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001. list	Subcommittee on Research & Development in Education and Training (National Security Act) (1 page)	nd	P3/b(3)

COLLECTION:

Clinton Presidential Records
Domestic Policy Council
Michael Schmidt
OA/Box Number: 7339

FOLDER TITLE:

Community Learning Challenge File 1

2013-0968-S

sb27

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

- P1 National Security Classified Information [(a)(1) of the PRA]
- P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
- P3 Release would violate a Federal statute [(a)(3) of the PRA]
- P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
- P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
- P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).

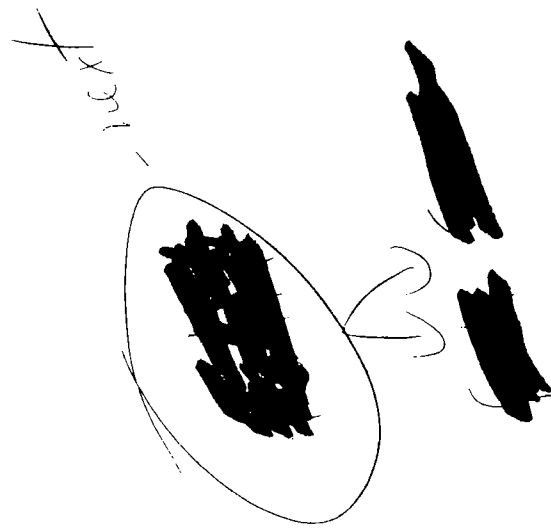
RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

- b(1) National security classified information [(b)(1) of the FOIA]
- b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
- b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
- b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
- b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
- b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
- b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
- b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

Community Learning Challenge ^{FILE} ①

PHOTOCOPY
PRESERVATION



Draft by Schmidt
6-6567

THE NATIONAL INFORMATION INFRASTRUCTURE (NII) COMMUNITY LEARNING CHALLENGE

The NII Community Learning Challenge proposes to link and enhance two important Administration goals: (1) the development of a national "information superhighway," which is actively supported through the National Information Infrastructure (NII) initiative, and; (2) the development and widespread use of learning technologies that have the potential to dramatically increase the productivity of learning, which is critical to overall productivity growth. This paper gives a broad overview of the proposed Challenge, outlining some of its most important components.

Background: Learning Productivity and the NII

It is well understood that increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from the mid 1970s to the late 1980s saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standard. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to increase the productivity of learning -- that is, increase the rate at which people learn. This would apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, increasing the productivity of learning would mean that workers could do their jobs faster and more efficiently. In the classroom, it would mean that students can learn more things more quickly, thus increasing the scope of what can be taught.

Technology is the lever to accomplish this increase in the productivity of learning. Over thirty years of research show that technology can significantly increase learning achievement. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, these examples are too few and far between. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, whenever and wherever they need to. The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is already a reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular. In return, linking the issue of learning productivity to NII gives the NII some sense of purpose and definition. While it is true that by this time nearly everyone has heard of the "information superhighway," almost no one understands exactly what it means, not to mention the potential it has to impact people's day-to-day life. The NII Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII.

****DRAFT 6/2/94****

The NII Learning Challenge

The NII Learning Challenge would be a national campaign to encourage public and private sector actors to work together to create tangible demonstrations of the power of the NII to enhance the productivity of learning. It would be kicked off and continually reinforced by the VPOTUS and Secretaries of Education, Labor, Commerce (HHS?). Special emphasis would be focused on ensuring (a) universal access to schools, homes, and workplaces, and (b) ensuring that the interactive learning content of the technologies that are accessed on the NII can engage persons of all ages and diverse learning styles. The Challenge would have the following features:

Structure: The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." 10 winning proposals would receive grants totalling up to \$5 million to implement their proposals.

Eligibility: The definition of "eligible communities" would be purposefully broad, but would have to at a minimum include some consortia of businesses, schools, community-based organizations (libraries, non-profit organizations, etc.), and presumably some telecommunication operation (i.e. Bell Atlantic, TCI).

Criteria: Proposals would have to meet the following minimum criteria:

- a) Access. Winning proposals would have to guarantee universal access for all participants.
- b) Learning Content. Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value, and high entertainment value (that they are "fun" to use).
- c) Non-Federal Match. Eligible communities must come up with at least a 5/1 non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.
- d) Impact. The proposed network of users would have to include individuals across a wide economic and social strata, and would have to implement some segment of our lifelong learning agenda (from preschoolers learning to the training and education of incumbent workers)

Federal Funding: Total federal funding for the Challenge would be somewhere in the neighborhood of \$50 million for FY 1995 (with a non-federal 5/1 matching requirement). This would be distributed in the form of 10 grants of up to \$5 million each. In FY95, funding would be patched together from a variety of existing sources, possibly including School-to-Work technology-related grants, NTIA, TRP, DOD Defense Conversion (The Department of Energy's National Labs could also be used to offer free technical assistance to applicants). For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.

Timeframe: The Program could be announced as early as this Fall, with an application deadline of early Spring 1995 and final awards coming sometime in June/July 1995.

Kick-off Event: A major kick-off event could be organized for the VPOTUS (along with Secretaries Riley, Reich, and Brown) to announce the challenge. Invitees could include a number of major players in the NII world (technology corporations, telecommunications operations, etc.) along with several community-based programs that are already utilizing the kinds of technologies that we are talking about. For example, there are already a number of school-to-work programs that are using technology in creative ways and linking electronically to businesses in their communities. Likewise, there must be examples of colleges and universities linking with businesses for educational/training purposes, or even businesses linking together to provide remedial training in basic skills on a shared basis.

Concept paper by Mike Schmidt
6-5567

THE NII COMMUNITY LEARNING CHALLENGE

The National Information Infrastructure (NII) Community Learning Challenge proposes to link two important Administration goals: (1) the development of a national network of "information superhighways," through the National Information Infrastructure (NII) initiative, and; (2) the development and widespread use of learning content accessed on the NII by children, families and workers in schools, homes, and firms all across the country. The marriage of these two initiatives has the potential to dramatically increase the productivity of learning for all Americans, increase the productivity and competitiveness of the American workforce and firms, and increase the living standards of American families. This paper gives a broad overview of the proposed Challenge, outlining some of its most important components.

Background: Learning Productivity and the NII

Increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from mid 1973 to 1992 saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standards. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to make learning more productive for all Americans -- that is, change the way that people learn to allow them to retain more from any given training/educational experience, and to make what is being learned more meaningful to the learner. This would apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, making learning more productive would mean that workers could do their jobs more effectively and more efficiently. In the classroom, it would mean that students could gain more understanding of what they are learning (and possibly even learn at a higher rate), thus increasing the scope and the effectiveness of what can be taught. Eventually, it would allow all American schools, students, workers, and firms a comparative advantage in this age of information, knowledge, and networking.

Technology is the lever to improve learning, and efficient learning is key to American business success and to an individual's success in a fast-paced, competitive economy. Over thirty years of research show that technology can achieve major gains in the efficiency of learning and capture underutilized time people spend outside the classroom or after work. Technology is increasingly being seen as a way to capture underutilized "out of school/out of work" time and accommodate many different learning styles. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, these examples are isolated and their successes not widely understood. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, whenever and wherever they need to. What we propose to do in this initiative is to

challenge local governments, schools, community organizations, information providers, communication companies, and other businesses to come together and design ambitious projects designed to exploit the potential of learning technology in ways that can benefit the entire community (however broadly defined). The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is a rapidly emerging reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular. Using the NII to promote economic growth and learning that benefits all Americans throughout their lifetimes is a central goal of the Administration.

Linking the issue of learning to the NII has the advantage of building upon the definition of the NII in a way that is broadly appealing to Americans, and can underline the rationale for concerted efforts aimed at accelerating its introduction. While many Americans have heard of the "information superhighway," most do not understand exactly what it means, not to mention the potential it has to impact people's day-to-day life. The Community Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII clear to all Americans.

The Challenge also builds upon the challenge set forth by the Vice President in January of this year to potential NII providers. In that message, the Vice President challenged providers to provide free links from the information superhighway to every classroom, library, hospital, and clinic in the country. The Community Learning Challenge would represent the next step in this process, stimulating new ways of thinking about the NII and lifelong learning and focusing on the issue of developing learning content.

In many ways, an analogy can be drawn to the introduction of the Interstate Highway System in the 1950s. It was the major infrastructure initiative of its time, and people could see how the building of a system of highways that linked communities across the country would have an immediate impact on their lives and on the welfare of the country. Goods could be transported faster and easier, and people could travel across the country, for business and for pleasure, much more conveniently. The National Information Initiative has a similar potential to transform our lives in this Information Age, and by linking the NII to learning we can help people to "see" how it can affect their lives in real and meaningful ways.

The NII Community Learning Challenge

The NII Community Learning Challenge would be a national campaign to encourage public and private sector actors to work together to create tangible demonstrations of the power of the NII to improve learning. The goal would be to help communities explore ways that the emerging "information superhighway" and powerful, inexpensive computer equipment can be used to transform the way Americans of all ages learn by strengthening the connections between education and practical work experiences, between parents and schools, employers and prospective employees.

The Challenge would be kicked off by a major POTUS/VPOTUS event, and continually reinforced by the VPOTUS and Secretaries of Education, Labor, Commerce, and HHS. Special emphasis would be focused on ensuring (a) universal access to schools, homes, and workplaces, and (b) ensuring that the interactive learning content of the technologies that are accessed on the NII can engage persons of all ages and diverse learning styles. The Challenge would have the following features:

- . **Structure:** The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." 25 (?) winning proposals would receive grants of \$2 to \$5 million to implement their proposals.
- . **Eligibility:** The definition of "eligible communities" would be purposefully broad, and could include a wide range of possibilities, including geographic communities (a city, state, or region), communities of interests such as the disability community, or even "virtual" communities that could stretch across the country and around the globe. However, while we would remain open to broad interpretations of the term community, eligible proposals would have to at a minimum include some consortia of businesses, schools, community-based organizations (libraries, non-profit organizations, etc.), software/information providers, and a telecommunication operation (e.g. Bell Atlantic, TCI).
- . **Criteria:** Proposals would have to meet the following minimum criteria:
 - a) Access. Winning proposals would have to ensure practical access to the proposed system for a broad cross-section of the community.
 - b) Learning Content. Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value, and high entertainment value (that they are engaging and easily accessible). They should also suggest a creative use of technology for supporting the nation's central education and training goals as embodied in Goals 2000, the School-to-Work Act, and other lifelong learning programs.
 - c) Non-Federal Match. Eligible communities must come up with at least a [5/1] non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.
 - d) Impact. The proposed network of users would have to include individuals across a wide economic and social strata, and would have to

implement some segment of our lifelong learning agenda (from learning games for preschoolers to engaging learning curriculum to help students meet the National Education Goals to essential education of incumbent workers to enhance their skills and knowledge). In addition, the education community (teachers, principals, etc.) should specifically be included in some way, and proposals should address the issue of training teachers to use the technology provided to them.

- e) Replication. Proposals should demonstrate a system that could become a permanent part of the community and that could be replicated widely in other communities across the country.

- **Federal Funding:** Total federal funding for the Challenge would be somewhere in the neighborhood of \$50 to \$100 million for each Fiscal Year (with a non-federal 5/1 matching requirement). This would be distributed in the form of 25 grants of \$2 to \$5 million each. In FY95, funding could be patched together from a variety of existing sources, e.g. School-to-Work technology-related grants, NTIA, TRP, ATP, DOD Defense Conversion (The Department of Energy's National Labs could also be used to offer free technical assistance to applicants), with each separate program providing a different aspect of a given grant. For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.
- **Timeframe:** The Program could be announced as early as this Fall, with an application deadline of early Spring 1995 and final awards coming sometime in June/July 1995.
- **Kick-off Event:** A major kick-off event could be organized for the POTUS and VPOTUS (along with Secretaries Riley, Reich, Brown, and Shalala) to announce the challenge. Invitees could include a number of major players in the NII world (technology corporations, telecommunications operations, teachers unions, etc.) along with several community-based programs that are already utilizing the kinds of technologies that we are talking about. For example, there are already a number of school-to-work programs that are using technology in creative ways and linking electronically to businesses in their communities. Likewise, there could be examples of colleges and universities linking with businesses for educational/training purposes, or even businesses linking together to provide skills training on a shared basis.

Learning Challenge Possibilities

The Learning Challenge has the potential to spur a broad spectrum of exciting applications of the NII. By employing emerging technologies to strengthen the connections between businesses, schools, and homes, all sectors of a community have the potential to see dramatic gains in the productivity of learning. These technologies can help local businesses

work with high-schools to develop programs that prepare students for the real employment opportunities in their communities; students can participate in "virtual apprenticeships" at school using computer technology that simulates actual work experiences and uses these experiences to motivate instruction in traditional areas of science, mathematics, and literacy. They can allow pre-schoolers to play learning games at an early age that help them to read and write, and make them become comfortable with technology from the earliest stages of their formal education. They can make it much easier for machine-tool operators, insurance underwriters, surgeons, delivery-truck drivers, teachers -- indeed, people in virtually all occupations -- to upgrade their skills in a fast-moving economy using learning tools available when and where they are needed, whether at home, in the office, at school, or in community centers. The technology can create virtual environments that invite exploration and creative exploration of new concepts as well as providing learning experiences closely approximating individual tutorials. The most gifted learners can be connected quickly to the state-of-the-art in many different areas, while those having trouble can take the time to feel comfortable with basic subjects before moving on in an environment that is challenging but not threatening. The key is in developing learning content for use on the NII that is engaging for learners of all ages. Finally, much like the Enterprise Zone process that this Challenge would be loosely modeled after, the application process will be valuable in and of itself. Even if a proposal is not chosen for funding, it will have brought people together in new ways and stimulated new ways of thinking about how the information superhighway can be used to bring all parts of a community together in a common effort to foster new ways of learning throughout a person's lifetime.

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Background: Learning Productivity and the NII

Increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from mid 1973 to 1992 saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standards. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to make learning more productive for all Americans -- that is, change the way that people learn to allow them to retain more from any given training/educational experience, and to make what is being learned more meaningful to the learner. This would apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, making learning more productive would mean that workers could do their jobs more effectively and more efficiently. In the classroom, it would mean that students could gain more understanding of what they are learning (and possibly even learn at a higher rate), thus increasing the scope and the effectiveness of what can be taught. Eventually, it would allow all American schools, students, workers, and firms a comparative advantage in this age of information, knowledge, and networking.

Technology is the lever to improve learning, and efficient learning is key to American business success and to an individual's success in a fast-paced, competitive economy. Over thirty years of research show that technology can achieve major gains in the efficiency of learning and capture underutilized time people spend outside the classroom or after work. Technology is increasingly being seen as a way to capture underutilized "out of school/out of work" time and accommodate many different learning styles. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, these examples are isolated and their successes not widely understood. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, whenever and wherever they need to. What we propose to do in this initiative is to

challenge local governments, schools, community organizations, information providers, communication companies, and other businesses to come together and design ambitious projects designed to exploit the potential of learning technology in ways that can benefit the entire community (however broadly defined). The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is a rapidly emerging reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular. Using the NII to promote economic growth and learning that benefits all Americans throughout their lifetimes is a central goal of the Administration.

