fight and win our nation's wars.

2. It has led the world in developing tactics, technology, and training to accomplish that mission. And in the process, it's pioneered a combination of training and technology...

VIDEO OF ITEMS DEVELOPED BY THE MILITARY, AND NOW IN COMMERCIAL USE.

3. ...that works -- both on the battlefield and off.

"TIMELINE" GRAPHIC BEGINS, COMBINING WORDS-ON-SCREEN WITH VIDEO ELEMENTS.

TIMELINE GRAPHIC/VIDEO: 1929 -- FIRST WIDELY-ACCEPTED FLIGHT SIMULATOR/SINGER BLUE BOX.

4. From training post-World War I pilots to serve a new civilian market...

TIMELINE GRAPHIC/VIDEO: 1940s -- LEARNING TECHNOLOGIES, INCLUDING EDUCATIONAL TELEVISION.

5. ...to retooling the workforce after World War II...

TIMELINE GRAPHIC/VIDEO: 1960s -- FIRST COMPUTERIZED FLIGHT SIMULATOR.

6. ...to training a new generation of commercial pilots...

TIMELINE GRAPHIC/VIDEO: 1970s & 1980s -- STANDARD PROCEDURES FOR INSTRUCTIONAL SYSTEMS DEVELOPMENT (ISD), WHICH LED TO COMPUTER-BASED INSTRUCTION, MAKING POSSIBLE INTERACTIVE, INDIVIDUALIZED TRAINING.

7. ...to providing corporate employees and students with relevant ways to learn...

TIMELINE GRAPHIC/VIDEO: 1990s -- DISTRIBUTED SIMULATION AND TELETRAINING.

8. ...to linking Americans into the national information infrastructure leading our economy into the Information Age.

VIDEO OF DISTANCE LEARNING, DIS, TELETRAINING.

9. Now, thousands of people can learn together, in common synthetic environments, from locations around the nation and the world. Interactive multimedia programs now beam down from

satellites to homes and classrooms, training and educating Americans in compelling, dynamic new ways.

10. Training and technology. Over 40 years, the Department of Defense has proven it's a combination that works!

11. DoD's effective, performance-based training systems plug into the digital and telecommunications technologies becoming more accessible and affordable every day.

12. These are the tools for the mission at home, especially in this era of diminishing dollars and increasing world competition: Training that works, for Americans of all ages, in schools, homes, and workplaces, for people who can gather in one room, and people separated by many miles.

13. DoD training techniques and technologies run on portable courseware and standardized platforms available from both military and civilian sources. And they can be adapted to teach almost any subject.

GRAPHIC LIST OF COURSES -- COULD SCROLL IN SMALL LETTERS LAYERED OVER LIVE VIDEO OF PEOPLE IN CLASSROOMS, IN THE FIELD, AND ON-THE-JOB.

14. The Department of Defense itself offers 20,000 courses each year...to over a million men and women...in combat-related jobs, but also in professions just like those on the front lines of the civilian workforce.

VIDEO OF PEOPLE IN THE FOLLOWING JOBS.

15. DoD trains doctors, nurses, emergency medical technicians, firefighters, truckdrivers, linguists, teachers, maintenance workers, pilots, electricians, computer technicians, managers...and leaders.

GRAPHIC: THE TRAINING SYSTEMS.

16. But as adaptable as it is, DoD training is also unique in many ways.

17. Each DoD skill-training system includes pre-set tasks, conditions, and standards for training to meet specific objectives. And assessment tools are built in, so the results are measurable.

(PLEASE NOTE: THE CONCEPT THROUGH THIS PORTION OF THE VIDEO IS TO 1) SHOW FOOTAGE OF THE "DEMO" BEING DESCRIBED, 2) USING WORDS-ON-SCREEN, SHOW THE NAME OF THE DEMO, AND 3) USE A GRAPHIC DEVICE TO GIVE THE DEMO'S "SPECS" -- FOR INSTANCE, COST, PLATFORM, BASIC STRENGTHS. THESE MIGHT "TYPE" ONTO THE SCREEN. I NEED HELP WITH THE SPECIFICS ON THESE.)

CAMIS (COMPUTER ASSISTED MEDICAL INTERACTIVE VIDEO SYSTEM)
MEDIQUIZ TRAINER. SPECS: INTERACTIVE VIDEODISC

OR

ELECTRO ADVENTURE. SPECS:

18. DoD training is active and stimulating -- and that keeps students motivated. Interactive videodiscs, computer-based instruction...

VIDEO OF 2-D SIMULATION TRAINERS. SPECS: FULLY PORTABLE.

19. ...and two- and three-D simulators, bring students into the action. It's hands-on training.

VIDEO OF "BOSNIA" TRAINER. SPECS:

20. Sometimes, it's almost like being there. Learners can travel to inaccessible places, and make real-time decisions under stress. They can rehearse dangerous missions in the synthetic world before attempting them in real life.

VIDEO OF STUDENTS EXCITEDLY PARTICIPATING IN TRAINING -- TANK CREW? GRAPHIC ELEMENT OF TRANSPARENT LAYER WITH WORDS ON SCREEN LISTING STATS -- SIMILAR TO LIST OF COURSES.

21. Students like learning-by-doing, and that translates to documented successes...DoD studies show a 14 percent increase in student achievement through computer-based training; 19 percent through interactive videodisc instruction. And ICW [what does this stand for -- interactive courseware?] can reduce training time by 30 percent.

VIDEO OF PERFORMANCE SUPPORT SYSTEM. SPECS: ANY MANUAL CAN BE DIGITIZED.

22. There are other advantages: DoD training can be individualized -- so students can learn at their own pace. They can vary sequencing and presentation methods to suit their learning styles. There's courseware for just-in-time learning...and graphic renderings and live-action video to teach visually-oriented students.

VIDEO OF FMTS (FIREFIGHTER MULTIMEDIA TRAINING SYSTEM) DEMO.
SPECS: TEAM TRAINER.

23. Computers and simulators can be networked and integrated to train teams in skills like collaborative problem solving. Scenarios can build to conditions of life-like stress...but in a safe, reproducible, environmentally-friendly settings.

24. SOUNBITE: People can learn individual and team skills in the same room or across the country. Linked by computers, they

can interact from their homes, libraries, armories, schools, businesses, hospitals, and fire and police stations. They can access digital encyclopedias and databases.

GRAPHIC: THE TECHNOLOGY

VIDEO OF A/V, CD-ROM, NETWORKED SIMULATORS.

25. DoD training systems are designed to run on platforms already in many homes and offices.

VIDEO OF CIITA (COMPUTER IMPROVED INSTRUCTOR'S TRAINING AID) DEMO. SPECS: 486 COMPUTER, \$3,000.

26. Most run on standardized, off-the-shelf equipment that's accessible and relatively inexpensive. Control devices such as keyboards, mice, and trackballs are interchangeable. Menu-driven screens are easy to use. And one system can support portable courseware in thousands of subject areas.

VIDEO OF RECONFIGURABLE SIMULATOR. SPECS: REPROGRAMMABLE IN ?? MINUTES.

27. Simulators are designed to be transportable and interoperable, for networking. Many are reconfigurable to support training in a variety of different tasks.

28. SOUNDBITE: Technology is not a silver bullet, and no single technology is right for all training applications, but combined with effective training systems, it lets our students go farther, faster, before they put their training...to work.

29. The investments that have made possible the finest military force in history are now available to train, educate, and retool the finest workforce in the world. The systems and technologies are proven...ready for a new training mission in a new age.

QUESTIONS

1. Whose speech is "Harnessing Information Technology for Individualized Learning?" Can he provide us with some "what ifs" on technologies and ideas?
2. What does ICW stand for -- interactive courseware?
3. I need specifics on the demos and other computer-based courses and simulators, including footage of them in use and the "specs" for the graphic device. In some cases, I've made assumptions about available items -- am I correct? Where can I get write-ups on the demos?
4. I need suggestions for people to provide soundbites. COL Funk from ARPA (already on tape)?

Message 370 (3396 chars)

Date: 1 Jun 1994 07:54:23 -0500

From: "Dexter Fletcher" <dfletche@ida.org>

Subject: Here it is.

To: "Gary Bridgewater" <gbridge@charm.isi.edu>

Return-Receipt-To: "Dexter Fletcher" <dfletche@ida.org>

Subject:

Time: 7:51 AM

OFFICE MEMO

Here it is.

Date: 6/1/94

From: Johnson, Don (5/31/94)

To: chatelie, Chris Turrell, cturrell, Dexter Fletcher, Ed Fitzsimmons,
Mike Kendall, Parmentier, Mike, Paul Chatelier

Mail*Link(r) SMTP

JONES ON SEMINAR

DIRECTION FROM DR. JONES ON SEMINAR DEMO'S - 31 MAY 1994

Dr. Jones would like a briefing on the proposed demo's this Friday (3 June). Don Johnson will brief her with help from Dexter. She would like to see either a video tape or pictures of the tech programs along with 2-4 slides describing each of them and telling why they're relevant to the seminar. In addition to CAMIS, she suggests DIS (SIMNET), a maintenance repair program, an electronic assistant such as "Viewman", and other "Silver Bullet" programs which we recommend. She also suggests that we consider VR.

