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TECHNOLOGY LEARNING CHALLENGE EVENT PROPOSAL

SUMMARY

This memorandum outlines ideas for a major Presidential Initiative on Technology and Learning. We propose a two-stage process:

- First, that the President take part in a series of small, "stage-setting" meetings and events with business and education leaders who work with the President in designing and participating in a public-private effort to make sure our nation's schools are not left behind in the information technology revolution that is sweeping through the rest of our economy;

- Second, that the President come together with business and education leaders in a large-scale Presidential event to launch a new public-private partnership for education and technology.

The timeframe for action on this issue is short -- on October 12, the House Education and Science Committees are planning to hold a public hearing on educational technology that will likely include Speaker Gingrich as the star attraction. No Administration witnesses will be invited. In order not to be trumped by this hearing, the best timeframe for action is September 6 through October 9. This memorandum will discuss a number of ideas for the stage-setting events and the roll-out event. A companion memo will discuss details about what this public-private initiative will entail.

STAGE-SETTING EVENTS

Over the next few weeks, the President has a number of opportunities to meet with business and education leaders who are interested in working with the President on a major public-private initiative to ensure that our nation's schools are full participants in the information revolution. These small meetings and events would raise expectations and press interest in an event sometime in early October that would roll out the Technology Learning Challenge initiative. Events could include:

- **September 6: Meeting with CEOs Who Support Continued Funding for GOALS 2000**. On September 6, the President is scheduled to meet with 8-10 CEOs who support GOALS 2000. At this meeting, the President is going to discuss ways in which CEOs can help to accelerate the pace of education reform. As a part of this discussion, he could briefly raise the issue of educational technology and his interest in talking in more detail with the business community over the next few weeks about joining together in a major public-private initiative on this front. Obviously, this would not be the major topic of discussion in this meeting, but it would at least raise the issue with these CEOs. The fact that education technology initiatives were discussed in the meeting could be a part of the press release for this event.

- **September 15 or 18: Meeting with Leaders of the National Coordinating Committee on Technology in Education and Training (NCCTET).** The NCCTET represents a broad and influential spectrum of the business and education community who are interested in promoting the use of technology in education (see attached list of NCCTET Members). NCCTET members are scheduled to come to DC for a regular meeting on September 18. The President could meet with a small number of the most influential members of this group (i.e. Geiger of the NEA, Shanker of AFT, George Lucas) to talk in some detail with them about a Presidential roll-out event in early October and what kinds of commitments they could make at this event to promote the use of learning technologies in our nation's schools.

- **September 21: Announcement of the 1995 Technology Learning Challenge Grant Award Winners**. On September 21, the President is in California, he could announce the 20 winners of the 1995 Technology Learning Challenge Grant competition. These winners represent community-based partnerships between schools, local communities, colleges, and businesses (see attached list of winners), and we could get a number of representatives of these winning teams on stage with the President for this event. There are 2 winning consortia from California. During this presentation, the President could formally announce that on October X he will be joining with business leaders and educators from across the country to announce a major new initiative in learning technology.

To support these meetings, Cabinet members could be asked to hold similar stage setting meetings over the next few weeks.

These meetings/events serve four very important purposes:

- They would help ensure the support of the business and education community by getting these groups to feel ownership and buy-in to the initiative up front, before the actual roll-out takes place;

- They would give the President an opportunity to encourage the private sector and foundations to contribute to this initiative.

- They will help build anticipation for the actual roll-out event in the press -- each meeting and event would hint more and more broadly at the major initiative to come;

- They will help convince the press and the public that this is not a "one-shot" event that was put together purely for message reasons, but instead is an initiative that has been thought out and carefully planned over a period of time.

THE PRESIDENTIAL ROLL-OUT EVENT

In early October, the President should come together with leading business and education leaders to unveil a major new public-private initiative to get technology into our nation's

schools. This event must take place before October 11, or else we run the very serious risk of being trumped by Speaker Gingrich on this issue.

The event will involve a number of influential CEOs, education officials, students, and teachers who will all commit to participating fully in this new partnership. The President will be announcing a series of challenges to the private sector and a number of executive actions that he will take to show the seriousness of the federal government's commitment to this partnership. The CEOs will announce their support of the initiative. Possibilities for event sites include the following:

- **The White House South Lawn.** In his speech on September 21, the President could invite business and education leaders back to the White House for the roll out event. The backdrop for this event could be examples of the latest electronic technology for children, where participants could actually use some of this technology. Children from local schools could be invited to try out the technology as well. All of the costs for setting up this equipment would be borne by a business association called Kids Net (a consortia of high-tech hardware and software companies), which has been offering to set up and show-off their equipment for an event at the WH on learning technology for over a year. CEOs who can not make it to the event could be linked by satellite to give brief statements of support, and the event could be broadcast by satellite to a number of schools across the country.

- **A High-Tech School Outside the Beltway**. There are a number of schools all across the country that are using technology in innovative ways that could host such an event.

- **A School-Member of One of the Winning Technology Learning Challenge Grant Consortia.** The event could be held at the site of one of the TLC grantees.

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Vision

That, by the turn of the century, every child will have access in their schools to the kinds of communications technology that will allow them to be technologically literate and have the kinds of skills needed for good jobs in the global workplace.

Possible Themes

There are a number of possible themes that the President can touch on at this event. They include:

Changing Nature of Work

Common Ground

Time for Action is Now

Changing the Way Students Learn and Teachers Teach

A more detailed description of each of these themes is attached.

Barriers:

Teacher Training. Teachers today are not taught how to use technology as a teaching tool, nor how to integrate technology into a curriculum.

Connectivity, both inside and outside school. Schools need to be connected to the information superhighway, both externally (by running cable or phone wire to the schools) and, more importantly, internally (by linking the computers within a classroom and throughout the school together so that they can communicate with each other).

Hardware. Schools need both the resources for purchasing current communications technology (computers, modems, CD Rom, File Servers, etc.) and the expertise in knowing which hardware to purchase.

Software/Curriculum. Schools not only need the proper educational software to run on their hardware, but more importantly that software must have the ability to be integrated into a broader curriculum. Software developers tend to come up with great "gee-whiz" software packages that look good but have no relevance to a teachers curriculum.

School Reform. Technology plays a part in the whole school reform movement by changing the way teachers teach, students learn, and even by changing the nature of "instruction time" -

- if students can link into school databases and the internet from home, then the boundaries of the traditional school day no longer confine their learning.

Funding/Equity. Any serious look at getting technology into our nation's schools cannot ignore the fundamental issue of inequity of funding between rich and poor school districts. Wealthy districts, like Mongomery County in MD, can afford to buy the latest technology and expariment with new models of learning. Inner-city schools often must rely on outdated technology, if any at all. Also, students from wealthier districts are much more likely to have a computer at home than students in poorer districts.

Existing Actions:

What are we already doing on this front:

NII Working Group

VP Challenge to hook up schools.

Technology Learning Challenge

School-to-Work, Goals 2000, and Title I

Possible Presidential Actions/Announcements:

U.S. Tech Corps ✓

Technology Learning Challenge Grants ✓

Technology Honor Society ✓

Interagency Technology Office Executive Order ✓

Executive Order directing agencies to promote the use of Technology in Education Programs -- Title I, Eisenhower, etc.

Digitization of Federal Resources (Smithsonian, Archives) √

Federal Workers Volunteering in Schools ✓

Donation of Surplus Federal Computers to Schools √

Charter Schools Executive Order – ? like small ?

FCC Wireless Spectrum Proposal – ?

(Ed Satellite – ?

Funding of additional TLC proposals

Telecom Bill Actions. Are their any actions we could take on our own to push the goals of telcom reform, especially as it relates to the schools?

Link from DOD technologies to all classrooms (put DOD stuff on-line?)

Letter/~~Statement from~~ Business ~~Leaders~~ (~~Mike Cohen~~)

Event Sites:

A School in the area or outside the beltway that is using technology in innovative ways.

The Smithsonian

Capitol Hill with Kids Tech

South Lawn with Kids Tech

IBM/Apple Center

Event Ideas:

Have some number of TLC grant award winners link up by satellite to talk to President and receive award.

POSSIBLE THEMES

Changing Nature of Work: We are in the midst of an information and communications revolution that is changing the nature of how we work and learn. For the first time, we are beginning to see real evidence that, during this most recent economic recovery there has been much higher investment in equipment -- particularly computers and related telecommunications equimpment -- than in any other recovery. There is also some evidence to suggest that computers and other technologies are finally leading to a reorganization of workplaces into higher performance, higher productivity organizations. If we want to remain competitive in the next century, our children must be familiar with and proficient in the uses of these new technologies if they are to have any chance of competing for good jobs at good wages in the new economy.

Common Ground: From the birth of the land grant colleges during the civil war, to the creation of the G.I. Bill 51 years ago this summer, Americans have viewed education and training as above partisan politics -- as a "common ground" on which we can move forward together as a nation. Educational priorities have been seen as not Democratic or Republican priorities, but as national priorities that are good for the county, good for families, and good for those who want to give their children a better life. During the last Congress, this tradition was continued as Democrats and Republicans worked together to enact a historic series of education and training initiatives to assist families, communities, and schools to have expanded educational opportunity in America. These initiatives included: Goals 2000; School-to-Work; National Service; Direct Lending; the Improving America's Schools Act; and expanding Head Start.

Similarly, over the past two decades the public and private sector have come to a common understanding of the importance of preparing our young people for the world of work. Initiatives like Goals 2000 and School-to-Work were passed with widespread public and private sector support because it is understood that the only way that we . Increasingly, the ability of schools to access and effectively use the kinds of communications technologies that are revolutionizing the private sector has become a major component of this common understanding.

Unfortunately, we have reached a point in time where this common understanding and agreement is in jepordy. At this time, we are in the midst of a great debate over the future of education in this country. There are some on the Hill who, in this time of increased global competition, want to cut Federal funding for education programs by billions of dollars, including funding for educational technology. As I have stated before, I will not stand by and let this happen. In an economy where technology is constantly changing, competition is global, and capital is mobile, cutting funding for education and training would be as foolish as cutting defense spending during the Cold War. Education and training are the keys to the American Dream of economic opportunity and security. They are also a part of our sacred trust to pass on to our children and their children the same opportunities our parents and

grandparents left us.

The Time For Action is now: While I will continue to fight for what is right in this debate, we cannot afford to stand still and wait to determine the outcome. As President, I will not stand by as another generation of students is lost. The time for action is now. Today I am announcing a number of steps that I can take without the approval of Congress. (List Executive Actions).

In addtion to these Federal Actions, I am proud to announce a number of actions that I am challenging the private sector to take to

Changing The Way Students Learn and Teachers Teach: Advanced communication and information technologies make it much easier to implement the new paradigm of learner based, exploratory learning which has proven much more effective than the mass-production model that characterizes so much of the current system. The transformation can only be achieved by empowering education and training institutions throughout the nation, working with innovative private sector partners, to define and build upon their own vision of what can be accomplished in communities across the country.

We are experiencing a technological revolution of unprecedented proportions. Technology is changing the way we work and live. Unfortunately, it is not yet changing the way we learn, especially in our classrooms. In an information age society we have factory-era schools where blackboards and chalk are the dominant communication technology. In a global economy, where employers must have employees who make skillful use of information technologies to continuously improve their productivity and increase their knowledge, few schools are able to provide the interactive, high performance learning environments that would allow students to develop these vital skills.

Financing Educational Technology

Administration Proposal

To achieve the goal of making American kids technologically literate, the Administration proposes to invest $3 billion per year in an educational technology. Funds will come from two sources:

(1) Re-focus over $1 billion in existing federal dollars, especially Title I, JTPA, and Eisenhower

(2) Create a $2 billion educational technology block grant, subject to a three-to-one matching requirement. This block grant would be funded by:

   (a) Spectrum auctions

   (b) New funds in the ED FY 1997 budget

This block grant will be available to state and local governments provided that federal dollars are matched three-to-one at the state or local level, so that total K-12 technology spending reaches $9 billion per year, or 3.5 percent of total K-12 spending. Current technology spending is about $3.3 billion per year.

Funding Goals

The Administration seeks to have total K-12 technology spending rise to $9 billion. Two recent analyses, one completed by McKinsey & Co. for the National Information Infrastructure Advisory Council and the other by the RAND Corp. for the Department of Education, suggest that a minimum investment of 3 percent of total K-12 expenditures will be needed to wire and equip the nation's classrooms.

For this to happen, current federal spending ($1 billion) will need to triple to $3 billion. Current state and local spending ($2 billion) will need to triple to $6 billion. The federal contribution will be one-third of the total amount needed to meet the total target of $9 billion.

Overview of Current Technology Spending in Schools

In the 1994-95 school year, approximately 1.3 percent of overall K-12 spending was for technology -- a total of about $3.3 billion. Of this total, about $2 billion was spent on hardware, about $750 million on educational software, and the remainder for training, network connections, and miscellaneous costs. Approximately $2 billion was contributed by state and local funds. The balance came from federal sources.

Many states have set-asides or special revenue streams for technology spending. Districts typically raise money for technology through local bond issues.

Funding Educational Technology

The Administration will make clear how schools can use funds from several existing federal programs on technology. In addition, substantial increases in the Eisenhower Professional Development Program would be linked to focusing these dollars on training teachers to use technology.

Funds for the technology block grant would come from two sources:

(1) **Spectrum Auctions.** Funds collected from spectrum auctions beyond those included in the President's 10-year budget plan would contribute up to $2 billion a year to fund the technology block grant.

(2) **Discretionary Funds.** Supplement the Department of Education's FY 1997 budget, by between $500 million to $1 billion per year. This could be offset by Education Department program eliminations and reinvention proposed in the Administration's FY 1996 budget, saving $800 million per year.

Connections

The Basics

All modern communications systems are digital. Digital communication means sending a series of electronic *bits* of information over some kind of network, where the bits represent words, pictures, or video which can be displayed on a computer. (For example, a 200 page book is about 20 million bits and a reasonably good photograph is about half a million bits.)

Connections to schools can come through a phone wire, a cable connection, a satellite link, or through some types of broadcast signals. The connections can be distributed within the school building through either wires or wireless systems. A modem or set-top box is used to convert the signal at the receiving end to a form that the computer can use (and display).

Communication rates are measured in bits per second (BPS). A standard phone conversation can be sent at the rate of about 56,000 BPS. A $60 modem attached through existing phone lines to a personal computer communicates at about 28,800 BPS. This is more than adequate to send low-quality audio and large amounts of text and single photographs (the 200 page book could be sent in a little more than a minute and the photograph in about 20 seconds). This transmission rate can be trying when a user must wait for many photographic images and is not adequate for TV quality video. Much higher transmission rates are possible with current technology.

The most common digital transmission system is called the *Internet*. This system allows users around the world to communicate easily over available phone or other communication systems without needing to know the details of how the transmission takes place. Most users get into the Internet over standard phone lines but much higher speed connections are available at a much higher price. High speed experimental networks, jointly supported by the U. S. government and private firms, can send and receive data at more than two billion BPS (a.k.a. 2 "Gigabits"). The *World Wide Web* allows use of the Internet through easy-to-use graphical interfaces which don't require sophisticated computer skills -- and which have sparked the recent exponential growth in the use of the Internet.

Current Status in Schools

In the fall of 1994, 49% of all **schools** were connected to the Internet. Another 26% had a network which connected computers inside the school together but didn't connect to the Internet. Only 3% of **classrooms** have Internet connections.

Goals

If schools are to rely on digital communications as an essential learning tool, all computers must be connected to the Internet. A reasonable goal, therefore, is to ensure connections for all schools and all classrooms.

- ***Connecting the Schools.*** Of 84,500 elementary schools and 10,600 secondary schools, 49% have connections, leaving 48,500 schools to be connected.

- ***Connecting the Classrooms.*** Of the 2.3 million classrooms (assuming one classroom per teacher) in primary and secondary schools, 3% have connections, leaving 2.2 million classrooms to be connected.

Costs

The Rand study suggests that telecommunication connections can be provided for classrooms at a cost between $7 and $27 per student per year annualized over ten years. If we assume the average annual cost is about $17 per student per year for Internet connectivity, connecting all students will cost $700 million per year.

Computers

The Basics

Computer speed has doubled every eighteen months for the past several decades and the rate is likely to continue. This means that new generations of computers are constantly entering the market. Silicon Graphics, a world leader in work stations, for example, completely turns over its product line every 18 months.

Consumer preferences have kept the cost of a standard office or school machine roughly in the range of $1000-4000. The power of the machines has steadily increased and features such as sound, very large data storage, high resolution screens, and other features have been added. Equipment purchased by the schools is now becoming affordable only because strong markets for similar equipment exists elsewhere in home and business markets.

As with many other inventions, computers can become easier to use as they become more powerful. The best case will be when the computer is completely invisible and the person using it concentrates on the functional mission at hand -- in our case, learning. A pilot operating an advanced flight simulator, for example, is operating a very powerful computer but he's thinking about flying the airplane.

