

7 July 1994

To: Distribution
From: ETR Working Group
Subj: Seminar on Learning Productivity

We understand that you are invited to attend the Seminar on Learning Productivity. The Seminar will be hosted by the Department of Defense at the Institute for Defense Analyses (IDA) on Saturday, 9 July, from 10:00 AM to 1:00 PM.

The Seminar will be held in Room 118, in the IDA building at 2001 North Beauregard Street in Alexandria. Attached please find a map and directions for getting to IDA.

The intent of the Seminar is to review programs and strategies for accelerating the development and adoption of technologies that can significantly advance the productivity of learning. These technologies can: (1) help meet the ambitious challenges set by Goals 2000, School-to-Work, and other Administration education and workforce initiatives; (2) provide major business opportunities in a rapidly growing field in which U.S. producers have a clear lead; (3) create a key opportunity for Dual Use by the Defense Department that can increase the quality and reduce the costs of both Defense and non-Defense training; (4) help transform educational and training institutions into high-performance workplaces; and (5) help meet key objectives of the National Information Infrastructure program.

An informal agenda for the Seminar is provided as Attachment (2).

Also attached please find two documents. Please review them before the Seminar. The first document, Attachment (3), provides background on the Seminar itself. The second, Attachment (4), describes the technology and learning challenge that will be discussed at the Seminar.

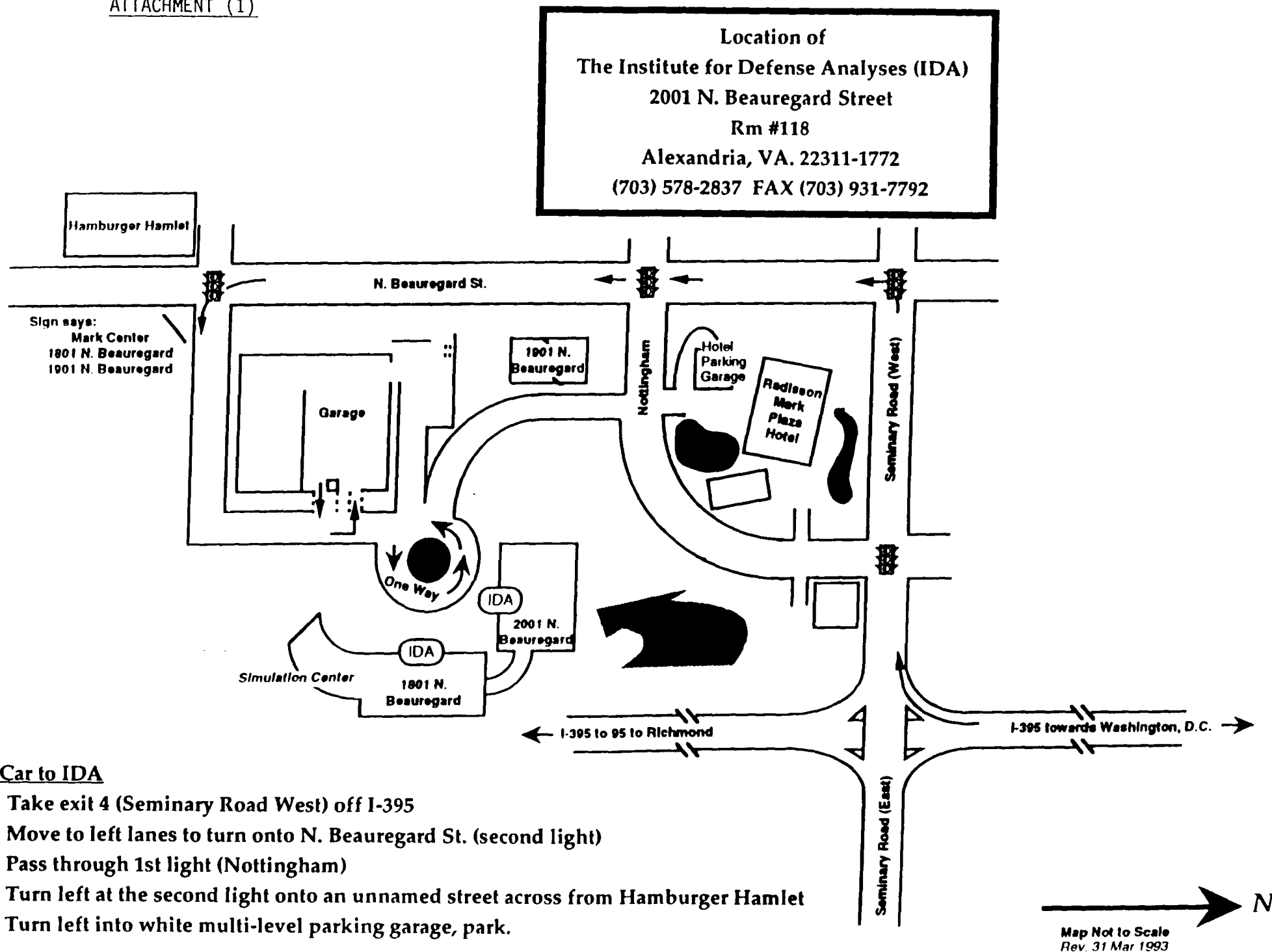
Finally, please note -- CASUAL DRESS IS ENCOURAGED.