Linking the issue of learning to the NII has the advantage of building upon the definition of the NII in a way that is broadly appealing to Americans, and can underline the rationale for concerted efforts aimed at accelerating its introduction. While many Americans have heard of the "information superhighway," most do not understand exactly what it means, not to mention the potential it has to impact people's day-to-day life. The Community Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII clear to all Americans.

The Challenge also builds upon the challenge set forth by the Vice President in January of this year to potential NII providers. In that message, the Vice President challenged providers to provide free links from the information superhighway to every classroom, library, hospital, and clinic in the country. The Community Learning Challenge would represent the next step in this process, stimulating new ways of thinking about the NII and lifelong learning and focusing on the issue of developing learning content.

In many ways, an analogy can be drawn to the introduction of the Interstate Highway System in the 1950s. It was the major infrastructure initiative of its time, and people could see how the building of a system of highways that linked communities across the country would have an immediate impact on their lives and on the welfare of the country. Goods could be transported faster and easier, and people could travel across the country, for business and for pleasure, much more conveniently. The National Information Initiative has a similar potential to transform our lives in this Information Age, and by linking the NII to learning we can help people to "see" how it can affect their lives in real and meaningful ways.

The NII Community Learning Challenge

The NII Community Learning Challenge would be a national campaign to encourage public and private sector actors to work together to create tangible demonstrations of the power of the NII to improve learning. The goal would be to help communities explore ways that the emerging "information superhighway" and powerful, inexpensive computer equipment can be used to transform the way Americans of all ages learn by strengthening the connections between education and practical work experiences, between parents and schools, employers and prospective employees.

The Challenge would be kicked off by a major POTUS/VPOTUS event, and continually reinforced by the VPOTUS and Secretaries of Education, Labor, Commerce, and HHS. Special emphasis would be focused on ensuring (a) universal access to schools, homes, and workplaces, and (b) ensuring that the interactive learning content of the technologies that are accessed on the NII can engage persons of all ages and diverse learning styles. The Challenge would have the following features:

- . **Structure:** The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." 25 (?) winning proposals would receive grants of \$2 to \$5 million to implement their proposals.
- . **Eligibility:** The definition of "eligible communities" would be purposefully broad, and could include a wide range of possibilities, including geographic communities (a city, state, or region), communities of interests such as the disability community, or even "virtual" communities that could stretch across the country and around the globe. However, while we would remain open to broad interpretations of the term community, eligible proposals would have to at a minimum include some consortia of businesses, schools, community-based organizations (libraries, non-profit organizations, etc.), software/information providers, and a telecommunication operation (e.g. Bell Atlantic, TCI).
- . **Criteria:** Proposals would have to meet the following minimum criteria:
 - a) Access. Winning proposals would have to ensure practical access to the proposed system for a broad cross-section of the community.
 - b) Learning Content. Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value, and high entertainment value (that they are engaging and easily accessible). They should also suggest a creative use of technology for supporting the nation's central education and training goals as embodied in Goals 2000, the School-to-Work Act, and other lifelong learning programs.
 - c) Non-Federal Match. Eligible communities must come up with at least a [5/1] non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.
 - d) Impact. The proposed network of users would have to include individuals across a wide economic and social strata, and would have to

implement some segment of our lifelong learning agenda (from learning games for preschoolers to engaging learning curriculum to help students meet the National Education Goals to essential education of incumbent workers to enhance their skills and knowledge). In addition, the education community (teachers, principals, etc.) should specifically be included in some way, and proposals should address the issue of training teachers to use the technology provided to them.

- e) Replication. Proposals should demonstrate a system that could become a permanent part of the community and that could be replicated widely in other communities across the country.

- . **Federal Funding:** Total federal funding for the Challenge would be somewhere in the neighborhood of \$50 to \$100 million for each Fiscal Year (with a non-federal 5/1 matching requirement). This would be distributed in the form of 25 grants of \$2 to \$5 million each. In FY95, funding could be patched together from a variety of existing sources, e.g. School-to-Work technology-related grants, NTIA, TRP, ATP, DOD Defense Conversion (The Department of Energy's National Labs could also be used to offer free technical assistance to applicants), with each separate program providing a different aspect of a given grant. For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.
- . **Timeframe:** The Program could be announced as early as this Fall, with an application deadline of early Spring 1995 and final awards coming sometime in June/July 1995.
- . **Kick-off Event:** A major kick-off event could be organized for the POTUS and VPOTUS (along with Secretaries Riley, Reich, Brown, and Shalala) to announce the challenge. Invitees could include a number of major players in the NII world (technology corporations, telecommunications operations, teachers unions, etc.) along with several community-based programs that are already utilizing the kinds of technologies that we are talking about. For example, there are already a number of school-to-work programs that are using technology in creative ways and linking electronically to businesses in their communities. Likewise, there could be examples of colleges and universities linking with businesses for educational/training purposes, or even businesses linking together to provide skills training on a shared basis.

Learning Challenge Possibilities

The Learning Challenge has the potential to spur a broad spectrum of exciting applications of the NII. By employing emerging technologies to strengthen the connections between businesses, schools, and homes, all sectors of a community have the potential to see dramatic gains in the productivity of learning. These technologies can help local businesses

work with high-schools to develop programs that prepare students for the real employment opportunities in their communities; students can participate in "virtual apprenticeships" at school using computer technology that simulates actual work experiences and uses these experiences to motivate instruction in traditional areas of science, mathematics, and literacy. They can allow pre-schoolers to play learning games at an early age that help them to read and write, and make them become comfortable with technology from the earliest stages of their formal education. They can make it much easier for machine-tool operators, insurance underwriters, surgeons, delivery-truck drivers, teachers -- indeed, people in virtually all occupations -- to upgrade their skills in a fast-moving economy using learning tools available when and where they are needed, whether at home, in the office, at school, or in community centers. The technology can create virtual environments that invite exploration and creative exploration of new concepts as well as providing learning experiences closely approximating individual tutorials. The most gifted learners can be connected quickly to the state-of-the-art in many different areas, while those having trouble can take the time to feel comfortable with basic subjects before moving on in an environment that is challenging but not threatening. The key is in developing learning content for use on the NII that is engaging for learners of all ages. Finally, much like the Enterprise Zone process that this Challenge would be loosely modeled after, the application process will be valuable in and of itself. Even if a proposal is not chosen for funding, it will have brought people together in new ways and stimulated new ways of thinking about how the information superhighway can be used to bring all parts of a community together in a common effort to foster new ways of learning throughout a person's lifetime.

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Learning Content - In the center of

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Program making
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Rand Dwyer (Former
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Burton thinks you would add good
Thinking to process

Keith Yocum

paying for - got NSF grant on teacher
Training

Apple Classroom of Tomorrow ACOT

NII and Learning Productivity

1. How do the central principles of the administration's NII proposals operate to help education and training: universal access, competition, interoperability.
2. How do existing subsidies work to assist educational uses of communications media, how could they be affected by the new regulatory environment
 - cross subsidies in regulated markets
 - public service requirements in broadcast licenses and cable contracts
 - PBS and other providers of content
3. What new programs could be used to provide funding for (1) connecting schools, libraries, universities to the NII (including communication infrastructure within schools etc.), (2) connecting low-income and other disadvantaged groups, (3) content. Options include:
 - universal service fund (what are the practical choices)
 - "social contract" obligations incurred for competitive entries in communication markets
 - other funds available from regulated entities (e.g. "overages")
 - appropriated funds from federal or state institutions
 - Other?
4. What specific actions should we encourage from the Governors?

ADVANTAGES OF THE NII COMMUNITY LEARNING CHALLENGE

- . Direct link to existing work on the NII Initiative -- logical next step
- . Direct link to existing lifelong learning agenda -- way to ensure lifelong learning for all Americans
- . One way to support goals of School-to-Work and Goals 2000
- . Focus on learning content crucial component of any NII, missing from current private sector activity
- . Part of solution to problem of leveraging after-school/after work time for learning
- . Learning productivity important element in increasing overall productivity
- . President's role is to provide vision -- this is part of vision
- . Political standpoint -- businesses are eager and willing to do much of this anyway, so why not provide some vision and get credit for it too
- . High level of VPOTUS interest expected -- he and Secretaries Riley, Reich, and Brown would do the lions share of work on this, with the POTUS taking part in the kick-off ceremony
- . Process itself would bring together important actors for the first time and stimulate new ways of thinking about learning and the information superhighway

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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;
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- . 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;
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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.

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VI. Interactive Learning Technology Demonstrations -- DoD

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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:

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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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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;

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- . Secretary Brown 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.

AGENDA FOR JUNE 17 DISCUSSION OF EDUCATION AND TECHNOLOGY

- I. The current status of technology in the classroom.
- II. What can the Federal government do to enhance learning through technology in general, and through the NII in particular?
- III. What are the near-term Federal policy issues (FY 1995 through 1999) whose resolution is most likely to enhance learning through technology?
- IV. Are there particular issues that research or carefully implemented and evaluated demonstrations can illuminate?

where are

) POTS of money:
NSF - Advanced tech
DOED - Procurement \$

chpt 1

- communicate what we're looking for
- use existing programmatic means

Ed Tech

- Curriculum Development

↳ Tech should change ways
Learning take place

Equity Problem

→ Equity

Effectiveness
- OMB

- Evaluation of Program

Curriculum development part of learning
~~Content development~~

↳ Teacher Training
↳ Learning in context

Goals 2000 -- Content Standards

↳ baselines as part of proposal
↳ where are we -- where are we going?

↳ Content Standards - Fed. Role

↳ Allow Teachers to become producers of
Content

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DOCUMENT NO. AND TYPE	SUBJECT/TITLE	DATE	RESTRICTION
001. list	Subcommittee on Research & Development in Education and Training (National Security Act) (1 page)	nd	P3/b(3)

COLLECTION:

Clinton Presidential Records
Domestic Policy Council
Michael Schmidt
OA/Box Number: 7339

FOLDER TITLE:

Community Learning Challenge File 1

2013-0968-S

sb27

RESTRICTION CODES

Presidential Records Act - [44 U.S.C. 2204(a)]

- P1 National Security Classified Information [(a)(1) of the PRA]
- P2 Relating to the appointment to Federal office [(a)(2) of the PRA]
- P3 Release would violate a Federal statute [(a)(3) of the PRA]
- P4 Release would disclose trade secrets or confidential commercial or financial information [(a)(4) of the PRA]
- P5 Release would disclose confidential advice between the President and his advisors, or between such advisors [(a)(5) of the PRA]
- P6 Release would constitute a clearly unwarranted invasion of personal privacy [(a)(6) of the PRA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

PRM. Personal record misfile defined in accordance with 44 U.S.C. 2201(3).

RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

- b(1) National security classified information [(b)(1) of the FOIA]
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- b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]



Subcommittee on Research & Development in Education and Training

Last Name	First Name	Organization	Phone	Fax	E Mail Address
HHS					
Allison	David	Smithsonian	202-357-2038	202-633-9338	mahcis01sivm.si.edu
EXC					
Breeden	Laura	Commerce	202-482-1635	202-482-1635	lbreeden@ntia.doc.gov
E/C					
Finch	Lou	OSD	703-693-0466	703-697-6691	finch@amtpgate.fmp.osd.mil
Fitzsimmons	Edward	OSTP	202-456-6038	202-456-6023	fitzsimmons@ostp.eop.gov
Holland	Gloria	VA	202-535-7090	202-535-7522	
Horrigan	Sarah	OMB	202-395-3534	202-395-4875	
Parham	Gregory	Agriculture	202-720-8115	202-690-0289	gparham@esuda.gov
Phelps	Malcom	NASA	202-358-1540	202-358-3048	mphelps@hr.hq.nasa.gov
Portman	Robert	Labor	202-219-6045	202-219-4315	rportman@nsf.gov
Robinson	Sharon	DoED	202-219-2050	202-219-1402	
Sabelli	Nora	NSF	703-306-1651	703-306-1651	nsabelli@nsf.gov
Slatkin	Ron	EPA	202-260-0578	202-260-0036	
Stephens	Richard	Energy	202-586-8949	202-586-0019	richard.stephens@mail.gw.doe.gov
White	Bayla	OMB	202-395-3534	202-395-4875	
Wiltshire	Denise	Interior	703-648-7114		
Woodruff	Phillip	Transportation	202-366-7018	202-366-3786	

EXECUTIVE OFFICE OF THE PRESIDENT

13-Jun-1994 05:38pm

TO: Michael T. Schmidt

FROM: Henry Kelly

CC: James Kohlenberger

CC: Paul R. Dimond

SUBJECT: Re: Contact list for NII Community Learning Challenge

I know Linda Roberts and Kirstie Bellman very well and can contact them.

I also know Fisher and Ed Fitzsimmons has talked with him at length. I believe that St. George at NSF is also a technology and education type. As a result, I'd guess that all of them are on the NSTC committee already working on our R&D agenda.

None of these people are the the mainstream NII crowd, however. They are agency education and technology advisors for the NII. All are likely to be enthusiastic about the NII challenge proposal but this doesn't necessarily help us with the core NII mavens. The prime movers on the NII are:

Larry Irving, Johnathan Sallet from commerce (their programs would be most heavily affected and they are really the leaders of the NII outside of the White House. I'd strongly recommend that we set up a separate meeting with them. We can also meet with Laura Breder who presumably is in charge of the program for hooking up schools using the new NTIA funding. But we probably should begin with strategic guidance from Irving and Sallet.

Anne Bingaman, Treasury (she's primarily involved in the legislation for NII which has many subtleties involving anti-trust)

Sally Katzen, Chris Edley and Bruce McConnell, OMB. We might want to have Edley join a conversation with the commerce guys. The others are largely concerned with regulatory affairs)

Joe Stiglitz, CEA. (always interesting)

Simon and Kalil and Nelson

On Mon, 13 Jun 1994, Michael T. Schmidt wrote:

> Here are the people that Kalil suggested we contact ASAP about the
> NII Community Learning Challenge. Please make any
> additions/deletions to the list, and think about who should call
> each person to discuss the Challenge before we pull them all
> together and give them the "official word."

