

Draft November 19, 1997

MEMORANDUM FOR BRUCE REED
 SECRETARY RILEY
 FRANK RAINES
 RON KLAIN

FROM: GENE SPERLING

RE: TECHNOLOGY TRAINING FOR TEACHERS

Attached is a draft decision memorandum for the President on technology training for teachers. The proposal would set two national goals in this area:

1. **All new teachers entering the workforce should be able to teach effectively using technology**
2. **Every elementary and secondary school should have at least one teacher that has significant training in the use of technology**

The memo does not request a decision on the funding level. Clearly, any new spending in for teacher training needs to be weighed against competing priorities. Decisions on the funding level should be made as part of the broader FY99 budget process.

If you have comments, please send them to Tom Kalil on my staff, who can be reached at (202) 456-2802, fax (202) 456-2223.

I would also be happy to convene a principals meeting on this subject if anyone believes it is necessary.

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MEMORANDUM FOR THE PRESIDENT

FROM: GENE SPERLING

RE: TEACHER TRAINING FOR TECHNOLOGY

Summary:

Making sure that teachers have the skills they need to use technology effectively in the classroom is critical to the success of your Educational Technology Initiative. As you noted recently, "I met with a group of young people yesterday in their 20s who said .. 'What difference will it make if you connect every classroom in the country to the Information Superhighway if the teachers aren't trained to use the technology and the kids know more than they do?'" Although teacher training has always been a part of your four pillars (along with connecting classrooms, computers, and educational software) -- the press has tended to focus more on the goal of wiring the schools. We believe that a new initiative is needed to shine the spotlight on teacher training - and set national goals that are both important and achievable.

At this point, we would like your approval of the proposed policy, and not a specific budgetary commitment. Although we think that this initiative will require some new investment, the decision on the exact funding level should be made in the context of the overall FY99 budget discussions.

Why an initiative in teacher training is needed

The overwhelming conclusion of press and expert analysis of your Educational Technology Initiative is that teacher training is critical to the successful use of educational technology, and that more needs to be done in this area:

- A 1995 OTA study, *Teachers and Technology: Making the Connection* concluded that "helping teachers use technology effectively may be the most important step to assuring that current and future investments in technology are realized" and that "most new teachers graduate from teacher preparation institutions with limited knowledge of the ways technology can be used in their professional practice."
- The President's Committee of Advisors on Science and Technology (PCAST) concluded in 1997 that "the substantial investment in hardware, infrastructure, software and content that is recommended in this report will be largely wasted if K-12 teachers are not provided with the preparation and support they will need to effectively integrate information technology into their teaching."

- In 1994, the latest year for which data is available, only 15 percent of all elementary and secondary teachers had at least 9 hours of technology training.
- According to the National Center for Education Statistics, only 15-20 percent of teachers are regularly using advanced telecommunications for curriculum development, professional development, and teaching.

National goals and initiatives to help meet those goals

We think that it makes sense to set the following national goals, and to establish initiatives that are based on meeting these goals:

Goal 1: All new teachers entering the workforce should be able to teach effectively using technology

Rationale

- Over the next ten years, 2 million new teachers will be entering the workforce. Although there is a high attrition rate, many of these new teachers will be in the workforce for a long time. It makes sense for 21st century teachers to have 21st century skills.
- Currently, most colleges of education do not adequately prepare teachers to use technology.

Initiative

- Challenge colleges of education to ensure that:
 - All new teachers can teach effectively using technology. This requires both (a) an understanding of the mechanics of using computers, the Internet, and software applications; and (b) an understanding of how technology can be integrated in to the curriculum, and the new styles of teaching and learning that are enabled by technology.
 - Their institution meets accreditation standards for the use of technology, and that their graduates meet the relevant state and national standards for the use of technology.