Questions concerning the content and purpose of the Seminar should be directed to Lou Finch, Deputy Under Secretary of Defense for Readiness, 703-693-0466/0467.

Questions concerning administrative issues should be directed to Dexter Fletcher, Institute for Defense Analyses, 703-578-2837.

Attachments:

- (1) Map and directions for getting to IDA.
- (2) Agenda
- (3) Seminar Background
- (4) Technology and Learning Challenge



By Car to IDA

- Take exit 4 (Seminary Road West) off I-395
- Move to left lanes to turn onto N. Beauregard St. (second light)
- Pass through 1st light (Nottingham)
- Turn left at the second light onto an unnamed street across from Hamburger Hamlet
- Turn left into white multi-level parking garage, park.

ATTACHMENT (2)

Agenda:

Welcome	John Deutch Deputy Secretary of Defense
Introduction to the Seminar	Paul Dimond National Economic Council
Introduction to DoD Learning Technologies	John Deutch Deputy Secretary of Defense
Introduction to Tiger Teams	Jack Gibbons Office of Science and Technology Policy
Report from Research and Development Tiger Team	Sharon Robinson Department of Education
Report from Procurement and Programs Tiger Team	Rob Portman Department of Labor
Report from Information Regulation Tiger Team	Jonathan Sallet Department of Commerce
Discussion of Technology and Learning Challenge	Paul Dimond National Economic Council
Discussion of Next Steps	John Deutch Deputy Secretary of Defense
Demonstration of DoD Learning Technologies	Anita Jones Director of Defense Research and Engineering

ATTACHMENT 3

BACKGROUND ON THE ETR SEMINAR ON IMPROVING THE PRODUCTIVITY OF LEARNING

The Education, Training, and Reemployment (ETR) Policy Group's Seminar on Improving the Productivity of Learning will explore the potential role of learning technologies in implementing the Clinton Administration's lifelong learning agenda. Our goal is to look together at strategies for accelerating the development and adoption of technologies that can achieve a major leap in the productivity of learning. In the process, we hope to show how new technologies can make active learning more effective because it is engaging and fun, as well as demanding. We will begin by discussing a possible initiative that could focus national interest on developing a new generation of learning tools that can engage learning communities all across the country (see Attachment 4), and we will close by taking a look at some of the learning technologies that the Department of Defense (DoD) has developed that can be transferred to the civilian education and training sector.

Background on the ETR Policy Group

The ETR Policy Group was created by the President in February. It is co-chaired by Carol Rasco, Assistant to the President for Domestic Policy, and Bob Rubin, Assistant to the President for Economic Policy, with Bill Galston (Deputy to the President for Domestic Policy) and Paul Dimond (Special Assistant to the President for Economic Policy) heading up the work of the Policy Group. Members of the Policy Group include the Department of Labor, Department of Commerce, Department of Education, Health and Human Services, and the Department of Defense. The mission of the Group is to coordinate existing Administration policies in education, training, and reemployment, and to consider complimentary new activities that will help implement the President's lifelong learning agenda. Already this year, Head Start, Goals 2000, the School to Work Opportunities Act, and restructuring of the Student Loan Program have been successfully launched. Major transformation of ESEA and the unemployment system are now pending, along with a complete review and overhaul of all federal education and training programs for adults. The purpose of this seminar is to consider how technology provides an opportunity to improve learning for students of all ages in a system of lifelong learning.

Background: DoD and Learning Technology

In the past half century, the Department of Defense has invested substantial amounts of money, energy, time, and thought to improve the skills and readiness of its workforce, the U.S. Armed Forces. This investment has involved research and development in both instructional processes and their application to learners of different backgrounds and ability levels. Technology has been key to these efforts and is becoming even more essential. These investments cover: (1) active learning from a distance through interactive networks; (2) portable learning that is available to personnel in classrooms, workplaces, and homes; (3) simulation technology to replace expensive, environmentally harmful, and/or dangerous

learning experiences; and (4) embedded instructional sequences in operational equipment. This DoD investment can now be leveraged to enhance the productivity of learning in other sectors.