>
>
> Laura Breder (NTIA)

> Linda Roberts (DoEd)
> Dave Fisher (ATP)
> Art St. George (NSF)
> Kristi Bellman (ARPA)
>

> In addition, Paul Dimond mentioned that he could talk to Doug Ross
> (DOL) Tom Glynn (DOL), Ev Ehrlich (DOC), Dave Barrum (DOC) and
> Undersecretary Deutch (DoD) and get their buy-in whenever we think
> it is appropriate to do so. It sounds to me from our conversation
> today and my conversation with Kalil last week that we probably
> should touch base with the "NII Group" listed above first.
>
>

Mike: proposed rewrite of second and third paragraphs of 6/6/94 draft. Goal was to tighten the argument

A.

living standards. **It also highlighted the risk that the benefits of economic growth may not be widely shared in technologically sophisticate economies. Growth in economic productivity -- particularly growth that works to the benefit of all Americans -- requires new methods for increasing the productivity of learning. Technology that has increased productivity in many other information businesses has the potential to create learning experiences tailored to their unique backgrounds, experiences, and tastes. It can ensure that learning is available when and where it is needed in the complex, busy lives most Americans lead. Powerful, inexpensive computers -- which may be disguised as the next generation of television sets -- can make efficient learning systems can be used in schools, in offices, and at home. Modern communication systems can tie these systems together in a seamless web.**

Technology is the lever to improve learning and efficient learning is key to American business success, and to an individual's success, in a fast-paced, competitive economy. Thirty years of research have shown that technology can achieve major gains in the efficiency of learning and capture underutilized time people spend outside the classroom or after work. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. Innovative school districts are beginning to integrate technology into the classroom. But these examples are isolated and their successes not widely understood. What we propose to do in this initiative is to challenge local governments, schools, information providers, communication companies and other businesses in a community to design ambitious projects designed to exploit the potential of learning technology in ways that can benefit the entire community. Using the National Information Infrastructure to promote economic growth that benefits all Americans is a central goal of the Administration.

Kalil

↳ put it together in virtual Funding
format

↳ ATR pays this much for this
Ed pays this much for this
NTIA pays this much for this part

↳ Kalil

↳ Just as important as Challenge
Grants -> Get participation
of lawmakers -- NBA

↳ California Proposal - Connect all
Schools from e-Box \$
\$100

↳ applications is our leverage

pull together in
meeting

Ought to talk to: Camp breaks NITA
Linda Roberts Doed
Dave Fisher ATP
Art S. George NSF
Girsti Bellman ARPA

Paul Live up Ross Glyn
EU - Brian
Deutsch

Kohlenhagen

"Building upon NII Definition"
not "same sense & purpose"

Y Build upon the challenge set forth by
the ~~U.A.~~ ^{Jan} January -- the next
step in the process

sense
- "community" is not limited

Y Grant size amount -- how
much is right how many

Clarify that universal access &
will not go to hookup businesses
alone

~~User friendly, accessible~~
not fun

~~what~~

Kohlman Lopez

Edley, Sachill need to bring in ASAP

5-1822 - Hollings bill -- 5

- engaging private sector & educators to do this - end

Criteria Applications must include educators --
Teachers must ~~be~~ trained

Stimulating new ways of thinking,
bringing new people together
into coherent whole

incumbent worker link

C

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9
9
3

Institute for Re

2550 Hanover Street
Palo Alto, California 94304
415-496-7920
fax: 415-496-7957
Susan_Stucky@IRL.COM

Susan U. Stucky
Associate Director

INSTITUTE FOR
RESEARCH ON
LEARNING

Mike - please read & return.
IRL could be helpful on
learning challenge
Sitting

A NEW LEARNING AGENDA "PUTTING PEOPLE FIRST"

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Institute for Research on Learning
2550 Hanover Street
Palo Alto, CA 94304-1115
(415) 496-7900
(415) 496-7957 fax

A New Learning Agenda

"Putting People First"

There is a belief in our nation that we have a learning crisis: That kids aren't learning in school and workers aren't learning on the job. But if there is a crisis, it stems from the tendency to locate learning in the individual, and to blame the individual for learning "failure". The solution to the "learning crisis" lies in an understanding of how truly to put people first.

The time could not be better for rethinking the place of learning in our society. There is a new and powerful convergence of understanding and commitment in the nation, between the probing engagement of the new administration, multiple creative reform efforts in the schools, and an increasingly involved business community. It is crucial at this point to understand exactly what learning is, and how best to foster it.

People's hopes, dreams and identities are embedded in their communities; not merely locked in their individual bodies and minds. They learn in the service of these hopes, dreams and identities—they learn in order to enhance their participation in their communities. "Putting people first" means seeing people first and foremost as members of communities, and serving each by serving the other.

Most of America's schools and workplaces embody a view of learning that focuses on the individual in isolation. It assumes that knowledge is a substance that can be delivered to the learner's mind. According to this view, learning is an individual activity that is separable from, even independent of, social engagement.

The Institute for Research on Learning proposes a fresh view of learning—a view that emphasizes the relation between learning and social engagement, between knowledge and identity. This is a view that sees learning not as a transfer of knowledge, but as a process of building understanding. Our future as a learning society depends on our ability to adopt, and to build on, this social view of learning.

*The problem is not people's failure to learn,
but society's failure to provide opportunities
for meaningful participation in the
construction of knowledge.*

WHERE IS THE "LEARNING CRISIS"?

According to the traditional view, the perceived learning crisis in schools and workplaces involves two distinct sets of problems:

"COGNITIVE" PROBLEMS

- Students rarely use their school knowledge to solve problems in the real world.
- Students leave school unprepared for the workplace.
- Workers lack the flexibility to learn and adapt as the nature of work changes.

"SOCIAL" PROBLEMS

- Kids choose to fail in school when academic success conflicts with social fulfillment outside the classroom and the school.
- Workers show no personal involvement in their jobs, no pride in quality, no desire to learn or contribute.

The problems called "cognitive" are said to point to a crisis in the quality of education, while the problems called "social" are said to point to a more general crisis of alienation.

Everyone recognizes that social problems serve as a barrier to learning. Social dynamics (e.g. personal involvement, identity) are seen as contributing to the motivation to learn. Solutions to the learning crisis, therefore, are frequently sought in isolated social programs or in developing separate activities to enhance motivation and individual self-esteem.

BUT THIS IS NOT ENOUGH. Social dynamics are part of the actual process of learning, and when our institutions treat the social as purely motivational, treat knowledge as a substance that can be delivered, transferred, applied and separate learning from the rest of life, they construct barriers to learning. And in so doing, they further the learning crisis.

*We cannot make real progress until
we recognize that cognitive and social processes
are neither separate nor separable—that learning
is inherently social. In keeping with this,
we propose a new set of principles
to guide us toward the development
of a learning society.*

WHAT AND WHERE IS LEARNING?

Our research at IRL has led us to articulate SEVEN PRINCIPLES of learning—principles that present a serious challenge to the usual, “comfortable” view of learning that dominates our institutions. These principles call for change in schooling and workplace practice. They also call for change in the way we view and develop learning and learning environments, and for change in the direction of policy and research.

1. LEARNING IS FUNDAMENTALLY SOCIAL

The choice between learning and social fulfillment—a choice that dominates most schools and many workplaces—should never arise. An important part of what makes adult professionals successful and productive is their ability to integrate their work with their social lives. They forge their identities and connections around their work, their knowledge and their contributions to the community in which they work. Yet most students and workers in our society are currently expected to live differently—to maintain distance between work and social activity.

2. KNOWLEDGE IS INTEGRATED IN THE LIFE OF COMMUNITIES

Knowledge, activity and social relations are closely intertwined, whether in families, scientific communities, jump rope groups, jazz bands or design teams. United by a common enterprise, people come to develop and share ways of doing things, ways of talking, beliefs, values—in short, practices—as a function of their joint involvement in mutual activity. We call such informal aggregations *communities of practice*, because they are defined not only by their membership, but by shared ways of doing things. Every individual belongs to, and seeks membership in, many communities of practice. In communities of practice, social relations form around activities,

activities take shape through relationships, and particular kinds of knowledge and expertise become part of individuals' identities and places in the community. Because shared knowledge underlies this activity, learning is the means by which people gain membership, and participate in community activity.

3. LEARNING IS AN ACT OF MEMBERSHIP.

Learning is not just the activity of a sole individual, but the primary vehicle for engagement with others. It is what enables people to enter and participate in new communities of practice, and it is what enables them to continually modify their places in and contribution to the community. Every act of learning brings a change in one's relation to the community—a change in one's identity. The key to enhancement and motivation in learning lies in the intimate connection between the desire for participation and the role of new knowledge in enabling that participation.

4. KNOWING IS ENGAGEMENT IN PRACTICE

Only in the classroom is knowledge presented in the abstract, and only in the classroom are people expected to demonstrate knowledge through abstract performances. Knowledge does not lie around in the world in some pure form; nor is there any reason to believe that it is stored in the human mind in such a form. Rather, people glean knowledge from observations of, and participation in, myriad situations and activities. A productive lifelong learner—a person who can adapt and learn swiftly in new situations—is a person who can transform all situations into learning situations. Learners must be able to learn as they engage in new activity, and as they move into new settings. This entails figuring out what the characteristics of the situation are, what its relation is to situations that they already know, what there is to learn, and what new knowledge they need in order to be able to participate productively in the situation.

5. ENGAGEMENT IS INSEPARABLE FROM EMPOWERMENT

Individuals perceive their identities in terms of their ability to contribute—and in terms of their contributions—to a community. Meaningful participation in a community involves the power to affect the life of that community. Settings and situations that provide the greatest potential for learning, therefore, will be those in which participants have meaningful and active roles—in which they are engaged in real action that has consequences not only for them but for their community as a whole.

6. "FAILURE" TO LEARN IS THE NORMAL RESULT OF EXCLUSION FROM PARTICIPATION.

Learning requires access and opportunity. People have difficulty learning when they are only accorded marginal or tentative membership. Limited privileges of participation do not entail rights to contribute and make meaning, hence do not provide opportunities for engaged learning. This deeper perspective requires a more textured understanding of the means and implications of discrimination and exclusion.

7. WE ALREADY HAVE A SOCIETY OF LIFELONG LEARNERS.

People are learning all the time, but what they are learning is not necessarily in their best interests or in the best interests of society. People learn what enables them to participate in communities of practice—not just any communities of practice, but those that appear to them to be real, to be available, and to hold possibility for meaningful participation. Depending on availability and opportunities for meaningful participation, people may seek their potential in communities that center around activities ranging from science to music, public service, child care, gang warfare, or dealing drugs.



While people traditionally associate learning with schooling, it is clear that learning is as critical in the workplace as it is in the classroom: Indeed, it is now widely recognized that the successful organization of the future must be one that fosters continuous learning. But how is this to come about? More often than not, schools are poor learning organizations, and businesses have few models on which to base their own transformation.

We have seen many wonderful experiments—model schools and workplaces that embody new and rich views of learning and productivity. Yet these efforts tend to be viewed with skepticism, and they do not spread. Widespread resistance to meaningful innovation, we believe, grows out of a seriously outmoded view of knowledge and learning that dominates our institutions and public belief. It is a view that is compatible with worn-out principles of production control and efficiency—and incompatible with what we know about human identity and motivation.

*Before we invest billions
trying to fix a system designed primarily
for the efficient delivery of subject matter,
we need to reconsider the assumptions underlying
the old "transfer" view of learning.*

WHERE TO START: RETHINKING REFORM AND RESEARCH

The problems of school and the workplace are not that different: powerful solutions to the learning crisis lie in the development of learning communities in which all participants can build meaningful lives and identities around discovery, engagement and work. Institutions must find ways to support the development of such communities around activities that link its members meaningfully and productively to the larger goals of the institution and of society. Such reform must rest on appropriate research and experimentation.

We end with a brief discussion of some issues that are prominent in current discussions of reform in school and in the workplace. All of these issues look very different depending on one's view of learning, and it should be apparent that IRL's view of learning suggests quite different approaches from those that have predominated in the past.

1. RESTRUCTURING

Restructuring efforts—whether in the school or the workplace—must recognize the organic nature of the development of communities of practice: communities of practice cannot be mandated or even created, but they can be recognized and supported. Rather than try to align groups and activities to fit a formal structure, restructuring must align the formal structure to support existing and emerging communities in fulfilling the goals of the organization.

2. TECHNOLOGY

The design of technology is as much a social challenge as it is a technical one. Whether "low-tech" or "high-tech," whether complex or simple, it is to the extent that technology is integrated into the practices of social communities that its potential can be realized. For instance, the learning potential of information systems lies as much in the connections that they open among people, and in the collaboration that they support, as in the information that they deliver. It is therefore

essential that we think of technology not as a means of delivering knowledge and manipulating activity, but as a means of empowering the development of communities of practice, access to participation in them, and communication among them.

3. APPRENTICESHIP

The great promise of apprenticeship lies not simply in the opportunity to learn while doing, but in the opportunity for genuine participation in the communities of practice that form around work. There have been many documented cases in which the objectives of apprenticeship have been thwarted by the isolation of apprentices in menial tasks. If it is to be successful, an apprenticeship program must ensure that apprentices are given full access to all the relevant aspects of practice, including activities, artifacts, places, and people.

4. TRAINING AND RETRAINING

Training and retraining are key issues in the new fast-changing workplace, and a social view of learning makes us rethink seriously the locus and nature of training. People develop knowledge and skills not in the abstract, but as they are embedded in work practices and social relations. The workplace, therefore, must support the kinds of interactions that build social relations and community around work—the kinds of interactions in which learning is commonly embedded. Learning that is embedded in work itself, rather than abstracted from the work situation, will require no relearning for application in “real” work activity. A workplace designed for learning, then, will facilitate this kind of coherence by making structures and activities maximally accessible to all the people who work there, allowing workers to make sense of the work and the work environment, enabling them to pick up new knowledge and skills quickly because they fit into a rich and coherent understanding of the overall enterprise.

5. SCHOOL-TO-WORK TRANSITION

The most durable knowledge that people gain in school is institutional knowledge—knowledge of institutional practice, and of one’s possibilities for participation. This knowledge becomes an important part of one’s identity, and differs according to one’s forms of participation in school. For example, the institutional structure of public high schools currently encourages the domination of social life by small adolescent elites, marginalizing large numbers of high school students. The marginalized identities that these kids develop in school can carry over into adult institutions such as the workplace, where they confront a similar institutional structure. Preparation for the workplace, therefore, does not happen simply within the curricular sphere, but in one’s general life within the school; hence reform cannot

focus simply on providing curricular preparation, but on providing all students with real opportunities for meaningful participation in all aspects of the life of the school and of the community it serves.

6. ASSESSMENT

There is an important difference between assessment that is built into practice and whose function is to support learning; and assessment that is extracted out of practice, made portable, and shipped to other locations to support classification and sorting. The design of assessment systems must recognize that broad instruments like national testing can perform only a narrow service within the practice of schooling, because it provides severely limited information. Moreover, such design must address the danger that such powerful instruments become the focus of educational practice, as students "learn to the test" and as the limitations of testing begin to limit the curriculum.

7. PRODUCTIVITY

The current discussion about productivity is dominated by narrow economic output-per-unit-of-input measures that leave out of consideration important aspects of how organizations learn and improve. For example, the development of a capacity for collaboration, an increase in resiliency, problem-solving ability, adaptability to change, and other internally held resources are routinely ignored in current productivity measures. We believe it is important to broaden and recast the discussion of productivity to include "authentic" assessments of outcome and worth that are based on participants' sense of value.

As a nation, we must change the way we look at learning. The challenge for society's leaders—and the new administration—is to reframe the national agenda around the issues and challenges of learning, rather than primarily around schooling and training. We need to think of learning as an integral part of human endeavor rather than as something reserved for the classroom, and explore all situations as learning environments. This progress must rest on a NEW BRAND OF RESEARCH which will:

- **BE INTERDISCIPLINARY**
- **TAKE PLACE** in the situations where learning happens.
- **WORK WITH**, not on, the people in those situations.
- **DIFFERENTIATE** between learning and education.
- **DO JUSTICE** to the complexity of real life.