Current Status in Schools

While the number of students per computer in schools has decreased from 125:1 in 1983 to 12:1 in 1995, many of these computers are now outdated. Less than a quarter of computers currently in schools are capable of running modern software, which means that today there is only one computer capable of connecting to the Internet for every 48 students (averaged nationally). Schools must plan for and fund upgrades on a continuing basis (just as businesses do).

Students, particularly children from middle and upper income households, are much more likely to use a computer at home than at school. A third of all U.S. households have computers. Eleven percent of elementary students and 21% of secondary students report using computers for homework.

Goals

School experiments documented by Rand indicate the best success rates for educational technology usage when there is one computer for every 2-3 students. A reasonable goal, therefore, is a 3:1 ratio of computers to students.

Costs

Schools would need to purchase or lease a total of about $20 billion in computer equipment (or spend $4 billion per year over 5 years, assuming current costs) to achieve a goal of three students per computer. Much cheaper equipment is likely to become available, however, during the next five years. Devices for computer games and cable set-top boxes -- which cost between $300 and $500 -- may soon become powerful enough to be used as computers and to connect to the Internet but additional capabilities and associated displays, keyboards, and other interface devices will need to be developed which will raise this price. Total cost may also be reduced by using less sophisticated (and therefore less costly)

computers for early elementary and middle school students or by leasing computers which are constantly upgraded.

Competence (Teacher Training)

The Basics

Successful use of technology in schools depends upon the skills of teachers. Widespread use of technology requires changes in both pre-service and in-service training. In 1991, the U.S. had 2.6 million public school teachers. About 80,000 teachers start service each year. Comparatively few teachers have been prepared to use technology to (a) create learning opportunities tailored to individual students, and (b) to access resources needed for discovery projects, and (c) to relate instruction to the schools' educational goals.

Current Status in Schools

The Department of Education estimates that approximately 10% of teachers are proficient in the use of instructional technology. While many teachers may have taught themselves how to use computers, few have had formal training in using technology learning tool. Some Colleges of Education offer programs specializing in educational technology. When technology is introduced into a school, teacher training tends to be a low priority -- overall, school districts spend less than 15% of their technology budgets on training teachers, and most of that focuses on the mechanics of operating equipment rather than on integrating technology into the curriculum or selecting appropriate courseware. Follow-up training and technical support is almost non-existent, with only 6% of elementary and 3% of secondary schools providing a full-time, school-level computer coordinator for technical support. All of this leaves teachers ill equipped to exploit the opportunities presented by new technologies.

Goals

All teachers must be given the opportunity to learn and to apply the skills needed to exploit the potential of new educational technology and to design courses around this potential. All new teachers should enter schools with these skills. This means developing new curricula for preparing teachers, and providing the means for professional development. Professionals throughout the economy expect their jobs to be constantly redefined by technology and expect employers to provide for professional development. Teachers should not be an exception.

Costs

The Rand study suggests that training teachers to use new computer equipment costs on average $25 per student per year -- or about $400-$500 per teacher per year. Training all teachers would, therefore, cost roughly $1.2 billion/year. Since other goals call for introducing sophisticated communications and computer equipment into classrooms for the students, these same devices can be used to provide instruction for teachers at the school sites or at their homes. This could significantly reduce the cost and increase the quality of teacher training.

Content

The Basics

The key to making all of this work is developing software that exploits the unique power of computers to tailor instruction to individual needs and learning styles. New software for learning must provide engaging interactive experiences and bridge the abstractions that often present barriers to understanding. The technology offers unique opportunities to base learning on personal discovery, games, and exploration. It offers the potential to monitor individual student progress and provide tutorial help specialized to their immediate needs and style of learning. Complex sets of skills -- such as solving problems with incomplete and ambiguous information -- can be tested. Communications systems present a unique opportunities for connecting the most isolated school into worldwide resources of text, pictures, recordings and other information. It also offers an ability to form collaborations with students who may be miles away or to take ask questions of teachers or experts around the world. Exploiting these opportunities will require a unique combination of experts in the subject matter, educational techniques, computer software, and the entertainment/media industry.

Many of the most creative developers of interactive technology are now developing systems for use on low-cost set top boxes designed for home televisions. Education is the biggest information-based industry in the U.S. -- spending on K-12 education is ten times the total long distance telecommunications revenues and ten times the annual receipts of the motion picture industry -- yet it is still seen as a small niche-market by software publishers.

Current Status in Schools

Most computers in schools are now used to teach office skills such as word processing and keyboarding (28% of software use) and business databases (11%). Only 31% of the use was in academic subjects and much of this software is of very uneven quality.

Goal

Create a much larger market for engaging, interactive courseware that is tailored to individual learning styles by introducing the computer and connection infrastructure into the classroom.

Costs

Given the goal of having a ratio of three students to one computer in the classroom, approximately 15 million computers are needed for the 45 million K-12 students in the U.S. The Software Publishers' Association estimates that the average computer uses five software applications packages. The average retail cost of these software packages is $80. Therefore, the total cost of software to support the 3:1 ratio of students to computers can be estimated at about $5 billion.

Costs could be lowered if schools joined in a purchasing consortia or if product distribution costs can be reduced by using the Internet to obtain products. It is difficult to estimate the kinds of cost reduction possible, however, since the cost of developing and testing a sophisticated software tools will remain a major part of the product cost.

The Bottom Line: A Proposal

A rough estimate of the cost of operating a state of the art school using technology is shown in Table C. In a steady state schools will need to devote 5% of their current budgets to technology.

Two estimates are shown. The first estimate is based on a survey of a number of experimental schools which have made exemplary use of computers during the past few years. Over 40% ($5 billion/year) of this cost currently results from the need to hire a new staff person to support the computers, network operations, and technology-related learning of students (and teachers) at each school. The remainder represents investments in connections, computers, software and teacher training. The annual investment needed to get schools to a reasonably high state of technical sophistication by the year 2000 is $12.4 billion per year.

A second estimate is based on two additional assumptions: (1) that software purchases would reach $5 billion by the year 2000 and (2) that schools find a way to use volunteers and retrained staff to cover part of the cost of the additional staff needed to maintain equipment and to provide ongoing technical support for teachers. Technology can be used to increase efficiencies in administrative and other school functions making such a move feasible.

Both result in an estimate that schools should be spending over $12 billion per year on educational technology by the year 2000 -- clearly, an ambitious goal for schools with budgets that are already tight. About two thirds of this sum could be realized if schools spent 25% of funds now used for curriculum development, teacher training, computer centers, libraries, media, and supplies. This would total $3.3 billion per year. Directing 25% of new capital budgets to buy or lease technology would yield an additional $5.2 billion a year. In contrast, private businesses now spend 40% of their capital budgets for information equipment and services.

A possible allocation of total costs might be as follows:

- The federal government provides an additional $2 billion per year over five years as a challenge to schools to make the needed commitment.
- Schools would commit 5% of school funds for technology during the next five years. This would be on the order of $8.0 billion for all schools, which would need to be taken from operating and capital funds. (Current spending rates may be nearly half of this amount.)
- Private firms, adopting schools, match the school funds to cover half the cost of installing and operating equipment for five years. The value of this in direct contributions or volunteer/in-kind support would be $2.4 billion per year.

The total amount schools now spend on educational technology is not well documented. One estimate suggests that current spending may be as high as $3.6 billion which would make it a quarter of all current spending in a category listed as "supplies, curriculum development,

teacher training, computer centers, libraries, and media." This estimate, however, is based on a number of extrapolations and may be high.

Table A
Current U.S. Public School System

Number of Students (fall 1995)

Elementary	32.2 million
Secondary	12.7 million
Total	**45.0 million**

Numbers of Teachers (fall 1995)

Elementary	1.1 million
Secondary	1.5 million
Total	**2.6 million**

Number of Schools (fall 1992)

Elementary	84.5 thousand
Secondary	10.6 thousand
Total	**95.1 thousand**

Table B
Current School Spending Distribution

	$ Billions	**$/student**	**% school budget**
Possible Resources for Technology Funding			
Curriculum development, staff training, libraries, and media and computers	8.8	206	3.7
Instructional supplies	4.6	108	1.9
New Capital	20.7	485	8.6
Subtotal	**34.1**	**799**	**14.2**
Total School Budget	**250**	**$5,644**	**100.0**
Federal funding	16.0	375	6.6

Table C
Annual Cost of Educational Technology

	$ Billion (Est. #1)	$ Billion (Est. #2)	% school budget (Est. #1)	% school budget (Est. #2)
Needs				
Connections	0.7	0.7	0.3	0.3
Computers	4.0	4.0	1.6	1.6
Software	1.4	4.1	0.6	1.6
Training	1.2	1.2	0.5	0.5
New Tech Support	5.1	2.4*	2.0	1.0
Total	**12.4**	**12.4**	**5.0**	**5.0**

Table D
Possible Sources of Funding for Educational Technology (totals to 5% of annual school expenditures)

	Billions of dollars/year
Federal Trust Fund	2.0
Direct School Contributions (see Table B)	8.0
Private Contributions (funds and in-kind)	2.4
Total	**12.4**

* This amount factors in additional volunteer efforts of Tech Corps and the National Technology Honor Society.

DRAFT

Technological Literacy:
Equipping Our Children with the Skills they Need
to Thrive in the 21st Century Information Age

DRAFT ACTION PLAN

Introduction

Over the past six weeks the representatives of the NII and NEC- DPC Education Working Groups have have been meeting jointly to develop a proposal for making educational technology a defining issue for the President and for the nation -- now, through the State of the Union Address, the 1996 Campaign and the Second Clinton-Gore Term. What follows is a draft proposal to do so -- based on a major launch by the President on or about October 2 and with a considered and in-depth exploration and build-up to this launch over the next three weeks. We have laid the ground-work for the build-up in the President's discussion with CEOs on Goals 2000, which included the importance of education technologies to achieving the Goals. A follow-up discussion with IBM CEO Gerstner confirmed his view that the country will not achieve the essential advances in educational technology unless the President provides the vision and leadership.[1]

In addition to the Vice-President's office, the NEC and the DPC, representatives from DoEd, Commerce, DoD, HHS, DoL, the Smithsonian, FCC, OSTP, WH Communications and Speechwriting, and OMB have participated in these discussions. What follows is a draft action plan. Although the time is short, this draft is a work in progress and can be modified, amended, or supplemented as deemed appropriate or necessary. We have highlighted in bold issues that require immediate high-level White House or Interagency attention and decision.

This draft action plan is divided into 6 parts:

(1) ultimate goal;
(2) statement of the problem and framework for answers;
(3) substantive plan of action (including federal actions and matching private commitments);
(4) process for securing support from champions for President's vision, developing and embracing action plan, and making real commitments;
(5) timeline for next steps; and
(6) a description of the first event to begin the build-up to the first roll-out milestone.

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[1] The NII Working Group has been working under the direction of the Vice-President since the beginning of the Administration with several notable achievements and milestones, particularly in catalyzing the development and deployment of new information superhighways. The NEC-DPC Interagency Working Group on Education has been working together for almost two years on education technology issues and has initiated a series of actions, most notably the Technology Learning grants competition for which the first round of impressive winners are to be announced shortly.

1. **ULTIMATE GOAL**: equip all American children with the skills they need to thrive in the knowledge intensive, information age that is sweeping the global economy at the dawn of a new century.[2]

Means: assure that every student, school, classroom, and teacher is plugged into interactive computers and other technological learning tutors that are connected to engaging content and curriculum on easily accessible information superhighways; assure that students and parents in every home can easily plug into these essential learning resources at an affordable price.

Indicators: [e.g.,% of students that meet or exceed world class standards in technological literacy, problem-solving, and other Goals 2000 skills; % of schools, classrooms, teachers and students with full access in school to the full range of these learning resources; % of children and parents with access to these essential learning resources at home.][3]

The goal can be accomplished and the means can be implemented only through a mobilization that involves the private sector, states and localities, schools and teachers, students and parents. The President can lead this initiative and the federal government must make credible commitments, but the bulk of the work will have to be done by the private sector and local communities, schools, homes, firms, parents and students all across the country. Our challenge is to develop, propose and implement an action plan that will enable the President to lead such an all-American, grass-roots campaign that will succeed in transforming our schools into high-performance learning centers so that all American children can learn the skills they will need to compete and to thrive in 21st century.

2. **Statement of Problem and Framework for Answers**

We have identified four barriers -- with a defined objective and an indicator to measure progress in overcoming each barrier -- in order to achieve the goal of such technological literacy for all American children:

- Barrier 1. **Too few Connections** within schools and classrooms (and homes) to the information superhighways that are or will be built by a number of competitors (e.g., telecommunication, cable, broadcast, wireless, utility companies).

  Objective 1: **break down the walls of the classroom by effectively plugging**

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[2] This initiative for early childhood and K-12 education will be supplemented by an analogous education technology initiative to enable (a) adults to use education and information technologies to upgrade skills and to find better jobs and (b) firms to train their incumbent workers and to find new workers. By September 29, we will submit a draft action plan for so helping to equip our workers and firms with the skills they need to thrive in the 21st century information.

[3] Each indicator will include an easily understood bar graph showing where we are today with respect to the objective by the year 2000. Each year, we can then have an easy way to report by the rise in the bar in the graph both how much progress has been made and how much further we have to go. See Tab A for a rough, early version of the graphic.

classrooms (and homes) into the burgeoning information superhighways.

Indictor 1: 3% of classrooms are now connected to the Internet.

- Barrier 2. **Too few Computers** and other electronic education tools in classrooms (and homes) that can be used by students to interact with information and educational resources available throughout the world on the information superhighways and to engage in learning by doing.

  Objective 2: **put affordable, state-of-the-art, interactive computers and other electronic education tools in classrooms and make sure that students have access to such interactive workstations they can use to learn by doing at school (and at home)**

  Indicator 2: In schools there is now, on average, one computer capable of connecting to the Internet for every 48 students.

- Barrier 3. **Too few teachers Competent in using educational technologies** so that they can work more effectively together as navigators, guides, and education coaches for students.

  Objective 3: **plug teachers into the information superhighway and provide them with the training and assistance they need to use the new education technologies to engage all students in active learning by doing.**

  Indicator 3: [6%] of teachers are now trained to use computers and other electronic education tools.

- Barrier 4. **Too few engaging education programs with meaningful Content** to enable students to learn by doing at their own pace when plugged into the information superhighway, computers and other new electronic education tools at school (and at home).

  Objective 4: **Create interactive learning programs that are as engaging as the most gripping Nintendo or Sega game and as educational as an expert tutor helping each student learn by doing, personal research and group discovery.**

  Indicator 4: There is now $556 million in annual sales of educational software for use by children and students in schools and homes, [about __% of the estimated $__ billion in annual sales that knowledgeable experts believe is essential to achieve objective 4.]

Tab A provides a rough graphic depicting the current status and objective with respect to each of the four indicators. Tab B describes the current status with respect to each of the four barriers, as well as a rough analysis of the costs to achieve the objective to overcome each barrier. Alternative indicators are possible, and we are still working on which indicators may best quantify the current status and progress with respect to Connections, Computers, Competence (of teachers) and Content.

[Issue: should connection and use in homes be spelled out as a separate barrier-objective-indicator or included as a subset of the other barriers?]

I know we want the 4 C's but this is the wrong spin -- it sounds like another attack on dumb-ol teachers, when in fact they are lacking the resources to become competent

As depicted at Tab A, The four related objectives and indicators can be understood as the four foundation pillars to achieve the ultimate goal. We can also craft a "capstone" to enable us to talk about these issues in affirmative terms, as an opportunity that America is uniquely positioned among all nations in the world: we can enable all of our children to make the historic crossing to the knowledge intensive, information age by achieving technological literacy and by meeting or exceeding world-class learning skills.[4]

Tab C provides a draft vision statement of the basic principles for seizing this opportunity. Such a Presidential charter can form the basis for securing initial pledges of support from a wide range of leaders and representatives from the private sector.

3. **Substantive Plan of Action**

We propose a mobilization based on grass-roots, private sector, community-by community educational technology "barn-raisings" for the 21st century. This is not, however, a one-time event -- for the President or for any school, community or private sector participant. This is an on-going and unrelenting, multi-year campaign throughout the country -- a bottom-up equivalent across the whole nation for this generation of our top-down launch of a single man to the moon in the 1960's. Without dictating a national solution, the President can lead this campaign -- with the full support of major private sector, state-local, school, teacher and parent champions throughout the country. This will require a mix of credible federal commitments, as well as deliberate work with major private sector players and other potential supportive stakeholders in building support for such a mobilization.

