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THE WHITE HOUSE

WASHINGTON

July 11, 1994

MEMORANDUM FOR DISTRIBUTION

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

SUBJECT: LEARNING AND TECHNOLOGY

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

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

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

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

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

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

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

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

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

Attachment: Vision Statement

Vision: Improving the Productivity of Learning through Interactive Learning Technologies

While virtually all other sectors of our economy have been transformed by technological innovation and accompanying structural reorganization in the twentieth century, education and training in schools looks much like it has for generations. Computers and advanced communication technologies are revolutionizing banking, finance, entertainment, and many other information-rich businesses and helping them tailor services to individual customers. But these technologies have had little impact on learning productivity. The most advanced communication system in most classrooms is not even the telephone but the classroom bell and the public address system -- technologies that have only reinforced the traditional "egg-crate" configuration of isolated classrooms. All of this is about to change. Three elements are now converging with the potential to create a revolution in the productivity of learning.

First, a new consensus is emerging about the dynamics of learning: The primary work of learning is done by the learner not the instructor. All students are different, they learn at their own pace, often in different styles. The work of learning is more engaging for the student if it involves active interaction and occurs in a meaningful context, rather than through passive listening or watching in the abstract. In this new perspective, the role of the teacher is no longer that of a talking head standing in front of a class of 25 students: the teacher becomes a coach of teams of learners, and students of all ages (including peers, parents, and easily accessible experts and tutors) are the active participants in a community of learning. Students taught by individual tutors do better than 98% of students taught in standard "mass production" class room settings (see figure 1). Emerging technology makes it possible to provide learner-centered contexts for learning tailored to individuals without a prohibitive investment in new materials or increases in instructional staff. America's teachers -- and their union leaders -- are demanding that schools not be left out of this revolution.

Second, technological advances in computers, multi-media, data-storage, and communication are creating dramatic new ways to communicate complex ideas and experiences. The potential for creating a new generation of interactive learning tools is upon us. The technology can create interactive learning environments that invite exploration and approximate the experience of working with individual tutors. We can realize this potential, however, only if we can bring the creators of the new technologies together with the makers of essential learning content to transform games, information, and entertainment into engaging curricula for all ages, interests, needs and styles of learners.

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

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

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

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

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

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

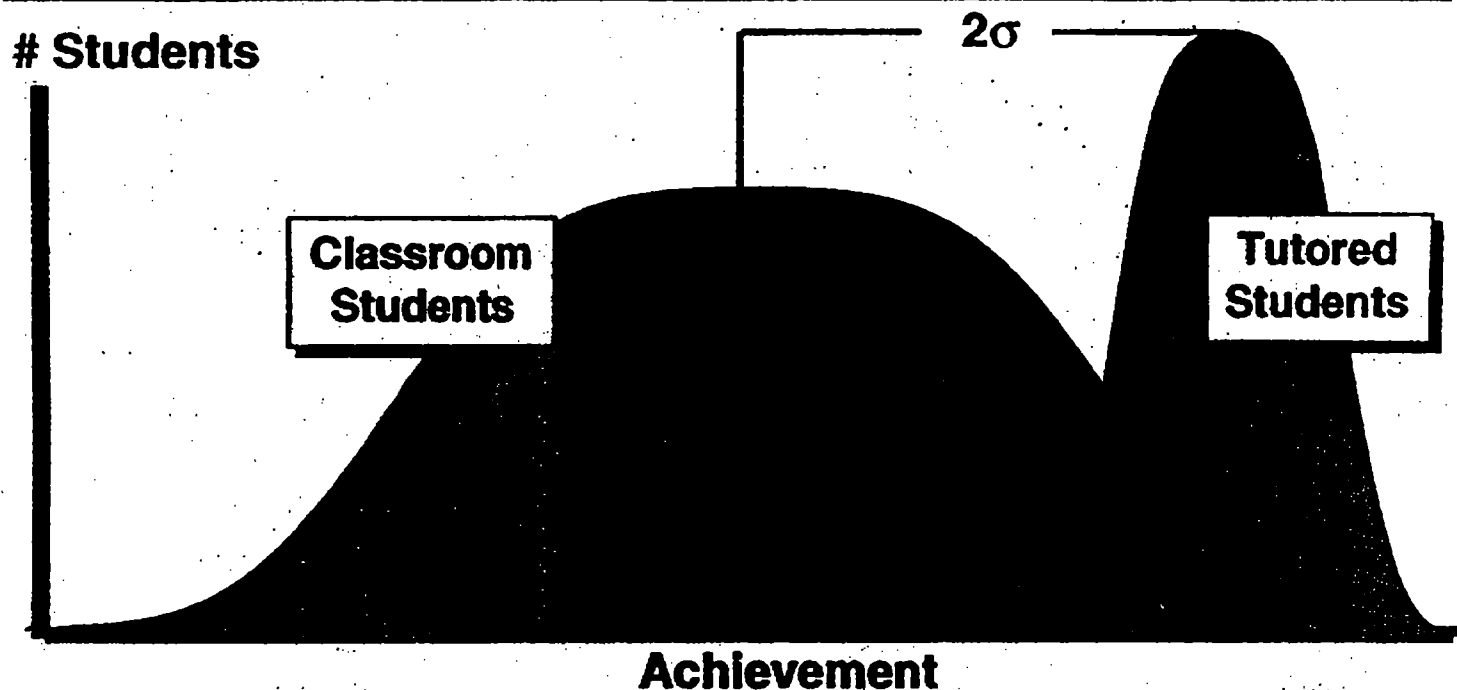
- Businesses of all sizes recognize that adaptability and flexibility are central to corporate survival. This flexibility can only be achieved if their workers -- as individuals and as teams -- are able to keep pace with advanced equipment without expensive off-site training. The kinds of simulated environment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