Institute for Research on Learning

Founded in 1987 with the generous assistance of the Xerox Foundation, The Institute for Research on Learning is a non-profit institute dedicated to the understanding and enhancement of learning in a wide range of settings. IRL conducts its research via a series of multidisciplinary teams—comprising nearly forty full, part-time and affiliate research scientists—working together to probe the process of learning in all its complexity. IRL's unique research power comes from a combination of insights and methods from fields as diverse as anthropology, computer science, education, linguistics and psychology.

David Kearns, IRL's founder (former Chairman and CEO of Xerox and former Deputy Secretary of Education) described IRL as having the "opportunity to significantly affect how we think about learning and what programs we put in place during the next decade."

IRL pursues its research in partnership with schools, workplaces and communities that are seeking to transform themselves into environments for learning. Our research questions are based in real world problems, and the results of our research are clearly relevant to these problems.

IRL combines research and learning by involving members of its participating communities in research, and in the design of innovative and self-perpetuating environments for learning. Collaboration with partners ensures a fuller perspective and lessens the gap between research and "application."

*Institute for Research on Learning
2550 Hanover Street
Palo Alto, CA 94304-1115
(415)496-7900
(415)496-7957 fax*

For more information, contact Maria Escamilla, Communications Coordinator (415) 496-7965.

THE WHITE HOUSE
OFFICE OF THE VICE PRESIDENT

January 11, 1994
FOR IMMEDIATE RELEASE

Contact: 202-456-7035

VICE PRESIDENT PROPOSES NATIONAL TELECOMMUNICATIONS REFORM

Bring the Information Revolution to Every Classroom, Hospital, and Library in the Nation By the End of the Century

Los Angeles, CA--Citing the need to bring the economic, health, and educational benefits of the information revolution to all Americans, Vice President Al Gore, in a speech to the Academy of Television Arts and Sciences, today outlined the Clinton Administration's proposals to reform the communications marketplace.

Gore challenged his audience to provide free links from the information superhighways to every classroom, library, hospital, and clinic in the country. "You here today represent the companies that can do it," said the Vice President. Following The Vice President's pledge during the 30 minute speech, he stated the Administration's support for removing the legal and regulatory barriers that prevent telephone, cable and long distance companies from entering each others business.

The Vice President recalled the dream of the interstate highway system of his youth. "Today," he explained, "we have a dream for a different kind of superhighway -- an information superhighway that can save lives, create jobs and give every American young and old, the chance for the best education available to anyone, anywhere."

The Vice President said the Clinton Administration's position grew out of the following five principles, which he outlined in a December speech at the National Press Club in Washington, D.C.:

- ✓ Encourage private investment
- ✓ Provide and protect competition
- ✓ Provide open access to the network
- ✓ Avoid creating information "haves and have nots"
- ✓ Encourage flexible and responsive government action

In a much anticipated announcement, Gore presented a series of policy decisions that will "clear from the road the wreckage of outdated regulations and allow a free-flowing traffic of ideas and commerce for the benefit of all Americans."

Specifically, Gore's proposal would allow telephone companies to get into the cable business, and let cable and other companies into the telephone business.

To make such new ventures possible, the Administration will prevent states from imposing barriers to new companies entering the local phone business and will require local phone companies to make their facilities available to all comers without discrimination and to allow competitors to provide all kinds of telephone services the phone company provides now.

On the issue of the court decree governing the breakup of AT&T, Gore said he supported the effort by key Congressional chairmen to take the courts out of the phone business and provide a pathway by which the local phone companies can enter other lines of business -- like long distance service -- but including also electronic publishing and manufacturing. Gore praised the work of Congressman John Dingell (D-MI) and Jack Brooks (D-TX) and pledged his support to work with them to enact a bill this year.

Gore also recognized the work of his colleagues in the U.S. Senate; Senators Ernest Hollings (D-SC), Daniel Inouye (D-HI), and John Danforth (R-MO) and in the U.S. House of Representatives; Ed Markey (D-MA), and Jack Fields (D-TX). "In many ways our legislative goals complement (their) work, said Gore. "We expect to introduce our legislative package shortly, and to work with Congress to ensure its speedy passage."

###

THE NII COMMUNITY LEARNING CHALLENGE

The National Information Infrastructure (NII) Community Learning Challenge proposes to link two important Administration goals: (1) the development of a national network of "information superhighways," through the National Information Infrastructure (NII) initiative, and; (2) the development and widespread use of learning content played on the NII by children, families and workers in schools, homes, and firms all across the country. The marriage of these two initiatives has the potential to dramatically increase the productivity of learning for all Americans, increase the productivity and competitiveness of the American workforce and firms, and increase the living standards of American families. This paper gives a broad overview of the proposed Challenge, outlining some of its most important components.

Background: Learning Productivity and the NII

Increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from mid 1973 to 1992 saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standards. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to make learning more productive for all Americans -- that is, change the way that people learn to allow them to retain more from any given training/educational experience, and to make what is being learned more meaningful to the learner. This would apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, making learning more productive would mean that workers could do their jobs more effectively and more efficiently. In the classroom, it would mean that students could gain more understanding of what they are learning (and possibly even learn at a higher rate), thus increasing the scope and the effectiveness of what can be taught. Eventually, it would allow all American schools, students, workers, and firms a comparative advantage in this age of information, knowledge, and networking.

Technology is the lever to improve learning. Over thirty years of research show that technology can significantly increase learning achievement. Technology is increasingly being seen as a way to capture underutilized "out of school/out of work" time and accommodate many different learning styles. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, these examples are too few and far between. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, whenever and wherever they need to. The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is a rapidly emerging reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular.

Linking the issue of learning to the NII can give the NII some sense of purpose and definition broadly appealing to Americans, and can underline the rationale for concerted efforts aimed at accelerating its introduction. While nearly everyone has heard of the "information superhighway," almost no one understands exactly what it means, not to mention the potential it has to impact people's day-to-day life. The Community Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII clear to all Americans.

In many ways, an analogy can be drawn to the introduction of the Interstate Highway System in the 1950s. It was the major infrastructure initiative of its time, and people could see how the building of a system of highways that linked communities across the country would have an immediate impact on their lives and on the welfare of the country. Goods could be transported faster and easier, and people could travel across the country, for business and for pleasure, much more conveniently. The National Information Initiative has a similar potential to transform our lives in this Information Age, and by linking the NII to learning we can help people to "see" how it can affect their lives in real and meaningful ways.

The NII Community Learning Challenge

The NII Community Learning Challenge would be a national campaign to encourage public and private sector actors to work together to create tangible demonstrations of the power of the NII to improve learning. The goal would be to help communities explore ways that the emerging "information superhighway" and powerful, inexpensive computer equipment can be used to transform the way Americans of all ages learn by strengthening the connections between education and practical work experiences, between parents and schools, employers and prospective employees.

The Challenge would be kicked off by a major POTUS/VPOTUS event, and continually reinforced by the VPOTUS and Secretaries of Education, Labor, Commerce, and HHS. Special emphasis would be focused on ensuring (a) universal access to schools, homes, and workplaces, and (b) ensuring that the interactive learning content of the technologies that are accessed on the NII can engage persons of all ages and diverse learning styles. The Challenge would have the following features:

- . **Structure:** The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." 25 winning proposals would receive grants of \$2 to \$5 million to implement their proposals.
- . **Eligibility:** The definition of "eligible communities" would be purposefully broad, but would have to at a minimum include some consortia of businesses, schools, community-based organizations (libraries, non-profit organizations, etc.),

software/information providers, and a telecommunication operation (e.g. Bell Atlantic, TCI).

Criteria: Proposals would have to meet the following minimum criteria:

- a) Access. Winning proposals would have to ensure practical access to the proposed system for a broad cross-section of the community.
- b) Learning Content. Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value, and high entertainment value (that they are "fun" to use). They should also suggest a creative use of technology for supporting the nation's central education and training goals as embodied in Goals 2000, the School-to-Work Act, and other lifelong learning programs.
- c) Non-Federal Match. Eligible communities must come up with at least a [5/1] non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.
- d) Impact. The proposed network of users would have to include individuals across a wide economic and social strata, and would have to implement some segment of our lifelong learning agenda (from learning games for preschoolers to engaging learning curriculum to help students meet the National Education Goals to essential education of incumbent workers to enhance their skills and knowledge).
- e) Replication. Proposals should demonstrate a system that could become a permanent part of the community and that could be replicated widely in other communities across the country.

Federal Funding: Total federal funding for the Challenge would be somewhere in the neighborhood of \$50 to \$100 million for each Fiscal Year (with a non-federal 5/1 matching requirement). This would be distributed in the form of 25 grants of \$2 to \$5 million each. In FY95, funding would be patched together from a variety of existing sources, e.g. School-to-Work technology-related grants, NTIA, TRP, ATP, DOD Defense Conversion (The Department of Energy's National Labs could also be used to offer free technical assistance to applicants). For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.

Timeframe: The Program could be announced as early as this Fall, with an application deadline of early Spring 1995 and final awards coming sometime in June/July 1995.

Kick-off Event: A major kick-off event could be organized for the POTUS and VPOTUS (along with Secretaries Riley, Reich, Brown, and Shalala) to announce the challenge. Invitees could include a number of major players in the NII world (technology corporations, telecommunications operations, teachers unions, etc.) along with several community-based programs that are already utilizing the kinds of technologies that we are talking about. For example, there are already a number of school-to-work programs that are using technology in creative ways and linking electronically to businesses in their communities. Likewise, there could be examples of colleges and universities linking with businesses for educational/training purposes, or even businesses linking together to provide skills training on a shared basis.

Learning Challenge Possibilities

The Learning Challenge has the potential to spur a broad spectrum of exciting applications of the NII. By employing emerging technologies to strengthen the connections between businesses, schools, and homes, all sectors of a community have the potential to see dramatic gains in the productivity of learning. These technologies can help local businesses work with high-schools to develop programs that prepare students for the real employment opportunities in their communities; students can participate in "virtual apprenticeships" at school using computer technology that simulates actual work experiences and uses these experiences to motivate instruction in traditional areas of science, mathematics, and literacy. They can allow pre-schoolers to play learning games at an early age that help them to read and write, and make them become comfortable with technology from the earliest stages of their formal education. They can make it much easier for machine-tool operators, insurance underwriters, surgeons, delivery-truck drivers, teachers -- indeed, people in virtually all occupations -- to upgrade their skills in a fast-moving economy using learning tools available when and where they are needed, whether at home, in the office, at school, or in community centers. The technology can create virtual environments that invite exploration and creative exploration of new concepts as well as providing learning experiences closely approximating individual tutorials. The most gifted learners can be connected quickly to the state-of-the-art in many different areas, while those having trouble can take the time to feel comfortable with basic subjects before moving on in an environment that is challenging but not threatening. The key is in developing learning content for use on the NII that is engaging for learners of all ages.

Learning challenge

→ Universal Access

↳ Kely - Deed - cross subsidy/regulation

Kali - Bo - regulation can't keep up with technology

Plays

- cable co's
- Telcos
- Microwave dish

↳ states & telcos create "pools of money"

→ Productivity Definition

↓ ↓ Finch - Quality of Learning
went up, not rate

Leisure Time

Capture that out of school time
out of work time

↓ Different learning styles

- Building skills -- ^{Ross} Labor market
- skill - Building

- NII Goals by year 2000



objectives

Yask Kalil

NII → add to title

Learning Challenge

- Bully Palpit - event - School - to - work
The-in

Community

- 2 Parts
 - ① everyone hooked up
 - ② Learning Content

NTIA Community Learning Challenge

E2 Concept

- school to work \$
- NTIA

- Business ~~Part~~
- School
- community operation (Bell Atlantic)

Learning Content

- Consortium of users
- " " deliverers/providers (tel)
- Curriculum / Learning content

Who's Applicants?
What's criteria?
Rewards/Incentives?

- National Labs NoE
 ↳ Technical Assistance

NTIA
School-to-work
TRP

What's Plan. For region - - broad
definition of community - - broad income min.

Criteria

- ~~Access~~ Access
- Contract

- Non-Federal match

- Impact

- to the extent it tries in broad range
of communities

Implement some sort of lifelong learning
agenda (pre-schools → incubated
workers)

→ 10 \$ mill. in \$ grants

- also get visibility/recognition
 - what is application? mock-up? paper plan?
 - Kahl
 - Simon
- 3 1st round

ATP

THE COMMUNITY LEARNING CHALLENGE

✓
accessed?
used? The Community Learning Challenge proposes to link two important Administration goals: (1) the development of a national network of "information superhighways" through the National Information Infrastructure (NII) initiative, and; (2) the development and widespread use of learning content played on the NII by children, families and workers in schools, homes, and firms all across the country. The marriage of these two initiatives has the potential to dramatically increase the productivity of learning for all Americans, increase the productivity and competitiveness of the American workforce and firms, and increase the living standards of American families. This paper gives a broad overview of the proposed Challenge, outlining some of its most important components.

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✓ Increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from mid 1973 to 1992 saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standards. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to improve learning for all Americans -- that is, increase the rate at which people learn. This would apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, increasing the productivity of learning would mean that workers could do their jobs faster and more efficiently. In the classroom, it would mean that students can learn more things more quickly, thus increasing the scope of what can be taught. Eventually, it would allow all American schools, workers, and firms a comparative advantage in this age of information, knowledge, and networking.

Technology is the lever to improve learning. Over ^{twenty} ~~thirty~~ years of research show that technology can significantly increase learning achievement. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, ✓ these examples are too few and far between. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, (whenever and wherever they need to. The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is already a reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular.

Linking the issue of learning to the NII can give the NII some sense of purpose and definition broadly appealing to Americans, and can underline the rationale for public

programs aimed at accelerating its introduction. While it is true that by this time nearly everyone has heard of the "information superhighway," almost no one understands exactly what it means, not to mention the potential it has to impact people's day-to-day life. The Community Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII.

The Community Learning Challenge

The Community Learning Challenge would be a national campaign to encourage public and private sector actors to work together to create tangible demonstrations of the power of the NII to improve learning. It would be kicked off and continually reinforced by the VPOTUS and Secretaries of Education, Labor, Commerce, ^{HHS} ~~(HHS)~~. Special emphasis would be focused on ensuring (a) universal access to schools, homes, and workplaces, and (b) ensuring that the interactive learning content of the technologies that are accessed on the NII can engage persons of all ages and diverse learning styles. The Challenge would have the following features:

- . **Structure:** The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." 25 winning proposals would receive grants of \$2 to \$5 million to implement their proposals.
- . **Eligibility:** The definition of "eligible communities" would be purposefully broad, but would have to at a minimum include some consortia of (businesses, schools, community-based organizations (libraries, non-profit organizations, etc.), software/information providers, and a telecommunication operation (i.e. Bell Atlantic, TCI).
- . **Criteria:** Proposals would have to meet the following minimum criteria:
 - a) Access. Winning proposals would have to guarantee wide access of service in the community.
 - b) Learning Content. Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value, and high entertainment value (that they are "fun" to use). ^{engaging and}
 - c) Non-Federal Match. Eligible communities must come up with at least a [5/1] non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.