With respect to each of the four objectives or foundation pillars, we list below options for (a) credible federal action and (b) possible major commitments from the private sector.

a. Federal Education Technology Trust Fund. One option for a credible federal commitment, however, cuts across all four objectives and calls for a matching commitment from states, local districts and schools: a five-year Federal Technological Literacy Block Grant Trust Fund of $2 Billion per year. States, local districts and schools can access these block grant funds if, for example, they commit 5% of their K-12 school budgets (or match $4 for each federal dollar) to meet the ultimate goal through implementing the four objectives. This Federal Trust Fund -- alone -- would provide a credible federal commitment to permit the President to launch and to continue for the next five years to lead this campaign. Coupled with the series of federal actions described below -- which do not

[4] As noted, Tab A provides an early and very rough image of the foundation pillars and the capstone. We propose to base the final graphic on a simplified image of the Jefferson Memorial. If this graphic is chosen, the extent of progress on each indicator can then be depicted by the extent to which the foundation pillars rise to support the capstone. Given the many values shared by the President and Thomas Jefferson, we believe this frame of reference is appropriate and builds the potential for elevating and extending this initiative through the State of the Union Address, the 1996 campaign and the Second Term.

require new legislation -- the proposal of the Trust Fund might pose a strak choice for the Republican Congress: put up or shut up on any commitment to educational technology and seizing the opportunities of the information age for America's children.

A draft options memo on the budgetary sources and permissible uses of funding, and pros and cons, for the Trust Fund has been developed under separate cover. This Trust Fund raises major budget, policy, poltical and timing questions that must be addressed forthwith if a decision is to be made on wheter to include such a Trust Fund in any Presidential announcement during the first week in October.

b. Other Federal Actions and Private Commitments by Barrier:

Connections

Federal Actions

- Direct federal agencies to turn over a portion of the spectrum for free use. This will create a free "pipeline" analogous to the free interactive "bulletin board" created by the Internet. **This will require the approval of the federal agencies that do not use a portion of the spectrum that they now have reserved.**
- Announce that the President will not sign a Telecom bill that does not include a provision (as in the Snow-Rockefeller amendment) which enables federal and state regulators to work with all common carriers to ensure that their information superhighway are plugged into schools and classrooms at affordable prices. **This will require a careful political judgment on the immediate impact of such a statement on the legislative prospects for any reasonable Telecom bill.**
- Announce that the FCC will enter into a series of contracts with cable companies to connect schools and classrooms to their information superhighways (and to the Internet) as a part of settling suits.
- Direct Secretaries Cisneros, Brown, and Riley to work with the private sector and state and local partners to spur the formation of "electronic villages" made up of schools, homes, businesses and community centers in Empowerment Zones and Enterprise Communities and in other neighborhoods served by public and assisted housing projects.

Private Actions

- Announce "Electronic Barnraisings" in which firms commit their qualified employees to connect schools and classrooms to the information highway at no cost. (Tab E describes one example for California).
- Announce the formation of Tech Corps, a volunteer association of firms, associations, and federal employees who will work to connect classrooms (and provide on-going assistance to teachers and students in using electronic education tools to interact on the information superhighways).
- Announce the commitments from major telecommunication, broadcast, and cable companies to provide schools and classrooms with low-cost connectivity and interoperable connections to the Internet at affordable prices.

Barrier 2

Why? Model for nation or share information?

Computers (and other electronic education tools)

Federal Actions

- Direct DoD to enter into the most cost effective arrangements to procure the most effective and least costly interactive, electronic education tools for use by DoDs schools for students in early elementary grades, middle school, and high school. **This will require a careful assessment of the impact of such an announcement on the Defense Appropriations bill.**
- Direct HHS and DoEd to cooperate with DoD's procurement in order to develop effective and affordable interactive set-top boxes and portable learning kits that will enable pre-schoolers and children in early elementary grade to play interactive learning games.
- Direct DoD and other federal agencies to donate excess state-of the art computers to schools and to donate older computers to foundations that will upgrade and make available to schools.

Private Actions

- Challenge the private sector to make affordable and fully interactive, multi-media computers, other interactive set-top boxes, and portable electronic learning game kits for use by pre-school children, by students in the early elementary grades, middle schools and high schools, and by teachers, parents and mentors.

Barrier 3

~~Competence~~ (of teachers in using electronic learning tools and resources)

Federal Actions

- Announce the formation of Teachernet so that there will be a web site on the Internet where teachers will be able to exchange information on creating and using technology curriculum, interactive student learning, and enabling students to meet or exceed world-class learning skills
- Direct that Eisenhower Professional Development funds and planned Regional Technology Centers be focussed on enabling teachers to effectively use computers, other electronic learning tools, and materials and interactive learning games and curriculum available on the information superhighways with their students.

Private Actions

- Announce Tech Corps
- Announce that States (and colleges and universities) will require technological literacy in the training and certification of all new teachers and that the National Board for Professional Teaching Standards will require demonstration of how experienced teachers use education technology tools to enable their students to become technologically literate and to meet or exceed world-class skills through interactive learning by doing.

Barrier 4

Content

Federal Actions

- Announce the 19 winning consortia in the first round of the Technology Learning Challenge grants competition. (Tab E includes a description of the very major extent to which leading firms have joined with local schools and

universities to commit to developing and deploying meaningful and engaging interactive learning content that will help students actively learn by doing and to meet or exceed world-class skills. A very small amount of federal seed capital is spurring a very large commitment of energy, resources, and innovation from the non-federal partners).

- Announce the Second Round of the TLC grants competition, but with major foundation partners. ? what funds
- With existing funds from HHS and DoEd, extend the TLC grants competition to the development of electronic learning games and interactive educational programming -- a new generation of fully interactive Big Birds and Barneys -- for use by pre-schoolers and early elementary children at home, in Head Start and other day care centers, and in elementary schools. (This could include commitments (a) to put the interactive learning games in the hands of every Head Start child by the end of 1997 and (b) to make the interactive educational programming available for play on interactive TVs at home by the same date.)

IS Head Start working with us on this?

- Establish and direct an Interagency Technology Learning Office (a) to make sure that existing educational programming from all federal agencies is made available to schools and (b) to use existing funds to develop demonstrations of 21st century electronic learning programs in partnership with the private sector.
- Direct the federal sources of technical and historical information (e.g., the Smithsonian, the Park Service, NOAH, NASA, and the Library of Congress) to join with other state, local and private museums and archives to make this content available (a) on the world-wide web and (b) to partners who will use this content to build interactive curriculum for use by students in schools and homes. almost no-one knows what this is

Private Actions

- Announce the commitment of major foundations (including Annenberg) to partner in funding the Technology Learning Challenge grant competition
- Announce the formation of a National Technology Honorary Society for students
- Tout the commitment of major entertainment, software, telecommunication and game companies to respond fully to the expanded TLC grant competition by developing interactive learning programs and games.
- Announce the commitment of states and various curriculum associations to adopt or to endorse electronic learning games and educational programs that meet the standards for world-class learning they choose to set.
- a commitment from major private assessment organizations, universities, and consortia of firms to develop performance-based, interactive assessments.

Further work is required to determine which mix of commitments should be selected and how any mix should be packaged to add substance, credibility and spark to the President's announcement of a multi-year, all-American campaign to enable all students to become technologically literate and to learn the skills they need to thrive in the 21st century. **The decision on the specific mix and packaging of commitments depends on whether we are able to make a decision on proposing the Trust Fund to include in the major**

Presidential launch, tentatively scheduled on or about October 1.

4. **Process for Securing Champions' Support for President's Vision and Plan**

The initial key to credibility and success here is the support of major private sector players. This will require high-level contact on a rapid basis with a few, key potential champions. We have the ability to do so because of the credibility that we have already built through (a) our NII activity and the work of our NII Advisory Committee to date; (b) the responses of the major firms in the applications already submitted by local consortia in the first round of the Technology Learning Challenge grants competition; (c) the work of the Administration with the NC-TET consortia of major industry players in education technologies; and (d) the discussions by Secretary Riley with business leaders and other stakeholders for the National Education Technology Plan that he is now drafting in response to the President's technology initiatives in Goals 2000 and the reauthorized ESEA.

Tab D describes the plan to secure the advice, input and support of key private sector champions. The plan includes telephone numbers, contacts to date, and any particular concerns that may need to be addressed. The Vice-President, Secretaries Riley and Brown, and Assistant Tyson are scheduled to make the calls. The President will be involved in at least one follow-up meeting with potential private sector champions at the September 21st event in California described in part 6 below, and he can be involved in other follow-up calls and meetings. Tab D also includes generic talking points for those who will be making contacts with potential key champions.

Other champions should also be consulted and recruited: e.g., representatives of the teachers (both Al Shanker and Keith Geiger want to participate and add their support); school districts; universities and two and four-year colleges; and representatives of parents, school-to-work, Disability, and pre-school associations. In conjunction with WH Public Liaison, DoEd and Commerce, we will prepare a gameplan by midweek for securing the support of these other champions.

Finally, the support of a few sympathetic Republican, as well as Democratic governors, would be helpful. In conjunction with WH Intergovernmental, we will explore the possibilities and problems here and make a proposal by the end of the week.

5. **Timetable for Action.**

- September 11. Transmit Draft Action Plan with Options Memo on Trust Fund to Principals.
- September 12-14. Exploratory Calls by Principals to Key Private Sector Champions; exploratory calls by high-level staff to plan September 21 POTUS-VPOTUS event in California to announce 19 winners of first round of Technology Learning Challenge grants competition; call to NC-TET to notify of major administration official appearing at annual meeting on September 18. Internal Working Group complete description of possible actions and identify any additional issues requiring decision by Principals; complete action plans for contacting other Champions and any governors.

- September 15. Principals discuss and make recommendation to POTUS on Trust Fund and any other issues that require a decision or a recommendation by the Principals to POTUS.
- September 18. VPOTUS, Secretary Riley, or Assistant Tyson address NC-TET meeting; decision made on whether to include "Electronic Barnraising" to connect schools in California in POTUS-VPOTUS September 21 event in Silicon Valley. (This electronic barnraising to wire California schools is described in part 6 below and more fully at Tab E.)
- September 19-20. Contacts, meetings to secure input and support from key private sector champions and from a range of other champions (except governors) in conjunction with announcement of the first round of winners of TLC grant competition. Make sure that co-chairs of NII Advisory Council are prepared to support POTUS fully on initiative, including with respect to report on education technology to be issued later in the fall. Determine POTUS involvement in follow-up calls and any meetings with key champions during week of September 25.
- September 21. POTUS-VPOTUS event in Silicon Valley. The event is described in part 6 below and more fully at Tab E.
- September 22-29. Follow-up calls and meetings with champions. Complete planning on major announcement. Decision on timing, format, issuance of National Education Technology Plan on which Secretary Riley has been working for the past six months. Proposals for follow-on actions and events (e.g., complementary education technology initiative for adults, Common Ground speech on values issues, follow-up meeting with champions to show overwhelming response to date and to validate benchmarks, State of Union) after October 2 launch.
- October 2. Major announcement event, with federal and with private sector commitments and validation by champions.

6. **The First Event to Begin the Build-up for the Full Roll-out**

On September 21 the President will be in the San Francisco area. The event will announce the 19 winning consortia for the first round of the Technology Learning Challenge Grants. Tab E describes the proposed public event, a private discussion with key champions from California and a possible announcement concerning a voluntary "Electronic Barnraising" sponsored by California firms. Tab E also includes a brief summary of the 19 winning consortia.

The President and Vice-President can make the TLC grants announcement in a school from the winning consortia in Silicon Valley. This group includes 17 major companies (e.g., Intel, Silicon Graphics, Hewlett-Packard, Apple, Pac-Bell, and Sun Micro-Systems). The consortia has already wired all schools and classrooms in the area. As a result, their plan focuses on achieving Goals 2000 by developing interactive software, personal discovery and learning games for students and on-going training, support and assistance for teachers.

The CEOs of these major companies (as well as several other key California CEOs) are also prepared to meet with the President privately to discuss the education technology issues and to thank him publicly for his leadership to date on this issue, including particularly the

Technology Learning Challenge Grants and the NII initiative. These companies are also prepared to announce their commitment to an "electronic barnraising" to "inside wire" classrooms in [x] thousand California schools this year through no-cost efforts of their qualified employees (and other participating firms).]

Finally, Secretary Riley can simultaneously make an announcement of another and equally impressive winning consortia from San Diego in the TLC competition. Local announcements can also be made for the 17 other winners across the country. The President and Vice-President can also be down-linked from the Silicon Valley site to the other 18 winning sites.

The event is designed to focus primarily on the winners of the first round of the TLC grants competition, what we have already accomplished, and California. This will lend credibility to the President's longstanding commitment to the issue, both through the specific TLC announcement and the validation of the President by the members of the winning consortia. In addition, media reporting on the President's private discussion with the CEOs can be focused on their advice concerning a major new educational technology initiative which the President is actively engaged in planning. This will add to the initial reports on the President's previous discussion of learning technologies with the BRT CEO's (including Gerstner). Media reports can also presage further discussions between the President and others (e.g., those outside California, like Bill Gates from Microsoft, Bob Allen from AT&T and Paul Allaire from Xerox) about a major new initiative in the near future.

As a result, the California event will make clear that President Clinton has been leading on the issue of educational technology in important ways for 32 months already; and that the President is personally engaged in working on a major initiative that will enable all children, students, teachers, parents and schools to secure the benefits of new learning technologies in the information age.

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FROM: JONATHAN SALLET

DATE: SEPT. 5, 1995

NUMBER OF PAGES INCLUDING COVER: 13

MESSAGE:

DRAFT 9/6/95 8 am -- CLOSE HOLD -- For Education Technology Working Group

OVERVIEW -- Our Children Using Computers in Classrooms

Why is a national goal focusing on the use of educational technology necessary? Because:

-- We face a crisis for which the nation-- and every community in our nation -- must provide the solution. Soon, being literate will mean being computer literate. Our 18th century goal of universal education must meet 21st Century standards of literacy.

-- We lead the world in computers and information technology, yet we run the risk that our children will be isolated from powerful educational tools.

-- We face great economic challenge -- global markets and disparity of incomes at home -- requiring that our children be prepared to compete and win in the Twenty-First Century.

Despite the many enthusiastic efforts already underway, only about 3 percent of all students are enrolled in schools that offer adequate access to computers and only 3 percent of all instructional rooms are connected to the Internet.

As a matter of public policy, four basic barriers exist to the full use of educational technology:

-- Too little computer and associated equipment in the schools,

-- Too few connections within schools and between schools and the rest of the world,

-- Too little effort invested in creating educational software for classroom use, and

-- Too few teachers comfortable in the use of computers and technology.

Each of these is being addressed by parents, teachers, state and local governments, businesses, educational institutions and other stakeholders. According to one study, over the last decade the number of students for every computer is improving significantly, and almost 3/4 of our schools now have cable television and more than one-third have modems and CD-ROM. (Attachments 1& 2). The Internet is bubbling with demonstrations, networks and information. (Attachments 3&4 are representative "Yahoo" indices). The Department of Education is readying for release "Connecting Classrooms, Computers &

Communities: Teaching & Learning in the Digital Age," which sets forth the national action plan for education technology. That national plan, mandated by Congress in 1994, should be the mechanism by which the Administration sets forth its plan to overcome each of these barriers.

At a more basic level, there is, however, one essential barrier: The absence of a national vision of what should be done and by when it must be accomplished. That national vision is necessary in order to (i) focus the country's attention on a concrete goal, (ii) measure what has been accomplished and what remains to be done, (iii) enlist the efforts of various constituency groups in an effort that must be unified, but not centralized and (iv) ensure that educational opportunity is available to every American child.

To be effective, this national vision must be Presidential, not programmatic. That is why the President should:

-- establish as a national priority the goal that, by the year 2000, the education of every child in America will be improved by the use of computers in every classroom, and information technology

-- demonstrate how, in partnership with parents, teachers, communities, businesses and -- most of all -- students themselves, this goal will be achieved, and

-- provide national leadership and, where appropriate, federal support, to the achievement of this goal.

I. A National Priority: By The Year 2000, the Education of Every Child in America Will Be Improved By The Use of Computers in Every Classroom

In setting this goal, we must recognize the best role of the federal government:

-- The President must articulate a national objective -- to which every American can work. The goal must be national because it is the nation's future that will be forged in the classrooms of the Twenty-First Century, not just the future of any state or local community. Although it must be uniform, its execution should not be centralized.

-- The federal government must provide its own contribution because the President, as our Chief Executive and the federal government, as a good neighbor, can allow all Americans to do together what none could accomplish alone, and

-- The President must enlist the efforts of parents, teachers, communities,

businesses and, of course, students themselves. The challenge is national but the solutions must be local.

When President Kennedy pledged that Americans would walk on the moon before the end of the 1960s, he said that this challenge should be met not because it was easy, but because it was hard. At the end of this Century, we must meet the challenge of our children not just because the work is hard, but because it is necessary to the future of a strong, prosperous and optimistic nation.

II. The President will demonstrate how, in partnership with parents, teachers, communities, businesses and -- most of all -- students themselves, this goal will be achieved.

To demonstrate the commitment of the nation to this goal -- and the realistic prospect that it will be met -- the President should join with America's leaders to announce a series of concrete steps that will bring information technology to the nation's classrooms. The purpose of these commitments and pledges is (i) to underscore the importance of partnerships between all of the involved constituencies, (ii) to demonstrate that a critical mass of resources is, and will be, available to meet the national goal and (iii) to emphasize the importance of a sustained, long-term effort.