Background on Improving the Productivity of Learning

The information, simulation, and communication technology that is beginning to be used to improve productivity throughout the economy has the potential to create a revolution in learning. First, technology can make time spent in learning more productive by making learning more like an individual tutorial than a mass-production experience, and by creating apprentice-like settings where individuals and teams are free to explore, play, and make mistakes. Second, 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. Third, technology can reestablish links between parents and schools, between learning and practical work, and between communities of learners by linking homes, schools, and offices together. The purpose of the Seminar is to agree on a vision of what can be accomplished in this critical area and a concept for how we can create a sense of national excitement and purpose around this vision.

THE TECHNOLOGY AND LEARNING CHALLENGE

The National Technology and Learning Challenge is being designed to catalyze the development of a new generation of learning tools which can provide a lever to dramatically improve the way Americans learn -- in schools, workplaces, in homes, in learning communities all across the country. At the direction of the President, the Vice-President and the Secretaries will issue this challenge to learning communities all across America. The purpose of the Challenge is to bring technological innovation to bear in implementing the National Education Goals, School-to-Work Opportunities, and the rest of the President's program of Lifelong Learning to continuously improve the learning, skills, competitiveness, and future prospects of all Americans. It is also the logical next step in the Vice President's national challenge to connect the nation's schools and libraries to the emerging information superhighway.

This paper outlines: the vision behind the Technology and Learning Challenge; options for the structure, operation, and financing of the Challenge; how the Challenge builds on the common interests and essential work of many parts of the Administration, and next steps in planning the Challenge.

Vision

While virtually all other sectors of our economy have been transformed by technological innovation and accompanying structural reorganization in the twentieth century, education and training in schools looks much like it has for generations. Three elements are now converging with the potential to create a revolution in the productivity of learning.

First, a new consensus is emerging about the dynamics of learning: The primary work of learning is done by the learner not the instructor. All students are different, they learn at their own pace, often in different styles. The work of learning is more engaging for the student if it involves active interaction and occurs in a meaningful context, rather than through passive listening or watching in the abstract. In this new perspective, the role of the teacher is no longer that of a talking head standing in front of a class of 25 students: the teacher becomes a coach of teams of learners, and students of all ages (including peers, parents, and easily accessible experts and tutors) are the active participants in a community of learning. Emerging technology makes it possible to achieve this new learning dynamic without a prohibitive investment in new materials or increases in instructional staff.

Second, technological advances in computers, multi-media, data-storage, and communication are creating dramatic new ways to communicate complex ideas and experiences. The potential for creating a new generation of interactive learning tools is upon us. The technology can create computer-based learning environments that invite exploration and approximate the experience of working with individual tutors. We can realize this

potential, however, only if we can bring the creators of the new technologies together with the makers of essential learning content to transform games, information, and entertainment into engaging curricula for all ages, interests, needs and styles of learners.

Third, diverse means of transmission and telecommunication are being developed that will enable learners of all ages to connect with these learning tools -- and with other learners, experts, and tutors -- in schools, workplaces, and homes. Virtual learning communities can thereby be created between coaches, tutors, peers, parents and children, and learners of all ages to use these new learning tools at all hours of the night or day, on weekends, throughout the year. The extent of learning and the effectiveness of teaching no longer need be a prisoner of the amount of seat time in a classroom.

Hundreds of billions of dollars will be invested by American businesses and households in everything from advanced communication networks to high-performance televisions to take advantage of the dramatic new power of information technologies. The Technology and Learning Challenge will offer a small amount of federal research money to encourage communities making such investments to join with the creators of new learning tools and learning concepts. To stimulate the broadest possible interest and practical application, we will challenge the potential developers to apply in partnership with learning communities -- e.g., schools, child care centers, and libraries with children and parents, teachers and experts; consortia of firms with workers; universities and colleges, public broadcasting and cable programmers with their students and users. Finally, to realize the full potential for leveraging a major jump in learning, we will challenge the applicants to design their learning tools to assist learning communities to meet or exceed the world class standards of Goals 2000, to engage in contextual learning in the School-to-Work Opportunities Act, and to continuously learn new skills throughout life in order to compete effectively in the emerging global economy.

Options for Structure, Operation and Financing of the Technology and Learning Challenge

The Challenge would be modeled roughly after the Administration's Empowerment Zone program. As in the case of the Empowerment proposal, a large measure of the program's effectiveness is expected to be bringing together community members to work collectively on the proposals. In many cases the projects can be expected to go forward even if they do not receive awards. It would probably be best, however, to give a small number of major grants and a large number of small, largely symbolic, grants.

Communities would be invited to propose concepts that would develop and introduce new, technology-based learning-productivity tools into their Communities. The program would not be designed to purchase communications equipment or other hardware for communities. This investment would be made primarily by private investors encouraged by a variety of state and federal programs. The Challenge program would be aimed exclusively at the development of new learning tools that can capture the promise of the new technology through compelling learning environments enriched by new connections between community members.

