

THE WHITE HOUSE

WASHINGTON

October 4, 1995

MEMORANDUM FOR THE NATIONAL ECONOMIC COUNCIL

FROM: Paul Dimond, NEC
Michael Schmidt, DPC
Greg Simon, OVP
Henry Kelly, OSTP

SUBJECT: The President's Vision on Educational Technology

PURPOSE

This memorandum will (a) Describe the President and Vice President's Vision on Educational Technology that he previewed to the nation on September 21 at the San Francisco Exploratorium; (b) Outline a schedule to roll-out this vision; (c) Briefly describe a number of possible Federal commitments to this vision, and; (d) Give you a heads-up on a FY 1997 Budget issue that may need to be resolved and announced in advance of the FY 97 budget.

THE PRESIDENT AND VICE PRESIDENT'S VISION ON EDUCATIONAL TECHNOLOGY

On September 21, the President and Vice President met with a group of information industry CEO's to discuss his goals for education technology and to outline some first steps for connecting California's schools to the information superhighway. At that event, the President stated:

" . . . Over the next several weeks, I will put forward a public-private plan that lays out how we can move our entire nation toward the goal of technological literacy for every young person. Here are its guiding principles:

- Modern computers in every classroom and accessible to every student, from kindergarten through 12th grade;
- Networks that connect students to other students, schools to other schools, and both to the world outside;
- Educational software that is worthy of our children and their best aspirations;
- Teachers with the training and the assistance they need to make the most of these new technologies.

Make no mistake: Count on us for leadership. But the goal we have set cannot be achieved by government fiat. It can only be met the way these companies are meeting it: by communities, businesses, governments, teachers, parents, and students joining together. . . a high-tech barn raising. . . . "

The President also challenged the private sector, teachers' organizations, universities, communities, and local governments to work with him over the next several weeks to help develop his vision for a nationwide campaign to meet his four guiding principles (listed above) for achieving technological literacy. We have attached a background paper at Tab A on educational technology and its importance for your review.

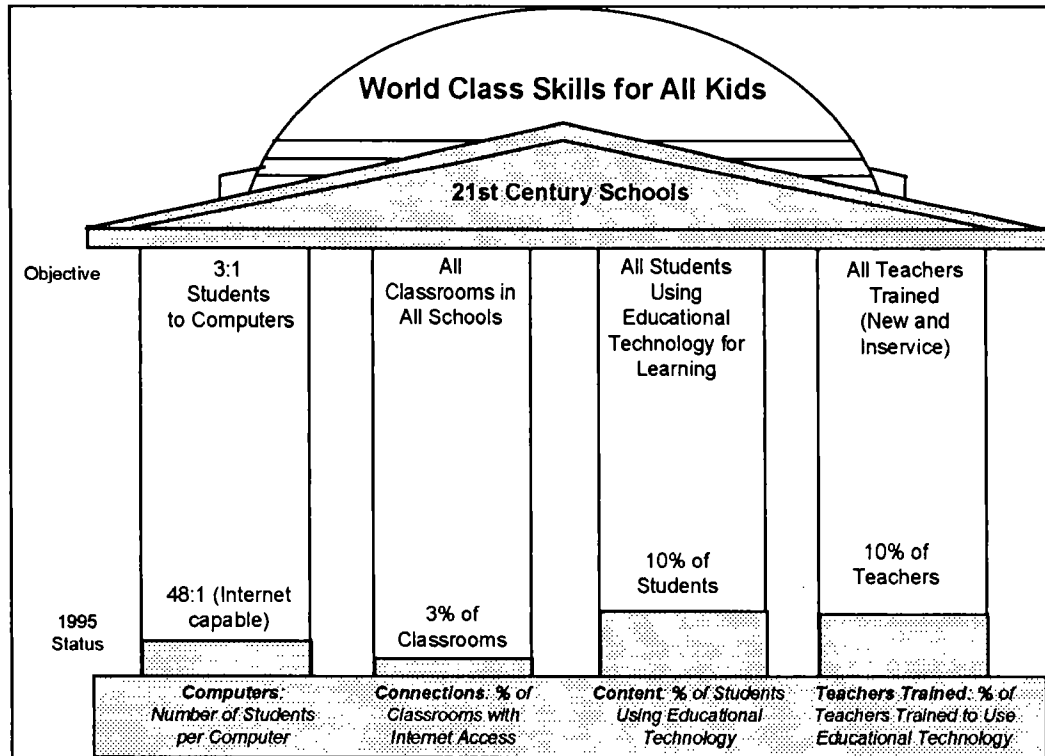
TENTATIVE SCHEDULE FOR VISION ROLL-OUT

We have put together the following tentative schedule for rolling out the President and Vice President's Vision on Educational Technology:

- **October 8:** Joint Op-Ed by the President and the Vice President on the Importance of Educational Technology; Letter from the President and the Vice President to America's parents on potential of education technology to help all children make a successful crossing to the 21st Century.
- **October 10:** Working breakfast by the President and Vice President with key CEOs. The goals for this session are: (1) To consult with the CEOs and gain their input on the President's vision on educational technology; (2) To obtain a commitment from these CEOs to work with the Administration on this initiative, and (3) To request that the CEOs report back to the President in 30 days with specific actions they will take to contribute to this initiative.
- **October 10:** The President and Vice President announce the 19 winners of the Technology Learning Challenge grant competition (community-based consortia of schools, businesses, software developers, community organizations, and telecommunication companies who will create interactive curriculum/content for teachers and students -- see Tab B for details) and the creation of the Technology Corps (a non-profit organization that places private sector volunteers with technological expertise in schools to assist in the integration of technology into the classroom) with corporate supporters that have pledged support of its efforts. These two initiatives will build off the President's "electronic barn-raising" theme from September 21st -- they are the equivalent of raising 21st century electronic schoolhouses by learning communities around the country. The Technology Learning Challenge provides the content and the collaboration, and the Tech Corps the technical on-site expertise, to make the vision of 21st century electronic schoolhouses real in communities around the country.
- **October 10-November 10:** The President, Vice President, Secretary Riley, and Secretary Brown meet with the private sector, teacher's organizations, universities, communities, and state and local leaders to gain their support for the President's vision and gain specific commitments from each community.
- **Mid November:** The President and Vice President stand up with leaders from the private sector, teachers organizations, universities, communities, and state and local leaders to lay out a public/private plan to achieve technological literacy for all of our young people by the year 2000.

A PICTURE OF THE VISION

In the figure below, we have sketched out a picture of the vision for education technology. The four principles are represented by four columns (complete with specific goals for each principle), supporting the overall goal of creating 21st Century Schools and World Class Skills for All Kids.



PUBLIC-PRIVATE PLAN

The President and Vice President's overall goal is to develop a national public/private plan to achieve technological literacy for all of our young people by the year 2000. At the center of this plan will be a number of major private-sector commitments in each of the four principles. We are currently working with a number of companies to obtain these commitments. Possible examples could include:

- Several Telecommunication companies are considering connecting all schools and classrooms within whole regions of the country to the information superhighway.
- **IBM** and other computer companies are considering the formation of public-private consortia to incorporate education technology in all schools where they have a major corporate presence.
- **Microsoft** is considering providing an America On-Line type service for teachers and kids.

- ***Time Warner*** is about to commit to provide free communication services to schools in their service areas.
- ***Training parents in the use and benefits of educational technology.*** Apple is already conducting free "training" seminars for parents around the country to teach them how to use technologies and how important those technologies are for children. We will work with other companies to encourage them to do the same and perhaps even combine their efforts to make this happen.
- ***Electronic Barnraisings.*** We will continue to locate and encourage volunteer efforts to connect the schools in a number of states

The federal government will also play an important role in this effort. We are in the process of working with agency staff to put together a list of possible federal actions in each of the four guiding principles that could be announced as part of the roll-out of the public-private plan. Such actions will demonstrate the Administration's commitment to this issue goes beyond rhetoric to actual substantive action. Each potential federal action will be discussed directly between the White House and the agencies involved; a few involve major policy differences that we may need to bring to you for resolution over the next several weeks. We attach a summary of these possible actions for your review.

POSSIBLE FEDERAL ACTIONS/COMMITMENTS

Principle: "Networks that connect students to other students, schools to other schools, and both to the world outside"

- ***Launch the Tech Corps*** by calling for companies from all states to send representatives to the Chartering Conference on October 30th. The President will take credit for starting the national Tech Corps (with the full support of its founder, Gary Beach). ***Tech Corps*** will include company volunteers to assist teachers and students in using information technologies, computers and the Internet.
- ***Direct agencies to actively participate in the Tech Corps*** to the full extent that their mission and budgetary authorities allow (this will enable the government to participate in Tech Corps at the same level as the private sector). An Executive Order will be issued so directing federal agencies.
- ***Coordinate the Announcement of specific regional plans to connect schools*** (e.g. California "electronic barnraising").
- Strong Presidential statement supporting the ***Snowe-Rockefeller amendment and expansion of Universal Service provisions*** in the telecommunications bill. The Snowe-Rockefeller Amendment and the Universal Service Trust Fund provisions in the current Telecom Bill will lower the costs for schools and classrooms to connect to and to use the Information Superhighway. These provisions could cut the costs to schools and classrooms by a significant amount, compared to businesses.
- ***Request Permission of the FCC and State Public Utilities Commissions for Differential Pricing for Schools.*** Challenge phone companies to **connect classrooms within schools and provide access rates for schools at a discount.** Ask FCC to expedite approval of modified pricing for schools when phone companies propose it.
- ***Request that FCC set aside a specific piece of spectrum for educational use.*** Send a strong letter to FCC requesting that a specific piece of spectrum be set aside (***the "NII Band"***) which can be used to (i) lower the cost of internal networking for schools with difficult installation problems and (ii) lower the cost of connecting rural schools.

Principle: "Modern computers in every classroom and accessible to every student, from kindergarten through 12th grade"

- ***Streamline federal donations of computers*** to schools to ensure that federal contributions can be made as easily as private contributions. An Executive Order so directing federal agencies will be issued.