Such steps could include:

<u>From the Business Community</u>

-- The establishment, under foundation or other non-profit leadership, of an "open architecture" network that would provide information about education technology, facilitate communication between schools, teachers, parents and students, and provide a voluntary framework for the national effort,

-- Corporate contributions of hardware, networking, content and teacher training to the nation's classrooms, including, for example, specific pledges from computer manufacturers, businesses with used equipment, cable systems and programmers, television programmers and software developers,

-- The establishment of a national media effort featuring, for example, the production and free distribution of a videotape on computer learning that parents and children can watch together,

-- The national establishment of the "Technology Corps" through which business volunteers in all states will work with local schools,

-- The release of report of the President's National Information Infrastructure Advisory Council, featuring the perspectives of American leaders on educational technology

From the Education Community

-- The establishment of a voluntary organization of Chapter I schools to focus on maximizing federal funds for the implementation of education technologies,

-- The formation by the National Association of Secondary School Principals of the National Technology Honor Society, through which students can help bring computing and communications knowledge and technology into their schools while recognizing and rewarding students who use their technological expertise to serve their schools,

-- A voluntary efforts by parents' groups to involve parents in the creation and use of educational technology, including a concrete plan for emphasizing educational technology by parents groups, including the National PTA, and

--- The pledge, by teacher colleges, that as of 199X, no teacher would be certified without demonstrating competency in the use of instructional, education technology.

Accomplishment of any of these goals will require that, in short order, the Administration: (i) focus on the one, two or (at most) three items from business and education that should be the focus of national attention, and (ii) assign to Administration personnel the specific task of working with constituency groups to realize these goals.

At the same time, longer-term efforts must be put into place including, of course, working with state governments. Toward that end, the President should publicly recognize innovative efforts that are underway right now and establish an on-going means, perhaps periodic conferences sponsored by the Department of Education, to develop new resources and to measure attainment of the national goal.

III. The President Will Provide Federal Support -- In Concrete Ways -- To The Achievement Of This Goal

In addition to his use of the bully pulpit, the President should demonstrate that the federal government can be an active participant in the voluntary effort to find local means of meeting the national goal. That requires emphasis on the federal government as a good neighbor, not on the federal government as

regulator or spender. Such federal efforts could include:

-- contributing its own used-equipment to non-profit organizations that refurbish computers for schools,

--establishing "TeacherNet," an Internet facility that would offer any teacher access to the professional training and technical assistance activities of the federal government and a means of communicating with other like-minded professionals,

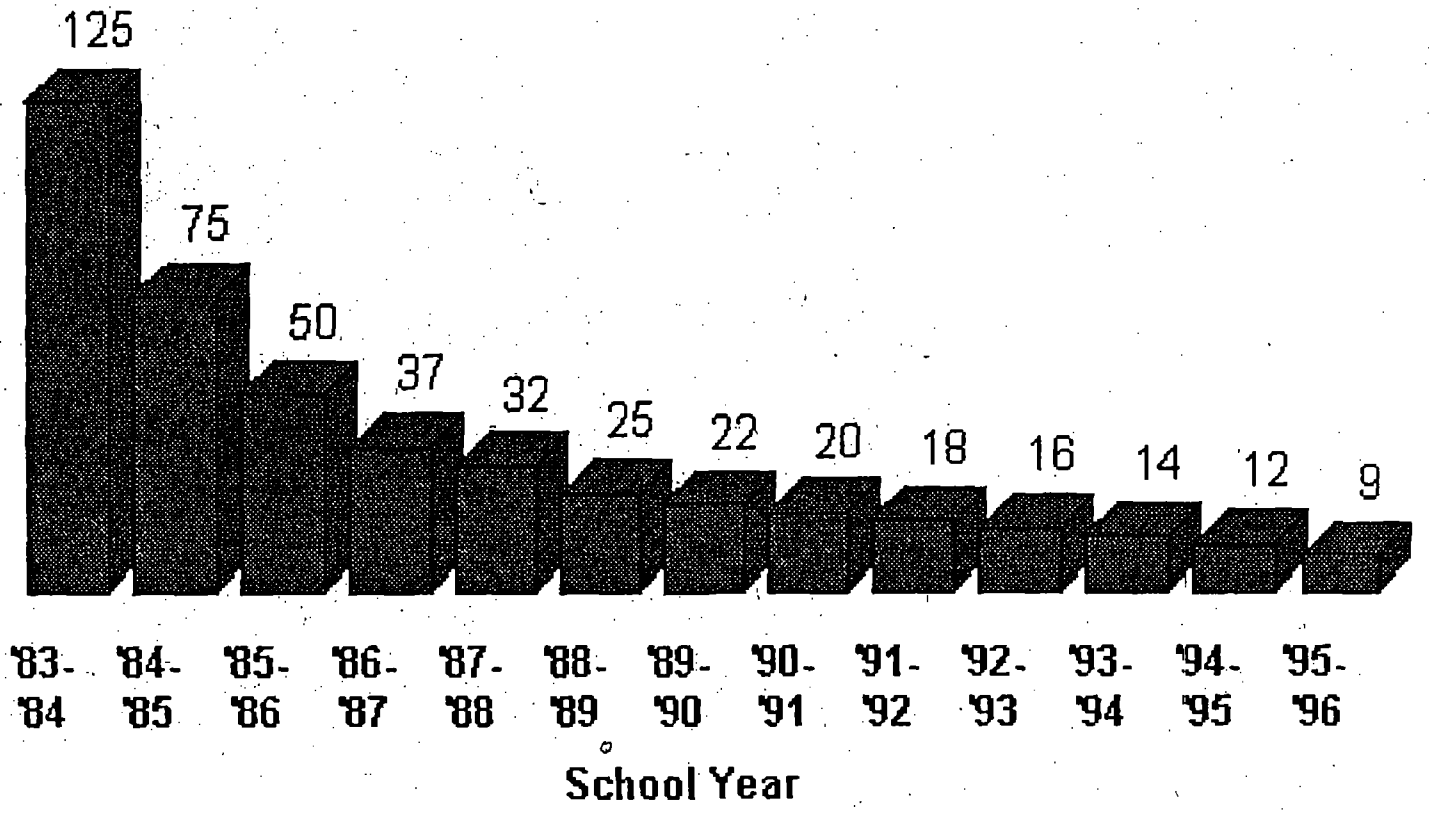
-- using its own buying power through the Department of Defense's school systems to encourage the creation of new educational materials, which would be made available to America's school systems, and

-- reforming its education programs to enhance the ability of schools to connect their classrooms to the Internet

These efforts should proceed in league with the Administration's programmatic priorities including, most notably, the first announcement of award of the Technology Learning Challenges and the second round of NTIA's TIAAP awards.

12-Year Trend

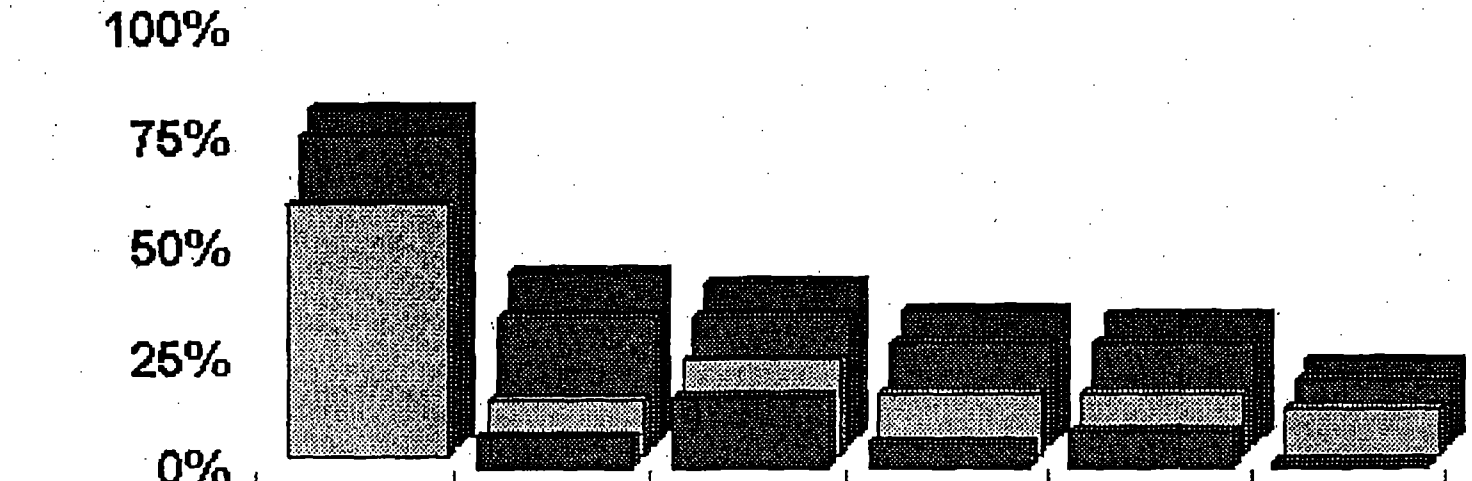
Students per Computer: U.S. Public Schools



QED

Attachment 1

New Technologies School Trends



	Cable	CD-ROM	Modem	LAN	Videodisc	Satellite
1991-92		7%	16%	5%	8%	1%
1992-93	57%	13%	22%	14%	14%	11%
1993-94	70%	29%	29%	23%	23%	15%
1994-95	74%	37%	34%	28%	27%	17%

QED

Attachment 2

Attachment 3

Yahoo!

Education:K-12

- Academy One Education - Administered by Linda@nptn.org (Linda Delzeit)
- AIMS Education Foundation
- Aldershot Elementary's G7 Survey for Kids - Aldershot Elementary has been commissioned to do a survey of elementary school students for the upcoming G7 Summit in Halifax. What question would you like to ask the G7 leaders ?
- American Cybercasting Corp. - combines the best current commercial resources together with the Internet's educational information into one powerful curricular tool.
- Ames Research Center K-12
- Armadillo's WWW Server - Providing resources and a view of the future to the K-12 educational community.
- AskERIC
- Beacon School Site - Beacon School Site has been granted a three year NSF grant titled "Community of Learners". The project focuses on the development and installation of the infrastructure for a community-based computer network.
- Building Blocks to Reading - Fun learning activities for young children. Childcare provider and parenting information.
- Camp T-Equity - Camp T-Equity is a day camp program designed to encourage girls' participation in science and mathematics through technology immersion.
- Canada's SchoolNet - resource for Canadian teachers and students
- Cisco Educational Archive and Resources Catalog
- CNIDR K12 Information Home Page
- College Guide - a comprehensive database containing overviews and college admissions info for a number of colleges and universities throughout the United States.
- **College Preparatory Schools***(22)*
- Common Knowledge: Pittsburgh - CK:P
- **Companies@***(18)*
- Computers for Schools, Detwiler Foundation - Collects donations of used computers from businesses and individuals, reconditions them and places them in schools.
- **Conferences***(2)*
- **Countries***(22)*
- CTDNet Gallery - contains works from an expanding list of K-12 gifted/talented students, including writings, art, midi files, and quicktime movies.
- Duke University Talent Identification Program - A program which identifies academic talent in children and teenagers. Benefits include summer programs, publications, advanced classes, networking and support.
- Edric's Educational Resources - Educational resources and links for all levels (teachers and students), from kindergarden to high school, arranged by subject.
- Educational Software Institute - The world's largest and finest collection of educational software.

3, cont.

- EdWeb - The On-Line K-12 Resource Guide
- **Elementary Schools***(101)*
- ERIC Clearinghouse on Assessment
- ERIC Web Pages - Education Information - if this is what you are looking for go no further - we have over 850,000 documents
- European Schools Project (ESP) - ESP is a school networking project between pupils from 350+ schools in 21 countries. Leading idea within ESP are collaborative distance learning projects, teletrips, designed by teachers.
- Explorer Home Page - The Explorer (Alpha) is part of a research and development effort to establish an on time and user friendly means of delivering a full range of information resources to educators and students.
- Fuzzy Logic: Destination Everywhere  - Visit Fuzzy and his friends as they explore space, the net and more!
- GENII - Group Exploring the National Information Infrastructure has been established to facilitate the training of classroom teachers in skills that are necessary to use the latest digital communications protocols; that is, teach teachers how to utilize the myriad resources of the Internet (the precursor of the NII) so that they can incorporate the technology into their lesson plans.
- GeoLinks for Geography Teaching
- Geometry Forum
- **Gifted Youth***(8)*
- **Global Schoolhouse Project***(3)*
- GNN Education Center - Explore the online magazine and interactive curriculum centers
- **High Schools***(193)*
- **Indian Education***(2)*
- Internet for Kids, Inc.
- IPL Youth Division - Byte into Books with Bookie
- Israeli English Teachers Network - A professional on-line support group for English teachers to help ease the English teacher onto the Internet.
- K-12 Electronic Guide for African Resourceson the Internet
- K-12 Mentoring in Biological Sciences - A mentoring program between Rochester City Schools and University of Rochester scientists, faculty and staff.
- K-12 Resources
- K-12+ Servers [tenet.edu]
- K12Net
- Kid's Web - A World Wide Web Digital Library for Schoolkids
- KidProv - An arts-in-education improv comedy troupe. Focusing on different ways of creative thinking.
- Kids Net - Get Colorado kids on the information superhighway!
- Kids on Campus 1994 - Home Page
- Kids' College 94 - Introduction - Kids' College, a program sponsored by the Ingham Intermediate School District and Michigan State University, has 240 third and fourth graders who are studying either Rocks, Forestry, Water or Flight.
- KnowBase - A database of articles of intrest to teenagers and students. ie book reviews,

3, cont

product reviews and student recreation/activities.

- Latitude28 Schoolhouse - a lauching point for kids onto the Internet. The Schoolhouse contains original content including: a complete online children's book amd a U.S. map game. Additionally, the Schoolhouse has links to great educational sites all over the world. The focus of the Schoolhouse will be on Tampa Bay area schools.
- Leadership, Education and Athletics in Partnership - a non-profit organization which help inner-city kids get ahead. This site details the program, the curriculum, and the resources used by LEAP.
- LiveText - being developed by Institute for Learning Technologies, Teachers College, and Columbia University to provide K-12 related resources and to deliver networked multimedia resources and K-12 curricular development support to New York State schools.
- Macro Press Incorporated - 9 elementary teachers got tired of making excuses for poor teaching materials, so they spent their time and money writing their own.
- **Magnet Schools***(14)*
- Main Street School - Main Street School is a 6-8 grade middle school in the heart of the Salinas Valley.
- Mars Surveyor MENU - The Arizona Mars K-12 Education Program Presents the Mars Surveyor MENU. This is a service of our education outreach program and not an official NASA function.
- **Math and Science Education@***(71)*
- MATHMOL --K-12 Mathematics and Molecules
- Maui High Performance Computing Center K12 Resources - MHPCC's contribution to K12 education. Provides WWW /HTML guides, how-to's, and a seperate resource list for K-6 and 7-12.
- Microsoft K-12 Resources
- **Middle Schools***(47)*
- Mosaic Tutorial - for k-12 educators
- Mt. Hood Academy - A School for Ski Racers
- National Institute on the Education of At-Risk Students
- **Newspapers@***(28)*
- **Products@***(30)*
- **Programs***(7)*
- **Publications***(5)*
- Reinventing Schools: The Technology Is Now
- Resource Page for K-12 Instructors
- **School Districts***(63)*
- Serendip - Interactive resources in the area of brain and behavior
- SLUMMIT - a language-arts instructional magazine, asks readers to respond critically to student, teacher and guest literature and art.
- Snunit educational information system
- Space Educator's Handbook - Electronic interactive space encyclopedia of info.
- STEM~Net - an educational computer network for professional K-12 and public college educators in Newfoundland and Labrador.
- Stone Soup education model

3, cont

- Summer Internet Camp - including home pages of the participants!
- Teacher Technology Center - state-of-the art facility assist teachers to use technology to implement the philosophy and tenets of each subject-matter Framework.
- Teacher's Edition Online - A newsletter of teaching ideas, hints and lesson plans from an elementary grade 4-5 multiyear (looping) class.
- TeacherTalk - is a public conferencing system for K-12 educators on the Internet's World-Wide-Web. Teacher Talk offers users an extremely easy to use system for sharing ideas, engaging in debate, or simply getting to know one's colleagues around the world.
- The Cyberspace Middle School - designed for students in the sixth, seventh, eighth and ninth grades who are using the World Wide Web to help get an education.
- UnderWood Technology Committee
- University of Illinois Education Learning Resource Server - provides electronic learning resources for K-12 teachers and students, pre-service teachers, education faculty members and educational researchers.
- Videodiscovery - Laserdisc and CD-ROM multimedia for science and math education. Cool science facts, sample science lessons, a guide to Internet education resources, sample science lessons, educational technology primers, and more.
- **Weather***(2)*
- Web 66 [redacted] - to facilitate the introduction of WWW technology into K12 schools.
- WebSite for Busy Teachers - Site is organized by subject area and affords direct links to source materials of use to K-12 teachers.
- **Westmont Hilltop World Cultures Hot List***(1)*
- FAQ - Primary and Secondary School Internet User
- **Indices***(16)*

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admin@yahoo.com

Attachment 4

Business and Economy:Companies:Education:K-12

- Big Picture - Program is designed to help students integrate life experiences with school experiences and thereby promote a more effective learning environment.
- **Briarwood Educational Network***(2)*
- ChalkSoft - High-school level English Grammar courseware, dealing with six of the most common areas of difficulty.
- Classroom Connect on the Net! - a monthly K-12 guide to using the Internet in the classroom.
- CyberCampus Ontario - Virtual campus on the WWW, with educational resources both for teachers and students as well as its unique interface.
- Education Showcase, Inc.
- Lone Wolf MultiMedia Inc. - Printing; Talking Books from your materials in aboriginal language/dialects.
- Microsoft Focus on K-12 - Products and services that will help you to integrate technology into your district, school, and classroom.
- National Energy Foundation - Economical instructional materials and innovative teacher training and student programs which relate to all aspects of energy.
- ReadMate
- Saxon Publishers, Inc. - publisher of textbooks and other educational materials for K-12 mathematics, physics, and (coming soon) reading.
- Swift Learning Recources
- TOR Computerized Systems Inc. - Educational integrator of hardware and software sol'ns for the educational market. Reseller for Autodesk, NEC and D/Vision products.
- Tossed Salad Productions - children's fitness and nutrition, offers "eggplant-like" a downloadable coloring book page, two video clips and many "mango" cartoon surprises.
- Videodiscovery - Laserdisc and CD-ROM multimedia for science and math education. Cool science facts, sample science lessons, a guide to Internet education resources, sample science lessons, educational technology primers, and more.
- Vortex - description and details of operation. Free white paper on legibility. PowerBuilder article.
- Waterford Institute

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TECHNOLOGY and LEARNING

The President has an opportunity to lead a technology revolution in American Education with the strong support of students, teachers, and the business community. This document outlines what the President can do to stimulate action by schools, business groups, and foundations and proposes a series of key new federal actions to support these efforts.