Duane Adams (Director of ARPA) also will be putting together a 5 minute video on the future of learning technology. When asked, they said they did not wish to combine that tape with the one we are doing.

We need to contact Bob Reddy regarding the DIS-SIMNET demo and Dick Urban (ARPA) regarding the "Viewman" program. We also need to continue our search for a good maintenance CBT program. It's very important to get those surveys (which Julia designed) completed on each candidate demo by Thursday and have some videos and pictures available as well.

Dexter will be leading the effort to contact individuals and obtain info for the demos. Hopefully we can compare notes daily in preparation for Friday and beyond.

VR/DJ

----- RFC822 Header Follows -----

Received: by macmailgate.ida.org with SMTP; 31 May 1994 15:10:26 -0500

Received: from charm.isi.edu by ida.org (4.1/SMI-4.1)

id AA07679; Tue, 31 May 94 15:04:17 EDT

Received: from de3c980a.fmp.osd.mil (de3c980a.fmp.osd.mil) by charm.isi.edu (5.65c/4.1.1-5)

id <AA10791>; Tue, 31 May 1994 12:02:42 -0700

Received: by de3c980a.fmp.osd.mil (5.57/Ultrix3.0-C)

id AA11061; Tue, 31 May 94 14:58:21 -0400

Received: by smtpgate.fmp.osd.mil with Microsoft Mail

id <2DEBB37E@smtpgate.fmp.osd.mil>; Tue, 31 May 94 15:00:30 PDT

From: "Johnson, Don" <johnsond@smtpgate.fmp.osd.mil>

To: Mike Kendall <kendallm@fmp.fmp.smtpgate.fmp.osd.mil>,

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Col Al Sullivan	DDR&E	x75776		
BILL WEST	USD-DMDC-TREAD	408-8300 2428300		
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Kent Hughes	DoC	202-482-6315	202-482-3610
Tamira Hill	DoED	202-401-3389	202-401-3095
Jack Donahue	DoL	202-219-6331	202-219-6924
Rob Portman	DoL/OAW	202-219-6045	202-219-4315
David Agnew	DoL	202-219-6331	

PROCUREMENT AND PROGRAMMATIC WORKING GROUP

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Denver Lovett	NIST	301-975-3503	
Kent Hughes	DoC	202-482-6315	202-482-3610
Leo Sayavedra		202-482-6315	
Don Mizaur	OPM	703-235-1006	235-1492
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Brian Shea	DoL TTRC	202-219-5600	X 4858
David Agnew	DoL	202-219-6331	
Elaine Cohen		301-443-6193	301-443-8586
Mary Ann Higgins	HHS/ACF	202-401-9294	202-205-5887
Jonathan Low	DoL OAW	202-219-8647	202-219-8762
George Koch	DoL/ETA	202-219-7674	202-219-5455

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OVERVIEW OF LEARNING PRODUCTIVITY SEMINAR

PRESENTED BY LOU FINCH

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- **EDUCATION GOALS - DoED**
- **WORKFORCE INITIATIVES - DoL**
- **BUSINESS DEVELOPMENT OPPORTUNITIES - DoC**
- **DOD EXPERIENCE WITH LEARNING TECHNOLOGY**
- **SCOPE OF DOD TRAINING**
 - **MIL PERSONNEL IMMERSSED IN LIFE-LONG LEARNING**
 - **BENEFITS OF DoD's INVESTMENTS**
 - **INCREASES LEARNING PRODUCTIVITY**
 - **TEAM TRAINING - ORGANIZATIONAL IMPROVEMENT**
 - **WIDE ACCESS- ACROSS SOCIAL-ECONOMIC STRATA**
 - **MOTIVATES THOSE LESS INTERESTED IN LEARNING**
- **DOD LEARNING TECHNOLOGY DEMONSTRATIONS**
 - **FOCUS ON LEARNING PRODUCTIVITY**
 - **FIVE AREAS OF INTEREST:**
 - **HIGHLY INTERACTIVE SELF-PACED LEARNING**
 - **TEAM TRAINING**
 - **WIDE ACCESS THROUGH DISTANCE LEARNING**
 - **ENTERTAINING AND MOTIVATIONAL**
 - **AIDS FASTER AND EASIER LEARNING**
- **PROPOSED VISION & ACTION PLAN**
- **PROGRESS OF TIGER TEAMS**

1) increase the efficiency of the programs, and; 2) speed the development and disbursement of this technology by using federal program funds to leverage the utilization of learning technologies.

Research and Development in Education and Training. This team will come up with a plan to focus, coordinate, and plan federal R&D spending in education and training. This effort will include defining and assessing current federal R&D efforts, and providing policy guidance about the federal investment in R&D to enhance teaching, learning, and training. The group will also look at ways to promote the widespread use of technology to enhance lifelong learning by coordinating federal efforts to support state and local use of advanced technologies, foster collaboration among federal agencies, coordinate the identification, promotion, and expanded demonstration of exemplary practices, and encourage the formation of public/private research and development consortia to develop new learning technologies.

The NII and Lifelong Learning. The National Information Infrastructure (NII) promises every business, hospital, home, library, and school in the nation access to a wide range of communications technologies, including voice, data, full-motion video, and multimedia applications. The impact of these capabilities on learning -- for children, higher education students, and adult learners could be substantial. If developed and implemented properly, the NII could be an ideal vehicle for improving the productivity of learning throughout America. This group will examine ways to ensure that the implementation and development of the NII will provide incentives for the continued development and disbursement of learning technology and ensure universal access.

VIII Creating a Vision for the Future

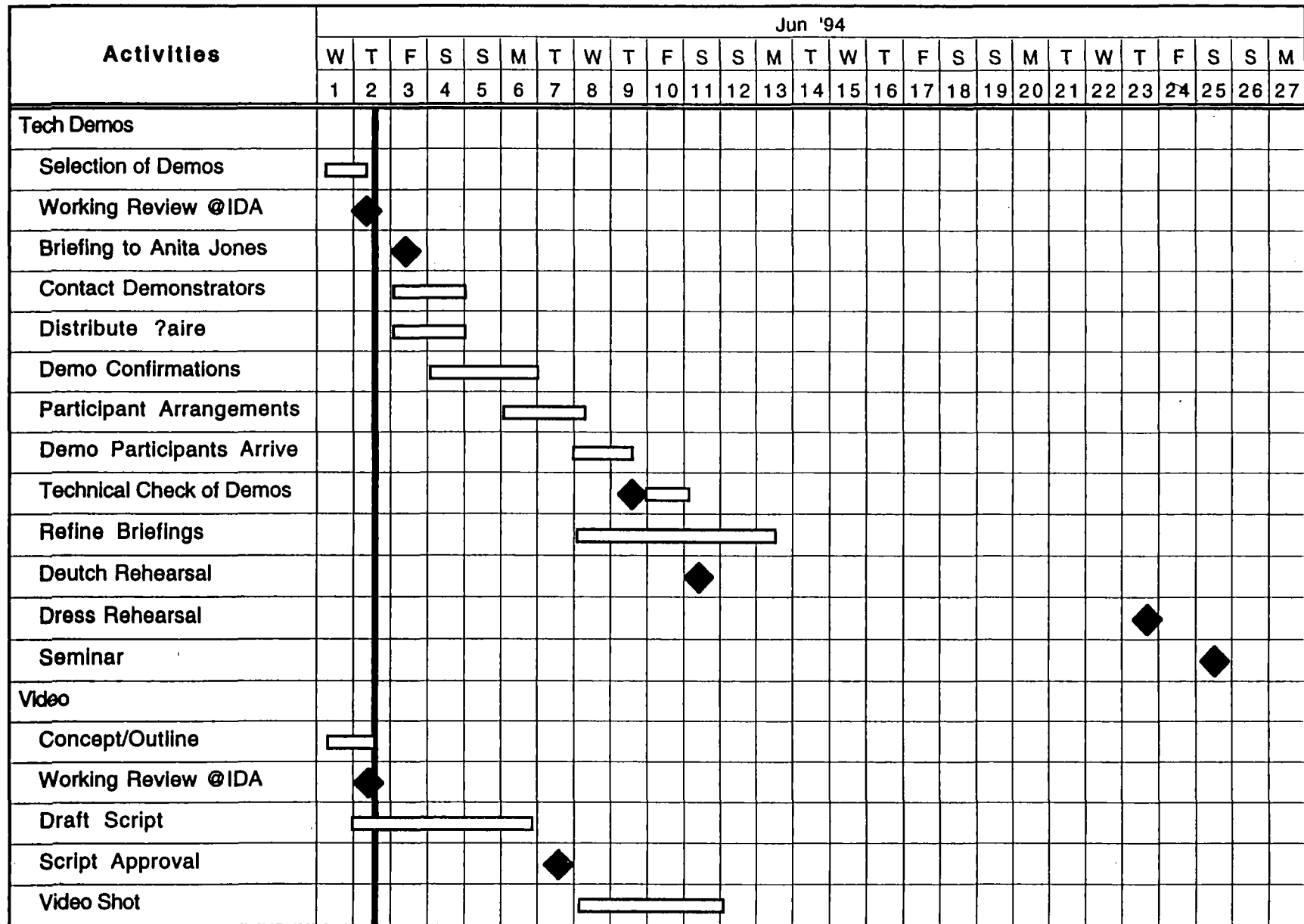
To conclude the seminar, a discussion will be held on the creation of a message/challenge that the President could bring to the nation in a major public event. The message should probably include the following:

- a reiteration of the Administration's commitment to ensuring that all Americans can benefit where growth and prosperity require constant change, and our competitiveness hinges on innovation and lifelong learning;
- an explanation of how new technologies can support this mission by doing things no one thought possible;
- a statement about how businesses, schools, and communities can work together to meet critical social objectives while creating large and

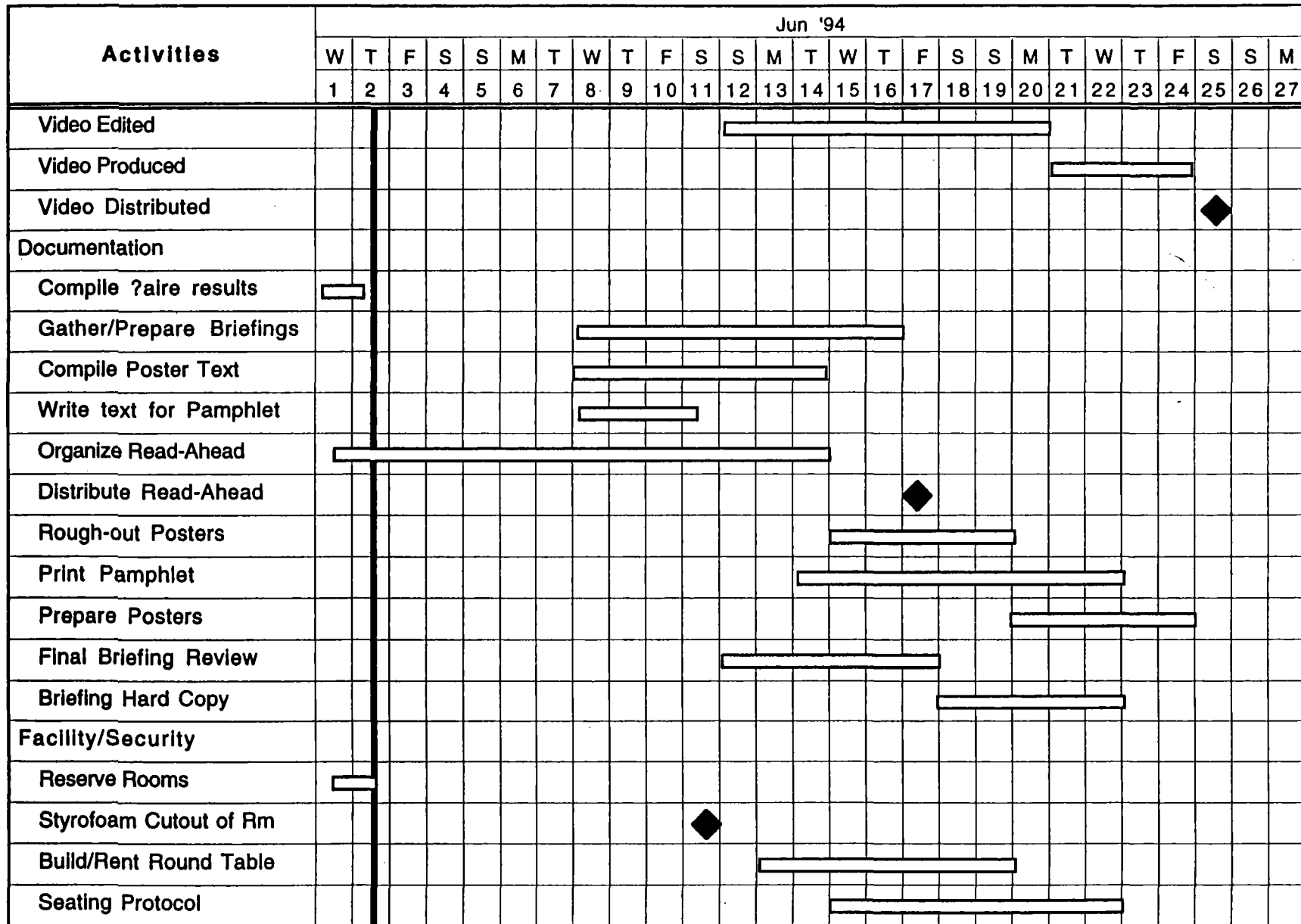
profitable business and employment opportunities in an area where America currently has a clear, worldwide competitive advantage;

- an identification of specific programs and new initiatives that could be announced/introduced in a national event built around the vision -- this might include a "new communities" award which could be given to one or more teams of local governments, local businesses, schools, information technology providers, community colleges, and other groups which propose to develop and introduce learning technologies in ways that can demonstrate the potentials described in the vision; and a "new curriculum" award for major innovations in the use of technology aimed at achieving the Goals 2000 missions.

Cabinet-Level Seminar on Learning Productivity Schedule



Cabinet-Level Seminar on Learning Productivity Schedule



Cabinet-Level Seminar on Learning Productivity Schedule

[illegible]

THE ETR SEMINAR ON IMPROVING THE PRODUCTIVITY OF LEARNING

The Education, Training, and Reemployment (ETR) Policy Working Group's Seminar on Improving the Productivity of Learning will be an action-oriented, hands-on session that will explore the types of learning technologies developed by the Department of Defense that can be transferred to the civilian education and training sector. The intent is to begin to look together at programs and strategies for accelerating the development and adoption of technologies that can achieve a major leap in the productivity and fun of learning.

Mission Statement

The information technology that has been used so successfully to improve productivity throughout the economy has the potential to create a revolution in learning both by increasing what can be learned in a given amount of time and by increasing the time spent learning. Technology can make time spent in learning more productive by making learning more like an individual tutorial than a mass-experience, and by creating apprentice-like experiences where individuals and teams are free to explore, play, and make mistakes. Technology can increase the amount of time spent in learning throughout a person's career by making compelling learning environments accessible in homes, offices, schools, and libraries. For young people, technology, if used properly, has the potential to revolutionize the way in which children and adolescents spend their out-of-school time by allowing round-the-clock access to interactive learning software (games, information, instructional videos, etc.). This same technology will give adults the flexibility of learning whenever and wherever they choose, whether over a lunch-break or late at night after the children are asleep. Perhaps most importantly, by linking homes, schools, and offices together, technology can reestablish links between parents and schools and between learning and the practical work needed by a community.

The purpose of this seminar is to agree on a vision of what can be accomplished in this critical area that the President can bring to the American people, and a concept for how he might create a sense of national excitement and purpose around this vision. This will require us to launch work on a series of practical programs and policies that can ensure that the opportunity is captured. Expected outcomes will include, but are not limited to, the following:

- . Ensuring that emerging technologies are used appropriately to meet the nation's commitments in education and workforce policy (Goals 2000, School-to-Work, the Reemployment Act, Income Contingent Loans, etc.);
- . Ensuring the coordination of defense and civilian research on development aimed at using learning technologies for learning productivity;
- . Ensuring universal access to the information superhighway that can connect homes, schools, and workplaces throughout the country to learning resources;

Ensuring that education and training services aimed at military and civilian federal employees use the most efficient methods possible.

It is difficult to imagine an opportunity more critical to America's future. Efficient education and training is essential for a competitive economy, and it is critical for individuals to enjoy the benefits and avoid the perils of a prosperous, rapidly-changing economy.

The Department of Defense and Learning Technology

In the past half century, the Department of Defense (DoD) has invested substantial amounts of money, energy, time, and thought to improve the skills and readiness of the armed forces. This investment has involved both the training process and its applications to learners of different backgrounds and ability levels. Technology has been key to this process, and is becoming even more essential. DoD has thereby learned a great deal in this area about what works and what doesn't.

The investments that DoD has made in this area are many, and cover a number of areas, including:

- . Active learning from a distance through interactive networks;
- . Portable learning that is available to personnel in classrooms, workplaces, and homes;
- . Simulation technology to replace expensive, environmentally harmful, and/or dangerous learning experiences;
- . Embedded instructional sequences in operational equipment.

These investments have also helped DoD better understand what it does well in the areas of education and training. Key areas here include:

- . Learning by doing;
- . Team training/collaborative problem solving;
- . Individualization and feedback with assessment built in;
- . Career-long involvement -- truly lifelong learning

This DoD investment can now be leveraged to enhance the productivity of learning in other sectors of the economy. The seminar will concentrate on the types of learning technologies developed by DoD and their applications to civilian education and training. Other issues that have arisen -- such as lifelong learning in DoD, post-military employment history and military training contributions to the workforce, and employment opportunities for minorities and women -- could be presented as background material in this seminar.

Draft Agenda

A draft outline for the seminar has emerged based on meetings between the White House and key agencies participating in the event:

I. Introduction and Welcome -- DoD

II. Overview -- DoL

Secretary Reich will give an overview of key workforce initiatives and opportunities for applying new technologies to improve learning productivity.