- ***Learning Levers for Every Head Start student.*** Budget funds to help pay for **interactive learning levers** for new Head Start participants beginning in 1998. These educational learning tools could be used both at home or in the Head Start centers.
- ***A Learning Lever for Every 5th Grade Student:*** News reports of the California CEO meeting with the President indicated that the heads of Oracle and Sun agreed to produce an interactive terminal to connect each student to the Internet for a price of \$500 per unit. Assuming this price point, it would require approximately [\$x] per year to provide the [y #] of indigent 5th graders (measured by reduced or free lunches) with such a computer, starting in 1998. This could stimulate the market for providing such learning levers to all students entering the middle grades. We could make the provision of such a computer terminal for every such indigent fifth grade student a condition of continued federal financing of the matching Education Trust Fund, starting in 1998; or provide separate federal funding for every such indigent student, beginning in 1998

Principle: "Teachers with the training and the assistance they need to make the most of these new technologies"

- ***Endorse Public Broadcasting Spectrum and TeacherNet:*** The President (in conjunction with PBS) proposes the use of PBS spectrum by local PBS stations to provide local interactive education programming, and TeacherNet. The President also directs the federal agencies to make their curriculum, educational and other pedagogical research and information available on TeacherNet. Our preliminary discussions with PBS indicate that they and their local stations would welcome the chance to work in cooperation with major private sector partners to create a TeacherNet, with home pages for providing teachers with access to educational curriculum materials and dialogues about student learning and educational technology
- ***Tech Corps:*** Tech Corps (listed above) also applies under this principle. Perhaps the most valuable, ongoing service that Tech Corps volunteers will provide to schools is advice and technical assistance to teachers on technology-related issues.

Principle: "Educational software that is worthy of our children and their best aspirations"

- ***Announce Second Round of the Technology Learning Challenge II and expand to Pre-School:*** (a) Expand the TLC to include pre-school. This will provide the second round with a major public relations and policy boost: early childhood includes both pre-schoolers as well as students in the early elementary grades; and interactive learning games, discovery exercises, and simulations enable parents, teachers, and children to play and to learn together. This also provides an easily understood way of showing how interactive educational technologies can be leveraged through use at home, as well in the school or day care center. (b) FY 97 Budget request of \$75 million, up from our request of \$50 million in FY96.
- ***Inaugurate National Technology Honorary Society:*** At the invitation of the President, the Secondary School Principals, which has managed the Nation Honorary Society since 1926, is prepared to manage a National Technology Honorary Society to be inaugurated by the

President. The new Technology Honorary Society will help students bring educational technology into their schools and recognize students who use their demonstrated technological literacy to serve their schools and student peers.

- **Public Broadcasting Spectrum -- World Wide Classroom and Interactive Learning:** The Public Broadcasting Spectrum action listed above would also contain a initiative to work in cooperation with major private sector partners to create a virtual Worldwide Classroom on the Internet (e.g., to connect students at a distance in research with one another and with experts in a variety of fields), and also an expansion of their charter to make clear that they will use their piece of the spectrum in local communities to provide engaging and interactive educational content to schools, day care centers and homes (e.g., Big Bird and Barney interactive learning games).
- ***Bring the Smithsonian to Your School:*** Establish a cost-shared program to bring the rich collections of the Smithsonian, the National Park Service, and the National Archives, for example, to the classroom through digital means. ***Announce a new policy allowing cost-shared partnerships*** with publishers to digitize and distribute federal cultural collections granting them exclusive rights to the digital collections, and the logo of the institutions, for a fixed period [e.g. 1-2 years]
- **Internet Games:** The President could challenge students to compete in a series of educational contests over the internet loosely patterned after the Olympic Games.
- **Presidential Awards for Innovative Use of Technology for Education:** The Smithsonian and Computer World Magazine have hosted a small award program in this general area for the past seven years. It could be greatly expanded if elevated to the stature of a Presidential Award.
- ***Issue an executive order establishing the Interagency Learning Technology Office*** designed to (a) focus the currently scattered and duplicitive federal research and state-of-the-art demonstration programs for education technology in DoD, NASA, DoEd, NSF and other technology agencies -- working in cooperation with the private sector and educators -- on topics of value to public schools; (b) in cooperation with private developers, conduct an advanced demonstration in each of three areas -- pre-school, K-12, and school-to-work; and (c) work with the private sector and the States to get the results of existing and future research marketed to schools, students, and parents.

21st Century Schools

- ***21st Century Schools -- Department of Defense:*** Direct the Department of Defense to transform its Department of Defense Dependant Schools (DoDDS) -- 172 overseas for 82,000 dependent children and 65 State-side for 33,000 dependent children of our families in service -- into cost-effective ***models for the Nation's 21st Century Schools***. Demonstrate how computer-based learning can be systematically designed, developed, and integrated in a large K-12 school system that spans the globe in order to significantly improve student achievement and performance across all academic areas and at each grade level. The goal is

to have an hour of interactive courseware per day used at every grade level and to promote additional interactive discovery, research and expert tutoring on the education resources available on the internet. The military has already shown that it can dramatically improve the results of adult training of its full-time and national guard forces stationed all around the country and the globe through distance and interactive learning at a lower cost; and providing a world-class education for dependent children in Defense Department schools is an integral part of Secretary Perry's commitment to a high quality of life and training for military families. As a result, the transformation of the Defense Department Schools is a central part of the DoD mission.