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

Figure 1
Learning Productivity

High-Tech Learning is Effective

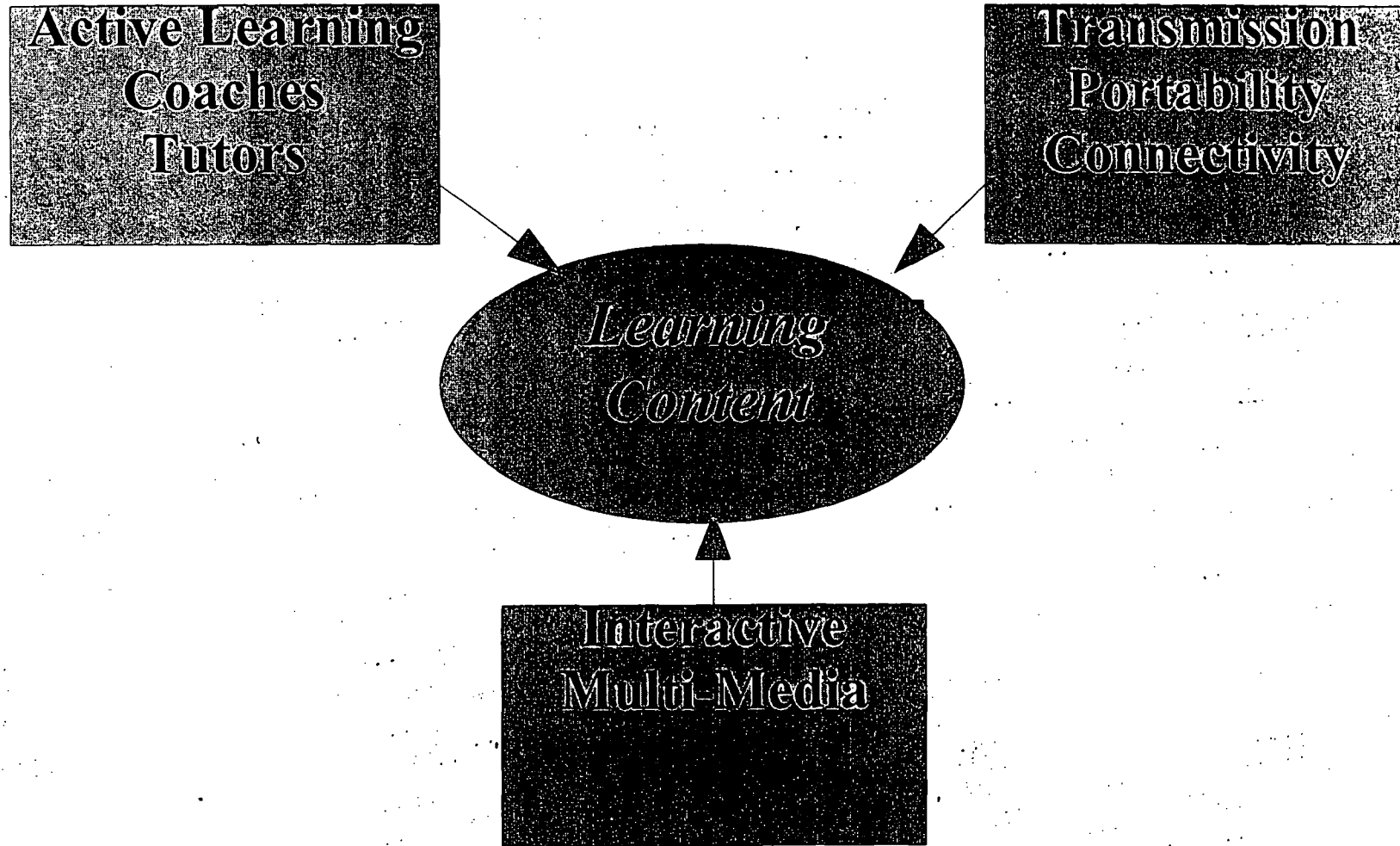
**ON AVERAGE, TUTORED STUDENTS SCORE BETTER THAN 98%
OF CLASSROOM STUDENTS — A 2-SIGMA SHIFT**



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

Figure 2

Learning Content: The Key to Improving Learning Productivity with Technology



NATIONAL COMMISSION FOR EMPLOYMENT POLICY
1822 K Street, NW, Suite 300
Washington, D.C. 20006

Chairman

(202) 724-1545

June 27, 1994

MEMORANDUM TO: Steve Spinner,
Job Training Advisor, Senate Labor Committee

FROM: Anthony P. Carnevale *apc*

SUBJECT: Reinventing Federal Training Programs

After our conversation I thought it might be useful to put together some speculative thoughts on both long- and short-term possibilities for making better sense of our current training system in order to help break the current logjam of over 150 federal training programs that are blocking consideration of the President's reemployment proposal.