III. Overview -- DoEd

Secretary Riley will give an overview of technology implications and issues involved in implementing Goals 2000.

IV. Overview -- DoC

The Department of Commerce will give an overview of business development issues in the education and training technology industry, and discuss ways in which, through regulations and incentives, the National Information Infrastructure (NII) could be used to provide universal access to businesses, schools, and homes.

V. Improving the Productivity of Learning -- DoD

DoD will discuss their experience with leveraging technology for learning.

VI. Interactive Learning Technology Demonstrations -- DoD

VII. Action Plan For Improving Learning Productivity -- TBD

Three interagency "tiger teams" have been established to develop plans of action in a number of related areas:

Procurement and Programmatic Opportunities. This team will identify ways to use the federal procurement process to test and promote learning technologies and increase the productivity of Federal training programs. The Federal government spends huge sums on training. How might the types of technologies used by DoD be used to spend this money more effectively? The team will also identify programmatic opportunities (ie -- Goals 2000, School-to-Work, the Reemployment Act, Job Corps) to use DoD learning technologies to:

1) increase the efficiency of the programs, and; 2) speed the development and disbursement of this technology by using federal program funds to leverage the utilization of learning technologies.

Research and Development in Education and Training. This team will come up with a plan to focus, coordinate, and plan federal R&D spending in education and training. This effort will include defining and assessing current federal R&D efforts, and providing policy guidance about the federal investment in R&D to enhance teaching, learning, and training. The group will also look at ways to promote the widespread use of technology to enhance lifelong learning by coordinating federal efforts to support state and local use of advanced technologies, foster collaboration among federal agencies, coordinate the identification, promotion, and expanded demonstration of exemplary practices, and encourage the formation of public/private research and development consortia to develop new learning technologies.

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VIII Creating a Vision for the Future

To conclude the seminar, a discussion will be held on the creation of a message/challenge that the President could bring to the nation in a major public event. The message should probably include the following:

- a reiteration of the Administration's commitment to ensuring that all Americans can benefit where growth and prosperity require constant change, and our competitiveness hinges on innovation and lifelong learning;
- an explanation of how new technologies can support this mission by doing things no one thought possible;
- a statement about how businesses, schools, and communities can work together to meet critical social objectives while creating large and

profitable business and employment opportunities in an area where America currently has a clear, worldwide competitive advantage;

- an identification of specific programs and new initiatives that could be announced/introduced in a national event built around the vision -- this might include a "new communities" award which could be given to one or more teams of local governments, local businesses, schools, information technology providers, community colleges, and other groups which propose to develop and introduce learning technologies in ways that can demonstrate the potentials described in the vision; and a "new curriculum" award for major innovations in the use of technology aimed at achieving the Goals 2000 missions.

POD Planning Mtg 6-1-94

- Review of outline of Seminar

- Tiger teams to report back at later date

- 2 Goals
- ① Universal access to all schools to NII
 - ② use all our ~~levers~~ ^{tools} for change to leverage learning content

- Secretary Brown to discuss NII piece - expand on universal access for all

- Rich -- need to focus on existing workforce to improve their productivity of learning

"10 minute rule" on Secretarial Presentations

- Dual use to Defense Conversion? - Deutch intro

- - Interactive self-paced -- Medical Simulation -- Graphic

- Team Training -- Dist. Interactive Simulation

- make point that this technology could be used for other types of team training

- Fire & Police Departments direct use potential

- sharing database rather than one huge database

- Dept Defense dependent schools (DDDS)

- Distance Learning - use internal POD NII to do training

- A RPA - Nat Guard - Asynchronous learning -- still in developmental stage -- may not be demonstrable

~~Camp Ridge~~

• Entertaining/Motivational → Risk taking is key to learning

• Aids for faster & easier learning

↳ Aids for the teacher -- tools to use
↳ ^{teacher} can walk class through databases

Paul -- Job networking technologies?

still diagnotic?
links to potential jobs

- Labor market technologies

- another basket?

Center for Software Productivity (ARPA Funded) - Carnegie Mellon
Conflict Resolution piece

Each technology -- must be explicit about fact
that there is a civilian application
for each gap in civilian marketplace,
unexploited potential, why is there gap,
what can we do about it.

Focus to convince secretary that this is
way to go. -- reason to be at event

Goal -- have 3 type teams have mission in
place -- ready to go -- a signaling of
support from Secretaries.

- Fact is that technologies are available to help solve
problems that didn't exist
5 years ago

In order for this to happen, must be #1 on list to do.

Real life problems -- NAFTA displacement, Training welfare methods, etc.

NII - Platform for other secretaries to build on.

Investing in people as investment strategy

Define Learning Productivity anywhere?

- technology tool to productivity
- technology tool to change pedagogy

Deutsch set tone by setting forth definition / vision on Learning productivity

↓ have tiger teams give full report at dry-run in 2 weeks -- tell us where we are going.

↓ have it on paper before meeting

↓ very brief reports from Teams

↓ how does this all fit together? Signature events?
Campaign

-
- Acknowledge Civilian Side - lots going on there
 - Lots of work already done on Cognitive Learning
 - Cost
 - Teacher Training



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE & TECHNOLOGY POLICY
TECHNOLOGY FOR EDUCATION AND TRAINING

To: Mike Schmidt

From: Gary Bridgewater

Fax#: 202-456-7028

Pages + cover: C+1

Date: 26 May 94

Special Instructions:

Mike

attached is latest sequence of planning
events for the DoD Seminar. We are meeting
again at the action officer level on 2 June,
IDA 1801 N. Beauregard, R-Simulation
Center at 1:30 P.M.

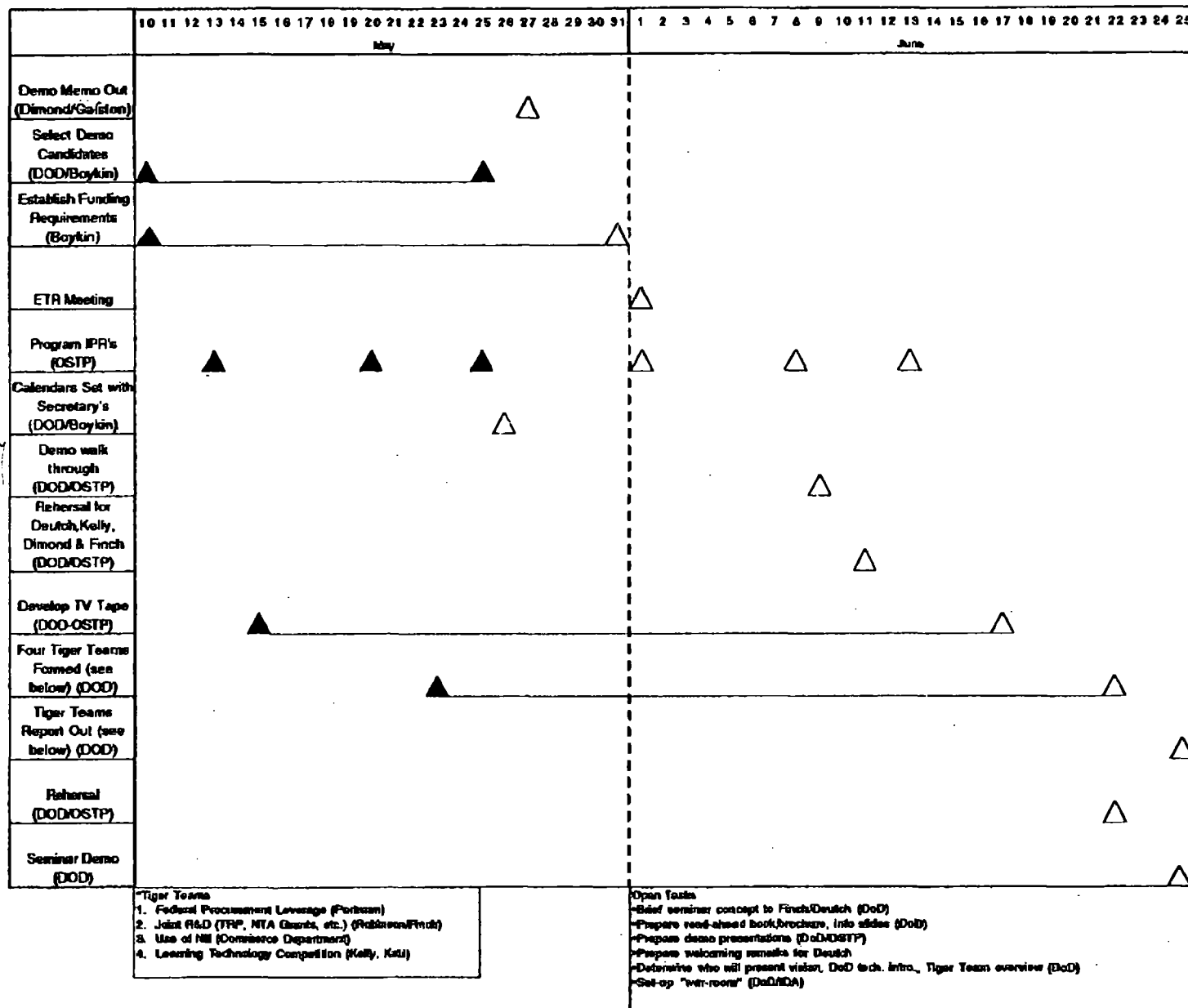
NOTE: 2 June (not 1 June)

Gary Bridgewater
703-998-1313

Peanna

PHOTOCOPY
PRESERVATION

vector



Info from
his notes -
were pulling
together

- improving CP Key
- 2 ways make diff
 - ① univ access
 - ② learning content

goals
why are they
critical?