- ***Establish federal funding for 50 matching, State Technological Literacy Trust Funds:*** The diverse federal actions described in this document will help stimulate major private sector actions to assist in lowering the costs to schools, but there will still be significant start-up and on-going costs. As a result, financing matching funds -- that encourage each state (and local districts) to reprioritize their own investments in educational technology in partnership with the private sector -- may be influential. This may be particularly important -- as provided in the TLC authorizing legislation -- to making sure that state-local-private consortia are formed within states so that potential "have-not" districts and schools are not left out of the education technology revolution. Specific Actions could include: ***Option 1. Auction a portion of the spectrum,*** to be specified, and use proceeds to finance \$1-2 billion/year for five years for matching state commitments in education technology. ***Option 2. Budget DoEd (and Commerce) to finance equivalent amount.*** Federal discretionary budgeting to fund 50 education technology trust funds could begin in FY 1997 (available on October 1, 1996) under existing authorization for TLC.

At some time over the course of the next few months this issue may have to be resolved by the President and announced in advance of our overall FY97 budget proposal.

Districts with "Greatest Need for Educational Technology"
By State
Prepared by Quality Education Data, Inc.

ST	District Name	Students per Computer	No. Students	No. Computers	No. Schools	Title I Students	Pct	Multicultural	
								Students	Pct
AZ	Yuma Union High School Dist 70	34.7	7,138	206	3	1,428	20%	4,497	63%
AZ	Crane Elem School District 13	31.4	5,300	169	6	954	18%	2,544	48%
AZ	Santa Cruz Valley H S Dist 840	30.0	480	16	1	202	42%	427	89%
AZ	Mohave Valley Elem Sch Dist 16	28.5	1,565	55	3	141	9%	297	19%
AZ	Mohawk Valley School Dist 17	27.3	273	10	1	76	28%	150	55%
AZ	Fowler School District 45	27.1	1,355	50	2	81	6%	637	47%
AZ	Isaac Elem School District 5	26.1	6,660	255	8	866	13%	5,261	79%
AZ	Stanfield School District 24	25.0	625	25	1	200	32%	431	69%
AZ	Osborn School District 8	24.0	3,500	146	5	455	13%	1,645	47%
AZ	Duncan Unified School Dist 2	23.2	650	28	2	130	20%	143	22%
AZ	Total		31,650	1,043	40	5,463		19,351	
CA	Roseland Elem School District	69.0	1,035	15	2	590	57%	538	52%
CA	Buena Vista Elem Sch District	65.0	130	2	1	77	59%	46	35%
CA	Redlands Unified School Dist	59.6	17,053	286	19	4,093	24%	7,333	43%
CA	Ocean View School District	55.1	9,040	164	15	2,079	23%	2,893	32%
CA	Hanford Elem School District	52.1	4,849	93	8	2,667	55%	2,715	56%
CA	Arcadia Unified School Dist	52.1	8,282	159	11	414	5%	4,389	53%
CA	Taft City Elem School District	51.3	2,103	41	6	883	42%	231	11%
CA	Sunnyside Un Elem Sch District	50.9	560	11	1	409	73%	347	62%
CA	Perris Elem School District	50.0	4,604	92	5	3,085	67%	3,131	68%
CA	Santa Monica-Malibu Un Dist	47.2	10,190	216	16	2,242	22%	4,687	46%
CA	Shasta Union High Sch Dist	47.1	4,470	95	4	760	17%	849	19%
CA	Lamont School District	43.8	2,800	64	4	2,520	90%	2,324	83%
CA	Berryessa Union Elem Sch Dist	43.5	8,617	198	13	1,723	20%	5,946	69%
CA	Semitropic Elem School Dist	43.5	174	4	1	164	94%	144	83%
CA	Centinela Valley Un H S Dist	42.7	6,022	141	4	602	10%	5,360	89%
CA	Calexico Unif School District	42.6	7,284	171	10	3,715	51%	7,138	98%
CA	Rincon Valley Union Elem Dist	42.5	2,719	64	7	517	19%	272	10%
CA	Newark Unified School District	42.2	6,619	157	15	1,456	22%	3,177	48%
CA	Alta Loma School District	42.0	7,852	187	9	785	10%	2,042	26%
CA	Mother Lode Un Elem Sch Dist	41.8	1,880	45	3	414	22%	150	8%
CA	West Covina Unif School Dist	41.2	8,320	202	11	2,579	31%	5,574	67%
CA	La Mesa-Spring Valley Sch Dist	41.1	14,680	357	22	1,468	10%	2,789	19%
CA	Oxnard Elem School District	40.6	12,990	320	17	9,093	70%	10,912	84%
CA	Ophir Elem School District	40.2	241	6	1	17	7%	12	5%
CA	Morongo Unif School District	40.2	10,160	253	16	3,861	38%	2,235	22%
CA	Roseville Jt High School Dist	40.0	4,683	117	6	234	5%	749	16%
CA	Woodville Elementary Sch Dist	40.0	680	17	1	598	68%	612	90%
CA	Woodlake Union High Sch Dist	40.0	800	20	2	368	46%	528	66%
CA	Inglewood Unif School District	39.8	16,328	410	19	9,307	57%	16,001	98%
CA	San Ysidro Elem School Dist	39.2	3,680	99	6	3,531	91%	3,725	96%
CA	Pleasant View Elem School Dist	38.4	461	12	1	392	85%	300	65%
CA	Kingsburg Jt Un High Sch Dist	38.3	880	23	2	238	27%	414	47%
CA	Livingston Union School Dist	38.2	2,252	59	3	1,734	77%	1,914	85%