All colleges of education that are willing to meet these goals would be eligible to participate in a competitive grant program. Participation in the program would also require matching funds from the state and local level and the private sector. Funds could be used for purposes such as:

- Establishing partnerships with local school districts so that student-teachers have an opportunity to teach in a technology-rich environment;
- Training the college of education faculty to use technology;
- Upgrading the technological infrastructure of the school;
- Support for curriculum integration (e.g. the use of technology for math, science, and reading). [Grants to support curriculum integration would also involve partners from the private sector, professional societies, and subject matter experts.]

Goal 2: Every elementary and secondary school should have at least one teacher that has significant training in the use of technology

Rationale

- Ensuring that every school has one teacher that is adept in the use of technology could serve as a catalyst - especially if the initiative helps “train the trainers.”
- Currently, the Technology Literacy Challenge Fund allows but does not require states to invest in teacher training. Experts believe that educational technology efforts should spend at least 30 percent on professional development. Few states and local school districts do this -- because teacher training is not as “tangible” as purchasing hardware, software, and Internet connectivity.

Initiative

- Direct states to use a portion of the Technology Literacy Challenge Fund to provide intensive training to at least one teacher per school, and encourage that teacher to train his or her colleagues.

Rough cost estimate

We estimate that the costs of achieving these two goals is approximately \$220 million per year - \$120 million of which could be financed by targeting a portion of the Technology Literacy Challenge Fund. The TLCF was funded at \$425 million, and the Department of Education has requested an increase to \$500 million.

Again, the purpose of this memo is not to seek your decision on a budget number for this initiative. It may be that competing priorities and budgetary constraints will require us to fund this initiative at a lower level in FY99, and achieve these goals over a longer period of time.

Bully pulpit

We also believe that the Administration can make progress on these goals through use of the bully pulpit. For example, during your speech to the National Board for Professional Teaching Standards, you urged the board to make the use of technology a part of their standards.

TEACHER TRAINING FOR TECHNOLOGY [Kalil Draft 11/11/97]

The overwhelming conclusion of press and expert analysis of the President's Educational Technology Initiative is that teacher training is critical to the successful use of educational technology, and that more needs to be done in this area:

- A 1995 OTA study, *Teachers and Technology: Making the Connection* concluded that "helping teachers use technology effectively may be the most important step to assuring that current and future investments in technology are realized" and that "most new teachers graduate from teacher preparation institutions with limited knowledge of the ways technology can be used in their professional practice."
- The President's Committee of Advisors on Science and Technology (PCAST) concluded in 1997 that "the substantial investment in hardware, infrastructure, software and content that is recommended in this report will be largely wasted if K-12 teachers are not provided with the preparation and support they will need to effectively integrate information technology into their teaching."
- In 1994, the latest year for which data is available, only 15 percent of all elementary and secondary teachers had at least 9 hours of technology training.
- According to the National Center for Education Statistics, only 15-20 percent of teachers are regularly using advanced telecommunications for curriculum development, professional development, and teaching.

After talking with a number of leaders in the field, we have come to the following conclusions:

- Trying to provide meaningful in-service training to all teachers would be prohibitively expensive. Assuming a cost of \$3,000/teacher for two weeks of instruction and 3.1 million teachers -- the total cost would be \$9.3 billion. Also, it is not clear that the infrastructure is in place to do this kind of training.
- It makes sense to focus on new teachers, since two million new teachers will be entering the workforce over the next ten years. Obviously, we could do both (new teachers, existing teacher workforce); however, Kalil believes that we will get more leverage from focusing on the new teachers as the national goal.
- We could also launch a "train the trainers" program that would make sure that at least one teacher in each school knew how to use technology. Assuming that there are 120,000 elementary and secondary schools -- we could provide training to at least one teacher per school for \$360 million (\$180 million with cost-sharing).
- Training all of the teachers in a particular grade (e.g. 6th grade) would cost approximately \$800 million. This could be done if we were to insist that states devote all of their TLCF

money to teacher training.

- Teaching teachers the mechanics of using technology is necessary, but not sufficient. The more important part -- and the harder part -- is curriculum integration and the new styles of teaching and learning that are enabled by technology (e.g., project-based learning). Therefore, any new initiative we launch in this area should address both the “content” and teacher training together.
- It makes sense to build on our existing programs (e.g., TLCF, innovation grants) as opposed to starting new programs.