DOD Event - 5-27-94

Universal Access

- FCC to do study on "preferential access".
- BIT Tax?
 - currently, rely on cross-subsidies in ~~cost~~^{rate} base
- universal access $\Rightarrow$ a cost definition? -- Affordable to all?

Get Belle Sawhill Involved -- so an impact
on '86 Budget -- 95 implementation of programs

- Con ~~is~~ has collected 15 possible candidates for demos,
narrow list down via themes, story boards.

= Demos that illustrate the power of the
"2 st. deviation shift" on learning productivity

- Distance / portable learning
- Team - Training concepts

- HP & Apple -- experiments in JIT Learning. Product
lifecycles so rapid, traditional methods / no longer
work.

- Forbes ASAP magazine article --
MOSAIC user-friendliness a key

- POP online system ~~for~~ for transitioning ^{realized} presence
- Major policy concern -- how do you guarantee universal access to info while guaranteeing software companies profits -- don't want to charge for each use

Price & determine usage - access

- Reatch is strong supporter of this
- Anita Jones is now excited concept

Timing - sometime around 25 June

- Reatch wants Full-blown, 3 hr rehearsal of this thing 2 weeks before so can determine what is feasible
- Webbing list of demos.

What can we accomplish

① method to get universal access to all schools on NII

- states ~~may~~ ^{may} develop universal ^{service} ~~access~~ fund. all companies pay into fund - use \$ for variety of purposes - subsidies for poor, linkages to schools
- Public policy challenge: as competition among baby bells, competitors will poach high-end business customers - no-one will want low end poor, rural customers.

- Social compact approach (companies volunteer to back-up schools)
- intense interest out there -- \$500 million worth of proposals came in for \$26 million demonstration projects.
- Universal Service Funds used to ensure that high-cost, low income areas have access at reasonable cost.

(2) Need Learning Content to ensure

- Harry & Tom Kalil to to paper on bill landscape
- Can -- whether we have proper tasks for Tiger Teams? What's missing? How can we defend why we need to do all this?

↳ concentrate on for ETR presentation

Schedulers are not being cooperative

Paul will call Chiefs of Staff

Annie Nelson - Finch assistant / Scheduler

(703) 683 0966

What does DoD do well?

- **Learning by doing**
- **Team training/Collaborative problem solving**
- **Job-site Instruction**
- **Individualization**
- **Training systems (human performance tasks, standards, and conditions + technical standards)**
- **Career-long involvement/engagement**
- **Feedback with assessment, progress based on performance**
- **Strong investment (R&D + implementation) in technology as a necessity**

Why technology?

- Access (across time, location, and student populations)
- Efficiency (Cost/Effectiveness -- it does things right)
- Effectiveness (Capabilities -- it does the right things)
- Benefits (Economy, reproducibility, visibility, environmentally friendly, safety)
- Collaborative team building and problem solving
- Scalability and portability
- Consistency and certifiability

does it
better

5-26

R&D Event - Tiger teams

③ R&D Budget

- Cooperative ventures w/ business
- Cooperative Budgeting
- product

Clearing Challenge

Sense of Community parts

- Demos / prototypes
- Participants stand-up - tell what they're doing

man

- NIT - \$100 million
 - School-to-work - demos
 - Army - Reserves / Training - look-up homes
- Goals

Research Agenda

Greg Simon

Paul

Call to get schedules going - Finches person can't get call backs

— Paul — Do we want to make this
ed report ^{public}?

Deatch personally involved. — wants copy,
secretaries & very few aides — surrounded
by technology. — Rest in separate
form.

✓ Videos to introduce

✓ Thinking about 3 — Ed asked to
bring 6-7 to review — ones
that don't make cut will be
outside

9/10 June have opportunity to make
cut on technology

CD Rom — Portability

everything limited to concept — "this is
what is important about this tech"
— confusion/assessment on tech
listed

check with Finch to make
sure what

Reed Hunt - FCC - Inute?

Call Kent -- NII Group mission
Statement

POD - Tiger Team 4

Rob Portman Mtg 5-23

- New Glynn - Reutch Mtg in near future
- when to have it?

- After June 1 POD Mtg
- Maybe June 7-12?

3 - Joint R&D for Finch & Sha-
(4) - Fed Procurement & other ~~leverage~~ points
(STPA)

→ ① - ^{Programmatic} What are opportunities in Sched to-work,
Goals, ~~re-employed~~ Lbs Corps,

② - Procurement side - Kellman app brought in
who buys? Govt Buys for its own

- UA

- POD

- OPM

- Training Report - contact

Programmatic

→ Goals 2000 - Student Assessment

→ HHS

→ HUD

- Kellman ^{Group - OMB} - Acquisition Reform

✓ Paper for Secretaries - 20 page Max
for all 4 groups together.

✓ Co-Chair w/ DoD

DoC - programmatic side
DoD - procurement side

also ~~DoE~~ (Gerry Peterson)

OMB - Kellmans group
HHS (Ken Edleman)

VA (?)

I will check on

OPM
(DOC-NIST)
ATP

C&DAT?

Report on Training?

Mission

① How do we use Fed Procure to
test & promote use of EA tech

② ID programmatic opportunities to enhance
learning productivity - to accelerate use of
learning technology

Product - options paper for Secretaries, Fleshing out
opportunities - 5-6 pages.

- relevance for FY96 budget

- By the 25th - have ^{had} meeting of Group
~~for the~~ - paper for Secretaries For June
25 meeting

The U.S. Department of Labor
Office of the Counselor to the Secretary
200 Constitution Avenue, N.W., Room S-2006
Washington, D.C. 20210
TEL (202) 219-6331
FAX (202) 219-6924



FAX COVER SHEET

DATE: MAY 24, 1994
TO: Mike Schmidt
ORG: NEC
TEL #: (202) 456-5567
FAX #: (202) 456-7028
FROM: DAVID AGNEW
OF PAGES (INC. COVER): 2

MESSAGE: Hello Mike,

I have attached our write-up of the mission of Tiger Team 4 (by the way, where does this Tiger Team terminology come from?). Please let me know if this squares with your understanding. As I mentioned, we hope to have a meeting with this team on Friday morning at 10 a.m. Thanks Mike. Please keep me apprised of relevant developments.

David Agnew

The information contained in this facsimile message is privileged, confidential and protected from disclosure. If you think you have received this fax in error, if you do not receive all the pages, or if you have any problem receiving this transmission, please call (202) 219-6331. Thank you.

TIGER TEAM 4 - Procurement & Programmatic Opportunities

MISSION

1) Identify ways to use the federal procurement process to test and promote learning technologies and increase the productivity of Federal training programs. The Federal government spends huge sums on training (DoD, VA, etc...). How might DoD technologies be used to spend this money more efficiently?

2) Identify programmatic opportunities to: 1) use DoD learning technologies to increase the efficiency of programs (Labor, Education, Commerce, HHS) and; 2) speed the development and disbursement of this technology.

TEAM

DOL	Rob Portman, David Agnew, George Koch, Brian Shea
Education	Linda Roberts (401-1444/FAX 401-3093)-Jonathan Hoyt
HHS	Peter Edelman (690-8157)-Angela Duran (690-6056) (David will call)
Commerce	Kent Hughes or Phil Nansetta (sp?) (Rob P. will call)
OMB	Steve Kelman (395-5802) (Jack will call)
OPM	Mike Schmidt will locate appropriate contact
NEC	Mike Schmidt (456-5567/FAX 456-7028)

TIMETABLE

Wed 5/25	Send invitation and background paper (1-2 pages) to team members
Fri 5/27	Team Meeting (at DOL)
Tue 5/31	Draft memo circulated to team
Wed 6/1	Mtg with Paul Dimond & larger group (presentation of team's work)

OUTPUT

A 5-6 page working document which will be incorporated into the NEC group's document. The document will answer broadly the procurement questions and have some ideas for potential tie-ins between the DoD technologies and the programs at DOL, Education, HHS, and Commerce.