Districts with "Greatest Need for Educational Technology"

By State

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ST	District Name	Students per Computer	No. Students	No. Computers	No. Schools	Title I		Multicultural	
						Students	Pct.	Students	Pct.
CA	Salinas City Elem Sch District	38.1	8,200	215	13	4,428	54%	5,494	67%
CA	Sequoia Union Elem School Dist	37.7	377	10	1	185	49%	117	31%
CA	Waterford Elementary Sch Dist	37.5	1,311	35	2	721	55%	406	31%
CA	Magnolia Elem School District	37.4	5,528	148	8	3,040	55%	3,040	55%
CA	Penryn Elem School District	37.2	335	9	1	34	10%	40	12%
CA	Mariposa Co. Unif School Dist	37.0	2,699	73	12	540	20%	297	11%
CA	Vineland School District	36.3	726	20	2	632	87%	661	91%
CA	San Marcos Unif Sch District	36.2	10,139	280	10	4,157	41%	4,056	40%
CA	Paramount Unif School District	36.1	13,900	385	15	5,143	37%	12,371	89%
CA	Pond Union School District	36.0	180	5	1	124	69%	85	47%
CA	Rosemead School District	36.0	3,056	85	5	1,895	62%	2,659	87%
CA	Kingsburg Jt Un Elem Sch Dist	35.9	1,832	51	4	696	38%	843	46%
CA	Los Gatos Union Sch Dist	35.1	2,459	70	5	98	4%	344	14%
CA	Fairfax Elem School District	34.5	1,208	35	2	894	74%	737	61%
CA	Le Grand Un Elem School Dist	34.5	448	13	1	287	64%	323	72%
CA	Menlo Park City Elem Sch Dist	34.4	1,617	47	4	65	4%	340	21%
CA	Rescue Union School District	34.4	2,750	80	5	220	8%	275	10%
CA	Tulare City Elem School Dist	34.3	7,075	206	11	4,316	61%	3,962	56%
CA	Riverbank Elem School District	34.3	1,957	57	4	959	49%	1,018	52%
CA	William S Hart Un H S District	34.1	11,290	331	11	452	4%	2,484	22%
CA	Healdsburg Union Elem Sch Dist	34.0	1,225	36	3	355	29%	355	29%
CA	Sierra Sands Unif School Dist	33.6	7,324	218	14	1,611	22%	1,318	18%
CA	Desert Sands Unif Sch District	33.4	18,460	552	21	7,384	40%	11,261	61%
CA	Redwood City Elem School Dist	33.2	8,271	249	15	3,391	41%	4,963	60%
CA	Jefferson School District	33.0	7,000	212	15	3,010	43%	5,950	85%
CA	Sundale Union Elem Sch Dist	32.6	424	13	1	199	47%	170	40%
CA	Vacaville Unif School District	32.6	13,449	413	20	3,228	24%	3,362	25%
CA	Anaheim City Elem Sch District	32.6	15,742	484	21	6,612	42%	11,177	71%
CA	Escalon Unified School Dist	32.1	2,569	80	8	642	25%	591	23%
CA	Live Oak Elem School District	32.0	2,083	65	3	750	36%	542	26%
CA	Sunnyvale Elem School District	31.9	6,246	196	9	1,811	29%	3,685	59%
CA	Millbrae Elem School District	31.8	2,292	72	5	390	17%	1,077	47%
CA	Coachella Valley Unif Sch Dist	31.8	9,314	293	13	6,520	70%	8,755	94%
CA	Meadows Union Elem School Dist	31.7	539	17	1	372	69%	420	78%
CA	Lammersville Elem School Dist	31.7	285	9	1	74	26%	57	20%
CA	Palmdale Elem School District	31.7	17,600	556	18	5,632	32%	6,864	39%
CA	Natomas Unified School Dist	31.5	2,898	92	5	782	27%	1,391	48%
CA	Lassen Union High School Dist	31.4	1,100	35	2	77	7%	154	14%
CA	Riverdale Jt Union Elem Dist	31.4	816	26	2	530	65%	432	53%
CA	Madera Unified School Dist	31.3	15,020	480	20	5,708	38%	9,312	62%
CA	Bonita Unif School District	31.2	9,819	315	13	2,062	21%	3,437	35%
CA	King City Joint Un H S Dist	31.0	1,335	43	2	120	9%	961	72%
CA	Lodi Unified School District	31.0	25,325	817	38	9,624	38%	11,396	45%
CA	Duarte Unified School District	30.6	4,499	147	8	2,294	51%	3,419	76%

Districts with "Greatest Need for Educational Technology"