Technology for education and training has helped employees in sophisticated businesses and the Department of Defense keep pace with rapid technological advances. It has helped firms become more productive while they become more sensitive to the needs of individual customers. It has helped ensure professional development for employees.

But these benefits have largely bypassed the nation's schools -- in part because they lack resources but primarily because schools are not managed in a way that encourages technical innovations. Parents, teachers, students, and community leaders familiar with the technical changes occurring in all other parts of the economy (including home entertainment and home computer systems) are anxious for change. The business community and universities are anxious to help -- and have been willing to provide resources. The President's leadership can provide a focus for this effort and catalyze a rapid and enthusiastic response.

The basic message is as follows: America is becoming the place to go to find people with the skills needed for the 21st century, it is the place to find people who can learn quickly and change with the times. Our schools face problems but reform is taking hold. Test scores are increasing, schools are experimenting, we've agreed on goals and standards. But we've got to give our schools the tools they need to do the job. In the 21st century this means giving them state-of-the-art information technology.

This technology requires commitment and contributions from all parts of the American community. And it must provide greater accountability for all involved. It must

- Empower students, giving them new freedom and new responsibility
- Empower teachers, giving them new tools, new contacts with colleagues worldwide
- Empower parents, giving them a greater role in their children's education which they can follow at home or at work

By the year 2000 [HELP!!]:

- Every student will be using equipment that can provide cost-effective instruction.
- Every teacher will have access to professional development at work and given equipment needed to do the job.

Summary of Proposed Actions

The time is right to launch a national call to arms in education technology. Students reared on video games who expect to work with sophisticated equipment at work have high expectations. Teachers and school systems recognize the advantages for their students and the opportunities for professional development the new technology presents. Businesses which have made efficient use of technology themselves recognize that productivity gains and educational quality depends on technology. Many firms and foundations have launched programs to support innovations. The Administration's focus on Goals 2000 -- education technology is one of the goals -- has ensured that Federal agencies are playing a critical role.

The pieces are in place, what is needed for a sustained effort is a statement of vision and commitment that only the President can provide. It is important to emphasize that this will not be primarily a federal effort -- federal programs can play a critical supporting role. The effort must be national but decision-making and control must be local. State and national programs can provide a rich menu of resources which local programs can use to build systems consistent with local needs and values.

Key actions that can be inaugurated by the President include the following:

Launching Private Efforts. The President would inaugurate a major new business network for supporting educational technology under the leadership of [ ]. This group will serve as a clearing house for a national effort. A new Technology Corps would be formed to provide volunteers to help schools install and operate technology. Major telecom companies would launch a major new program to hook schools to the internet.

Launching School-Based Efforts. The President would inaugurate a new part of the National Honor Society -- a technology honor-society for students who have made major contributions in educational technology. He would inaugurate new consortia of school administrators working together to make better use of new administration regulations in Chapter 1 funds to purchase computers and better use of Eisenhower funds to use technology for teacher professional development.

Key Federal Assists: The President would announce the winners of the 1995 Technology and Learning Challenge grants and make a major new challenge [$100-200M over the next 5 years]. He would launch a program aimed at getting high-quality interactive programming into all Head Start facilities by 2000. Regulatory reform would ensure that schools have the flexibility to use federal program funds to make creative use of technology and would ensure federal participation in volunteer and computer surplus donations. An ambitious federal R&D program would be launched to develop future generations of technology for schools and a program launched to get the nation's information resources on-line. An executive order would charge [ ] with ensuring that federal programs are managed to support the national effort.

WHY IS THIS ISSUE IMPORTANT?

We are in the midst of an information and communications revolution that is changing the nature of how we work, how we learn, and how we live. As businesses lean more heavily on telecommunications and electronic technology, American workers must increasingly learn the ways of electronic communications just to carry out their day-to-day responsibilities. Over the past ten years, the number of workers who directly use computers at work has grown from 25% in 1984 to 47% in 1993. There is also evidence to suggest that technological skills are tied to higher wages -- the Department of Labor estimates that in 1993 workers who used a computer at work were paid as much as 23% more than those who didn't. The evidence seems clear that well-educated and skilled workers are prospering in the new technology-driven economy, while those whose skills are out-of-date or out-of-synch with the new economic landscape are being left behind (please see Tab C for more information on these economic issues). As new information technologies are rapidly transforming the way America operates, they are also transforming what our children need to learn. Technological literacy will be as much a part of the 21st century as knowing how to use a telephone is today.

The problem is, when we walk through the doors of most schools today, we enter a timewarp. In an information age society, where technological skills are crucial to economic success, we are using industrial age tools to educate our sons and daughters. In classrooms that should be information and communications hubs for learning, the basic medium of instruction continues to be blackboards and chalk. As of 1994, it is estimated that fewer than 20% of all classrooms even had phones, let alone a connection to the Internet or World Wide Web. Our schools are technologically impoverished in a technologically rich world, and this has serious economic consequences for our nation. Good jobs in today's economy increasingly require new sets of technological skills that our schools are not teaching. This lack of skills not only keeps thousands of young people from achieving their share of the American Dream, but also has a pronounced drag on the competitiveness of our economy. It is estimated that lack of information literacy costs businesses an estimated $25 to $30 billion dollars annually in poor product quality, low productivity, and accidents.

What are the Opportunities

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, and they learn at their own pace, often in different styles. Learning is genuinely compelling for the student who finds him or herself immersed in mulitisensory, multimedia environments tailored to their individual learning needs and desires. Learning by doing that involves active interaction and occurs in a meaningful context, rather than through passive listening or watching in the abstract works best. 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.

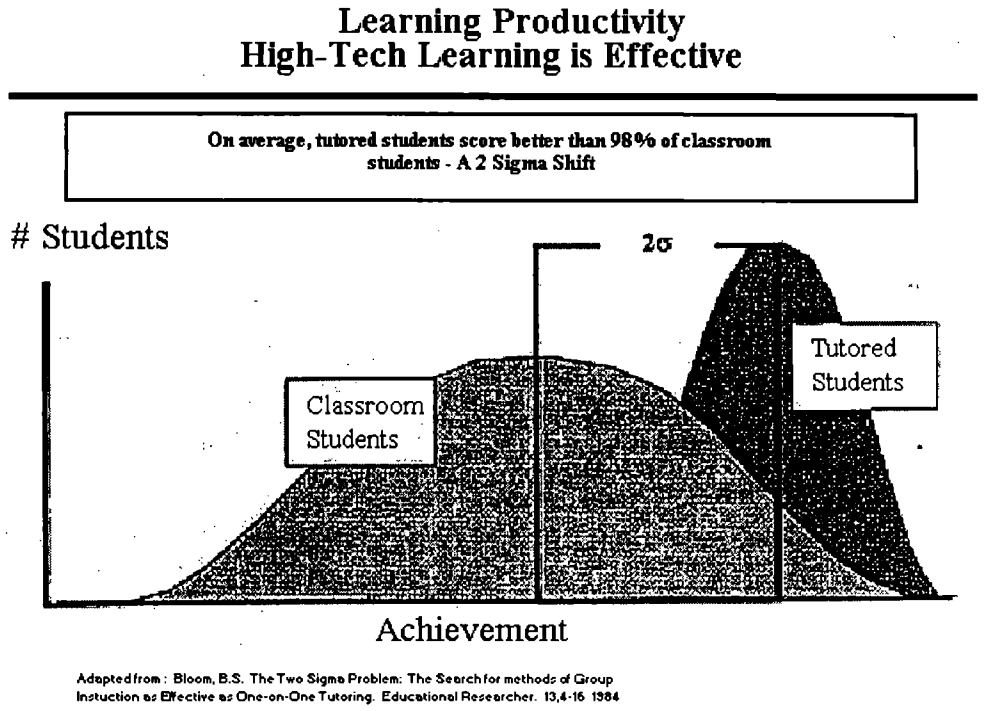

Figure 1.

New information technologies 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 be created between coaches, tutors, peers, parents and children, and learners of all ages. They can use these new learning tools at all hours of the night or day, on weekends, throughout the year from any location-- school desktop to kitchen table. The extent of learning and the effectiveness of teaching no longer need be a prisoner of the amount of seat time in a classroom.

What are the Barriers?

The major hurdles to realizing the vision of technologically rich schools delivering learner-centered education to children are:

- **getting up-to-date computers** and other learning technologies into the classroom. While 99% of schools have at least one computer, 80% of those used for instruction in the classroom are considered obsolete and not able to run newly-released software.

- **connecting schools and classrooms** to the Information Infrastructure. Only 5% of classrooms have modems that allow connection to the information superhighway.

- **creating the content and curriculum** which makes effective use of the technologies. Most of the current educational software is not used in schools because it is simply irrelevant for the teachers' overall curriculum goals.

- **training and support for the teachers** in their use of the technologies. The majority of teachers in the classroom today have had no formal training on the use of technology for teaching and learning.

These barriers must be approached uniformly, the problem cannot be solved by eliminating any one of them.

BUSINESS AND EDUCATION COMMUNITY SUPPORT

Two years ago, National Coordinating Council on Technology in Education and Training (NCCTET) was formed to address current issues and potential uses of technology to improve education and training (see Tab XX). NCCTET members include over 100 national nonprofit membership organizations, state and local groups, individuals, and businesses involved in education and training throughout the U.S. Included in the membership the National Education Association, the Association of Federated Teachers, the Software Publishers' Association, the American Society for Training Development, Regional Bell Telephone Companies, the Interactive Multimedia Association, and the George Lucas Foundation. The purposes of this national coalition are to: facilitate communications with and among stakeholder communities.

NII Advisory Board:

ACTIONS:

(1) Businesses/Foundations:

1. Launch an ***Education Technology Network*** supported by foundations and private grants that would provide a voluntary, open informaiton backbone for the national educational technology initiative and provide tools for schools, teachers, and others to collaborate.

2. Inaugurate the ***Technology Corps*** a clearing house for putting volunteers with skills relevant to education technology into schools that need their help. [A pilot program in Massachusetts was an enormous success. The national program could put Z volunteers in 6 states by end f '95, ZZ volunteers in 50 states by '96. This organization could operate the entire network just described]

3. Inaugurate a major new program to provide ***telecommunication connections*** to schools.
    - Several [?] major cable companies will volunteer to provide broad-band, switched connections to schools on a fixed schedule [X classrooms by 1997]
    - Businesses in California will launch a "swat team" of volunteers and donated telecommunication equipment could connect [XX thousand classrooms] in a one week period.

4. Establish a national media effort to explain what can be accomplished with new technology

(2) Schools, Teachers and Students

Local school systems must take the lead in defining objectives and using the resources made available from private and public resources. They must also define new strategies for accountability, ensuring that constructive innovations are rewarded and mistakes identified and eliminated. They are essential for developing goals and standards and ensuring that these standards are applied. The nation's schools will demonstrate their commitment to the new initiative by:

- Schools and teachers will be active participants Challenge Grant partnerships.

- The National Association of Secondary School Principals (NASSP) will establish a ***National Technology Honor Society*** (to complement the National Honor Society, founded in 1926) to recognize students who use their expertise to help teachers and school administrators apply technology to create new learning environments. These students will work closely with Tech Corps volunteers in their schools.

- Chapter 1 school administrations will launch a partnership to make better use of public and private resources. Specifically, they will announce new partnerships to

use chapter 1 funds more effectively in purchasing computer hardware and software (providing precise specifications about the standards they will apply).

- Teachers organizations [?] will initiate a partnership to use information equipment in schools to deliver professional development services to teachers after school and at home using Eisenhower funds.

(3) **Federal Partnership Contributions:**

These federal programs are designed to challenge the schools and business community to innovate. Each supports How the federal government can help by removing regulatory tangles, providing research funding, making the nation's historic resources available. An executive order would establish a new task-force to coordinate federal contributions under the direction of [???]

1. The President can announce the first winners of ***the Technology and Learning Challenge Grant*** and issue a new challenge promising to build the program to a point where it can reach [xx classroom by 1998 added cost ~$100 million]. Inaugurated by the Vice President this spring, these challenge grants support community teams consisting of schools, local businesses, information technology firms and universities. Over 500 teams were formed in response to the initial challenge.

2. The President can announce a major new challenge for the development of interactive instructional materials for pre-school children [involving Head Start, CPB, ED]

3. The President can announce major ***regulatory reforms*** that support school innovations and encourage business participation. These include:
    - Strong endorsement of a provision of telecommunication reform [the "Snowe Rockefeller amendment" -- already supported by the administration] which would define below-cost provision of "affordable telecommunication services" as a part of a telecommunication firms contribution to universal service
    - Strong endorsement of a request that a fixed portion of the spectrum be made available for educational and other purposes. A request for such spectrum sponsored by computer firms and educators is now before the FCC. The ruling could significantly lower the cost of connecting rural schools and connecting classrooms in a school -- particularly in older schools where installing wiring can be expensive.
    - New flexibility in use of Chapter 1 and Eisenhower training program funds permits schools to be much more creative in using these programs to support advanced technology

4. The federal government will pledge to be an exemplar supporter of national programs to provide volunteer worker time and surplus computers and communication equipment to schools. Specifically:
    - OPM will issue a directive clarifying rules for flex time for federal employees interested in volunteering for the technology corps.
    - GSA will issue a directive clarifying rules for conveying surplus equipment

5. The federal research agencies, working under the executive order, will launch a series of focused research and demonstration programs designed to test the potential of technology likely to be available for classroom use in 5 years. A new $30 million program in NASA, ARPA, NSF, and DoE will apply existing research capabilities to develop applications in pre-school, K-12, school-to-work, and incumbent worker training in small businesses.

6. A new $10M/year project will be launched to make all federal information on 19th century American culture available in digital form by the year 2000. The Smithsonian, the Archives, the Park Service and other federal organizations own millions of documents, photographs, videos, sound recordings, and artifacts. Few of these are on display and these are available only for Washington visitors. While the federal funds would provide a key resource and infrastructure, private funds must be attracted to supplement the effort.

7. A new $[]M/year project will be launched to
    - Provide schools efficient access to drug information/education programs
    - Data from federal stastical agencies relevant for understanding school communities (Census, BEA, DoE, USDA)

URGENT URGENT URGENT

OFFICE OF THE SECRETARY
OFFICE OF POLICY AND STRATEGIC PLANNING
THE DEPARTMENT OF COMMERCE

14th and Constitution Avenue, N.W., Room 5834
Washington, D.C. 20230
(202) 482-4127
(202) 482-4191 FAX

TO: Henry Kelly, 456-6023

FAX #: Mike Schmidt, 456-7028

FROM: Jonathan Sallet

DATE: 9-1-95

NUMBER OF PAGES INCLUDING COVER: 2

MESSAGE: Sorry for the delay. I'd appreciate any comments by 10 - Is this helpful as an overview for 11 o'clock?

CLOSE HOLD

Presidential Goal For Education Technology

Goal: To ensure that by the year 2000 every American child will use computers in the classroom.

Purpose: In a rapidly changing world of information technology, basic literacy is going to mean being computer-literate. In a world of increased competition, being competitive in the Twenty-First Century requires that our children be literate and educated. From a country that leads the world in computers and information technology, no less can be expected.