April 29, 1994

MEMORANDUM FOR (Distribution List Attached)

FROM: Bill Galston, Deputy Assistant to the President for Domestic Policy

Paul Dimond, Special Assistant to the President for
Domestic Policy

SUBJECT: ETR Seminar on Improving the Productivity of Learning

The Education, Training, and Reemployment (ETR) Policy Working Group would like to invite you to participate in a seminar on improving the productivity of learning. The seminar will be action-oriented and hands-on, and will explore the types of learning technologies developed by the Department of Defense that can be transferred to the civilian education and training sector. Our intent is to begin to look together at programs and strategies for accelerating the development and adoption of technologies that can achieve a major leap in the productivity and fun of learning in order to: (1) make it easier to reach the ambitious objectives set by Goals 2000, School-to-Work, and other Administration workforce policies; (2) provide major business opportunities in a rapidly growing field in which U.S. producers are clear international leaders; (3) create a key opportunity for Dual Use by the Defense Department that could increase the quality and reduce the cost of defense training; (4) transform educational and training institutions into high-performance workplaces, and; (5) meet a key objective of the National Information Infrastructure program.

This memorandum will outline a proposed agenda for a meeting designed to develop a shared vision of what can be done to seize what appears to be an important opportunity and to develop an agenda for action that could lead to announcement of a major Administration program before the end of the year. As always, we welcome your ideas and suggestions -- Lou Finch (Deputy Undersecretary of Defense (Readiness)) will be contacting your office early next week to discuss dates and times for the event and will be happy to discuss any questions or concerns that you may have.

Background

In the past half century, the Department of Defense (DoD) has invested substantial amounts of money, energy, time, and thought to improve the skills and readiness of the armed forces. This investment has involved both the training process and its applications to learners of different backgrounds and ability levels. Technology has been key to this process, and is becoming even more essential. DoD has thereby learned a great deal in this area about what works and what doesn't.

The investments that DoD has made in this area are many, and cover a number of areas, including:

- Active learning from a distance through interactive networks;
- Portable learning that is available to personnel in classrooms, workplaces, and homes;
- Simulation technology to replace expensive, environmentally harmful, and/or dangerous learning experiences;
- Embedded instructional sequences in operational equipment.

This DoD investment can now be leveraged to enhance the productivity of learning in other sectors of the economy. The ETR Seminar on Improving the Productivity of Learning will concentrate on the types of learning technologies developed by DoD and their applications to civilian education and training. Other issues that have arisen -- such as lifelong learning in DoD, post-military employment history and military training contributions to the workforce, and employment opportunities for minorities and women -- could be presented as background material in this seminar.

Draft Agenda

A draft outline for the seminar has emerged based on meetings between the White House and key agencies participating in the event:

- I. Introduction and Welcome -- DoD
- II. Secretary Riley will give an overview of Administration objectives in education including the implementation of Goals 2000.
- III. Secretary Reich will give an overview of key workforce initiatives and the implications of new technologies that could lead to sharp gains in learning productivity.
- IV. The Department of Commerce will give an overview of business development opportunities in education and training technology, and discuss the Administration's National Information Infrastructure (NII) initiatives that can ensure universal access to businesses, schools, and homes
- V. DoD will discuss their experience with leveraging technology for learning, lessons learned about its utility in meeting different training objectives, issues to consider in transferring the technology to civilian use, and the improvements in learning technology that can be expected. The points will be illustrated with demonstrations.

VI. A proposed vision and action plan for improving learning productivity will be presented with a description of the agendas for interagency "tiger teams" charged with developing programs in the following areas:

DCL ① using federal procurement to stimulate early markets for innovative learning technologies. This would include both direct federal training in DoD and other agencies and ensuring that federal program funds (Goals 2000, School to Work, JTPA, Student loans) are used to encourage the development and utilization of learning technologies.

CCT ② formation of public/private research and development consortia to develop new learning technologies (TRP, ATP, R&D funding in NSF, DoE, and Ed);

DOE-Kent ③ use of NII and other programs to stimulate new business opportunities and markets in learning technology and to ensure universal access ;

We can announce the leaders of these three teams and their schedule for completing interim reports on recommendations and actions at this meeting.

Logistics and Follow-up

This Seminar will require a block of three hours that could be set aside at the Institute for Defense Analyses Demonstration Facility. This should allow enough time for discussion, demonstration, and active hands-on simulation. Several options are available to us as to the timing of the event, including holding it on a Saturday morning or afternoon, or on a weekday evening.

④
Paul - Learning Challenge?
Big companies - community -
School - exhibit "show
Tell" - hold up as examples
"Award?" - DOE

2 May 1994

To: Gary Boycan
From: Dexter Fletcher
Subj: Candidate Demonstrations

So far I have picked up the following recommendations. More to come.

x. CAMIS -- Computer-Assisted Medical Interactive-Video System
Interactive videodisc based system for training basic medical procedures.
It could be immediately transferred and used for training medical technicians where they are in short supply and for training firemen, paramedics, and policemen.
Main points: (1) It is portable in accord with MIL-STD-1379D and DoDI 1322.20; (2) It is ready to go.

x. Helicopter weight distribution training program.
Tutorial simulation for training in the stowing material aboard a vehicle.
Could be any vehicle, in this case a helicopter.
Could be a trainer or a job performance aid.

x. DIS -- Distributed Interactive Simulation
Follow-on to ARPA's SIMNET (Simulator Networking) project.
Focus on crew, team, and unit training. Could be applied to SWAT teams, maintenance crews, fire-fighting teams, ground-air control teams, disaster emergency teams, surgery teams, and others.
DIS Standard (now being processed by IEEE) increases the probability of transfer to civilian applications because it specifies how any simulator can connect to the Defense Simulation Internet.
Transfer opportunity aside from the standard is more a technique than technology or materials.

x. Shroeder's Company Commander Training program
Interactive videodisc program using simulated interpersonal situations for training leaders.
Could be used for training anyone in a leadership position -- but best for quasi-military leaders (police, fire-fighters)
Shows that interpersonal skills training can be done using simulation.

x. STEAMER
Intelligent Tutoring System for training in the operation and maintenance of ships' steam propulsion systems.

x. MACH III -- Maintenance Aid Computer for HAWK -- Intelligent Institutional Instructor
Intelligent Tutoring System for training in the maintenance of electronic and electro-mechanical systems (in this case those found in the HAWK missile, but the basics are present for training in other systems).
Very nice system, but programmed for a now no-longer-made computer (Symbolics).
Logic is ready for transfer, but requires some re-programming.

x. JSEP -- Job Skills Education Program

Basic skills target for specific job families.

All the foundation needed for training of this sort, but should be re-programmed. (I am still not sure Labor did this or did it right). If nothing else the job skills analysis used to create this program is a big piece of work that could support a similar effort.

x. ARI's German language trainer.

Uses an intelligent tutoring system with impressive capabilities for syntactic and some semantic parsing to support mixed initiative dialogue in German language training.

Arabic trainer also available.

Underlying techniques could be easily transferred.

x. PC Based VR.

Most virtual reality requires a big machine. Here's a demonstration using a helmet-mounted display and VR gloves to provide an immersing virtual environment that runs on a(n affordable) PC.

x. Armstrong Lab VR -- Wes Regian stuff.

Virtual reality trainer for device operation.

x. IMAT -- Interactive Multi-Sensor Analysis Trainer

Scientific display device for making the invisible (waves) visible in complex environments (atmosphere, ocean, geologic strata).

Supports contextualized, qualitative reasoning in science instruction.

x. Embedded training using stimulated equipment. Do we have some good examples?

x. Distributed training using televideo??

Demo's

Faxed final version that I sent out today. Seems that this is taking on a life of its own, so please keep me informed. Follow-up on our phone discussion re: what should be demo'd. I think the following:

1. Voice interactive-we have a medical diagnostic prototype, an airline scheduling prototype. a reading tutor and a language tutor ready at various vendors.. These are desktop workstations so compactness can be demo'd as well as power of voice interface. This has applicability for overcoming using computers with functional illiterates, cross cultural and physically handicapped learners.
2. Virtual reality- NASA Johnson has a "virtual Physics Laboratory" that might demo VR and science education application in one swoop. My VR maintenance trainer won't be ready until later this Summer.
3. Stand-alone interactive computer based instruction (on CD-ROM)- could use my emergency medical or S-2 prototype or one from one of the services. A maintenance example would be good one to demo industrial training. Have commercially available courseware for visiting the British art Gallery, translating language text. This demos potential power of "today" technology that is relatively cheap now and can be "grown into" as others demo'd become cheaper and more available.
4. Dial-in simulation to practice skills- use the case based S-@ simulator prototype that Northwestern Univ is building for me. It has enough ready to demo.
5. Network- either kids on Tice DeYoung's network and a short brief about what the teachers have experienced and learned/results and/or DoDDS use of Lotus notes. I think that example of students using existing Internet for getting info and maybe their saying what is good or hard to do on the Internet would be useful.
6. Film of Wright Flyer and Dial-a-symphony at IITSEC.
7. Tabletop equipment emulator- I have seen oscilloscopes and other pieces of equipment, am sure we could get one, that allows practice (like Project Focus Hope tasks).

Steve

5-18-14
POD Event

~~Monday~~
~~Saturday~~
2:00
Monday

25 June - Date? Saturday Morning - 3hr block

line up Secretaries

- out at 10A -- Alex

Mechanics of who invites (memo)

- each of us have responsible for making
sure Secretaries/schedulers are available,
in the sky.