By State

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ST	District Name	Students per Computer	No. Students	No. Computers	No. Schools	Title I Students	Pct.	Multicultural	
								Students	Pct.
CA	Lafayette Elem School District	30.6	3,056	100	5	92	3%	336	11%
CA	Summerville Union H S District	30.5	641	21	5	115	18%	58	9%
CA	Old Adobe Union School Dist	30.3	2,275	75	4	250	11%	387	17%
CA	Montebello Unif School Dist	30.2	31,836	1,053	31	13,689	43%	29,607	93%
CA	Heber Elem School District	30.0	600	20	2	552	92%	588	98%
CA	Stone Corral Elem Sch District	30.0	150	5	1	84	56%	141	94%
CA	Vallecito Union Elem Sch Dist	30.0	1,200	40	3	300	25%	144	12%
CA	El Dorado Union H S District	30.0	4,950	165	6	248	5%	396	8%
CA	Lake Elementary School Dist	30.0	120	4	1	41	34%	14	12%
CA	Napa Valley Unif School Dist	29.9	14,624	489	27	3,510	24%	3,510	24%
CA	Harmony Union School District	29.7	593	20	2	77	13%	77	13%
CA	Pittsburg Unif School District	29.6	8,901	301	13	4,094	46%	6,142	69%
CA	Salida Union School District	29.4	2,000	68	3	600	30%	720	36%
CA	San Lorenzo Vly Unif Sch Dist	29.2	4,000	137	7	520	13%	320	8%
CA	Oakley Union Elem School Dist	29.2	3,765	129	5	264	7%	715	19%
CA	Hughes-Elizabeth Lakes Un Dist	29.1	465	16	1	84	18%	28	6%
CA	Elverta Joint Elem School Dist	29.1	465	16	2	144	31%	60	13%
CA	Salinas Union High School Dist	29.1	8,573	295	8	3,086	36%	6,258	73%
CA	Hayward Unif School District	28.8	20,611	715	37	7,832	38%	13,397	65%
CA	Santa Rosa City School Dist	28.7	16,395	571	22	4,099	25%	4,591	28%
CA	Lawndale School District	28.6	4,439	155	7	2,530	57%	3,063	69%
CA	Santa Rita Un School Dist	28.5	2,135	75	3	897	42%	1,238	58%
CA	Willits Unified School Dist	28.2	2,542	90	9	330	13%	458	18%
CA	Westmorland Union School Dist	28.1	506	18	1	435	86%	430	85%
CA	Glendale Unified School Dist	27.9	28,285	1,014	28	11,880	42%	11,597	41%
CA	Richland-Lerdo Elem Sch Dist	27.9	2,563	92	4	1,743	68%	1,717	67%
CA	Windsor Union School District	27.7	2,550	92	4	765	30%	791	31%
CA	Alameda Unif School District	27.6	9,928	360	19	2,085	21%	5,262	53%
CA	Paso Robles Union Elem Dist	27.5	3,990	145	6	998	25%	1,077	27%
CA	Mountain View Elem School Dist	27.5	2,750	100	4	385	14%	1,320	48%
CA	Hawthorne School District	27.5	7,615	277	9	3,884	51%	6,473	85%
CA	Fallbrook Union Elem Sch Dist	27.4	5,755	210	7	1,899	33%	2,187	38%
CA	Franklin-McKinley School Dist	27.3	9,940	364	13	6,461	65%	8,648	87%
CA	Di Giorgio Elem School Dist	27.3	191	7	1	136	71%	118	62%
CA	Santa Paula Un High Sch Dist	27.1	1,303	48	3	352	27%	938	72%
CA	Lucerne Elem School District	27.1	325	12	1	198	61%	52	16%
CA	McCabe Union Elem School Dist	27.0	540	20	1	119	22%	221	41%
CA	Fullerton Elem School District	27.0	11,200	415	18	3,472	31%	5,712	51%
CA	Gilroy Unified School District	26.9	8,548	318	13	3,163	37%	5,129	60%
CA	Vallejo City Unif Sch District	26.9	18,883	703	26	5,287	28%	13,029	69%
CA	Kings Canyon Unif School Dist	26.7	8,302	311	17	4,732	57%	5,728	69%
CA	Pleasanton Unif School Dist	26.6	10,100	380	13	303	3%	1,515	15%
CA	Antelope Valley Un H S Dist	26.6	13,335	502	8	1,734	13%	4,801	36%
CA	Cutten Elem School District	26.3	606	23	2	79	13%	61	10%

Districts with "Greatest Need for Educational Technology"

By State

Prepared by Quality Education Data, Inc.