- d) **Impact.** The proposed network of users would have to include individuals across a wide economic and social strata, and would have to implement some segment of our lifelong learning agenda (from learning games for preschoolers to engaging learning curriculum to help students meet the National Education Goals to essential education of incumbent workers to enhance their skills and knowledge).
- . **Federal Funding:** Total federal funding for the Challenge would be somewhere in the neighborhood of \$50 to \$100 million for each Fiscal Year (with a non-federal 5/1 matching requirement). This would be distributed in the form of 25 grants of \$2 to \$5 million each. In FY95, funding would be patched together from a variety of existing sources, e.g. School-to-Work technology-related grants, NTIA, TRP, ATP, DOD Defense Conversion (The Department of Energy's National Labs could also be used to offer free technical assistance to applicants). For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.
- . **Timeframe:** The Program could be announced as early as this Fall, with an application deadline of early Spring 1995 and final awards coming sometime in June/July 1995.
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Nike: Good start!

Note questions comments.
let's discuss. Then, you can "dig the well".
again. Paul D.

Issue - how fit w/ other
initiatives? How
to stimulate, catalyze
broader application

THE NATIONAL INFORMATION INFRASTRUCTURE (NII) COMMUNITY LEARNING CHALLENGE

~~It is well understood that~~
learning content played on the NII by children, families and workers
in schools, homes and firms all across the country.

The NII-Community Learning Challenge proposes to link and enhance two important Administration ~~goals~~: (1) the development of a national "information superhighway," which is actively supported through the National Information Infrastructure (NII) initiative, and; (2) the development and widespread use of ~~learning technologies~~ ^{The merging of these two initiatives has} that have the potential to dramatically increase the productivity of learning, which is critical to overall productivity growth. This paper gives a broad overview of the proposed Challenge, outlining some of its most important components.

for all Americans, ~~to dramatically increase~~
the productivity and competitiveness of the
American workforce and firms, and the
living standards ~~for~~ of American families.

Background: Learning Productivity and the NII

~~It is well understood that~~ increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from the mid 1970s ^{through 1980s} to the late 1980s saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standards. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to ~~improve the~~ ^{improve the} productivity of learning ^{for all Americans} -- that is, increase the rate at which people learn. This would apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, increasing the productivity of learning would mean that workers could do their jobs faster and more efficiently. In the classroom, it would mean that students can learn more things more quickly, thus increasing the scope of what can be taught.

Technology is the lever to ~~accomplish this~~ ^{improve} increase in the productivity of learning. Over thirty years of research show that technology can significantly increase learning achievement. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, these examples are too few and far between. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, whenever and wherever they need to. The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is already a reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular. In return, linking the issue of learning ~~productivity~~ to NII gives the NII some sense of purpose and definition. While it is true that by this time nearly everyone has heard of the "information superhighway," almost no one understands exactly what it means, not to mention the potential it has to impact people's day-to-day life. The NII Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII.

DRAFT 6/2/94

Nike:

Issue = objectives?
goals?

How spur universal access? - is
how fit w/ regulatory model? ^{subsidies}
How spur learning content?
how fit w/ federal procurement
R&D??

Paul D

The NII Learning Challenge

The NII Learning Challenge would be a national campaign to encourage public and private sector actors to work together to create tangible demonstrations of the power of the NII to ^{improve} ~~enhance the productivity of~~ learning. It would be kicked off and continually reinforced by the VPOTUS and Secretaries of Education, Labor, Commerce (HHS?). Special emphasis would be focused on ensuring (a) universal access to schools, homes, and workplaces, and (b) ensuring that the interactive learning content of the technologies that are accessed on the NII can engage persons of all ages and diverse learning styles. The Challenge would have the following features:

Structure: The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." ^{of \$2} 25 winning proposals would receive grants ~~totaling~~ to \$5 million to implement their proposals.

Eligibility: The definition of "eligible communities" would be purposefully broad, but would have to at a minimum include some consortia of businesses, schools, community-based organizations (libraries, non-profit organizations, etc.), ~~and~~ ^{presumably} some telecommunication operation (i.e. Bell Atlantic, TCI) ~~and creators of~~ ^{learning content (e.g.,}

Criteria: Proposals would have to meet the following minimum criteria:

- a) Access. Winning proposals would have to guarantee universal access for all participants.
- b) Learning Content. Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value, and high entertainment value (that they are "fun" to use). ^{engaging}
- c) Non-Federal Match. Eligible communities must come up with at least a 5/1 non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.
- d) Impact. The proposed network of users would have to include individuals across a wide economic and social strata, and would have to implement some segment of our lifelong learning agenda (from ^{learning centers for} preschoolers ^{to engaging learning curriculum to help students meet National Education Goals} ~~to the~~ ^{essential} training and education of incumbent workers ^{to enhance their skills & knowledge}).

Federal Funding: Total federal funding for the Challenge would be somewhere in the neighborhood of \$50 million for ~~FY 1995~~ ^{FY 1996} (with a non-federal 5/1 matching requirement). This would be distributed in the form of ~~10~~ ²⁵ grants of ~~up to~~ ^{\$} \$5 million each. In FY95, funding would be patched together from a variety of existing sources, possibly including School-to-Work technology-related grants, NTIA, TRP, ~~DOD~~ ^{ATP} Defense Conversion. (The Department of Energy's National Labs could also be used to offer free technical assistance to applicants). For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.

Timeframe: The Program could be announced as early as this Fall, with an application deadline of early Spring 1995 and final awards coming sometime in June/July 1995.

Kick-off Event: A major kick-off event could be organized for the ^{POTUS and ~~and H. POTUS~~} VPOTUS (along with Secretaries Riley, Reich, ~~and~~ ^{and Shalala} Brown) to announce the challenge. Invitees could include a number of major players in the NII world (technology corporations, telecommunications operations, ~~etc.~~ ^{to be determined}) along with several community-based programs that are already utilizing the kinds of technologies that we are talking about. For example, there are already a number of school-to-work programs that are using technology in creative ways and linking electronically to businesses in their communities. Likewise, there must be examples of colleges and universities linking with businesses for educational/training purposes, or even businesses linking together to provide ~~remedial training in basic skills~~ ^{Mark} on a shared basis.

What's unique about this
community patch

~~THE NATIONAL INFORMATION INFRASTRUCTURE (NII)~~ COMMUNITY LEARNING CHALLENGE

The ~~NII~~ Community Learning Challenge proposes to link and enhance two important Administration goals: (1) the development of a national "information superhighway," which is actively supported through the National Information Infrastructure (NII) initiative, and; (2) the development and widespread use of learning technologies that have the potential to dramatically increase the productivity of learning, which is critical to overall ~~productivity~~ ^{national economic} growth. This paper gives a broad overview of the proposed Challenge, outlining some of its most important components.

Background: Learning Productivity and the NII

It is well understood that increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from the mid 1970s to the late 1980s saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standard. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to increase the productivity of learning -- that is, increase the rate at which people learn. This would apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, increasing the productivity of learning would mean that workers could do their jobs faster and more efficiently. In the classroom, it would mean that students can learn more things more quickly, thus increasing the scope of what can be taught.

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Community Over thirty years of research show that technology can significantly increase learning achievement. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, these examples are too few and far between. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, whenever and wherever they need to. The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is already a reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular. ~~In return,~~ linking the issue of learning productivity to NII ~~gives~~ ^{can give} the NII some sense of purpose and definition. While it is true that by this time nearly everyone has heard of the "information superhighway," almost no one understands exactly what it means, not to mention the potential it has to impact people's day-to-day life. The NII Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII.

****DRAFT 6/2/94****

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The NII Learning Challenge

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Structure: The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." 10 winning proposals would receive grants totalling up to \$5 million to implement their proposals.

Eligibility: The definition of "eligible communities" would be purposefully broad, but would have to at a minimum include some consortia of businesses, schools, community-based organizations (libraries, non-profit organizations, etc.), and ~~presumably some~~ telecommunication operation (i.e. Bell Atlantic, TCI). *software/information providers*

Criteria: Proposals would have to meet the following minimum criteria:

- broader*
- a) **Access.** Winning proposals would have to guarantee ~~universal access for all participants~~ *wide To be service in the community*
 - b) **Learning Content.** Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value, and high entertainment value (that they are "fun" to use).
 - c) **Non-Federal Match.** Eligible communities must come up with at least a ~~5/1~~ *5/1* non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.
 - d) **Impact.** The proposed network of users would have to include individuals across a wide economic and social strata, and would have to implement some segment of our lifelong learning agenda (from preschoolers learning to the training and education of incumbent workers)

Federal Funding: Total federal funding for the Challenge would be somewhere in the neighborhood of \$50 million for FY 1995 (with a non-federal 5/1 matching requirement). This would be distributed in the form of 10 grants of up to \$5 million each. In FY95, funding would be patched together from a variety of existing sources, possibly including School-to-Work technology-related grants, NTIA, TRP, DOD Defense Conversion (The Department of Energy's National Labs could also be used to offer free technical assistance to applicants). For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.

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PHOTOCOPY
PRESERVATION

MIKE ;

Fodder from H.K.

The Community Learning Challenge aims to help communities explore ways that the emerging "information superhighway" and powerful, inexpensive computer equipment can be used to transform the way Americans learn by strengthening the connections between education and practical work experiences, between parents and schools, employers and prospective employees. These emerging technologies can lead to dramatic gains in the productivity of learning for all Americans at all points in their careers.

The technologies can help local businesses work with high-schools to develop programs that prepare students for the real employment opportunities in their communities; students can serve a "virtual apprenticeships" at school using computer technology that simulates actual work experiences and uses these experiences to motivate instruction in traditional areas of science, mathematics, and literacy. They can make it much easier for machine-tool operators, insurance underwriters, surgeons, delivery-truck drivers, teachers -- indeed and people in virtually all occupations to upgrade their skills in a fast-moving economy using learning tools available when and where they are needed -- at home, in the office, in community centers. The technology can create virtual environments that invite exploration and creative exploration of new concepts as well as providing learning experiences closely approximating individual tutorials. The most gifted learners can be connected quickly to the state-of-the art in many different areas while those having trouble can take the time to feel comfortable in basic subjects in an environment that is challenging but not threatening.

This program is designed to encourage potential consumers and providers of these new technologies to combine in proposing demonstrations that can test the limits of the possible for these new learning opportunities.

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Criteria: Does the proposal:

- ensure practical access to the system proposed for a broad cross-section of the community?
- suggest a creative use of technology for supporting the nation's central education and training goals as embodied in Goals 2000, the School-to-work program, and lifelong learning programs?
- help strengthen communities by providing new links between potential employers and school systems?
- provide significant matching funds from businesses or local governments
- demonstrate a system that could be a permanent part of the community and that could be replicated widely in other communities in the country?

DATE: May 12, 1994
TO: Paul Dimond
FROM: Mike Schmidt
RE: Possible Presidential Challenge

Here's part-two of yesterday's memo. As I mentioned earlier, my thoughts on the ETR group drifted steadily in the direction of what a Presidential challenge would look like. As you will see, my notion of the challenge would link up in many ways to Bill Galston's work on the "new economy." In fact, as I think about it, it would make sense to join the two efforts -- tying our message on coping with the new economy with a Presidential Challenge. Hmmm . . . something to think about. Anyway, here are some thoughts -- see if any of this makes sense to you.

PRESIDENTIAL CHALLENGE

As you know, I agree wholeheartedly with your arguments for some kind of Presidential Challenge for Lifelong Learning. But what will this challenge look like? I have outlined the rough edges of one possible approach below by summarizing the main points that a challenge could make.

Major Points of The New Learning Compact (or Partnership/Challenge)

I envision a challenge that makes the following major points:

- 1) **What You Earn Depends on What You Learn:** In the new economy, acquiring high performance skills is absolutely necessary for economic survival, let alone economic success.
- 2) **Lifelong Learning:** Training/education can not be a one-time shot. Workers and firms must make a lifelong commitment to learning if they want to get ahead.
- 3) **Access for All:** Everyone must be given the opportunity to access the training and development they need to get ahead throughout their lifetime. It seems clear to me that during the past 15 years, as this country has been going through the pains of reorienting itself to new economic realities, most (but not all) of those who have successfully made the transition have been the elite -- the top quintile of our economy (witness the wage stagnation of the past two decades for the middle and lower quintiles, and the much publicized "earnings gap" between the top and middle/bottom layers of the workforce). In order for this country to succeed in the new economy, everyone must be included -- we can't afford to leave anyone behind.

- 4) **Government Can't Do It Alone:** Government can't and shouldn't be the lead player in any of this. We need to work together with schools, businesses, families, labor, etc.
- 5) **Partnership:** Following up on #4 above, partnership is the key word here. If we want to get really jazzy, we could think of some actual partnership for individuals and organizations to sign-on to -- create some national movement, something for everyone to rally around. Of course, the downside of this is that we risk raising expectations to unrealistic levels (remember our post-honeymoon experience after the Inaugural), or alternatively having such a campaign labeled a strictly political "stunt" with no real merit or sincerity.
- 6) **Personal (and Organizational) Responsibility:** This is an important aspect of all of this. We are not trying to create a new, unlimited "right to training." Rather, our message to individuals and organizations (businesses, schools, unions, etc.) should be that you must take responsibility for your (or your workers/members) life. Young people must stay off drugs, in school, out of jail, and not have children out of wedlock (or at least take responsibility if you do). Corporations must provide training for their workers, be responsible members of their community, move to become high performance workplaces. Schools must pledge to reinvent themselves, offer school-to-work opportunities, join with business and the community to offer students a realistic view of the world.
- 7) **What Will The Government (the President?) Do in Return?** In return for all of this, we pledge:
 - a) To make access to training and educational opportunities possible for everyone who needs it (note I don't mean free access, just access). We do that through income-contingent loans, Sallie Mae loans to corporations and individuals for training, Reemployment Act and Welfare Reform for those who have landed on hard times, IRA/401K loans for education, etc. Also, a big tie-in can be made to our efforts in the learning productivity/ educational technology area. The NII is the key to allowing everyone and anyone to access education/ training cheaply at the touch of a key. Another interesting angle here (and an area where the POTUS is very moving and effective) is the notion of making our diversity our strength and taking advantage of the talents and skills of all Americans of every race and creed.

- b) To work in partnership with corporations and labor unions to help create more high performance workplaces (Office of the New American Workplace).
- c) To work to offer basic securities to all Americans in a time where traditional security (job-security, health-security, etc.) is fading rapidly. We will do this through the Health Security Act, the Reemployment Act, Welfare Reform, Crime Bill, Gun Control, etc.
- d) To make a real, lasting commitment to the health and welfare of the family (this is another way to look at the concept of security). This is where "family values" comes in strong, and where the POTUS is particularly effective I think. Here, we can talk about lots of things like the Family and Medical Leave Act, Health Care, Welfare Reform, -- even branch out into more spiritual/religious themes. The notion of community should also weave in here somewhere.
- e) To work to reform schools so that they give our young people the skills they need to succeed. Of course, Goals 2000, School-to-Work, and educational technology would play a big role here.