Memo to follow date setting, from WH

Agenda

- ① Intro - Deutch
- ② Reilly
Reich

Brown - NII and uniax| Access -- Business app

~ 30min

— rehearsal

Implementing technology - 3 or 4 types of technologies that have real potential

- For each technology - after every "gee-whizz," answer question of so what?

Deutch introduce discussion of so what.

At Rehearsal - - use it to give staff insights on what secretaries will be interested in - - help us define & shape agenda.

- Don't start - shift discussion on each tech. - least immediately

- what will you propose for FY 96 Budget - anything as a part of State of Union Budget?

- anything that Pres/VP may want to turn in to larger - term initiative

Primer Suggestion

FY 96

- research dollars? Where should they go
- procurement policies - how should they be used
- Use influence of \$ going to individuals (JTPA, Student loans, Chapt 1 funds)

State of Union

- Universal Access on NII
- Presidential Learning Challenge -- some sort of incentive to come up w/ learning tech

Long-range

- influence development of market?
what would that look like?

* Politics -- Coming together on this -- Teachers unions demanding universal access from NII, Infrastructure funding mech, etc

- NII needs to have a human face. Technology with a Kid's Face."

-
- Must coordinate with other efforts - IITF, CET, NSTC.
 - Linda Roberts (Johnston Hayt from DoEd) should be included.
 - Vet info thru large groups.
 - use Tiger Teams to develop proposals
 - vet proposals with broad communities
 - execute Tiger team plans thru existing vehicles -- CET, IITF, etc.

- use existing initiatives - school to work, REA, etc. Technologies fill holes.

- How much do we want to accomplish by June 25, how much to leave to tiger teams now, June 25 at midyear off process.

Tiger teams

- Presidential / VP - Technology challenge? - Henry, Kalil
- use of NTH for universal Access & Business opp - DOC, Lag Enoch
- what we might do in R & D - C&T Subcommittee Sharon Robinson
- Federal Procurement / in hands of companies (JTRA loans, etc) - can we do anything to leverage purchases. - DOD, DODD, DOL, DOE, Commerce

Demand Side?

Defense Commission

C&T work Group of Competitiveness Council

Press

- Invite / Brief someone on background who will follow story for next yr.
- Leave open - OR photo of at end - decide someone

4:00

- meet in 2 weeks - June 1 - dad
- have tiger teams meet before then for at least figure out who's on them

Henry & I take left
on this

Cass, Arram, Henry, Paul, Greg, Mike Smith,
Bill Galster - Lunch - Schill

June 8 - a Kennan - stand last
10:30

Do E Labs

5-20

- Rob Portman Group - Demand Mtg
- Rob Portman Meeting - Live Monday
- Mission statement.

① Leverage time outside school/work

②

- Henry & I take crack at writing mission statements for 4 groups

Do it Monday or Tuesday

- Call Henry

→ Must get every school hooked up

- Stimulus learning context

→ Teacher Training / Preparation / Professional / Practice

Goals → - assessments, Build it

→ School to work - skills standards

train --

Mike look at

5/11/93

Paul --

Attached is something for your amusement. It's an essay I put together for John Deutch to give him a flavor for what we're up to. If we wanted to use something like this for wider audiences, it might be useful to get someone to put real numbers behind the charts in Figures 2-4. Is there someone in DOE who might do this?

I'm still waiting for final word from Deutch on how he wants to proceed on our Seminar. I'll let you know when I hear something.

Cheers,

Lou Finch

Can Technology Support a Jump in

Learning Productivity?

Application of several technologies, when taken together, have the potential to promote a revolution in learning productivity -- the rate of learning, the access to learning, and the enjoyment of learning. The discussion and charts below illustrate this.

Rate of Learning

Research shows that tutoring provides learning at a much faster rate than class room instruction. Figure 1 illustrates this point. It shows the mean and distribution of students for learning rates for two populations -- those learning in the class room, and those learning from tutors. The tutored learning distribution is two standard deviations to the right of class room learning.

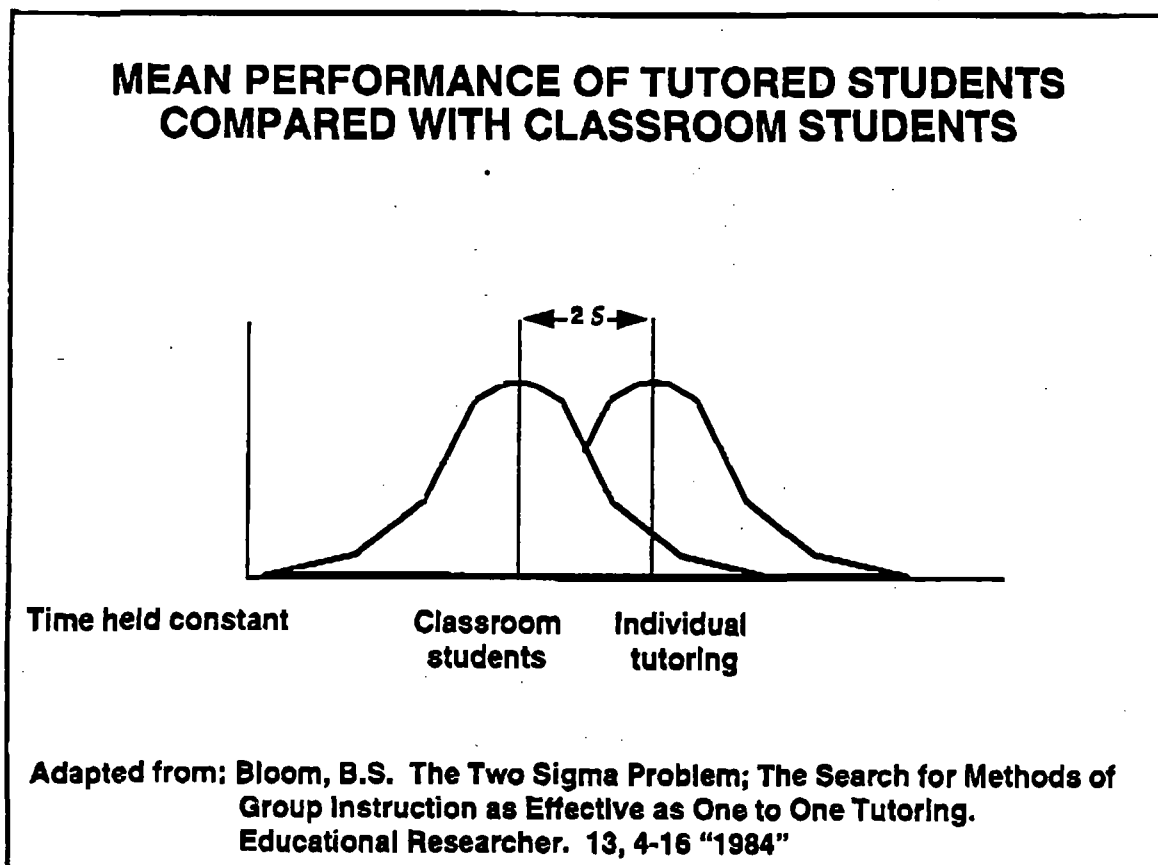


Figure 1

This figure shows that tutoring is a very powerful instrument for learning productivity. It is, however, impractical to use widespread tutoring as a device to reach vast portions of the population. An alternative, however, is the application

of interactive computer courseware. This software replicates at least some of the attributes of tutoring. It allows students to some degree to learn at their own pace, to follow their own exploration of the subject, and to learn in a way more compatible with their individual mental processes. To this point, such interactive courseware has achieved about a one standard deviation improvement over class room instruction. While not matching tutoring, this is still a huge increase in learning rate, and much more practical in terms of widespread application. Further, continuing research is attempting to find even greater gains in this application of technologies to learning rates.

Access to Learning

The National Information Infrastructure (NII) -- the Information Superhighway -- makes possible near universal access to the high productivity learning software, including that discussed above. In principle, such software can be sent on demand to any home or workplace with work station consisting of a personal computer with a modem connecting it to the Internet or follow-on infrastructures. If such work stations were to be proliferated throughout society, then everyone throughout the various social and economic strata could have access to the same high powered learning technology that otherwise would be available primarily to the elite.