Criteria: The proposals would be judged on the following types of criteria:

- How effectively will the programs help the community achieve the goals set out in the Goals 2000 and School-to-Work Act?
- Do the proposals suggest unique strategies for using technology to increase learning productivity in any of a variety of possible settings
- Will the proposals encourage the use of innovative strategies in pedagogy, accelerate the introduction of learner-centered, experience-based learning environments, and result in a measurably improved learning.
- Can the learning tools produced be readily transferred, replicated, or marketed to other national or international communities.
- Will the products of the proposal be widely available in the community?
- Does the proposal promise significant cost-sharing from the participants?

Eligibility: The definition of communities eligible for the grant would be broad. Communities could be geographic or they could be linked by a common interest or purpose

(e.g. disabled groups, businesses with similar training requirements, physics or history instructors). All proposal teams would, however, be expected to include the following members: schools, local businesses, communication firms, software developers (broadly defined), and content specialists (e.g. historians or scientists)

Management and Funding: A single agency would be designated to lead the process of crafting a program solicitation for the project but would be expected to work closely with a team drawn from contributing agencies. The total number of grants and the size of appropriate grants needs to be determined. Options for financing the project require careful review but include:

- a. assembling resources for the challenge fund from agency budgets with relevant authority
- b. requesting specific programmatic funding for a single agency
- c. providing funding for winning proposals from several different federal programs each of which would review the project within its own jurisdiction. Winners might, for example, obtain CRADA support from DOE or NASA, school-to-work funding, and direct research support from an agency with funds appropriate for the purpose.

Separate strategies may be needed for starting the program with FY95 authority and for FY96 requests.

Relationship of the Technology and Learning Challenge to other Administration Work.

This challenge is designed to highlight the Administration's core strategies in education and lifelong learning and demonstrate how technology can advance these objectives through skillful management of federal programs. The use of technology to improve learning productivity has been selected as one of the themes identified by the President's Cabinet-level Council on Education, Training and Reemployment (ETR) chaired by the National Economic Council and the Domestic Policy Council.

The project also supports core administration themes in several other areas:

- The programs offered in support of this initiative will be clear examples of the Administration's success in "reinventing government". Instead of inventing new institutions or requesting major new programs, our initiatives will be crafted principally by making more efficient use of existing programs and focusing the expertise of many different agencies on common objectives.
- The programs support the Department of Defense's dual use programs. DoD can make more efficient use of its own research and training funds by coordinating its work with civilian agencies. The cost of future training products and services can be reduced and the quality improved by working with civilian agencies to foster creative, profitable education and training businesses serving both defense and civilian markets.

- By working closely with businesses and leveraging private research investment with public funds, the initiative supports the central themes of the Administration's technology program. Education and training technology is also one of the six areas of emphasis identified in the Administration's technology program in February 1993. The priority has been reiterated repeatedly in policy guidance provided the agencies by OMB and the National Science and Technology Council (NSTC).
- Use of the emerging National Information Infrastructure to improve the quality of education has been one of the central themes of the President's National Information Infrastructure Task Force Chaired by the Secretary of Commerce.

The Tiger Teams

Three "tiger team" task forces have been asked to develop specific budget and programmatic recommendations that can be included as a part of the Administration's announcement on learning productivity. These decisions can be announced as a part of an integrated Administration program along with the Technology and Learning Challenge. Since the decisions span a range of programmatic and budgetary issues, the teams rely upon several existing White House coordinating groups.

1. **Procurement and Programs** This group, drawn directly from ETR members, focuses on how to take maximum advantage of the productivity gains possible in new learning technologies in (a) federal civilian and defense training programs, and (b) programs the Departments of Education and Labor designed to support education and lifelong learning. It aims both to increase the productivity of federal spending in these areas and to find ways to stimulate early markets for innovations in educational technology. The group will explore programs that can be undertaken within existing authority by individual agencies, interagency cooperative agreements (such as use of the DoC Manufacturing Extension Programs to deliver training advice and services), and the need for new legislative authority.
2. **Research and Development** The subcommittee of the NSTC Committee on Education and Training which is developing an interagency budget in technology for education and training is working to provide a clear set of recommendations about research and demonstrations that can accelerate development and use of advanced learning technologies. The group will identify the topics in areas like curiosity-based and learner-centered learning strategies, tools for designing synthetic environments, tools for collaborative learning, and new methods for testing and evaluation.
3. **Information Regulation** A group drawn from Information Infrastructure Task Force (IITF) activities will explore ways to ensure that programs meeting the core objectives of the IITF (ensuring competition, interoperability, and universal access) will also

serve the unique interests of education and training. Proposals will include options for working with States and local jurisdictions to provide financing for infrastructure connections and universal access under new regulatory regimes.