Option 1: Make sure that all new teachers are ready to teach using technology in four years

\$150 million expansion of innovation grants -- targeted to professional development, schools of education, and curriculum integration. Unlike current challenge grant program, this would be more targeted and strategic. This would require a change in the enabling legislation.

- A. \$100 million would go to two-year, (average) \$500,000/year grants to schools of education. Over four years, this would give grants to 400 schools -- a large fraction of the accredited teachers colleges. Schools of education could use funds to:

- Acquire necessary technology infrastructure
- Establish partnerships with local school districts to ensure that student-teachers have the opportunity to use technology during internships
- Provide training and staff development for faculty
- Partner with other colleges of education that are just beginning to explore the use of technology

One could also award larger grants to a smaller number of “lighthouse” institutions, and make the partnerships between “lighthouse” institutions and other colleges a more important part of the program.

- B. \$50 million would go to fund curriculum integration and other projects that will have a national impact. For example “virtual departments” focused on curriculum integration in a particular discipline (e.g., math, science, reading). Virtual departments would:

- Be composed of schools of education, university professors, and professional societies -- with private sector partners;
- Develop and disseminate instructional material that explains how teachers in particular subjects can use technology effectively to support learning objectives;
- Evaluate existing commercial software, and help define user requirements for new software;

- Serve as a focal point for increasing the quantity, quality, and organization of networked resources in a particular subject;
- Manage online networks to providing on-going support for teachers in a particular subject.

Accountability

These grants could require:

- Dollar for dollar matching funds from non-federal sources (the university, the private sector, states, foundations);
- A competitive, merit-based selection process;
- A technology plan from the school of education;
- A commitment to meet relevant national and state technology standards -- both at the institutional level and the individual teacher accreditation level.

Pros

- High leverage -- 2 million new teachers entering the workforce over the next 10 years.

Cons

- Many schools of education are not strong organizations.

Option 2: Train the trainers -- train at least one teacher per school in the first year

The Technology Literacy Challenge Fund is currently budgeted to increase from \$425 million in our FY98 request to \$500 million in FY99. We could increase TLCF to \$600 million, and direct the states to invest at least 1/3 of their TLCF allocation (\$200 million) to teacher training. Although this would attach some strings to what has been a formula program, this is not an unreasonable request. Experts believe that spending about a third of total ed tech budgets on professional development makes sense.

What could states do with the \$200 million if they spent it on teacher training? Assume that:

- Cost of two-week summer institute is roughly \$3,000 per teacher [Or one week during the summer -- reinforced with additional sessions during the school year.]
- Non-federal (states plus private sector) match dollar for dollar.
- This trains more than 130,000 teachers per year, or more than one per school

- Over three years, one in every eight teachers is trained -- making a “train the trainers” scenario likely.
- Note that we could do even more if teachers were willing to wave their right to a stipend. Of the \$3,000 cost for a two week summer institute -- \$2,000 is the teacher salary cost.

Option 3: Train all teachers in a particular grade

The cost of training all teachers in a particular grade (2 weeks of training) is roughly \$800 million. We could fund this in one year by directing almost of the TLCF funding (\$400 million) to teacher training, assuming that the states were willing to match the federal contribution dollar for dollar.

Alternatively, we could increase the TLCF to \$600 million, insist that states devote one-third to teacher training, and train all the teachers in a particular grade over 2 years, assuming that the states were willing to match the federal contribution dollar for dollar.

Pros:

- Easy to understand goal.
- This approach of targeting a particular grade has been tried by West Virginia.

Cons

- Original idea behind TLCF was to set the broad goals and give states and localities flexibility in terms of how to meet those goals. This might be seen as “micro-managing” how states and localities meet the four pillars.

Next steps. Obviously, we need to work closely on this with DPC, Education, and OVP. Kalil would recommend (a) transmitting the proposal to Mike Smith, Mike Cohen, Don Gips, and OMB; and (b) convening a meeting at whatever level you feel is appropriate.