The following (1) proposes a study on the efficiency, effectiveness, flexibility and accountability of federal employment and training programs and (2) presents an interim consolidation proposal as a springboard for discussion.

I begin with two biases that come from my own involvement in private sector experiences with building "high performance," "lean" and "reinvented" systems. First, the essential question in any consolidation effort is: "Consolidation for what?" The current consolidation dialogue needs to balance four interrelated goals: efficiency, effectiveness, flexibility and accountability.

*my name
Mike Smith
Barry White
Kestley Koble
Bill Sawhill
Bill Galston
Gene Sperling*

The efficiency goal is best served by reducing administrative costs and increasing the proportion of funds going into services. Flexibility is best served by allowing state and local discretion. Accountability in a decentralized system is best achieved by establishing consistent management information and outcome measures. Effectiveness should be measured in terms of the ultimate goal of achieving greater employability and earnings.

Second, increasing flexibility in the absence of a strong management information system (MIS) and measurable outcome goals is not advisable.¹ Increased flexibility, by itself, does not guarantee greater effectiveness or efficiency in achieving programmatic goals, and given fiscal pressures on state and local spending could even have the perverse effects of less service and more administrative expenditure.

Increasing the consistency and quality of information in a system allows for greater decentralization of operational authority. This, in turn, allows for greater autonomy within a network of providers, while also encouraging greater efficiency and consistency of quality. A robust management information system permits the monitoring of performance both throughout the network and at individual delivery sites. An effective MIS also

¹ I have in mind a franchise-type model, long since typical in private companies. Businesses like Sears, Manpower Inc., VISA and any number of similar franchise operations are state of the art models of highly decentralized structures that combine MIS and measured outcome goals to promote efficiency and quality in subunits without violating their operational integrity.



enables the benchmarking of performance throughout the system and the provision of targeted technical assistance where performance appears to be substandard. In addition, an effective MIS encourages inventory, analysis and dissemination of model practices. Finally, an information system embedded in the delivery structure eliminates burdensome reporting requirements and after-the-fact evaluations.

Complex networks integrated by MIS and measured outcome goals are now common in private business and are easily transferable to public networks. A previous study conducted for the National Commission for Employment Policy (NCEP) by Booz, Allen & Hamilton focused on the transferability of private sector practices into public job training programs. That study concluded:

The criticality of frequent, and unbiased reporting of essential data was perhaps the most striking private sector process finding with potential applicability [to public job training programs.]

At a minimum, an effective federal management information system should include reporting on system-wide program treatments. Although the final list of treatment categories is subject to further discussion and would obviously be derived from a review of all existing federal programs, the following general categories of services are offered as a starting point for



National Commission for Employment Policy
Anthony P. Carnevale, Chairman

discussion:

- Outreach -- includes outreach to client communities;
- Employment services -- i.e., assessment, counseling, job search assistance and job development;
- Education and classroom training -- would include only prescribed courses of instruction delivered by accredited learning institutions with measurable learning outcomes, consistent with work-based skill requirements at levels sufficient to increase the employability or earnings capability of clients;
- On-the-job training (OJT) -- would include employer-provided training in regular jobs through a "hire first, train later strategy," with participants who successfully complete OJT retained in permanent employment;
- Subsidized employment -- unstructured work experience;
- Support services -- services necessary to access employment services, education, training or OJT; and
- Needs-based payments and financial assistance -- income support necessary to sustain clients.

These services and treatment categories, in turn, could be grouped into cost categories that are consistent or compatible for all federal programs.

An effective MIS should also tie to independent evaluative data focused on three measures: (1) learning gains; (2)



National Commission for Employment Policy

employment effects; and (3) earnings effects of programs. Learning gains should be measured by standardized achievement tests. Employment and earnings effects should be measured by tracking pre- and post-earnings experience through the Unemployment Insurance (UI) data base.² The combination of outcomes data from standardized tests and UI records on the one hand and MIS data on particular services (i.e., OJT, training, employment services, etc.) on the other hand allows tracking of the relative effectiveness of particular treatments in leveraging learning, employment and earnings.