ST	District Name	Students	No.	No.	No.	Title I	Pct	Multicultural	
		per Computer		Students	Computers			Students	Pct.
CA	Rio Linda Union Elem Sch Dist	25.9		10,072	389	21	4,029	40%	2,921 29%
CA	Menifee Union School District	25.8		3,772	146	4	453	12%	717 19%
CA	Mendota Unified School Dist	25.8		2,192	85	5	1,995	91%	2,128 97%
CA	Corcoran Unif School District	25.7		3,184	124	6	1,910	60%	2,515 79%
CA	Western Placer Unif Sch Dist	25.5		2,757	108	6	882	32%	607 22%
CA	Buckeye Union School District	25.5		3,317	130	6	232	7%	66 2%
CA	El Rancho Unif School District	25.5		10,766	422	16	6,352	59%	10,120 94%
CA	Paradise Unif School District	25.4		5,350	211	8	1,338	25%	268 5%
CA	El Monte Unif Elem School Dist	24.9		11,210	450	18	8,520	76%	9,753 87%
CA	Laytonville Unif Sch District	24.9		647	28	5	0	0%	84 13%
CA	Coarsegold Union Sch District	24.5		980	40	2	225	23%	108 11%
CA	Downey Unified School District	24.4		17,701	725	22	6,195	35%	10,267 58%
CA	Empire Union School District	24.4		3,800	156	6	380	10%	1,558 41%
CA	Lassen View Union School Dist	24.3		340	14	1	177	52%	68 20%
CA	La Habra City School District	24.3		4,954	204	8	2,328	47%	2,873 58%
CA	Santa Ana Unif School District	24.2		46,556	1,920	44	26,537	57%	43,297 93%
CA	Weaver Union School District	24.2		1,450	60	3	1,131	78%	812 56%
CA	Stockton Unif School District	24.1		32,573	1,350	45	18,241	56%	25,733 79%
CA	Hollister School District	24.1		4,600	191	6	2,208	48%	2,806 61%
CA	Bellevue Union Elem Sch Dist	24.0		1,200	50	2	780	65%	552 46%
CA	Hueneme School District	24.0		7,601	317	11	4,029	53%	5,397 71%
CA	Dixon Unified School District	23.9		3,156	132	6	1,231	39%	1,357 43%
CA	Norwalk-La Mirada Un Sch Dist	23.8		18,898	795	29	7,181	38%	12,662 67%
CA	Chula Vista Elem School Dist	23.8		18,705	787	35	6,547	35%	11,971 64%
CA	Westminster Elem School Dist	23.8		9,075	382	18	4,447	49%	5,354 59%
CA	Monrovia Unif School District	23.7		5,718	241	10	2,859	50%	3,374 59%
CA	Fontana Unif School District	23.7		29,681	1,252	33	11,872	40%	18,105 61%
CA	Black Oak Mine Unif Sch Dist	23.7		2,225	94	6	490	22%	67 3%
CA	Ackerman Elem School District	23.7		355	15	1	82	23%	28 8%
CA	Atwater Elem School District	23.7		4,614	195	7	1,753	38%	2,030 44%
CA	Culver City Unif School Dist	23.7		5,300	224	10	1,219	23%	3,127 59%
CA	Ripon Unified School District	23.7		2,247	95	5	360	16%	472 21%
CA	Cucamonga School District	23.6		2,341	99	4	983	42%	1,545 66%
CA	Cajon Valley Union School Dist	23.6		17,871	756	27	6,791	38%	4,646 26%
CA	Fresno Unified School District	23.6		70,863	3,005	90	42,518	60%	47,478 67%
CA	Chico Unified School District	23.5		12,956	551	22	4,016	31%	2,332 18%
CA	El Centro Elem School District	23.5		6,418	273	10	3,979	62%	5,199 81%
CA	Colfax Elem School District	23.5		493	21	2	118	24%	74 15%
CA	Newhall Elementary School Dist	23.5		5,000	213	6	1,200	24%	1,350 27%
CA	Ocean View Elem School Dist	23.4		2,338	100	4	1,379	59%	1,660 71%
CA	Red Bluff Union High Sch Dist	23.4		1,753	75	2	351	20%	280 16%
CA	Santee School District	23.4		6,178	350	11	1,636	20%	900 11%
CA	Coronado Unif School District	23.4		2,452	105	4	319	13%	588 24%
CA	Chualar Union Elem Sch Dist	23.3		280	12	1	255	91%	269 96%

Districts with "Greatest Need for Educational Technology"

By State

Prepared by Quality Education Data, Inc.