How The Goal Will Be Achieved:

-- Presenting American leaders, from education and business, who pledge their support, in concrete ways, to meet the national goal,

-- Putting federal resources on the table,

-- Enabling parents and teachers to work together

Visible Examples of what the Private/Education Sector Can Contribute:

-- Financial support (e.g., sponsoring a schools, providing equipment)

-- Support for the Technology Corp

-- Pledge that by 199X, all new teachers will be skilled in the use of educational technology

-- Distribution of media materials (e.g., videotape) on computer learning that parents and children can watch together

-- Formation of the National Technology Honor Society

Visible Examples of What the Federal Government Can Contribute: (review of the one-pagers)

Visible Examples of What State/Local Governments, Parents, Teachers and Students Can Contribute (To come).

DRAFT

TECHNOLOGY LEARNING CHALLENGE EVENT PROPOSAL

SUMMARY

This memorandum outlines ideas for a major Presidential Initiative on Technology and Learning. We propose that the President take part in a series of small, "stage-setting" meetings and events with business and education leaders who work with the President in designing and participating in a public-private effort to make sure our nation's schools are not left behind in the information technology revolution that is sweeping through the rest of our economy. These events would lead to the President coming together with business and education leaders to launch a new public-private partnership for education and technology. The timing and strategy for rolling out this partnership a key question to be determined, and we lay out a series of options for your review.

The timeframe for action on this issue is short -- on October 12, the House Education and Science Committees are planning to hold a public hearing on educational technology that will likely include Speaker Gingrich as the star attraction. No Administration witnesses will be invited. In order not to be trumped by this hearing, the best timeframe for action is September 6 through October 9. This memorandum will discuss a number of ideas for the timing and strategy for a series of events to roll-out the initiative. A companion memo will discuss details about what this public-private initiative will entail.

STAGE-SETTING EVENTS

Over the next few weeks, the President has several opportunities to meet with business and education leaders who are interested in working with the President on a major public-private initiative to ensure that our nation's schools are full participants in the information revolution. These small meetings and events would raise expectations and press interest in an event that would roll out a major new public-private initiative. Events could include:

- **September 6: Meeting with CEOs Who Support Continued Funding for GOALS 2000**. On September 6, the President is scheduled to meet with 8-10 CEOs who support GOALS 2000. At this meeting, the President is going to discuss ways in which CEOs can help to accelerate the pace of education reform. As a part of this discussion, he could briefly raise the issue of educational technology and his interest in talking in more detail with the business community over the next few weeks about joining together in a major public-private initiative on this front. More specifically, Lou Gerstner, CEO of IBM, will be attending this meeting and the President will have an opportunity to get him excited about participating in our initiative. Obviously, this would not be the major topic of discussion in this meeting, but it would at least raise the issue with these CEOs. The fact that education technology initiatives were discussed in the meeting could be a part of the press release for this event.

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OPTION 3: ANNOUNCE EVERYTHING THAT WE HAVE ON THE 21ST. This approach differs from Option 2 in that in this scenario we would announce anything and everything that we possibly could on September 21. In contrast, Option 2 would have us focus our energies on the 4 or 5 major announcements that we feel are ready to go by the 21st, and follow that up with periodic announcements of additional actions as they are ready to go. **Pros to this approach:** By announcing a huge number of actions on the 21st, the President will have most definitavely put his stamp on this issue. **Cons to this approach:** It will be very difficult to have everything ready to go on the 21st, and we therefore run the risk of making this initiative look rushed and not well thought out.

Regardless of which option is chosen, holding a series of meetings/events rather than one big event serve four very important purposes:

- They would help ensure the support of the business and education community by getting these groups to feel ownership and buy-in to the initiative up front, before the actual roll-out takes place;

- They would give the President an opportunity to encourage the private sector and foundations to contribute to this initiative.

- They will help build anticipation for the actual roll-out event in the press -- each meeting and event would hint more and more broadly at the major initiative to come;

- They will help convince the press and the public that this is not a "one-shot" event that was put together purely for message reasons, but instead is an initiative that has been thought out and carefully planned over a period of time.

Sallet

482-3610

Gene: Actions by Barrier

Incentives/Management/Accountability

Content:

Federal Actions:

- announce the first winners of ***the Technology and Learning Challenge Grant*** and issue a new challenge promising to build the program to a point where it can reach [xx classroom by 1998 added cost ~$500 million over 5 years -- private matching??].

- a major new challenge for the development of interactive instructional materials for pre-school children [involving Head Start, CPB, ED]

- The federal research agencies, working under the executive order, will launch a series of focused research and demonstration programs designed to test the potential of technology likely to be available for classroom use in 5 years. A new $30 million program in NASA, ARPA, NSF, and DoE will apply existing research capabilities to develop applications in pre-school, K-12, school-to-work, and incumbent worker training in small businesses.

- A new $10M/year project will be launched to make all federal information on 19th century American culture available in digital form by the year 2000. The Smithsonian, the Archives, the Park Service and other federal organizations own millions of documents, photographs, videos, sound recordings, and artifacts. Few of these are on display and these are available only for Washington visitors. While the federal funds would provide a key resource and infrastructure, private funds must be attracted to supplement the effort.

- Help Chapter 1 schools use Goals and standards work to create a buyers consortia for new software

- Federal Information resources placed on-line to assist schools:
  a) Provide schools efficient access to drug information/education programs
  b) Data from federal stastical agencies relevant for understanding school communities (Census, BEA, DoE, USDA)

- Identify and make available federal education and training resources (e.g. authoring tools and a database modeled on the Defense Instructional Technology Information System)

- Program to develop instruction fo children with disabilities

- Electronic hometown providing a one-stop access to the national educational technology program

Private/State/local actions

- Clearinghouse for information on the national program in education technology [coordinated with federal electronic hometown?, managed by the Tech Corps?]
- Contributions to Challenge Grant proposals

Connections

Federal Actions:

- Strong endorsement of a provision of telecommunication reform [the "Snowe Rockefeller amendment" -- already supported by the administration] which would define below-cost provision of "affordable telecommunication services" as a part of a telecommunication firms contribution to universal service
- Strong endorsement of a request that a fixed portion of the spectrum be made available for educational and other purposes. A request for such spectrum sponsored by computer firms and educators is now before the FCC (300 MHz in the 5 GHz range). The ruling could significantly lower the cost of connecting rural schools and connecting classrooms in a school -- particularly in older schools where installing wiring can be expensive.
- Direct NASA to review government satellite or other communications capacity and make recommendations on availability for educational use
- Direct OPM to issue a directive clarifying rules for flex time for federal employees interested in volunteering for the technology corps.

Private/State/local Actions:

- ***Technology Corps*** a clearing house for putting volunteers with skills relevant to education technology into schools that need their help. [tech corps can help with all the goals]
- Formation of the National Technology Honor Society
- High-tech California firms form a swat team pledging to provide connectivity to all California schools by date certain.
- Time Warner and other cable companies promise high-quality connected service to [] schools by 2000

Teacher Training

Federal Actions

- Highlight regulatory reform: new flexibility in use of Chapter 1 and Eisenhower training program funds permits schools to be much more creative in using these programs to support advanced technology

Private/State/local Actions:

- universities to include technology training in certification of teachers

Computers in the Classroom

Federal Actions

- Highlight the reauthorization of Title 1 which allows schools to lease or lease/purchase rather than just purchase technologies
- Direct GSA to issue a directive clarifying rules for conveying surplus equipment

Private/State/local Actions:

- Coordinated donation programs

DRAFT

TECHNOLOGY LEARNING CHALLENGE EVENT PROPOSAL

SUMMARY

This memorandum outlines ideas for a major Presidential Initiative on Technology and Learning. We propose that the President take part in a series of small, "stage-setting" meetings and events with business and education leaders who work with the President in designing and participating in a public-private effort to make sure our nation's schools are not left behind in the information technology revolution that is sweeping through the rest of our economy. These events would lead to the President coming together with business and education leaders to launch a new public-private partnership for education and technology. The timing and strategy for rolling out this partnership a key question to be determined, and we lay out a series of options for your review.

The timeframe for action on this issue is short -- on October 12, the House Education and Science Committees are planning to hold a public hearing on educational technology that will likely include Speaker Gingrich as the star attraction. No Administration witnesses will be invited. In order not to be trumped by this hearing, the best timeframe for action is September 6 through October 9. This memorandum will discuss a number of ideas for the timing and strategy for a series of events to roll-out the initiative. A companion memo will discuss details about what this public-private initiative will entail.

STAGE-SETTING EVENTS

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Draft: 16 July 1995

U.S. Tech Corps

Vision:

A national, non-profit organization of technology volunteers dedicated to helping improve K-12 education at the grass roots.

Mission:

The mission of the U.S. Tech Corps is to recruit, place, and support volunteers from the technology community who advise and assist schools in the introduction and integration of new technologies into the educational system. Volunteers provide assistance with local planning, technical support and advice, staff training, mentoring, and classroom interactions. The organization utilizes the abilities of skilled individuals and groups across the country in an effort to prepare students, teachers, and schools for the 21st century.

Mode of Operation:

USTC is a volunteer organization. It is funded principally through corporate sponsorships. It has a small headquarters staff to set the USTC mission and agenda, establish and maintain the culture, provide national media liaison, and ensure quality. The broader organization is based on a bottom-up philosophy and draws on the expertise and enthusiasm of technology-literate members of local communities.

Activities:

USTC volunteers work with the teachers and school administrators in their local communities. They do whatever is necessary to promote the effective use of computing and communications technologies in K-12 education. Thus, their tasks may range from getting local contractors to upgrade the electrical wiring in a school, to installing a local area network, to providing assistance in obtaining computing hardware and networking services, to finding a volunteer systems administrator, to helping with the development of a school's World Wide Web home page. Since the determining factors are local needs, a wide variety of tasks are conceivable.

USTC Rollout:

May 95	Begin USTC incorporation and tax exemption
June 95	Begin pre-announcement USTC prototype in approximately six states, begin solicitation of corporate donations, obtain corporate and laboratory assistance in building USTC computing and communications infrastructure
July 95	USTC home page and mirror sites on the Internet
August 95	Refine USTC definition, based on feedback from prototype
September 95	Presidential announcement of USTC and call for volunteers, pointer from White House home page activated, program expanded to 12 states
November 95	Expand program to 25 states
May 96	USTC operational in all 50 states

U.S. Tech Corps

National Organization
Business Plan

Part 1: Strategic Plan

I. Mission

The mission of the U.S. Tech Corps is to recruit, place, and support volunteers from the technology community who advise and assist schools in the introduction and integration of new technologies into the educational system. Volunteers provide assistance with local planning, technical support and advice, staff training, mentoring, and classroom interactions. The organization utilizes the abilities of skilled individuals and groups across the country in an effort to prepare students, teachers, and schools for the 21st century.

II. Guiding Principles

P1 Technology is advancing faster than the ability of the educational system to evaluate and integrate it without outside assistance.

P2 Volunteerism is a basic and enduring characteristic of Americans.

P3 The private sector has a crucial interest in preparing new generations of Americans for an increasingly technological future.

P4 The use of technology in American schools has positive benefits for students and teachers.

P5 Working with American schools, USTC can create and maintain an educational information infrastructure in the United States.

III. Goals

The goals of the U.S. Tech Corps are to:

G1 Build a national program designed to bring volunteers into schools in support of educational technology initiatives;

G2 Provide the leadership, direction, and support for establishing and

maintaining state-level Tech Corps initiatives;

G3 Focus national attention on the role of educational technologies in our schools and solicit both individual and corporate commitment and involvement; and

G4 Provide access to support materials which will assist states with various educational technology issues, such as: training, technical advice, network solutions, and hardware/software selection and maintenance

IV. Objectives

Year 1

1.1 Create U.S. Tech Corps information server, home page on World Wide Web, postal mailing address, 800 telephone number, fax number, and e-mail addresses

1.2 Create electronic forms for self registration of both volunteers and school districts

1.3 Publicize and point to MATC "Switched-on Classroom" document, Adventures in Supercomputing training materials, NCSA Illinois Learning Mosaic documents, and other examples of successful implementation of educational technologies

1.4 Begin holding USTC national meeting to exchange information among the various state groups and to honor exemplary service by selected volunteers

1.5 Begin holding regional meetings of volunteers, school officials, and industrial supporters

1.6 Begin holding joint meetings of USTC and the National Technical Honor Society (NTHS)

1.7 Create a national forum for the discussion of technology issues in education - perhaps through special sessions at an appropriate national meeting

1.8 Develop fashion accessories to help publicize Tech Corps and build camaraderie. Examples: buttons, tee-shirts, coffee mugs, bumper

stickers, insignia patches, lapel pins, flags/banners, and posters

1.9 Create a newsletter or magazine containing news from around the country on Tech Corps activities

1.10 Encourage USTC state organizations to be active in a variety of ways, including:

hold workshops addressing local computing and networking requirements

work with school officials to develop computing and networking plans for school districts

work with local industry to develop solutions tailored to local school districts

help establish chapters of the NTHS to involve students in activities to improve computing and networking in their schools

help train school officials in computing and networking systems administration

work with school districts to review and improve the use of information technologies in school administration

Year 2

2.1 Organize and coordinate a national computer literacy campaign to use Tech Corps members to educate teachers, students, and administrators on new technologies.

2.2 Begin using vocational/technical schools as resources in the Tech Corps process

2.3 Create an electronic "classified" site on the net to allow teachers and Tech Corps members to both advertise and search for schools in need of assistance and maybe even jobs.

2.4 Create a software archive at the USTC net site that will offer a wide range of educational and computer -related freeware and shareware to Tech Corps volunteers and to schools.

2.5 Develop an on-line set of forum/discussion groups to allow everyone to communicate and share ideas. on a range of topics.

2.6 Develop an "adopt-a-school" campaign where local companies sponsor school technology improvements

2.7 Create "This Old School" television program to provide visual "how to" lessons in the integration of computing and networking technologies into schools.

2.8 Create and demonstrate a menu of modular computing and networking solutions for use under a variety of commonly occurring school circumstances

2.9 Create electronic "swap shop" through USTC home page for exchange of computing and networking equipment among various USTC groups and their supporters

2.10 Create a "rapid deployment force," drawn from the national pool of USTC volunteers, to respond expeditiously to opportunities to showcase success stories of technology use in local schools

Year 3

3.1 Create a "Scholar's Habitat" project to harness volunteer labor to refurbish schools and make them technology-ready

3.2 Establish a dialog with the state organizations which determine the credentialling requirements for K-12 teachers

3.3 Work with higher educational institutions to update teacher education curricula to include more educational technology content

3.4 Establish a privately funded grants program to acknowledge excellence in the use of technology in education

3.5 Start K-12 Fellows program to place teachers on temporary assignment to industry and government

3.6 Create "Technologist in Residence" program to put government and industry scientists and engineers on assignment in schools

3.7 Expand national forum for technology in education to include all

educational levels from K through life-long learning and to include students as well as teachers

3.8 Create a PTTA: Parent Teacher Technology Association

3.9 Work with Department of Labor to insure that educational technologies provide appropriate education for the workplace

3.10 Create a distributed, heterogeneous, networked computing environment to support education

Year 4

4.1 Conduct in-depth evaluation of first three years of Tech Corps

4.2 Spin out successful activities which are not central to Tech Corps' mission

4.3 Restructure or shut down activities which have not lived up to their promise

4.4 Develop plan for the future of Tech Corps

4.5 Encourage national reflection on the role of technology in education

Year 5

5.1 Hold Tech Corps Celebration on the National Mall with all Tech Corps participants (volunteers, teachers, sponsors, etc.) invited to attend

5.2 Adopt redefined Tech Corps mission and continue or declare victory and cease operations

National Organization
Business Plan

Part 2: Operational Plan

I. Organization Description

I.A. National Tech Corps Organization

The Tech Corps will have a national headquarters coordination office, located in Washington, D.C., incorporated as a 501 (c) (3) non-profit, with a small staff. Headquarters activities will include: set the mission and agenda for the Tech Corps; establish and maintain the culture; provide national media liaison; ensure quality through review and evaluation of state programs.

I.A.1. Management and Staffing

The national management team will be led by a Chairperson, who will provide vision, leadership, and outreach for the Tech Corps. An Executive Director will manage the operations and administration of the national office. Both positions will require extensive interaction with many individuals and organizations in the state-level Tech Corps.

Staff for the national office may include:

Chair
Executive Director
Deputy Director
Administrative Assistant
Secretary/Receptionist

and additional staff of undetermined size to perform the following functions:

Systems Administration
WWW Multimedia Tasks
Editorial Work
Training
Assessment
Fund Raising
Public Relations
Network/Telephone Hotline Consulting

I.A.2 Position Descriptions

Tech Corps Chair

* Establish the vision and direction for the US Tech Corps
* Lead the effort to acquire corporate sponsorship
* Be the lead spokesperson for the effort
* Recruit State-level leadership for Tech Corps

Primary Characteristics -- Leader, someone with presence and a strong track record of achievement.