CONSOLIDATION STUDY

A study on the efficiency, effectiveness, flexibility and accountability of federal employment and training programs should be conducted by a temporary national commission and/or by appropriate agencies outside the departmental structure -- such as the NSF, GAO, NCEP, etc. This proposed study would focus on the following areas:

- (1) An assessment of efficiency in the mix of current

² The use of unemployment insurance wage and employment records was pioneered by the National Commission For Employment Policy. The technique allows for the tracking of pre- and post-program employment and earnings experience of adult participants in any federal training program. Where records are kept on individual treatments (i.e., employment services, training, OJT, etc.), their effectiveness in promoting employability and earnings can be directly assessed.



National Commission for Employment Policy
Anthony D. Carnevale, Chairman

federal programs, including analysis of:

The overlap in the mix of current programmatic missions and programs, and the possibilities for consolidating existing resources and delivery structures.

How much "bang" we are getting for our federal "bucks," or, in other words, how much direct service we are getting for each dollar spent. Direct services (defined above) include:

- Outreach;
- Employment services;
- Occupational/educational training;
- OJT;
- Subsidized employment;
- Support services; and
- Needs-based payments and financial assistance.

(2) Flexibility assessments would consider barriers to enhanced flexibility, primarily in the interest of increasing service to overhead cost ratios, including:

Redundant or non-contributing administrative overhead; Unnecessary administrative and oversight requirements that do not relate directly to effective achievement of programmatic missions or outreach into client communities; and

Unnecessary differences in administrative and oversight requirements that do not relate directly to effective achievement of programmatic missions or outreach into client communities.



National Commission for Employment Policy

(3) Effectiveness and accountability assessments would include an examination of current and alternative oversight and accountability structures applicable both within and across programs.

INTERIM MEASURES

There are a number of things we could do now without benefit of a commission report. The following legislative outline or a similar model could be enacted immediately.

THE NATIONAL TRAINING ACT

A. **PURPOSE.** To establish policies, procedures and processes that encourage programmatic flexibility and assure that a maximum proportion of funds are expended for client services leading to measured improvements in learning, employability and earnings.

B. **CONCENTRATION AND CONSOLIDATION AUTHORITY.** Administering authorities shall be allowed to concentrate or consolidate funds within or among programs for authorized purposes so long as authorized funds are administered according to the provisions of an appropriate federal law.

¹ This approach has already been used in the interest of allowing territories and outlying areas to consolidate and concentrate federal funds. The consolidation, subject to waiver authority, would be allowed both within and among programs. For



National Commission for Employment Policy

An umbrella Commission shall be established, which would consist of appropriate public and private members. The Commission shall have a small staff and the authority to convene the Assistant Secretaries and other program officers responsible for the national training programs covered by this legislation.

The Commission shall have the following authorities and responsibilities:

1. Interpretation of all statutory provisions for the programs covered by the legislation. The Commission would consult with appropriate counsel in developing such interpretations, but shall make and be responsible for all final decisions. All interpretations made by the Commission shall be published with an explanation for the decision'.

2. Granting of waivers requested by administering agencies. Waiver requests related to the following issues shall not be considered:

- (a) participant eligibility;
- (b) allocation of costs; or

instance, an administrative entity could combine voc rehab, JTPA, and other funds but would have to administer the funds under the provisions of one of the three program structures. An alternative construction would be to specify proportions of funds that could be reallocated among or within programs with or even without waiver authority. A third alternative would be to specify proportions that could be reallocated without waivers and a residual that would require waivers.

' The interpretation of Federal law and regulations has become dispersed and confused because agencies have allowed private interests, news services, etc. to interpret federal law without any official commentary. As a result, program providers have become accustomed to acting on interpretations by private parties, public interest groups, etc.



(c) statutory prohibitions.

3. All waiver requests addressing other issues shall be approved unless the Commission determines that the request:

- (a) creates an unfair advantage; or
- (b) does not serve to enhance the employability and earnings capability of clients.

4. Waivers shall be applicable only to applicants.¹

5. The Commission shall have blanket authority to grant individual waivers in exceptional instances that address irrational ("Catch 22") situations."

C. TARGETING OF EXPENDITURES ON CLIENT SERVICES. In order to assure that a maximum of funds are utilized for direct services to clients, a management information system (MIS) that tracks expenditures for specific services, as well as administration, should be established and be applicable to all federal programs.

1. Service categories should include:

- (a) Outreach -- includes outreach to client communities.

¹ A waiver given to one applicant would not constitute any general authority for non-applicants to waive existing authority.

² President Clinton recently used the example of a company closing down two of its operations conducted at a single plant, one of which was deemed to be the result of impacts from foreign trade and one of which was not. As a result, some of the workers from the plant were eligible for 78 weeks of compensation and retraining, while others could only receive 26 weeks of compensation and training if the regular local dislocated worker program had an available slot.