Figure 2 illustrates this point. It is a notional chart not based on actual data, but

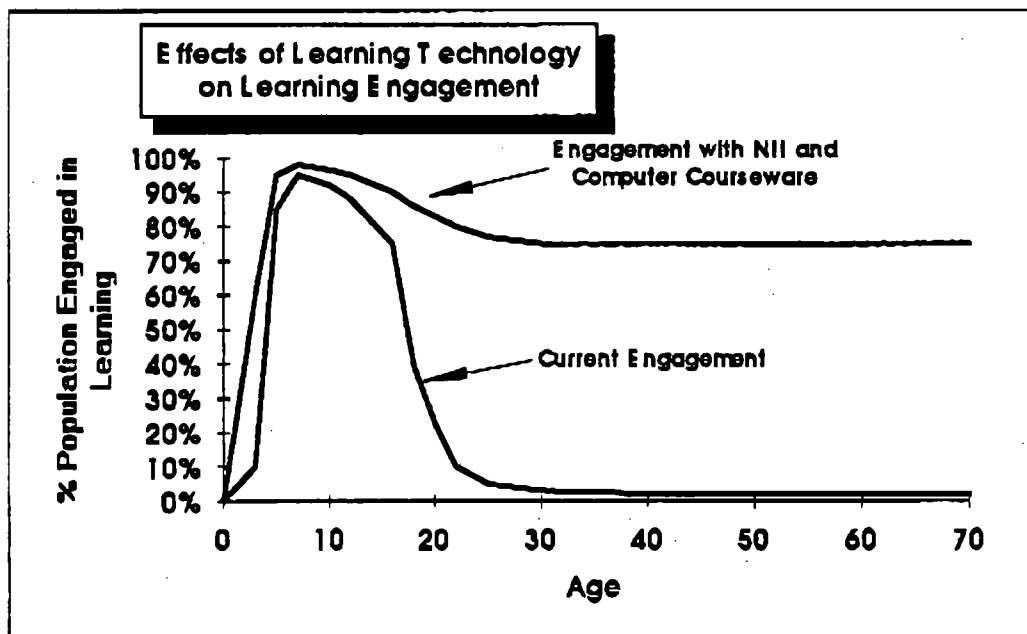


Figure 2

the general character of its curves are probably correct. The figure shows that the percent of the US population engaged in learning as a function of their age. Currently there is a steep rise in learning engagement at about age 5 that probably begins tailing off at middle school, falls sharply after high school and may

virtually stop after those in graduate school complete their work. With universal access afforded by the NII, the percentages of those engaged in learning could be higher throughout -- especially for the later years.

This increased access could have particularly profound implications for those that are socially, economically or physically disadvantaged. Figure 3 shows what this effect might be. It illustrates that there is probably a large gap in learning engagement between those in poverty and the economic elite in our society. If, however, easy-to-use, effective, entertaining, inexpensive learning software were available via the NII, the poverty segment of the population would have at least the opportunity to learn at a high rate both the basic skills of a good education, and specialized job skills needed for productive employment.¹

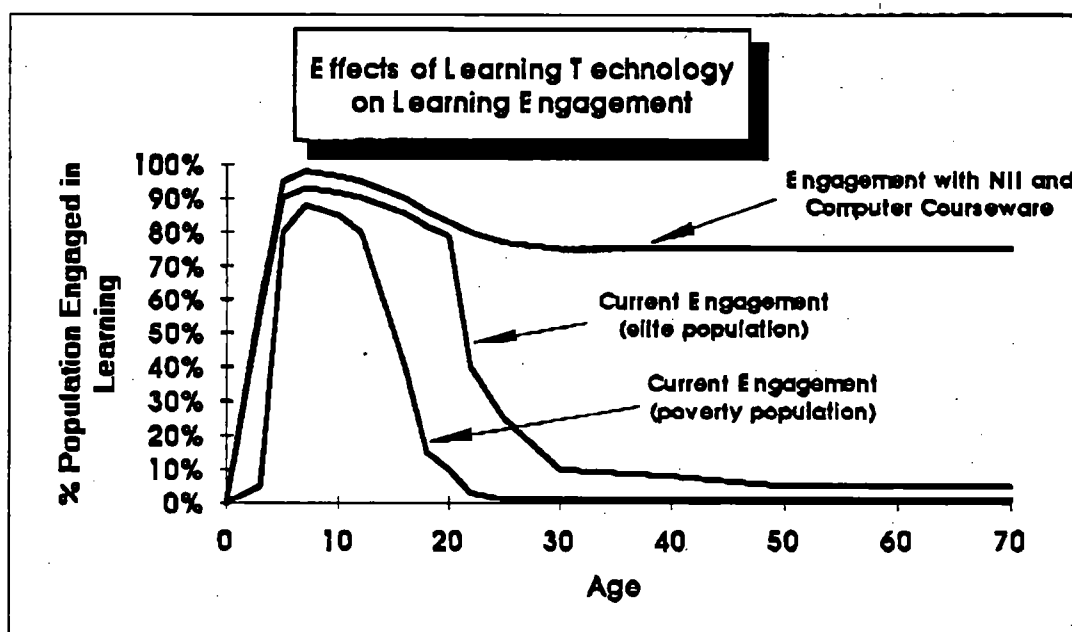


Figure 3

Enjoyment of Learning

Most of American youth -- and adults for that matter -- find more fun in playing video games or watching TV than being engaging in class room learning. There exist, however, examples of computerized interactive courseware that teach basic educational skills -- math, reading, grammar, etc. -- using a video game format. This courseware seems anecdotally competitive in viewer interest with commercial

¹ Note that the NII might have several added purposes related to productive employment. These include: 1) Opportunities to work at home for those like welfare mothers and the physically disadvantaged that can not travel to a work place; 2) A means of long distance testing of work skills as a means for employers to screen potential hires; and 3) A mechanism to marry job supply and demand through a national job bank that will show job seekers where the opportunities lie, and government officials information to help target training for skills where there's a demand.

TV and video games. It is possible that, if access to such courseware were near universal, learning patterns and the use of Americans' free time could be changed substantially.

Figure 4 illustrates this point. The data on the charts is notional, but probably is a reasonable representation of reality. The stacked bar on the left shows the average distribution of time for children in school. A very substantial portion is devoted to TV and other activities that are of the pure entertainment variety. If, however, there was universal access to learning software that was fun to use, it is possible to imagine the time distribution shown in the stacked bar at the right. This would include a significant portion of children's time being spent on "edutainment" -- fun and productive learning. A similar redistribution could also apply to adults.

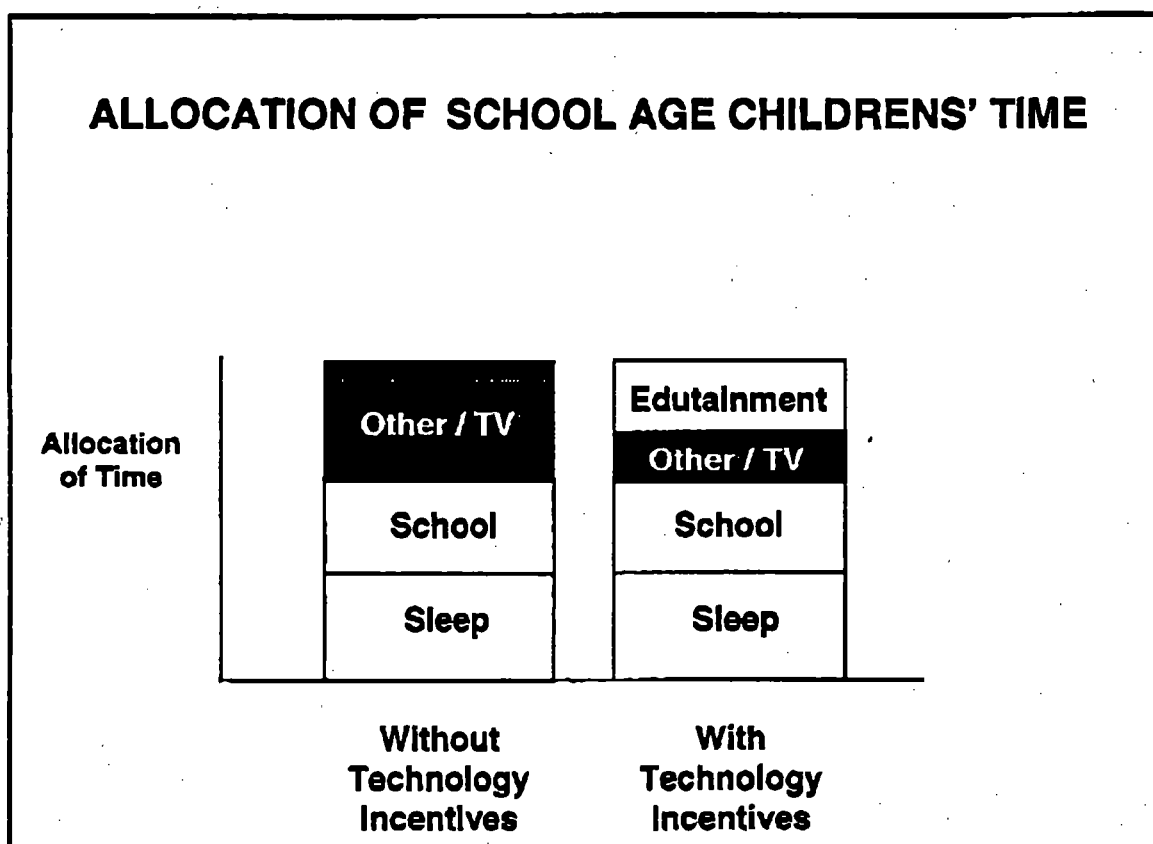


Figure 4

If learning software could be designed to compete effectively with purer forms of entertainment, the reallocation of the nation's time for learning would seem to produce a generally better educated public with much better skills for higher paying, internationally competitive jobs. If the entertainment content of such software were directed at economically disadvantaged portions of the population (as Sesame Street was for TV audiences), then it could afford a means of closing the learning gap -- and thus the earning gap -- among the economic strata in American society.