Tech Corps Executive Director

* Oversee six-state pilot
* Identify and organize other state-level initiatives
  - plan and execute a nationwide program
  - set up process for evaluation
* Manage national office
  - serve as major point of contact for volunteers, schools, businesses, and sponsors
  - provide training and support for state coordinators
  - develop a set of tools, guidelines, and support materials for participants in the program
  - develop and implement public relations strategy
  - establish a mechanism for dissemination of information to and feedback from the Tech Corps community
* Assist the Chair with sponsorship activities

Primary Characteristics -- strong people, organizational, and communication skills. Ability to relate to the needs of both schools and sponsors.

I.A.3. Budget (Income and Expenses)

Income

Corporate Sponsorships

Large Cash Contributions which carry Seats on the Board of Directors

Corporate Donations

Cash or In Kind Contributions (Goods or Services)

Federal Agency Assistance

In Kind Contributions (Goods or Services)

Expenses

Salaries
Benefits
Office Expenses - space rental, telephones, computers and networking
(Offices x # people, conference room, storage, conference room, reception area)
Travel
Public Relations and Training Materials
Supplies (including office supplies, volunteer awards, mugs, shirts, etc.)
Standardized software for use by both National and State organizations?
Entertainment
Expenses associated with Board of Directors
Expenses associated with Board of Advisors
Professional Services (banking, legal, accounting)

I.B. State Tech Corps Organizations

The Tech Corps will be primarily a state-based organization; that is, each state will have its own Chair and Project Director, housed in an appropriate organization according to the local conditions. Each state will develop and execute its own implementation plan. Here we lay out the general framework for a state implementation plan. Examples of more specific plans will be provided by the six pilot states.

Initially, a team or task force will be established in each state to have ownership of this endeavor. However, since it is ultimately desirable for schools to become the owners of this project, the implementation plan emphasizes the training of school coordinators as project administrators and establishes early connections between the volunteers and their schools.

I.B.1. Management and Staffing

The Tech Corps represents a strong partnership between the technology community and education. To successfully launch and implement such an endeavor, a Team of representatives from industry, government, and education will be established at the state level. This Team can provide the necessary guidance, direction, and feedback that will be required in all steps of implementing the program.

The Team will require a Chair who can lead, inspire, and direct the efforts of the Team. This individual's personal commitment will be an important component in moving the project toward success.

Launching of the Tech Corps will require a Project Director. This individual will oversee the day-to-day activities and work directly with the Task Force and its Chairman in implementing the programs.

Suggested qualifications include:

experience as an educator or in industry;
good communication skills;
ability to plan, organize, and coordinate multiple facets of a project simultaneously;
problem-solving and coaching skills;
ability to work with and manage volunteers;
commitment/passion for educational technology

In Massachusetts, the Tech Corps was coordinated by a Project Director, hired by the Massachusetts Software Council. This individual had experience with a large education technology project, known as the "Switched-On Classroom" project. Her background included experience as an educator and an administrator of school/business partnerships. To launch the project and coordinate the twelve-district pilot phase required approximately 3 days a week of the Project Director's time.

Additional personnel, in the form of Regional Coordinators, may be required when the project moves beyond the initial pilot phase. The guidance and support needed by the schools during the early stages of the MA Tech Corps implementation suggests that any Regional Coordinator might ideally work with 12-15 school districts that are beginning their participation in the Tech Corps. As these districts complete a recruitment cycle and therefore require less support, coordinators would be free to work with new districts.

Regional Coordinators should possess qualifications similar to those described for the Project Director. Because these individuals will ideally be located in their Regions, they should be highly motivated self-starters who are capable of working with minimal supervision.

Regional Coordinators might be:

volunteers
loaned business personnel
paid staff (2-3 days per week)
graduate students*

**Under the supervision of an education professor, this might take the form of a collaboration with colleges and/or universities to establish graduate level credit in education or public policy for a 9-month practicum.*

In Massachusetts, experience indicates that someone with expertise needs to give guidance and support to the schools during the first 3-4 months of project implementation. One Project Director was sufficient for providing this support to the twelve pilot sites. As of the writing, Massachusetts is planning an expanded roll out across Massachusetts and is considering the feasibility of using the Regional Coordinator model.

I.B.2. Budget (Income and Expenses)

Launching a Tech Corps initiative at the state level will require sponsorship and funding for four major areas:

a project director;
operational expenses including: materials, postage, printing, travel;
office space and the accompanying support of computers, Internet connection, phone, and fax;
recruiting of volunteers from the technical community.

Sponsorship can come from one or multiple organizations. They may contribute expertise, office space, personnel, and/or money. In addition to sponsors, individuals and/or businesses may be willing to donate their expertise. This might include:

graphic arts assistance with layout of state-specific documents;
public relations help with local press announcements and contacts;
public service announcement time in local media;
announcement space in major education and industry publications;
access to a local bulletin board service for electronic announcement;
training
awards
stipends

I.C. Interaction between State and National Tech Corps Organizations

The national organization will assist in the recruitment, training, and guidance of state chairs and directors and provide sample implementation plans based on those developed by the Massachusetts Tech Corps and five other pilot

states. The national organization will provide and maintain electronic materials, available freely over the Internet, for use by Tech Corps volunteers in their school projects. The national organization will do fund raising to support the operation of its headquarters office and its staff. The national organization will provide liaison to the White House and publicity for the Tech Corps.

II. Timeline and Milestones

[This section should be coordinated with the USTC 5-year objectives stated in Part 1, Section IV above]

II.A. 5-Year Plan

Year 1 (June, 1995 through May, 1996)

Get off to a running start, be visible, establish Tech Corps as a winner

Year 2

Consolidate gains made in year 1 and expand activities in depth as well as breath

Year 3

Validate Tech Corps as a national leader in facilitating the adoption and use of computing and communications technologies in the nation's schools

Year 4

Reevaluate Tech Corps' mission in light of the extent to which it has accomplished its goals

Year 5

Celebrate Tech Corps' victories, redefine the organization or shut it down

II.B. Detailed First Year Timeline

Prior to June, 1995

USTC incorporation and tax exemption process begins while the Massachusetts Tech Corps moves out

June

Six-state prototype program begins

July

USTC home page and mirror sites on the Internet

August

USTC National Business Plan finalized, State Plans in progress, new states being recruited, USTC debuts on the net

September

President announces creation of US Tech Corps and call for volunteers, pointer from White House home page activated, program expands to 12 states
loose

November

Program expands to 25 states

May, 1996

Tech Corps operational in all 50 states

III. Performance Indicators

Since USTC's purpose is to accelerate the adoption and effective use of computing and communications technologies in our schools, its performance must ultimately be judged by this metric.

Assessment of USTC's programs will constitute an important function of the national organization and should be reflected in its staffing and budgeting.

Performance Indicators may include:

- Number of technologists volunteering

Number of school districts participating
Magnitude of donations to the national organization
Magnitude of state-level donations
Public exposure and impact of USTC programs
Number of students and teachers seeking help from USTC volunteers
Utility of technology solutions developed by local volunteers
Degree to which the educational technology industry adopt USTC as a vehicle for testing new products and services
Increases in the "success metrics" of participating teachers, students, and schools
Rate at which the USTC spreads through the nation
Rate at which state-level programs add school districts

Critical Path

Creating and supporting 50 state-level programs, each with at least 12 school districts participating in each

National Organization
Business Plan

Part 3: Marketing Plan

I. Schools

I.A. Benefits of Participation

There is tremendous energy in our schools to move toward more effective implementation of new technology. But the reality is that the available resources are slim. The Tech Corps seeks to provide the human resources that can support and enhance the school's local technology efforts.

The Tech Corps offers schools qualified, enthusiastic individuals who are willing to share their technical talents and experiences with the schools in a **volunteer** capacity. The "people power" being offered has the potential for offsetting significant expenses which the schools might otherwise incur if they sought outside assistance for these projects. In addition, community awareness of and interest in the schools will increase through the involvement and commitment of local citizens who might not otherwise have reason to participate in school activities.

I.B. What Tech Corps Will Provide to the Schools

The Tech Corps will provide schools with a list of volunteers that have been recruited from the technology community. This list will also note the volunteers' areas of expertise/interest and their availability for volunteering.

We will also work with the schools to help recruit additional volunteers from their community.

We will provide guidance in how to screen and use these volunteers.

We will familiarize participants with the mechanics of implementing the Tech Corps through orientation sessions, individual meetings at the schools, and materials for their use.

We will assist with the planning of school meetings with the volunteers.

We will provide press releases and articles for the local media to publicize the school district's participation in this project.

I.C. Schools' Responsibilities

The school's commitment to participate must be for one full year. Each school district's Commitment Letter must be signed by the Superintendent.

Each school district must designate one person to act as Tech Corps Coordinator for their schools. It will be this person's responsibility to communicate with the volunteers and coordinate their activities within the school system.

Each school district must assume responsibility for the screening and matching of their own volunteers. The Tech Corps will not pre-screen the volunteers.

The Superintendent (or other designated high-level administrator) and the schools' Tech Corps Coordinator must attend the Orientation Session.

Participating schools (and particularly, School Coordinators) must have Internet access.

II. Volunteers

II.A. Solicitation and Sign-up

II.B. Skill Assessment

II.C. Assignment and Requirements (length of commitment, time expectations)

II.D. Training

II.E. Feedback

II.F. Benefits (stipends, pins/plaques/associations, discounts, recognition/awards)

Hardware and software companies, can provide a wealth of potential volunteers. Individuals with technical expertise can also be found in colleges, government laboratories, hospitals, insurance companies, and information systems divisions of larger businesses.

II.G. Benefit to the Volunteers

All too often, individuals wish to volunteer but do not know where or how. The Tech Corps offers a vehicle for volunteering for those individuals who would like to share their time and talents with their local schools. Through the Tech Corps, individuals have the opportunity to give something back to their community and to have a positive impact on kids, schools, and education in the U.S.

While working with a specific school district, Tech Corps Volunteers are also part of a larger organization that is having an impact on education both state-wide and nation-wide. Volunteers meet with others throughout their state at state-wide Tech Corps events, learn about projects in other school districts through our newsletters, and feel part of **an organization that is making a difference.**

U.S. Tech Corps volunteers will receive a Certificate of Appreciation from the President of the United States.

III. Corporations

III.A. Incentives for Participation and Support

Participating corporations which contribute to USTC at the "sustaining contributor" level will be entitled to a seat on the USTC Board of Directors and will thus have a direct voice in the oversight of their investment. Other contributors will be invited to participate in the USTC industrial affiliates program.

III.B. Benefits of Participation

Education is currently the second largest service industry in the United States and it is also poised for Global growth. USTC corporate participants will have the opportunity to observe, understand, and participate in the penetration of computing and communications technologies into this market. They will have the unique opportunity to see this market both from the perspective of a coordinated national effort and from that of a grassroots, demographically specific, one. Since all USTC activities will be assessed for their effectiveness by experts from the educational technology community, valuable insights will be generated and disseminated first to participating sponsors. Furthermore, corporate sponsors will be contributing to the technological literacy of American students, leading to a more effective future workforce in the 21st century.

III.C. Corporate Role and Requirements

[Define categories of participation here. Suggestion: Sustaining Contributor level should be equal to or greater than $100K/annum - perhaps as high as $1M/annum.]

IV. Government

IV.A. White House and Federal Agencies

Since the USTC will be a private, non-profit corporation, the White House will have no role in its management. However, since the USTC's mission is directly supportive of the administration's goals for the use of technology in K-12 education, the White House will provide it with encouragement, startup assistance, and continuing liaison to the executive branch agencies. This could include:

Presidential announcement of the creation of USTC and call for volunteers

White House home page pointer to the USTC home page

Presidential encouragement of executive branch agencies to provide assistance (within the scope of their current missions) to both the national USTC organization and its local chapters

Certificates of appreciation to USTC volunteers who have completed their service, signed by the President

IV.B. State and Local Agencies

V. Universities

V.A. Science, Engineering, and Technology Faculties

V.B. Education and Cognitive Psychology Faculties

U.S. TECH CORPS

National Organization

DESCRIPTION

U.S. Tech Corps is a program which recruits volunteers from the technology community to assist schools with the integration and use of new technologies.

Volunteers provide assistance with local planning, technical support and advice, staff training, mentoring, and classroom interactions.

Tech Corps matches the abilities of volunteers with a wide range of projects identified by schools and provides a support infrstructure to further advance effective technology implementation.

U.S. TECH CORPS

Based on Massachusetts Tech Corps

- Developed by Gary Beach, President and CEO of Computerworld
- Supported by Computerworld, Deloitte & Touche and the Massachusetts Software Council
- Implemented in twelve school districts with 304 volunteers

STRATEGY

Vision

A national, non-profit organization of technology volunteers dedicated to helping improve K-12 education at the grass roots.

Mission

Recruit, place, and support volunteers from the technology community who advise and assist schools in the introduction and integration of new technologies into the educational system

GUIDING PRINCIPLES

Technology is advancing faster than the ability of the educational system to evaluate and integrate it without outside assistance.

Volunteerism is a basic and enduring characteristic of Americans.

The private sector has a crucial interest in preparing new generations of Americans for an increasingly technological future.

The use of technology in schools has positive benefits for students and teachers.

Working with schools, USTC can create and maintain an educational information infrastructure in the United States

GOALS

Build a national program designed to bring volunteers into schools in support of educational technology initiatives

Provide the leadership, direction, and support for establishing and maintaining state-level Tech Corps initiatives

Focus national attention on the role of educational technologies in our schools and solicit both individual and corporate committment and involvement

Provide access to support materials which will assist states with various educational technology issues

MODE OF OPERATION

USTC is a volunteer organization. It is funded principally through corporate sponsorships.

It has a small headquarters staff to set the USTC mission and agenda, establish and maintain the culture, provide national media liaison, and ensure quality.

The broader organization is based on a bottom-up philosophy and draws on the expertise and enthusiasm of technology-literate members of local communities.

ACTIVITIES

USTC volunteers work with the teachers and school administrators in their local communities.

They do *whatever is necessary* to promote the effective use of computing and communications technologies in K-12 education.

Since the determining factors are local needs, a wide variety of tasks are conceivable.

SAMPLE SCHOOL PROJECTS

- Classroom support: Train volunteers to staff computer labs; demostrate software; host field trip; mentor a student; talk about career in technology

- Hardware/Software Acquisition: Set up cooridnated buying programs with other districts; establish alliances with other businesses; prepare needs analysis; develop resource sharing

MORE SAMPLE SCHOOL PROJECTS

- Public relations: Host school technology fair
- Mentoring: Principal, office staff, faculty
- Technology Planning: participate in system-wide committees on network and technology planning
- Community Support: provide workshops for parents and/or students; explore ways to translate documents into other languages

ORGANIZATION

- National
- State
- School District

STATE USTC ROLE

- State advertising
- Liaison with state-level sponsors
- Liaison with School System Coordinators
- Liaison with National Coordinator
- Liaison with state sources of volunteers
- Processing of volunteer applications

NATIONAL USTC ROLE

- National advertising
- Liaison with national sponsors
- Liaison with State Coordinators
- Liaison with national sources of volunteers
- Provision of national computing and communications infrastructure
- Fostering communications among volunteers
- Recognition programs
- Monitoring and assessment of USTC programs

SCHOOL DISTRICT USTC ROLE

- Local advertising
- Liaison with local sponsors
- Liaison with State Coordinator
- Liaison with school coordinators or individual teachers
- Liaison with local sources of volunteers
- Processing of volunteer applications
- Selection of volunteers
- Assignment of volunteers to schools or projects
- Monitoring of success of volunteers

WHITE HOUSE ROLE

Since the USTC is a private, non-profit corporation, the White House has no role in its management.

However, since the USTC's mission is directly supportive of the administration's goals for the use of technology in K-12 education, the White House provides it with encouragement, startup assistance, and continuing liaison to the executive branch agencies.

WHITE HOUSE ROLE

- Announcement of the creation of USTC and call for volunteers
- White House home page pointer to the USTC home page
- Encouragement of executive branch agencies to provide assistance (within the scope of their current missions) to both the national USTC organization and its local chapters
- Certificates of appreciation to USTC volunteers who have completed their service, signed by the President

USTC ROLLOUT

• May 95	Begin USTC incorporation and tax exemption
• June 95	Begin pre-announcement USTC prototype in approximately six states, begin solicitation of corporate donations, obtain corporate and laboratory assistance in building USTC computing and communications infrastructure
• July 95	USTC home page and mirror sites on the Internet
• August 95	Refine USTC definition, based on feedback from prototype
• September 95	Announcement of USTC and call for volunteers, pointer from White House home page activated, program expanded to 12 states
• November 95	Expand program to 25 states
• May 96	USTC operational in all 50 states

Date: 7/26

Total pages: 3

From:
Kristine Johnson
Liaison Division
Office of Legislative Affairs
Phone: 202/358-1055
Fax: 202/358-4340

To: Jeff Hofgard

Phone:

Fax: 456-1023

Message:

Proposed response on using TDRS for education - for your review per your request.