- (b) Employment services -- i.e., assessment, counseling, job search assistance and job development;
- (c) Education and training -- includes only prescribed courses of instruction delivered by accredited learning institutions with measurable learning outcomes consistent with work-based skill requirements at levels sufficient to increase the employability or earnings capability of clients;
- (d) On-the-job training -- includes employer-provided training in regular jobs through a "hire first, train later strategy," with participants who successfully complete OJT retained in permanent employment;
- (e) Subsidized employment -- unstructured work experience;
- (f) Supportive services -- services necessary to access employment services, education, training or OJT; and
- (g) Needs-based payments and financial assistance -- income support necessary to sustain clients.

2. Administrative expenditures should include -- Direct and indirect costs of program operation.



To further direct program emphasis, minimum and maximum cost limitations for each category shall be established as follows:⁷

- (a) Outreach -- not less than 5% nor more than 10%;
- (b) Employment services -- not more than 30%;
- (c) Occupational/educational training -- not less than 40%;
- (d) OJT -- not more than 20%;
- (e) Subsidized employment -- not more than 10%;
- (f) Support services -- not less than 10% or more than 20%;
- and
- (g) Needs-based payments and financial assistance -- not less than 10% or more than 30%;

In addition to these direct services, program administration should not exceed 20%.

D. COMMON REPORTING/OVERSIGHT/MIS. All programs shall report spending in the above categories, as well as: (1) measured learning gains from training and OJT; (2) placement ; and (3) pre- and post-program earnings.

E. COMMON UI-BASED EVALUATION. Client records shall include pre- and post-program earnings and work experience data from UI records. Evaluations shall focus on the impact of program treatments on employability and earnings as measured by UI records data.

⁷ Note that these suggested percentages are put forward to encourage discussion and do not constitute a final recommendation.



National Commission for Employment Policy

06-28-94 08:01AM FROM NCEP FAX MACHINE

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F. ANNUAL EMPLOYMENT AND TRAINING REPORT. The National Commission For Employment Policy shall be charged with reporting annually on the effectiveness, flexibility and accountability of all federal employment and training programs.



National Commission for Employment Policy
Anthony J. Carnevale, Chairman

July 6, 1994

MEMORANDUM FOR DISTRIBUTION

FROM PAUL DIMOND
 HENRY KELLY
 MIKE SCHMIDT

SUBJECT: Attached Draft

Attached is a revised version of the "Technology and Learning Challenge" concept and a summary of the missions of the three "tiger teams" now crafting options for focusing Administration programs in learning technologies. Options will be reviewed in our July 9 meeting (Institute for Defense Analysis 10:00am -1:00pm) which we hope you can attend. The meeting will also include a briefing and demonstration by John Deutch showing how DoD has used learning technology to meet national security training missions.

THE TECHNOLOGY AND LEARNING CHALLENGE

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

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

Vision

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

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

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

makers of essential learning content to transform games, information, and entertainment into engaging curricula for all ages, interests, needs and styles of learners.

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

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

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

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

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

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

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

Eligibility: The definition of communities eligible for the grant would be broad. Communities could be geographic or they could be linked by a common interest or purpose (e.g. handicapped groups, businesses with similar training requirements, physics or history

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

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

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

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

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

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

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

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

emphasis identified in the Administration's technology program in February 1993. The priority has been reiterated repeatedly in policy guidance provided the agencies by OMB and the National Science and Technology Council (NSTC).

- Use of the emerging National Information Infrastructure to improve the quality of education has been one of the central themes of the President's National Information Infrastructure Task Force Chaired by the Secretary of Commerce.

The Tiger Teams

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

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

Next Steps

Our goal is to have the following ready for a major administration announcement later year or early next year. A major kick-off event could be organized for the POTUS and VPOTUS (along with Secretaries Riley, Reich, Brown, Perry, and Shalala) to announce the challenge. Invitees could include a number of major players in the NII world (technology corporations, telecommunications operations), teachers unions, industry associations, major universities and community college systems, along with several community-based programs that are already utilizing the kinds of technologies that we are talking about. The elements of the announcement would include: (1) a powerful statement reiterating the central themes of the administrations ETR policies and explaining how new technologies will advance these key objectives; (2) a program announcement for the Technology and Learning Challenge and a clear plan for managing the program, and (3) a white paper presenting key budgetary and programmatic actions that will use many parts of the federal enterprise to accelerate the introduction of learning technology. The white paper would result directly from the work of the three tiger teams.

The steps needed to prepare for such an event are as follows:

- July 7 The heads of the tiger teams meet to review drafts of the briefing they propose to give to a meeting of key administration officials planned for July 9.
- July 9 DoD hosts a meeting for the ETR group to review the topics under review by the tiger teams and the Learning Challenge proposal and review a series of demonstration of learning productivity technology used in DoD. This meeting will result in approval of a schedule and a sense of priority in issues to be reviewed by each tiger team. Proposals for meetings with the Governors, businesses, and NGOs will be reviewed.
- July 10-
Sept. 15 A series of meeting and workshops with business, community, labor, education, professional associations, and other leaders
- July 17-20 Important target of opportunity:
National Governor's Association meets in Washington
Gibbons talks on the 18th
- July 20 Mid-course correction meeting for heads of the tiger teams to review each other's work

A drafting team is named to begin work on the White Paper.
- August 8 Decision memos completed by the tiger teams for review and approval by the ETR principals. These will include proposed Agency budgets for FY1996

July 6, 1994

MEMORANDUM FOR ETR TECHNOLOGY AND LEARNING TEAM

FROM: HENRY KELLY

Attached for your review is a new version of our proposed "Technology and Learning Challenge" much improved thanks to the thoughtful reviews we've recieved. We'd appreciate your comments in preparation for the next meeting of the tiger team chairs now planned for 1:00 pm on July 7 (an invitation from the ETR will be out early next week). The document also includes a proposed schedule for next steps.