Anyway, these are just some rough thoughts. What is missing is a real "hook" to lure people and organizations in and give us that "rally around the flag" feeling. The "Partnership" angle to all of this could be a terrific tool in this direction if we could think of some meaningful way to do it. One possible model is the "Prom-Promise" model, where thousands of students and schools sign a pledge not to drink or do drugs at their prom. Unfortunately, there is no "there" there -- that is, nothing substantial in this model that we can hang our hat on. Let me know what you think about all of this -- I am convinced that by putting our heads together (and bringing in Galston, Sperling, etc) we can come up with something really special.

THE WHITE HOUSE

WASHINGTON

May 15, 1994

MEMORANDUM FOR BO CUTTER, PAUL DIAMOND, HENRY KELLY, MIKE SCHMIDT

FROM: Tom Kalil *TAK*

SUBJECT: Enhancing the productivity of life-long learning

Information and communications technology has the potential to substantially increase the productivity of America's systems for life-long learning.

Moreover, as the Computer Systems Policy Project has noted:

"Success in the knowledge-based society of the future will require a variety of critical skills, including active, self-directed learning, the ability to access, analyze and manipulate remote data, and the ability to communicate across regional and national boundaries. In the job markets of the future, employers will demand workers who can learn new skills to adapt to changing job requirements, use knowledge and information to make decisions, and work collaboratively in groups. **Most Americans are not acquiring these types of skills as part of their education today.**"

Although technology should not be viewed as a "silver bullet" -- it can make a difference, particularly if used in the context of education reform and changes in our re-employment strategies. For example, today's Internet, a working prototype of tomorrow's information infrastructure, is being used to change the way teachers teach and students learn:

- Students are able to browse through networked, multimedia information on virtually every subject;
- Children all over the world are collaborating on projects such as global environmental monitoring;
- Communities of teachers are able to share experiences and lesson plans;
- Students use remote supercomputers and scientific instruments to conduct experiments, with on-line help from professional scientists; and
- Teachers can communicate more readily with parents.

Similarly, many companies are discovering that they must use information technology to help their work force keep pace with changes in their new products and services.

To take maximal advantage of these technologies, we need to make progress on a number of fronts:

1. Professional development:

Teachers won't use this technology as part of the curricula if they don't know how to use it. New ways of training teachers to use this technology must be developed.

Current activity: Some portion of the Education Department's \$50 million program is supposed to support professional development.

2. Connections and equipment:

Many schools lack the physical connectivity or the equipment to participate in the Information Revolution.

Current activity

- The President and the Vice President have set a goal of connecting all classrooms to the NII by the year 2000.
- Legislation before Congress would make this a goal, and authorize the FCC to explore preferential tariffs.
- Legislation authored by Senators Kennedy, Cochran, and Bingaman (S. 1040) would authorize \$340 million for educational technology. Appropriators, however, are unlikely to provide full funding for the Administration's request of \$50 million.
- Several telephone companies have made some pledges in this area, such as Bell Atlantic, PacBell, GTE. However, in some cases, they are just providing a wire to the school, which is inadequate.
- Many states, such as Texas, are moving aggressively to provide connectivity for schools.

Desirable outcome:

- Legislation is passed which would make connections to classrooms part of the definition of universal service.
- The Administration would determine whether legislation such as S. 1040 is necessary, and if so, work with Congress on language and funding levels.
- The federal government would work with states, educators, and the private sector to develop cost models.
- The federal government would provide challenge grants and technical assistance to states and communities.

3. Content/Applications

Current activities:

- Individual agencies are putting government information on-line that has educational applications. NASA, for example, plans to spend \$10 million to make earth and space data available to the public, with an emphasis on K-12 applications. DOE has developed an on-line "hyper-textbook" for computer science.
- The Vice President recently announced a major initiative to support global environmental education (GLOBE).

Desirable outcome:

- Concerted effort to identify government information with educational applications to organize and put on-line.
- Examine obstacles to electronic commerce in instructional material.
- The Department of Labor has a number of partnerships with industry to define the "core competencies" that workers in a given industry will require. One possible next step would be to encourage industries to develop interactive instructional material that could be delivered via a variety of platforms, including the Internet, satellite, CD-ROM, video server, etc.
- The federal government expands the number of resources such as the National Educational Supercomputer Center (NESC) that can be used nation-wide for education and training applications.

4. Research and development:

Current activities:

- Some of the Administration's High Performance Computing and Communications Initiative is supporting R&D that is relevant, such as digital library technology, tools for information discovery and retrieval, etc.
- TRP is funding a consortia that is developing authoring tools for multimedia educational software -- with the goal of reducing the cost and time for a non-computer expert to develop material by a factor of 10.
- The NSTC Committee on Education and Training, chaired by Governor Kunin, is responsible for proposing the FY96 R&D budget.
- The NSTC Committee on Industrial Technology has proposed a National Electronics Manufacturing Initiative, which will help industry develop the technologies for the next generation of small, mobile information appliances. Hand-held intelligent tutors may be one possible application.

Desirable outcome:

- The Administration works with industry and academia to determine what the gaps are in education and training R&D, and proposes a new "focus area" through either the Advanced Technology Program or the Technology Reinvestment Project.
- The Defense Department identifies education and training technology that could be transferred to the civilian sector.
- [Note: Many of the technology requirements for education and training -- e.g. tools for information discovery and retrieval -- are requirements for a wide range of NII applications. In these instances, the education and training community doesn't need to develop these technologies, it just needs to be able to adapt them for its own use.]

5. Examine links between technology and Administration's education and training initiatives:

- It is not enough to create a small technology office at the Department of Education and the Department of Labor. Technology should be an integral part of Administration initiatives in re-employment, adult literacy, worker training, and education reform.

Desired outcome:

- Administration develops linkages between technology and the core Education and Labor programs. Examples:
 - Currently, many schools use Chapter 1 funds to purchase "Integrated Learning Systems." Used differently, Chapter 1 funds could promote an evolution of the market beyond these "drill-and-practice" systems.
 - The Department of Education's Library Services and Construction Act (LSCA) could concentrate more on developing digital libraries.
 - The Department of Labor's re-employment strategy could include support the development of on-line labor market information, interactive courseware for skills development, adult literacy, and remedial skills. This could be done in partnership with firms and industries, many of which cannot find workers with necessary skills like SPC (statistical process control).

6. Other:

- **Budget:** We need to ensure that the FY95 request is fully funded (e.g. the \$50 million request at Department of Education, the \$100 million request for NTIA NII pilot projects, etc.) - and that these initiatives are adequately funded in FY96.
- **Evaluation:** We need hard evidence that technology, used appropriately, actually improves student performance and enhances worker skills.
- **Clearing-house:** States, school districts and schools and re-inventing the wheel because of the absence of easily accessible information on educational technology.
- **Challenge to industry:** Many people have noted that if we could combine what we know about learning and cognitive science with the entertainment skills of Nintendo and Sega -- we would have some impressive education products. The Administration should determine how to challenge the industry to invest more in this kind of product development.

THE NII COMMUNITY LEARNING CHALLENGE

The National Information Infrastructure (NII) Community Learning Challenge proposes to link two important Administration goals: (1) the development of a national network of "information superhighways" through the National Information Infrastructure (NII) initiative, and; (2) the development and widespread use of learning content accessed on the NII by children, families and workers in schools, homes, and firms all across the country. The marriage of these two initiatives has the potential to dramatically increase the productivity of learning for all Americans, increase the productivity and competitiveness of the American workforce and firms, and increase the living standards of American families. This paper gives a broad overview of the proposed Challenge, outlining some of its most important components.

Background: Learning Productivity and Learning Content

Increasing the productivity of our workforce is the key to improving our national standard of living. The period of overall productivity stagnation which lasted from mid 1973 to 1992 saw a corresponding stagnation in relative income growth for almost four-fifths of the workforce, and served as a painful reminder of this vital link between productivity and living standards. The question is, what are the important levers that can be used to stimulate productivity growth? One powerful method would be to make learning more productive for all Americans -- that is, change the way that people learn to allow them to retain more from any given training/educational experience, and to make what is being learned more meaningful to the learner. A second lever would be to make learning more enjoyable for the learner -- to make him/her want to learn and to have fun doing it. The key to the success of this lever lies in the creation of high-quality learning content that can be accessed off of the NII. Making learning more enjoyable would offer the possibility of tapping into students' out of school time (where students spend the majority of their waking hours) and workers' out of work time, which would allow all Americans the opportunity and flexibility to learn when they want and need to. These two levers could apply to both workers learning on the job and in training, and to students learning in and outside of the classroom. In the workplace, making learning more productive would mean that workers could do their jobs more effectively and more efficiently. In the classroom, it would mean that students could gain more understanding of what they are learning (and possibly even learn at a higher rate), thus increasing the scope and the effectiveness of what can be taught. In both cases, having access to enjoyable learning content will increase the amount of time students and workers spend learning. Eventually, it would allow all American schools, students, workers, and firms a comparative advantage in this age of information, knowledge, and networking.

Learning Productivity and the NII

Technology is the lever to improve learning, and efficient learning is key to American business success and to an individual's success in a fast-paced, competitive economy. Over thirty years of research show that technology can achieve major gains in the efficiency of learning and capture underutilized time people spend outside the classroom or after work. A number of high-performance workplaces are already linking technology and training to increase productivity and competitiveness. And a number of schools are beginning to integrate technology into the classroom in ways that are already impacting the ways that young people learn. However, these examples are isolated and their successes not widely understood. What is needed is a way to allow businesses, schools, and individuals to access learning technology on a large scale, whenever and wherever they need to. What we propose to do in this initiative is to challenge local governments, schools, community organizations, information providers, communication companies, and other businesses to come together and design ambitious projects designed to exploit the potential of learning technology in ways that can benefit the entire community (however broadly defined). The emerging NII is an ideal platform to accomplish the rapid, large-scale dissemination of learning technologies. It is a rapidly emerging reality, and is being enthusiastically supported by the Administration in general, and by the Vice President in particular. Using the NII to promote economic growth and learning that benefits all Americans throughout their lifetimes is a central goal of the Administration.

Linking the issue of learning to the NII has the advantage of building upon the definition of the NII in a way that is broadly appealing to Americans, and can underline the rationale for concerted efforts aimed at accelerating its introduction. While many Americans have heard of the "information superhighway," most do not understand exactly what it means, not to mention the potential it has to impact people's day-to-day life. The Community Learning Challenge is the vehicle by which we could make this link between learning productivity and the NII clear to all Americans. The Challenge also builds upon the challenge set forth by the Vice President in January of this year to potential NII providers. In that message, the Vice President challenged providers to provide free links from the information superhighway to every classroom, library, hospital, and clinic in the country. The Community Learning Challenge would represent the next step in this process, stimulating new ways of thinking about the NII and lifelong learning and focusing on the issue of developing learning content.

In many ways, an analogy can be drawn to the introduction of the Interstate Highway System in the 1950s. It was the major infrastructure initiative of its time, and people could see how the building of a system of highways that linked communities across the country would have an immediate impact on their lives and on the welfare of the country. Goods could be transported faster and easier, and people could travel across the country, for business and for pleasure, much more conveniently. The National Information Initiative has a similar potential to transform our lives in this Information Age, and by linking the NII to learning we can help people to "see" how it can affect their lives in real and meaningful ways.

The NII Community Learning Challenge

The NII Community Learning Challenge would be a national campaign to encourage public and private sector actors to work together to create tangible demonstrations of the power of the NII to improve learning. The goal would be to help communities explore ways that the emerging "information superhighway" and powerful, inexpensive computer equipment can be used to transform the way Americans of all ages learn by strengthening the connections between education and practical work experiences, between parents and schools, employers and prospective employees.

The Challenge would be kicked off by a major POTUS/VPOTUS event, and continually reinforced by the VPOTUS and Secretaries of Education, Labor, Commerce, and HHS. Special emphasis would be focused on ensuring (a) universal access to schools, homes, and workplaces, and (b) ensuring that the interactive learning content of the technologies that are accessed on the NII can engage persons of all ages and diverse learning styles. The Challenge would have the following features:

- . **Structure:** The Challenge would be set up similar to Enterprise Zone process. Communities would be asked to submit applications/proposals to link various members of the community (described below) together in ways that would allow participants to access and share education/training/learning-based information across some form of "information superhighway." Up to 25 (?) winning proposals would receive grants of \$2 to \$5 million to implement their proposals.
- . **Eligibility:** The definition of "eligible communities" would be purposefully broad, and could include a wide range of possibilities, including geographic communities (a city, state, or region), communities of interests such as the disability community, or even "virtual" communities that could stretch across the country and around the globe. However, while we would remain open to broad interpretations of the term community, eligible proposals would have to at a minimum include some consortia of businesses, schools (including universities and community colleges), community-based organizations (libraries, non-profit organizations, etc.), business organizations such as Chamber of Commerce, software/information providers, and a telecommunication operation (e.g. Bell Atlantic, TCI).
- . **Criteria:** Proposals would have to meet the following minimum criteria:
 - a) Access. Winning proposals would have to ensure practical access to the proposed system for a broad cross-section of the community.
 - b) Learning Content. Ensuring high-quality learning content is central to the Learning Challenge. Proposals must have a well thought-out plan to guarantee that the technologies that are being spread across their information infrastructure are of high quality, high educational value,

and high entertainment value (that they are engaging and easily accessible). They should also suggest a creative use of technology for supporting the nation's central education and training goals as embodied in Goals 2000, the School-to-Work Act, and other lifelong learning programs.

- c) Non-Federal Match. Eligible communities must come up with at least a [5/1] non-federal/federal match in funding. This non-federal match can come from state or local government, or a private sector source.
- d) Impact. The proposed network of users would have to include individuals across a wide economic and social strata, and would have to implement some segment of our lifelong learning agenda (from learning games for preschoolers to engaging learning curriculum to help students meet the National Education Goals to essential education of incumbent workers to enhance their skills and knowledge). In addition, the education community (teachers, principals, etc.) should specifically be included in some way, and proposals should address the issue of training teachers to use the technology provided to them.
- e) Replication/Evaluation. Proposals should demonstrate a system that could become a permanent part of the community and that could be replicated widely in other communities across the country. They must also include some process to ensure a thorough evaluation component is built in from the start.

- . **Federal Funding:** Total federal funding for the Challenge could be somewhere in the neighborhood of \$50 to \$100 million for each Fiscal Year (with a non-federal 5/1 matching requirement). This would be distributed in the form of 25 grants of \$2 to \$5 million each. It is not clear whether or not we would want to offer any grants during FY 1995 -- budgets have already been locked into place and monies appropriated for specific purposes. However, there may be sufficient flexibilities in some of our current education/training/technology programs to allow us to offer some sort of limited funding in FY1995, perhaps for technical and planning assistance to winning proposals, or alternatively for a smaller number of grants. For FY96, we may want to seek new funding for the initiative, or at least seek a redirection of existing funding to expand (or at least maintain) the program for a second year.
- . **Timeframe:** The Program could be announced as early as this Fall, with an application deadline of Spring 1995 and final awards coming sometime in July/August 1995.