Kristine Johnson

NASA
National Aeronautics and Space Administration

Routing Slip

	Mail Code	Name	Action	
			Approval	
1	G	Bob Stephens	Call me	
			Concurrence	
2	OX	Wilson Lundy	File	
			Information	
3	O	Charlie Force	Investigate and Advise	
			Note and Forward	
4	F	Malcolm Phelps	Note and Return	
			Per Request	
5	OSTP	Jeff Hofgard	Per Phone	
			Recommendation	
6			See me	
			Signature	
7			Circulate and Destroy	

Per our recent discussions, I have redrafted a response to Burns, Brown and Morella on the TDRS-6 NETO/EDSAT issue. Bottom line is we are telling NETO/EDSAT to work with Columbia.

Please provide comments to me by COB Thursday, July 27.

Name	Tel. No. *(or Code)* & Ext.
Kristine Johnson	358-1924
Code *(or other designation)*	**Date**
LB	7/26/95

NASA FORM 26 JUN 78 PREVIOUS EDITIONS MAY BE USED.

DRAFT

LB:KJ

The Honorable Conrad Burns
United States Senate
Washington, DC 20510

Dear Senator Burns:

Thank you for your letter of May 24, 1995, signed jointly with Congressman George E. Brown, Jr., requesting that NASA employ the 12 C-band transponders on TDRS-6 for distance education.

NASA is currently reviewing the feasibility of offering access to the TDRS-6 C-band transponders consistent with the Agency's operational needs and with its present leasing arrangement of the TDRS-4 and TDRS-5 C-band transponders with Columbia Communications Corporation. Two factors of special importance in this regard are: NASA may not offer services in competition with the private satellite communications industry, and; NASA expects to generate revenue by leasing the C-band transponders on all the TDRSS spacecraft.

We understand representatives of the National Education Telecommunications Organization/Educational Satellite (NETO/EDSAT) have been in contact with Columbia Communications. Columbia is likely to take the position that any activity NASA undertakes with NETO/EDSAT would put NASA in a position of competing with industry. We suggest NETO/EDSAT pursue arrangements with Columbia for access to C-band transponders.

Sincerely,

Jeff Lawrence
Associate Administrator
for Legislative Affairs

identical letter to Brown, Morella

TECHNOLOGY and LEARNING

The President has an opportunity to lead a technology revolution in American Education with the strong support of students, teachers, and the business community. This document outlines what the President can do to stimulate action by schools, business groups, and foundations and proposes a series of key new federal actions to support these efforts.

Technology for education and training has helped employees in sophisticated businesses and the Department of Defense keep pace with rapid technological advances. It has helped firms become more productive while they become more sensitive to the needs of individual customers. It has helped ensure professional development for employees.

But these benefits have largely bypassed the nation's schools -- in part because they lack resources but primarily because schools are not managed in a way that encourages technical innovations. Parents, teachers, students, and community leaders familiar with the technical changes occurring in all other parts of the economy (including home entertainment and home computer systems) are anxious for change. The business community and universities are anxious to help -- and have been willing to provide resources. The President's leadership can provide a focus for this effort and catalyze a rapid and enthusiastic response.

The basic message is as follows: America is becoming the place to go to find people with the skills needed for the 21st century, it is the place to find people who can learn quickly and change with the times. Our schools face problems but reform is taking hold. Test scores are increasing, schools are experimenting, we've agreed on goals and standards. But we've got to give our schools the tools they need to do the job. In the 21st century this means giving them state-of-the-art information technology.

This technology requires commitment and contributions from all parts of the American community. And it must provide greater accountability for all involved. It must

- Empower students, giving them new freedom and new responsibility
- Empower teachers, giving them new tools, new contacts with colleagues worldwide
- Empower parents, giving them a greater role in their children's education which they can follow at home or at work

By the year 2000 [HELP!!]:

- Every student will be using equipment that can provide cost-effective instruction.
- Every teacher will have access to professional development at work and given equipment needed to do the job.

Summary of Proposed Actions

The time is right to launch a national call to arms in education technology. Students reared on video games who expect to work with sophisticated equipment at work have high expectations. Teachers and school systems recognize the advantages for their students and the opportunities for professional development the new technology presents. Businesses which have made efficient use of technology themselves recognize that productivity gains and educational quality depends on technology. Many firms and foundations have launched programs to support innovations. The Administration's focus on Goals 2000 -- education technology is one of the goals -- has ensured that Federal agencies are playing a critical role.

The pieces are in place, what is needed for a sustained effort is a statement of vision and commitment that only the President can provide. It is important to emphasize that this will not be primarily a federal effort -- federal programs can play a critical supporting role. The effort must be national but decision-making and control must be local. State and national programs can provide a rich menu of resources which local programs can use to build systems consistent with local needs and values.

Key actions that can be inaugurated by the President include ~~the following~~:

Launching Private Efforts. The President would inaugurate a major new business network for supporting educational technology under the leadership of [ ]. This group will serve as a clearing house for corporate donations of funds and equipment. A new Technology Corps would be formed to provide volunteers to help schools install and operate technology. Major telecom companies would launch a major new program to hook schools to the internet.

Launching School-Based Efforts. The President would inaugurate a new part of the National Honor Society -- a technology honor-society for students who have made major contributions in educational technology. He would inaugurate new consortia of school administrators working together to make better use of new administration regulations in Chapter 1 funds to purchase computers and better use of Eisenhower funds to use technology for teacher professional development.

Key Federal Assists: The President would announce the winners of the 1995 Technology and Learning Challenge grants and make a major new challenge [$100-200M over the next 5 years]. He would launch a program aimed at getting high-quality interactive programming into all Head Start facilities by 2000. Regulatory reform would ensure that schools have the flexibility to use federal program funds to make creative use of technology and would ensure federal participation in volunteer and computer surplus donations. An ambitious federal R&D program would be launched to develop future generations of technology for schools and a program launched to get the nation's information resources on-line. An executive order would charge [ ] with ensuring that federal programs are managed to support the national effort.

WHY IS THIS ISSUE IMPORTANT?

We are in the midst of an information and communications revolution that is changing the nature of how we work, how we learn, and how we live. As businesses lean more heavily on telecommunications and electronic technology, American workers must increasingly learn the ways of electronic communications just to carry out their day-to-day responsibilities. Over the past ten years, the number of workers who directly use computers at work has grown from 25% in 1984 to 47% in 1993. There is also evidence to suggest that technological skills are tied to higher wages -- the Department of Labor estimates that in 1993 workers who used a computer at work were paid as much as 23% more than those who didn't. The evidence seems clear that well-educated and skilled workers are prospering in the new technology-driven economy, while those whose skills are out-of-date or out-of-synch with the new economic landscape are being left behind (please see Tab C for more information on these economic issues). As new information technologies are rapidly transforming the way America operates, they are also transforming what our children need to learn. Technological literacy will be as much a part of the 21st century as knowing how to use a telephone is today.

The problem is, when we walk through the doors of most schools today, we enter a timewarp. In an information age society, where technological skills are crucial to economic success, we are using industrial age tools to educate our sons and daughters. In classrooms that should be information and communications hubs for learning, the basic medium of instruction continues to be blackboards and chalk. As of 1994, it is estimated that fewer than 20% of all classrooms even had phones, let alone a connection to the Internet or World Wide Web. Our schools are technologically impoverished in a technologically rich world, and this has serious economic consequences for our nation (Tabs A & B give additional information on the technological disparity between our nation's schools and workplaces). Good jobs in today's economy increasingly require new sets of technological skills that our schools are not teaching. This lack of skills not only keeps thousands of young people from achieving their share of the American Dream, but also has a pronounced drag on the competitiveness of our economy. It is estimated that lack of information literacy costs businesses an estimated $25 to $30 billion dollars annually in poor product quality, low productivity, and accidents.

What are the Opportunities

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, and they learn at their own pace, often in different styles. Learning is genuinely compelling for the student who finds him or herself immersed in mulitisensory, multimedia environments tailored to their individual learning needs and desires. Learning by doing that involves active interaction and occurs in a meaningful context, rather than through passive listening or watching in the abstract works best. 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.

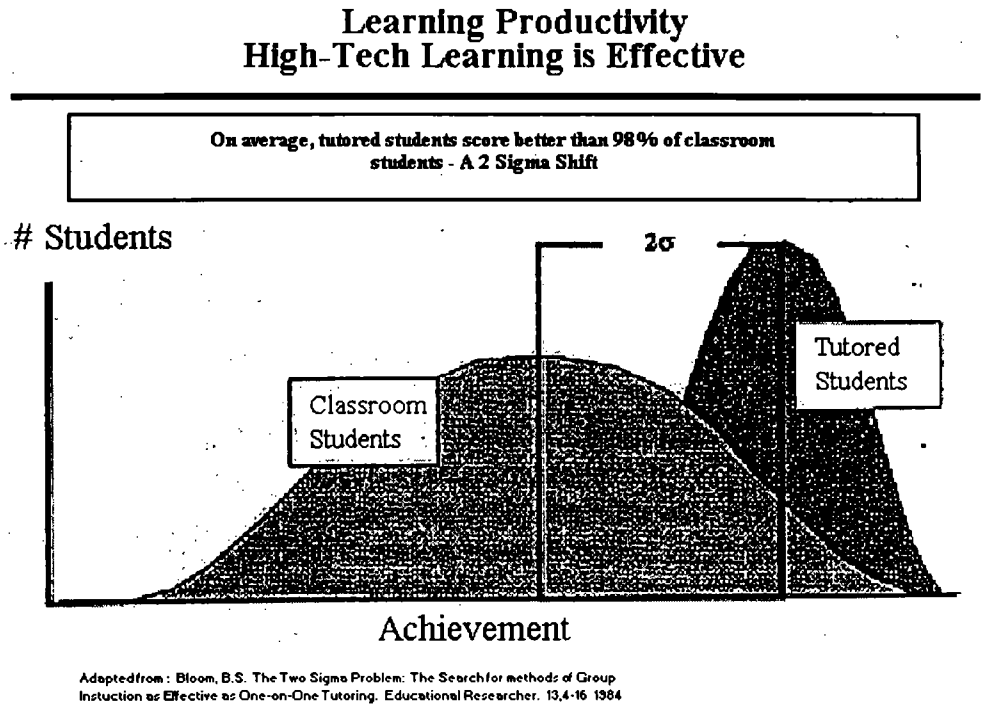

Figure 1.

New information technologies 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 be created between coaches, tutors, peers, parents and children, and learners of all ages. They can use these new learning tools at all hours of the night or day, on weekends, throughout the year from any location-- school desktop to kitchen table. The extent of learning and the effectiveness of teaching no longer need be a prisoner of the amount of seat time in a classroom.

What are the Barriers?

The major hurdles to realizing the vision of technologically rich schools delivering learner-centered education to children are:

- **getting up-to-date computers** and other learning technologies into the classroom. While 99% of schools have at least one computer, 80% of those used for instruction in the classroom are considered obsolete and not able to run newly-released software.

- **connecting schools and classrooms** to the Information Infrastructure. Only 5% of classrooms have modems that allow connection to the information superhighway.

- **creating the content and curriculum** which makes effective use of the technologies. Most of the current educational software is not used in schools because it is simply irrelevant for the teachers' overall curriculum goals.

- **training and support for the teachers** in their use of the technologies. The majority of teachers in the classroom today have had no formal training on the use of technology for teaching and learning.

These barriers must be approached uniformly, the problem cannot be solved by eliminating any one of them.

BUSINESS AND EDUCATION COMMUNITY SUPPORT

Two years ago, National Coordinating Council on Technology in Education and Training (NCCTET) was formed to address current issues and potential uses of technology to improve education and training (see Tab XX). NCCTET members include over 100 national nonprofit membership organizations, state and local groups, individuals, and businesses involved in education and training throughout the U.S. Included in the membership the National Education Association, the Association of Federated Teachers, the Software Publishers' Association, the American Society for Training Development, Regional Bell Telephone Companies, the Interactive Multimedia Association, and the George Lucas Foundation. The purposes of this national coalition are to: facilitate communications with and among stakeholder communities.

ACTIONS:

(1) Businesses/Foundations:

1. Launch an ***Education Technology Network*** to coordinate activities by major foundations and firms supporting use of educational technology through Challenge Grants, gifts of technology, and other means. [collective annual donations of participants $B]. This new "virtual enterprise" would be privately supported and function in large part through the internet. It would provide the following kinds of services:
   - an efficient way to form collaborations and link donors to recipients,
   - a forum for linking business suppliers of software and other products to decentralized school markets,
   - clear guides to federal resources and programs
   - "collaboration spaces" where for schools, teachers, and others can work together.
   - a clearinghouse for equipment and service donations [operated by tech corps?][X million computers, Y million SLIP connections??]
   - a clearinghouse for local volunteer services [see below]

2. Inaugurate the ***Technology Corps*** a clearing house for putting individuals with information technology ~~specialists~~ interested in volunteering time in schools ~~be put~~ in touch with schools that need their help for designing, installing, maintaining, and operating computers and communication systems. [A pilot program in Massachusetts was an enormous success. The national program could put Z volunteers in 6 states by end f '95, ZZ volunteers in 50 states by '96.]

3. Inaugurate a major new program to provide ***telecommunication connections*** to schools.
   - Several [?] major cable companies will volunteer to provide broad-band, switched connections to schools on a fixed schedule [X classrooms by 1997]
   - Businesses in California will launch a "swat team" of volunteers and donated telecommunication equipment could connect [XX thousand classrooms] in a one week period.

(2) Schools, Teachers and Students

Local school systems must take the lead in defining objectives and using the resources made available from private and public resources. They must also define new strategies for accountability, ensuring that constructive innovations are rewarded and mistakes identified and eliminated. They are essential for developing goals and standards and ensuring that these standards are applied. The nation's schools will demonstrate their commitment to the new initiative by:

- Schools and teachers will be active participants Challenge Grant partnerships.

- The National Association of Secondary School Principals (NASSP) will establish a ***National Technology Honor Society*** (to complement the National Honor Society, founded in 1926) to recognize students who use their expertise to help teachers and school administrators apply technology to create new learning environments. These students will work closely with Tech Corps volunteers in their schools.

- Chapter 1 school administrations will launch a partnership to make better use of public and private resources. Specifically, they will announce new partnerships to use chapter 1 funds more effectively in purchasing computer hardware and software (providing precise specifications about the standards they will apply).

- Teachers organizations [?] will initiate a partnership to use information equipment in schools to deliver professional development services to teachers after school and at home using Eisenhower funds.

(3) **Federal Partnership Contributions:**

These federal programs are designed to challenge the schools and business community to innovate. Each supports How the federal government can help by removing regulatory tangles, providing research funding, making the nation's historic resources available. An executive order would establish a new task-force to coordinate federal contributions under the direction of [???]

1. The President can announce the first winners of ***the Technology and Learning Challenge Grant*** and issue a new challenge promising to build the program to a point where it can reach [xx classroom by 1998 added cost ~$100 million]. Inaugurated by the Vice President this spring, these challenge grants support community teams consisting of schools, local businesses, information technology firms and universities. Over 500 teams were formed in response to the initial challenge.

2. The President can announce a major new challenge for the development of interactive instructional materials for pre-school children [involving Head Start, CPB, ED]

3. The President can announce major ***regulatory reforms*** that support school innovations and encourage business participation. These include:
    - Strong endorsement of a provision of telecommunication reform [the "Snowe Rockefeller amendment" -- already supported by the administration] which would define below-cost provision of "affordable telecommunication services" as a part of a telecommunication firms contribution to universal service
    - Strong endorsement of a request that a fixed portion of the spectrum be made available for educational and other purposes. A request for such spectrum sponsored by computer firms and educators is now before the FCC. The ruling could significantly lower the cost of connecting rural schools and connecting

classrooms in a school -- particularly in older schools where installing wiring can be expensive.

- New flexibility in use of Chapter 1 and Eisenhower training program funds permits schools to be much more creative in using these programs to support advanced technology

4. The federal government will pledge to be an exemplar supporter of national programs to provide volunteer worker time and surplus computers and communication equipment to schools. Specifically:
    - OPM will issue a directive clarifying rules for flex time for federal employees interested in volunteering for the technology corps.
    - GSA will issue a directive clarifying rules for conveying surplus equipment

5. The federal research agencies, working under the executive order, will launch a series of focused research and demonstration programs designed to test the potential of technology likely to be available for classroom use in 5 years. A new $30 million program in NASA, ARPA, NSF, and DoE will apply existing research capabilities to develop applications in pre-school, K-12, school-to-work, and incumbent worker training in small businesses.

6. A new $10M/year project will be launched to make all federal information on 19th century American culture available in digital form by the year 2000. The Smithsonian, the Archives, the Park Service and other federal organizations own millions of documents, photographs, videos, sound recordings, and artifacts. Few of these are on display and these are available only for Washington visitors. While the federal funds would provide a key resource and infrastructure, private funds must be attracted to supplement the effort.
    - Drug education
    - Data for regional/local studies