Service Wages Gaining Against Manufacturing

Gap of \$82 in '79 Narrowed
To \$19 a Week in '92,
Fed Bank Studies Show

ECONOMY

By NEELA BANERJEE

Staff Reporter of THE WALL STREET JOURNAL

Convinced that service jobs are mostly low-paying, dead-end positions?

Then consider that the gap between manufacturing and service wages has narrowed substantially over the past 15 years, driven to a significant degree by increases in service-sector compensation.

According to a recent study by the Federal Reserve Bank in Cleveland, the difference in median salaries in 1979 between workers in the service sector and the manufacturing and construction sector was \$82 a week in constant dollars. By 1992, the wage gap had shrunk to \$19, with a median weekly wage of \$500 for manufacturing and construction jobs and \$481 a week for service jobs. That's a difference of only 4%.

That study and one by the Federal Reserve Bank in San Francisco take aim at the commonly held belief that most service jobs are variations on hamburger flipping. They point out that the service sector constitutes almost 80% of the economy, encompassing everyone from surgeons to laboratory technicians to stock clerks, which means there will naturally be a range of wages. Even traditionally low-paying service industries, such as the retail trade and the restaurant business, have created jobs that pay generously.

Narrowing the Focus

The key to economic growth, the studies' authors say, is to encourage companies that generate high-paying jobs, rather than focusing on a particular industry at the expense of another. "Now it's the firms that matter, not the industries," says Ronald H. Schmidt, senior economist at the San Francisco Fed and the author of one study. "If you have a successful firm in the area, you'll have jobs and decent wages."

Since the recovery began, a debate has ensued about whether good jobs are being created and who is getting them. There are certainly signs that U.S. workers are worse off than a decade ago. Of the U.S. work force of 81 million, 16%, or one in every six full-time workers, made less than \$13,091 in 1992, compared with the 12% of workers who had similarly low earnings in 1979, says the Census Bureau. Bureau of Labor Statistics figures show median weekly wages for full-time workers fell 3% from 1979 to 1993 after being adjusted for inflation. Many attribute the decline to the rise in low-paying service jobs.

But the Federal Reserve reports and a study by the Manufacturers Alliance, a Washington trade group, add nuances to a job-market picture often viewed strictly in black and white. The Cleveland Fed study, written by economist Mark Schweitzer and researcher Max Dupuy, concedes that the wage gap between the two sectors narrowed, in part, because the median wage for manufacturing and construction jobs fell 8% from 1979 to 1992. During the same period, the median service wage went up 4.4%.

"There's a demand for products on the service side, and that leads to an increase in wages," Mr. Schmidt says. "Services are now customized for clients, so employees have to be more skilled and adaptable."

The Cleveland Fed study shows that manufacturing and construction jobs in the highest-paying 10th percentile pay a median \$1,019 a week, compared with \$1,000 in the service sector. Finance, insurance and real estate companies and wholesale trade offered some of the best compensation in the service sector.

On the other end, jobs in the lowest 10th percentile of manufacturing and construction pay a median \$231 a week compared with \$212 a week for service jobs.

What concerns people about service jobs is the growth in traditionally low-paying industries such as retail. The median weekly salary in retail, which includes the restaurant industry, was \$340 a week in 1992. Those in the lowest 10th percentile in retail earned only \$173 a week. Yet from December 1993 to March 1994, retail jobs expanded by 18%, making the sector one of the fastest-growing in the nation. While the San Francisco Fed study argues that wages have been rising in the retail trade, they still remain far lower than those of other businesses. Even the highest retail salaries, which averaged \$769 a week in 1992, are significantly lower than top salaries elsewhere.

Center Isn't Holding

Economist Daniel J. Meckstroth of the Manufacturers Alliance doesn't deny that service industries produce high-paying jobs. And he agrees that they generate some terribly low-paying jobs. The problem, he says, is the dearth of middle-income jobs. Mr. Meckstroth also looked at Bureau of Labor Statistics figures from 1979 to 1993 and discovered that among men ages 25 to 54, the number of high-wage earners stayed fairly constant, but the number of low-wage earners increased at the expense of middle-income workers. More men make less than \$399 a week than 14 years ago, and fewer men earn \$600 to \$999 a week. The disappearance of the middle stems from the disappearance of manufacturing jobs, he says.