Kick-off Event: A major kick-off event could be organized for the POTUS and VPOTUS (along with Secretaries Riley, Reich, Brown, and Shalala) to announce the challenge. Invitees could include a number of major players in the NII world (technology corporations, telecommunications operations, teachers unions, etc.) along with several community-based programs that are already utilizing the kinds of technologies that we are talking about. For example, there are already a number of school-to-work programs that are using technology in creative ways and linking electronically to businesses in their communities. Likewise, there could be examples of colleges and universities linking with businesses for educational/training purposes, or even businesses linking together to provide skills training on a shared basis.

Learning Challenge Possibilities

The Learning Challenge has the potential to spur a broad spectrum of exciting applications of the NII. By employing emerging technologies to strengthen the connections between businesses, schools, and homes, all sectors of a community have the potential to see dramatic gains in the productivity of learning. These technologies can help local businesses work with high-schools to develop programs that prepare students for the real employment opportunities in their communities; students can participate in "virtual apprenticeships" at school using computer technology that simulates actual work experiences and uses these experiences to motivate instruction in traditional areas of science, mathematics, and literacy. They can allow pre-schoolers to play learning games at an early age that help them to read and write, and make them become comfortable with technology from the earliest stages of their formal education. They can make it much easier for machine-tool operators, insurance underwriters, surgeons, delivery-truck drivers, teachers -- indeed, people in virtually all occupations -- to upgrade their skills in a fast-moving economy using learning tools available when and where they are needed, whether at home, in the office, at school, or in community centers. The technology can create virtual environments that invite exploration and creative exploration of new concepts as well as providing learning experiences closely approximating individual tutorials. The most gifted learners can be connected quickly to the state-of-the-art in many different areas, while those having trouble can take the time to feel comfortable with basic subjects before moving on in an environment that is challenging but not threatening. The key is in developing learning content for use on the NII that is engaging for learners of all ages. Finally, much like the Enterprise Zone process that this Challenge would be loosely modeled after, the application process will be valuable in and of itself. Even if a proposal is not chosen for funding, it will have brought people together in new ways and stimulated new ways of thinking about how the information superhighway can be used to bring all parts of a community together in a common effort to foster new ways of learning throughout a person's lifetime.

THE WHITE HOUSE
WASHINGTON

July 11, 1994

MEMORANDUM FOR DISTRIBUTION

FROM: BILL GALSTON, Domestic Policy Council *WAG*
GENE SPERLING, National Economic Council *GS*
JG JOHN GIBBONS, National Science and Technology Council

SUBJECT: LEARNING AND TECHNOLOGY

On Saturday, July 9, Deputy Secretary Deutch hosted members of the ETR Working Group, Deputies from the ETR Agencies and the White House, and interested parties from other Agencies to discuss how Administration initiatives concerning Learning and Technology (including related DoD training experience and technology development) can be coordinated for purposes of implementing the President's Lifelong Learning Agenda and making decisions on the FY96 budget. From the preparatory work done by the ETR Group, the discussion among the meeting participants, and the demonstration of a variety of powerful DoD learning tools, it is clear that we are on the verge of a revolution in learning, technology, and the means of communication that can dramatically improve the productivity of learning for all Americans in schools, workplaces, and homes all across the country. (See attached vision statement summarizing the common ground shared by the participants at the July 9 meeting.)

A number of Agencies are working on a series of related initiatives to exploit this unique opportunity. It is clear, however, that we need both (a) to coordinate these efforts so that the whole is at least as great as the sum of the parts and (b) to provide a focus, vision and sense of excitement that will permit the President, Vice-President and the Secretaries to highlight the ways in which powerful, new learning technologies can help implement the Lifelong Learning goals exemplified in our Headstart, Goals 2000, ESEA, School-to-Work, Student Loan, and Reemployment programs.

We therefore direct that the ETR Group work in cooperation with the NSTC Committee on Education and Technology (CET), Office of Management Budget(OMB), the Information Infrastructure Task Force (IITF) and the Office of Vice-President(OVP) to review options in the following five areas and, where necessary, present options for the FY96 Budget. Draft options and recommendations will be presented to Paul Dimond(NEC, Co-Chair of the ETR Working Group) by August 1 so that they can be presented in their full context to the ETR Working Group by August 8 and to the ETR Principals by August 15. The initial members of the teams for each issue are included in (parentheses), with the Chairs underlined. The chairs are encouraged to include input from other sources as may be appropriate to inform the options and decisions. Henry Kelly (OSTP, Co-Chair CET) will serve as Chief of Staff for this entire effort to provide daily oversight, assistance and coordination.

Technology and Learning Challenge. Should we have a flagship challenge process that enables the Administration to highlight our initiatives in this area by catalyzing learning communities across the country to develop interactive learning tools to help implement the Lifelong Learning Agenda? Is a focus on learning content most likely to spur the potential private and public sector participants to join in developing and using such effective learning tools? What criteria will stimulate the greatest public and private sector support and creativity to develop learning tools that can be broadly marketed throughout the country? What size initiative is essential for this purpose? How can it best be administered, managed and funded? (Kelly&Fitzsimmons(OSTP), Dimond, Sperling and Kalil(NEC), Kunin&Roberts(DoEd), Barram, Sallett, Prabhaker&Breedon(DoC), Deutch&Finch(DoD), Glynn&Donohue(DoL); Edelman&Golden(HHS), Schmidt(DPC), OMB – Edley & Sawhill, OVP – Kollenberger)

Federal R &D, Federal Personnel Training, and Federal ETR programs. How can we best structure, coordinate and finance the host of related federal R&D, personnel training and education and training programs (e.g., ESEA, JTPA) to promote the development and rapid deployment of interactive learning tools that will help achieve the goals of the President's Lifelong Learning Agenda? What are the key R&D budget choices and program changes that we can make that will enable us to promote the development and use of interactive learning technologies? (CET – Finch(DoD) & Robinson(DoEd), plus Sperling(NEC), Edley & Sawhill (OMB), Fitzsimmons(OSTP), and Portman(DoL))

Federal Information and Data. How can the vast amounts of federal information and data (e.g., in the Smithsonian, NASA, NSF, National Labs, Library of Congress, and the Census) be made easily accessible to learners of all ages? What are the priorities in making such information and data available? What is the cost and source of funding to make priority information accessible? (Kalil(NEC), Fitzsimmons(OSTP), Sallett(DoC))

Universal Access. How can we spur or otherwise influence competition so that such effective interactive learning tools and other educationally valuable information and data are easily accessible to schools, homes, and workplaces? (Liaison through Sallett & Irving(Doc) and Kalil(NEC) with IITF)

Communication on Technology and Learning. What is the appropriate policy vision for focussing Administration initiatives on Technology and Learning? How can it best be structured, developed, shared and communicated to build widespread support for invention and use of effective learning technologies? (Sperling&Kalil(NEC), Nelson&Kelly(OSTP), Simon and Kollenberger(OVP), Sallett&Breedon(DoC), Kunin&Roberts(DoEd), Portman(DoL), and Golden(HHS)).

We appreciate your full cooperation in this important work on behalf of the President.

Attachment: Vision Statement

Vision: Improving the Productivity of Learning through Interactive Learning Technologies

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. Computers and advanced communication technologies are revolutionizing banking, finance, entertainment, and many other information-rich businesses and helping them tailor services to individual customers. But these technologies have had little impact on learning productivity. The most advanced communication system in most classrooms is not even the telephone but the classroom bell and the public address system -- technologies that have only reinforced the traditional "egg-crate" configuration of isolated classrooms. All of this is about to change. 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. Students taught by individual tutors do better than 98% of students taught in standard "mass production" class room settings (see figure 1). Emerging technology makes it possible to provide learner-centered contexts for learning tailored to individuals without a prohibitive investment in new materials or increases in instructional staff. America's teachers -- and their union leaders -- are demanding that schools not be left out of this revolution.

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 interactive 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.

The Department of Defense and many innovative education and training programs around

the nation have demonstrated that these three elements can combine to achieve a sharp increase in the productivity of learning. DoD has achieved such success with new learning tools that it is rapidly expanding its investment in these innovative technologies. The interactive technologies have been successfully used to promote learning in a diverse range of jobs (surgeons, nurses, electronic and mechanical repair technicians, operators of all kinds of equipment, and whole teams of combatants), as well as providing basic and advanced skills in areas like mathematics. In each of these areas, the participants achieve substantially higher results at lower costs than would be possible using traditional learning techniques. The DoD successes need to be moved rapidly to civilian learning. Defense training can also benefit from the growth of innovative civilian providers of learning technology since such businesses can provide improved training products at lower costs.

The full potential of technologies can only be captured if they incorporate engaging learning content and innovative learning strategies (Figure 2). To exploit the potential of such learning technologies, it is essential that we find a way to catalyze development of such effective learning tools for all learners. For example:

- Children's television programming like Sesame Street and Mr. Rogers Neighborhood has enriched the learning experiences of pre-children for the past 25 years even though the current generation of television watching is basically a passive experience. The new generation of interactive televisions, video-games, and other consumer equipment will permit -- indeed require -- active participation on the part of children. The challenge is to combine the experts on early childhood development, producers of engaging games and adventures for children, and technology experts to develop a new generation of children's programming that will combine exploration, adventure, games, and learning. If this happens, the first national education goal -- all children arriving at school prepared to learn -- will be much easier to reach.
- New information systems make it possible to create learning environments that simulate experiences ranging from walking through adventures set in synthetic representations of the historic discoveries in science, to exploring the biology of synthetic ponds to learning math through vivid confrontation with real-world problems. They permit instant access to state-of-the-art data and expertise around the globe. Math and science learning communities across the country are developing the curricula, frameworks, and assessment methods needed to reach the national education goal of preparing our high-school graduates to be first in the world in these critical subjects. Realizing this potential may well depend on catalyzing a unique collaboration between teachers, subject matter specialists, entertainment industries, software designers, and communities across the country.
- Only a quarter of high-school graduates complete four years of college. School systems around the nation are being challenged by the new School-to-Work program to design innovative programs (e.g. apprenticeships) to help all students learn in the context of work and to make a transition from learning in school to learning on the job, to higher

education, and to learning for next jobs. Emerging technology can make experiences simulating a variety of training on-the-job available in schools and student homes during the next few years. These systems will help students demonstrate that they have the practical skills and problem-solving ability needed by employers. Interactive programming capable of exploiting this potential can be developed by encouraging local businesses, schools, training institutions, and communication businesses to form teams with providers of relevant learning content.

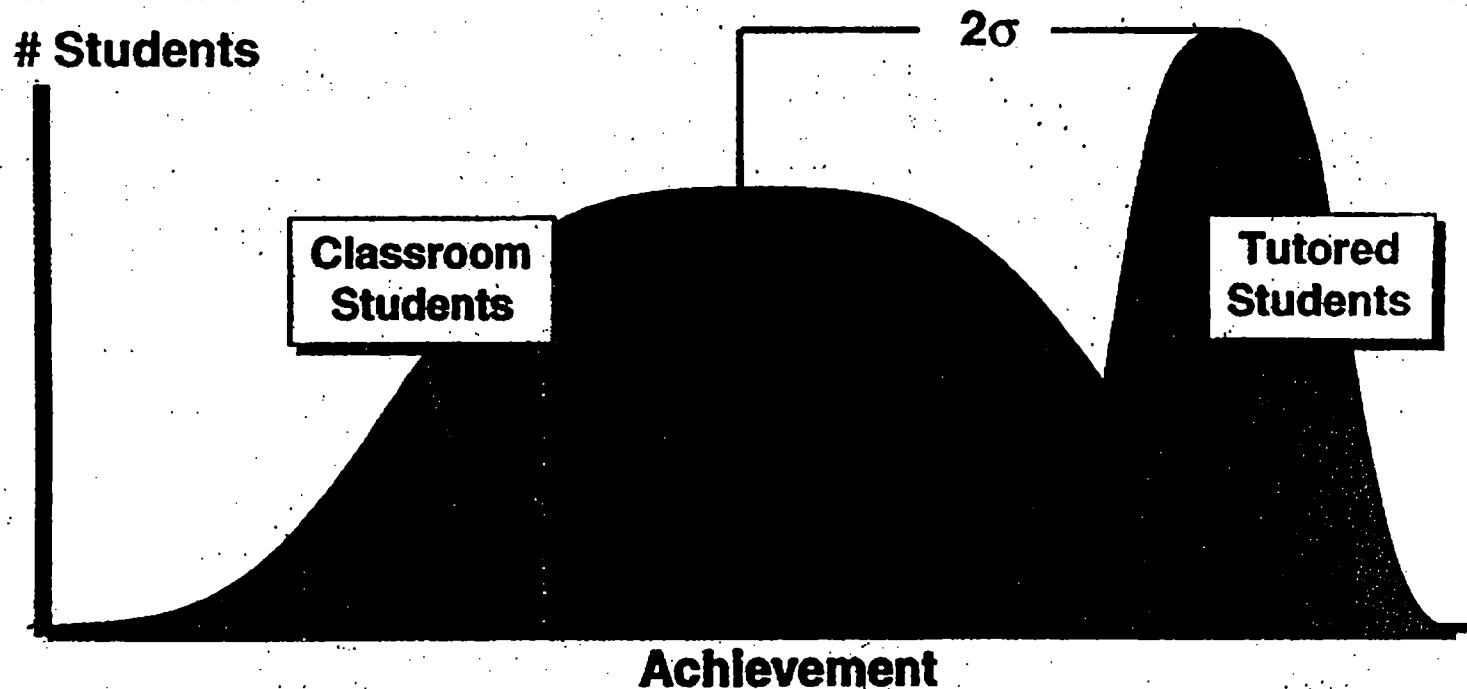
- **Businesses of all sizes recognize that adaptability and flexibility are central to corporate survival. This flexibility can only be achieved if their workers -- as individuals and as teams -- are able to keep pace with advanced equipment without expensive off-site training. The kinds of simulated environment now possible with new technologies allow operators of all types of equipment to learn new levels of competence or quickly re-learn seldom used skills. But developing the interactive learning systems to realize this potential will require combining subject-matter experts, experienced trainers, and software developers -- a task that is well beyond the means of a typical small business or community college. If interactive learning experiences can be made available on the job or at home, the goal of lifelong learning is within our grasp.**

Our challenge is to determine whether and how we can catalyze the development and deployment of interactive learning tools that can dramatically improve the productivity of learning for all Americans. If we succeed in this endeavor, we will help to create an important lever for achieving the President's agenda for lifelong learning.