One thing for sure, those with only a high school diploma are being left behind by both the manufacturing and service sectors. The median weekly salary for high school graduates in service jobs was only \$385 a week, compared with \$481 for all service workers. High school graduates in manufacturing and construction earned \$462 a week. Although many of the workers in manufacturing jobs are older and therefore earn more because of seniority, manufacturing advocates point out that with new technology and management techniques, line employees have to be better educated to survive.

"Even manufacturing requires more

and more skills, and companies will pay more for that," Mr. Meckstroth says. "On the flip side, the economy is paying less for low skills."

Pay Raises for Executives To Be Modest, Survey Says

By a WALL STREET JOURNAL Staff Reporter

NEW YORK — Executive pay increases will average 4.2% this year and 4.3% in 1995, according to the Conference Board's annual salary survey.

The survey, covering 515 companies, found pay increases for nonexecutive employees will average 4% in both 1994 and 1995. The board said the rises in both categories are the lowest it's seen since it began the survey in 1975.

The board said companies are fighting to reduce costs despite a recovering economy. It said most workers will see only small real gains in earnings, since it projects inflation of 2.6% this year and 3.6% in 1995.

"The rate of inflation will make the distinction between payday bliss and misery over the next two years," said Conference Board compensation specialist Charles Peck.

THE WHITE HOUSE
WASHINGTON

July 19, 1994

MEMORANDUM FOR JACK DONOHUE
EV EHRLICH

FROM: PAUL DIMOND 

SUBJECT: INCUMBENT WORKER TRAINING

Attached is my outline, with handwritten notes added, to reflect the initial discussion with Katz, Kruger, Donahue, Sawhill, White, Galtson, et al, on the worker skill/workforce flexibility element of proposed four-part agenda for Structural Transformation in the Economy.

In particular, will you pay attention to whether there are any useful options that we should put on the table for encouraging firms to participate in building skills of workers? I presented my analysis to highlight reasons -- and corollary policies -- for enabling workers to invest in their own skill-building/job changing if they are not satisfied with what their current firm offers. I'm not sure that this served to provoke sufficient thinking on how firms could be encouraged to promote skills of their own workers, for example, through firm training/internship consortia within an industry, technical assistance and extension services, embedding training within installation and use of new technologies, etc.

Will you also think harder about how we might implement the core of my proposed option to enable workers to invest in themselves, to change jobs and to manage their own careers?

If any event, I would like for each of you to take your own shot at outlining what policy options you think should be considered for this component of the four-part agenda. We can then meet sometime during the last week in July to outline the full scope of options and how we think they should be evaluated.

Thanks!

cc Bo Cutter
Bill Galston
John Goodman
Larry Katz

Background for Structural Transformation of Firms in New Economy

- open markets [Issue=global structure for financial, currency]
- build information infrastructure
- invest in technology, innovation
- build skills of workforce, provide lifelong learning/career advancement tools

Choices for Workforce

- provide incentives/sanctions for employers to train, retrain, retain workforce
- provide tools/resources for workers to invest in own learning and career advancement
- provide information, build tools to promote flexible, agile labor market exchange

Firms in New Economy - ^{four} ~~three~~ views

- "Dumbing Down" -- make Taylorism work for low-skilled workforce in the new economy

Response: 2% training tax=train or pay -- *unworkable, little impact*

provide tools resources to workers to maximize learning/career choices > *yes*

- "The work is, increasingly, learning" -- work of new economy increasingly high-skill

Response: provide tools/resources to workers to maximize learning/career choices > *yes*

- "The work is, increasingly, high-skill but industry specific" --work of new economy increasingly high-skill, but industry specific

Response: permit/encourage firms within industry to form training consortia > *yes*

provide tools/resources to workers to maximize learning/career choices > *yes*

*both type firm =
what about small firms
just struggling to make payroll,
find money*

Conclusion= provide tools resources/resources to workers to maximize learning/career choices: enable all worker to become masters of own skills, careers

= *encourage firms within/across industry to form training consortia*

Issue 1= government role in labor market, skills, education provider results? in labor market exchange, job networks?

Issue 2=government exhortation/example for "good" firm practices? Does Administration wish to promote one firm approach over another? If so, what criteria? what means? *change Baldrige criteria?*

Issue 3=encourage firm training by tax policy, FASB, encouraging new financing arrangements (e.g., Sallie Mae)

Issue 4=encourage joint investment by worker & firm in worker skills? If so, what mechanism to encourage firm?

Issue 5= *encourage Commerce, state, local economic development, technical assistance, manufacturing / business extension to include worker training, embedded in installation / use of new technology.*

Overall,

Concern that increasing ability / tools for worker mobility will reduce firm incentives to train even further; but on balance, mobility, change is our U.S. comparative advantage & we should play off of it. DOL will therefore consider options to supplement worker investment in self w/ firm co-investment w/ worker.

THE WHITE HOUSE
WASHINGTON

July 12, 1994

MEMORANDUM FOR DISTRIBUTION

FROM: PAUL DIMOND

SUBJECT: A NEW SOCIAL CONTRACT FOR INCUMBENT WORKERS

We are scheduled to meet on Tuesday, July 19, from 12:00 to 2:00 in Room 230 to discuss Job-Changing and Skill-Building Tools for Incumbent Workers. Alan Kruger, who will be replacing Larry Katz soon, will join us. This memo will attempt to focus our discussion.

As you know, we have been looking at policy for education, training and reemployment from a variety of perspectives over the past several months -- REA, Kennedy-Kassebaum Consolidation discussions, Belle's ETR sub-group with Mike Smith and Tom Glynn, Gene-Bill-Tony Carnevale's thinking on how difficult public acceptance of embracing change is in the face of increasing inequality and substantial decline in upward mobility over the past 12 years, work in progress on transforming the Student Loan program, and as one part of Bo's four-part agenda for responding to Structural Transformation in the new economy. In order to focus our discussion on Tuesday, I want to pose one option for a new social contract for all American workers and make explicit the implications of such a social contract.

Premises: In the new economy, what an individual earns increasingly depends on what he or she learns; what a firm rewards increasingly depends on the learning and skills of the workers; work on the job increasingly involves learning; and what a country earns increasingly depends on the learning and skills of its workforce.

Federal Response: expand the opportunity for all workers to invest in improving their own learning and skills, in managing their own careers and in enhancing their ability to learn new skills, to find new jobs, and to take their own pathways to upward mobility. The analogy is the G.I.Bill: encourage ordinary Americans to invest in their own skills and expect extraordinary returns from the increase in human capital -- for the individual, for the firms which they form or with which they choose to associate, and for the country as a whole.

The policy implications of such a new social contract might include:

- Make flexible learning accounts available to all persons to invest in their own learning (with flexible repayment options, including based on future income returns to learning).

- Rely on better, more accessible information on what courses/skills/providers result in jobs, earnings, upward mobility (perhaps with some regulatory/financing mechanism for sanctioning providers who fail to deliver on promises)
- Make pensions, health care, and skills (whether learned on the job or elsewhere) fully portable
- Catalyze agile, accessible job-finding, job-changing, career counseling networks
- Limit any greater investments in "disadvantaged" individuals to subsidizing self-investment (e.g., grant/subsidy based on lower family income, hardship) and improving access to job-changing and job-finding networks to overcome isolation and discrimination
- Limit any federal support for firm-paid training to exhortation and example (e.g., amend Baldrige award to include recognition of firms that reward what is increasingly the work of the most competitive firms, continuous learning, on and off the job; provide agile standards process that will recognize worker skills wherever learned, including those learned while working at a job; and encourage consortia of firms to offer their workers training, internships, learning)
- Transform the unemployment system to encourage workers to get back to work as soon as possible so that they can earn while they learn at work (and base any extensions on individuals investing in improving their own skills and continuing to search for a job rather than on EUC or EB).

I pose this social contract -- and its implications -- for purposes of stimulating your thinking. In responding, please consider the potential and limits of federal policy and budget compared to the far larger investments that are and will continue to be made by individuals, states, localities, and firms. Would the proposed social contract increase the investments by these other sources? Does it provide a foundation for enabling all workers to embrace change by making the new economy a source of upward mobility and prosperity rather than a grudging and painful inevitability which is only better in comparison with the worse case of protectionism? Does it provide a basis for increasing the opportunity of all persons to take responsibility for succeeding in the new economy? Is it responsive to the President's call for a lifelong learning agenda that better serves all Americans?

Buttress

- ① Programs do more for adults than for young people
- ② "Second chance" E+T programs: \$4.5 billion in 1990
Education : > \$300 billion
(C\$2000/patient)
(£70k/under-60s patient)
- ③ Changes in labor markets swamp positive impacts of program
: shift in mean distribution between HS drops/schools would require second chance investment of \$400 billion

Santilli

- ① How can hourly earnings or employment?
- ② Hypothesis for core or most?
- ③ Redistribute among programs?
- ④ Better performance for individual program?
- ⑤ Fed role: programs or outcomes?
How get recurrent + accountability
- ⑥ Streamline system?
- ⑦ Universal or targeted programs?

Queron - should identify best practices / disseminate information

Holzman - must also look at famly-based human capital investment

Nathan

- studies of community colleges
- residential programs may be key

Ferguson

- McDonalds as community youth development centers

Hollister

- require states to be playful about replication / evidence
- CET → responsiveness to local labor markets
- employers view STPA training as a repechage

Hayward

- GED not correlated with income gains

Ellwood

- the closer the link to actual work, the better

Ferguson/Rebecca Blom - descent-side

• Census bureau

• A decrease in age of marriage up 4 yrs

• A rate of marriage down

• For mls especially, not to be confused with self-improvement a part of post-iceberg

→ • Connection to the labor market the key: Belle's guess

→ • Training for employers