Figure 1
Learning Productivity

High-Tech Learning is Effective

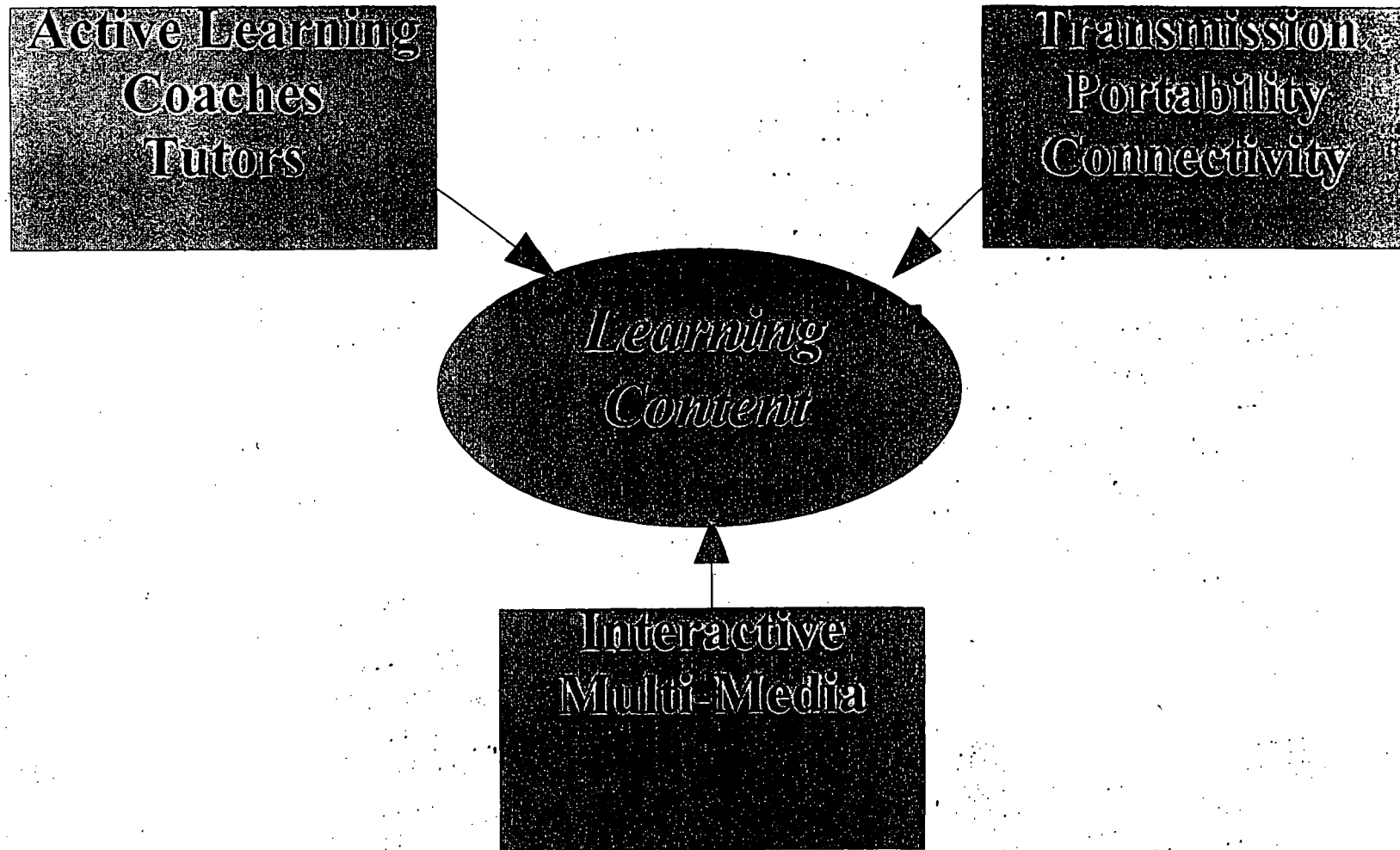
**ON AVERAGE, TUTORED STUDENTS SCORE BETTER THAN 98%
OF CLASSROOM STUDENTS – A 2-SIGMA SHIFT**



Adapted From: Bloom, B.S. The Two Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Tutoring. Educational Researcher. 13,4-16 (1984)

Figure 2

Learning Content: The Key to Improving Learning Productivity with Technology



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Olivia Golden	205-9721
Neal Lane	703-306-0109
Luther Williams	703-306-0399

Henry Kelly

2210 N. Nelson St
Arlington, VA 22207

TEL (703) 528-6388
FAX

DATE: 07/24/94

TIME: 17:33

TO: Mike Schmidt

COMPANY: DPC

FROM: Henry Kelly

COMPANY: OSTP

The following pages are my first cut at a TLC grant proposal

Technology and Learning Challenge Grant Program
A very preliminary draft of an RFP

1. A Challenge to American Communities

Investing in lifelong learning has been a central, and consistent part of the Administration's commitment to *putting people first*. We have an obligation to make effective use of all available tools in meeting this commitment. Computers and advanced communication technologies are revolutionizing finance, entertainment, and many other information-rich businesses and helping them tailor services to individual customers. But these technologies have had little impact on learning productivity. The **Technology and Learning Challenge Program** challenges America's Communities to change this.

There is no area where productivity and sensitivity to individual needs is more important to America than the business of learning. Efficient life-long learning is essential for the health of the whole economy in a fast-paced world where success often hinges on competition in the mastery of new tools and new markets. And efficient learning tools tailored to the interests and needs of each individual are essential if each of us is to enjoy the benefits of a growing economy. The imagination, determination, and resources needed to capture the potential of new technology in boosting learning productivity must come from creative individuals and communities around the nation.

2. The Invitation

The Technology and Learning Challenge Program is designed to encourage Communities to form new partnerships between schools, communication and other businesses, universities, and subject-matter experts to create the tools needed to build learner-centered, interactive learning tools the community requires. Like the Empowerment Zones and Enterprise Communities programs, the program is designed to be flexible in responding to creative notions from many different kinds of communities in the country and their notions of what is important.

The rules will be simple and paperwork will be kept to a minimum. Each application will be judged both on the merits of the plan proposed by the community and by the extent of participation by key community members -- both private and public.

The Federal government will designate [n] groups as TLC Communities. These Communities will receive federal grants up to [\$] to develop and introduce new, technology-based learning-productivity tools into their Communities. Funding for the program would be used to design high-quality, affordable learning tools and learning environments that are sensitive to the unique needs of individuals and permit explorations, games, and other highly interactive experiences. Activities qualifying for support would include such things as development of innovative curricula and pedagogy using the capabilities of new technology, design and dissemination of software (simulated environments, simulated equipment, context-sensitive help and tutorials); teacher and instructor training and professional development; testing and evaluation; capture, communication, and use of digital information, and; new models of assessing progress in learning. The program would not be designed to purchase communications equipment or other hardware for communities.

The grants would be judged by [individual Department(s), TRP-like consortia, Committee of the President's Community Enterprise Board, ETR, ??]

In addition to the grants, designated communities would have access to planning and research assistance from a variety of federal research facilities and [...priority in choice of objects for entry into federal digital archives,??]. All of this will be coordinated with a rich range of federal programs in related areas (see the section titled "Federal Partnership in Technology and Learning ")

In the end, however, we expect that the greatest benefit of participating in the program will not be the financial or other rewards provided by federal programs, but the community partnerships encouraged and strengthened by participation in the program. It is these partnerships that will achieve the nation's goals.

3. Key Objectives

The central objective of the program is to design programs that reflect a new consensus emerging about the dynamics of learning:

The first is a recognition that 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. Students taught by individual tutors do better than 98% of students taught in standard "mass production" class room settings. Emerging technology makes it possible to provide learner-centered contexts for learning tailored to individuals without a prohibitive investment in new materials or increases in instructional staff. America's teachers -- and their union leaders -- are demanding that schools not be left out of this revolution.

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 interactive 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.

While the themes remain the same, strategies for applying them to specific learning communities will obviously differ (see the box).

Learning Productivity for Different Communities

- ***All children arriving at school prepared to learn*** For better or for worse, children's television programming has changed the learning experiences of pre-children during the past 25 years. New technology allows us to move from a passive experience to engaging games and adventures that permit -- indeed require -- active participation on the part of children. The challenge is to combine the experts on early childhood development, producers of for children, and technology experts to develop a new generation of children's programming that will combine exploration, adventure, games, and learning.
- ***U.S. high-school graduates will be first in the world in science and math.*** New information technologies make it possible to create learning environments that simulate experiences ranging from walking through adventures set in synthetic representations of the historic discoveries in science, to exploring the biology of synthetic ponds to learning math through vivid confrontation with real-world problems. They permit instant access to state-of-the-art data and expertise around the globe. Capturing this potential requires new consortia between teachers, subject matter specialists, entertainment industries, software designers, and business partners across the country.
- ***School-to-Work*** Only a quarter of high-school graduates complete four years of college. School systems around the nation are being challenged by the new program to design innovative programs (e.g. apprenticeships) to help all students learn in the context of work and to make a transition from learning in school to learning on the job, to higher education, and to learning for next jobs. Emerging technology can make experiences simulating a variety of training on-the-job available in schools and student homes during the next few years. These systems will help students demonstrate that they have the practical skills and problem-solving ability needed by employers. Interactive programming capable of exploiting this potential require coalitions between local businesses, schools, training institutions, and communication businesses.
- ***Lifelong Learning*** Simulated environment now possible with new technologies allow operators of all types of equipment to learn new levels of competence or quickly re-learn seldom used skills. But developing the interactive learning systems to realize this potential will require combining subject-matter experts, experienced trainers, and software developers -- a task that is well beyond the means of a typical small business or community college.

4. Application

a. 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: teaching institutions (schools, universities, colleges, training centers), local businesses, communication firms, software developers (broadly defined), and content specialists (e.g. historians, scientists, business specialists)

b. The plan

The core of the application will be a plan for developing and introducing innovative learning technologies into a specific community. The program proposed should represent a clean innovation in using technology to enhance learning productivity in the community, not a simple repackaging of existing assets. The plan should consider the following elements

How is the Community Defined

- Describe the specific groups whose learning productivity would be enhanced given success of the proposed project
- Describe the specific schools, businesses, individuals, and other organizations participating in the development of the plan and their previous experiences in learning productivity acting alone or as a part of the community
- Describe how the members of the community will work together to achieve the objectives of the plan
- Describe how the members of the community worked together to create the plan
- Explain the management structure that will be used to implement the plan if a grant is available.

What is the vision of the program defined; which of the Administration's lifelong learning goals does the program support

- Describe the ways technology can enhance the learning productivity of the targeted community and the specific kinds of benefits that can be achieved.
- Explain how accomplishing the goals of the program will enhance other goals of the community in areas such as youth employment, linking businesses to schools, linking parents to teachers and schools, bringing individuals with disabilities into mainstream employment opportunities, or helping small businesses and their employees keep pace with technical innovation.

- Describe the principles underlying the instructional program proposed: how well will it approximate the kinds of instruction available from an individual tutor, will it permit team as well as individual training, how will it be sensitive to the needs of minority groups?

What private resources are committed to the plan

- What kinds of financial or other commitments will be made by local communication companies (phone, cable, new entrants), and by other local to cover the cost of the hardware, software, maintenance and training needed to make the plan succeed?
- What voluntary contributions will individuals and businesses in the community make to installing and operating the needed equipment and to providing training.
- What evidence can be provided of the nature, kind, and magnitude of these contributions?

What government resources will be used to support your plan

- Identify how the community will make use of state and local education and training resources to support the program
- Identify how state and other regulatory authorities will work to create incentives for communication providers to connect the schools, companies, and other institutions participating in the program.
- Identify federal program funding or cooperative research programs already committed to tasks relevant to the plan and programs that would become available if the community is designated.
- Identify military or federal civilian training programs in the community that can participate in the plan.

What key problem will the federal resources available under the grant resolve

- Given the public and private resources available to support the plan, precisely what missing element will be covered by the federal program resources requested.
- Why would it be difficult for the community to fill this gap using alternative means?

What evidence is there that the proposed program will succeed and how will success be evaluated?

- What are the specific tasks and timetables that will be needed to implement the plan

- explain how progress toward the goals will be evaluated and what benchmarks will be established
- explain how the management of the plan will change in response to information available.

5. Selection 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? Will they encourage innovative strategies in pedagogy, accelerate the introduction of learner-centered, experience-based learning environments, and result in a measurably improved learning?
- Is the proposal an effective part of a larger community program to encourage learning productivity and programmatic changes in the communities education and training programs?
- Will the programs proposed have benefits to the nation outside the immediate community involved? 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?

6. Federal Partnership in Technology and Learning

The **Technology and Learning Challenge Grants program** is a part of a broad set of federal programs coordinated as the **Technology and Learning Challenge**. The federal government is reinventing the way it does business. Managers of a diverse set of federal programs are working together to make efficient use of available resources. The participating programs have a broad set of objectives -- including national security, business development and trade, scientific advances -- and the coordination efforts have found many ways to achieve programs that serve to promote these clear programatic goals while contributing to activities that advance learning productivity in a broad set of American communities.

a. Research, Development, and Demonstration

The research challenges associated with using technology to increase learning productivity are as important as any the nation faces today. The President's National Science and Technology Council has crafted an integrated plan for research and development activities in technology for learning based on resources available in the National Science Foundation, the

Department of Education, the Advanced Research Projects Agency and other DoD research programs, the Department of Energy, NASA, and several other research agencies.

b. Military and Civilian Training

Efficient operation of the federal government depends on maintaining the skills of its workers. The Nation's security has always depended on the quality of the training programs available for the uniformed and civilian personnel in the Department of Defense -- including maintenance of skills in the reserves. The challenge has become greater as new technologies constantly redefine the skill requirements of federal civilian and military employees. Defense Training programs, the Office of Personnel Management, and other federal agencies responsible for federal training are coordinating their work to (a) ensure that federal training makes efficient use of cost-effective training technology available on the market and, (b) procures training products and services in ways that stimulate innovations in instructional technology. All federal procurement will be designed to stimulate innovative private firms capable of selling innovative, technology-based training systems to civilian as well as to government training organizations. Federal training programs will get more for the public money they spend, and federal employees will receive better training in less time, if innovative private businesses competing to provide efficient, low-cost training systems.

c. The National Information Infrastructure

d. Management of Federal Programs

Head Start

Job Corps

School-to-Work

Chapter 1

Eisenhower

OPEN ISSUES:

- How much will a fully-functioning, interactive, individual-based, learning environment cost to develop and introduce in each of the areas listed in the Vision statement?
- Should the offering attempt to get proposals in specific areas (e.g. preschool, incumbent workers, etc.) or should grants be made entirely on the basis of merit running the risk that some key areas will not be represented
- Should planning grants be given to help communities assemble proposals
- How much private cost-sharing could be expected from the software developers? From other partners?
- What kinds of intellectual property rights would developers expect if they participated with a community in the development and introduction of one of these tools?
- How many challenge grants should be awarded?
- Should there be a small number of large grants (how large) and a large number of small grants (how small) or only one category of grant?
- Will the challenge encourage the kinds of innovative software designers we want to participate?
- The systems require continuing maintenance funding and operational support after the initial development award (help desks, teams of experts available on-line, bug elimination, expansion and updating etc.). Who will pay for this.
- How will the program be managed?
 - funding to 1-2 agencies with a TRP-like board
 - combining programs in many agencies under a coordinating body
 - others?

rob portman 301 942-8230