ST	District Name	Students per Computer	No. Students	No. Computers	No. Schools	Title Students	Pct.	Multicultural	
								Students	Pct.
CA	East Whittier City School Dist	23.3	7,864	338	13	2,202	28%	3,932	50%
CA	Pleasant Valley School Dist	23.2	6,952	300	14	556	8%	1,738	25%
CA	Plumas Unified School District	23.1	3,933	170	18	1,219	31%	433	11%
CA	Kernville Un School District	23.1	1,110	48	3	422	38%	100	9%
CA	Westside Union Elem Sch Dist	23.1	5,332	231	10	906	17%	1,173	22%
CA	Loomis Union Elem Sch District	23.1	1,800	78	3	234	13%	162	9%
CA	Panama-Buena Vista Un Sch Dist	23.0	11,296	491	17	2,372	21%	3,050	27%
CA	Palo Verde Unif Elem Sch Dist	23.0	460	20	1	345	75%	294	64%
CA	Burrel Union Elem School Dist	23.0	115	5	1	68	59%	106	92%
CA	Curtis Creek Elem Sch District	23.0	920	40	2	248	27%	46	5%
CA	CA Total		1,160,632	40,257	1,708	446,322		637,682	
CO	Brighton School District 27 J	45.3	4,304	95	9	990	23%	1,506	35%
CO	Falcon School District 49	32.0	3,269	102	6	392	12%	523	16%
CO	Woodland Park School Dist Re 2	29.9	2,898	97	5	348	12%	174	6%
CO	Mancos School District Re 6	28.8	576	20	3	167	29%	98	17%
CO	Douglas Co. School Dist R E 1	28.6	20,041	701	28	601	3%	1,002	5%
CO	Summit School District R E 1	25.0	2,126	85	6	85	4%	128	6%
CO	Gunnison-Watershed Dist Re 1 J	23.9	1,676	70	6	134	8%	67	4%
CO	CO Total		34,890	1,170	63	2,717		3,498	
CT	Chester School District	88.5	354	4	1	18	5%	7	2%
CT	Deep River School District	67.8	407	6	1	12	3%	12	3%
CT	Plymouth School District	63.0	1,891	30	5	151	8%	57	3%
CT	Hebron School District	62.2	933	15	2	19	2%	28	3%
CT	New Britain School District	40.1	8,832	220	14	3,268	37%	5,123	58%
CT	Guilford School District	39.7	3,414	86	7	68	2%	102	3%
CT	Waterbury School District	39.2	14,448	369	26	6,357	44%	7,802	54%
CT	Killingly School District	38.5	3,038	79	4	547	18%	122	4%
CT	Ledyard School District	34.3	3,084	90	6	62	2%	247	8%
CT	Glastonbury Public School Dist	33.9	5,180	153	8	207	4%	518	10%
CT	Bethany School District	31.7	475	15	1	5	1%	24	5%
CT	North Branford School District	30.5	2,284	75	5	69	3%	69	3%
CT	Kent School District	30.0	300	10	1	15	5%	12	4%
CT	Columbia School District	29.8	625	21	1	13	2%	19	3%
CT	West Haven School District	29.1	7,108	244	12	1,422	20%	1,990	28%
CT	Regional School District 10	28.3	2,267	80	4	45	2%	68	3%
CT	Canaan School District	27.0	135	5	1	16	12%	5	4%
CT	Corwall School District	26.5	159	6	1	6	4%	6	4%
CT	Redding School District	25.2	881	35	2	9	1%	26	3%
CT	Easton School District	25.2	755	30	2	8	1%	23	3%
CT	Salisbury School District	25.0	375	15	1	34	9%	23	6%
CT	Wallingford School District	23.9	6,332	265	11	380	6%	380	6%
CT	Colchester School District	23.4	2,129	91	4	85	4%	85	4%
CT	Hartford School District	23.2	25,293	1,090	34	14,417	57%	23,017	91%
CT	Brookfield School District	23.1	2,500	108	4	25	1%	125	5%

STATE AND FEDERAL EDUCATIONAL TECHNOLOGY PROGRAMS AND FUNDING SOURCES FOR CALIFORNIA *

John Cradler, Far West Laboratory for Educational Research and Development

Schools across the country do not have the resources to prepare citizens for the technological age. This is especially true for California. Reed Hundt, head of the Federal Communications Commission, recently said, "there are thousands of buildings in this country with millions of people in them who have no telephones, no cable television and no reasonable prospect of broad band services. They're called schools."

A recent nationwide survey indicates that only 14% of our public schools used telecommunications networks in classrooms last year. California statistics show that less than 3% of our schools use telecommunications. The national survey also ranks California 50th among the states in the number of students per computer in schools. This document summarizes the efforts to implement and fund technology in education in California.

1. Technology is an Emerging Priority for California Education

The Governor, gubernatorial candidates, legislators, and education organizations and agencies are addressing the need for technology to become a higher priority for California education. This new interest among policy makers is long over due as California schools have declined in technology access while many states have increased over the past 10 years. Evidence of the renewed interest follows:

The California Teachers Association (CTA) issued a report, *Rediscovering Education: Creating Schools for the 21st Century* which says the state must provide the resources needed to obtain, maintain, and regularly upgrade the hardware and software required to employ state-of-the-art technology. The report also suggests that a bold and comprehensive program to bring the advantages of technology into the classroom is fundamental to creating schools for the 21st century.

The California Business Roundtable report, *Mobilizing for Competitiveness: Linking Education and Training to Jobs, A Call for Action from The California Business Roundtable*, recommends the integration of technology into curriculum and instruction throughout K-12 education and community colleges. The report asserts that "barriers to the full integration of technology into education include inadequate resources with substantial capital investment needed to purchase essential equipment in adequate quantities" and recommends full funding of the *California Master Plan for Educational Technology*.

Governor Wilson's Education Reform Proposal calls for high technology in the classroom. "While the rest of the world uses e-mail, our schools are stuck in the age of the Pony Express. I propose we give every classroom in California access to the information 'superhighway' offered by computers and fiber-optic technology."

The *California Education Summit* pointed out the lack of access to technology and the information infrastructure in California schools. Panelists noted current efforts of phone and cable companies to meet student needs through network connectivity and urged the State Legislature to fund and support the means to address those needs.

2. Research is Documenting the Educational Benefits of Technology

Research consistently shows that with planning, administrative commitment and teacher training and time, technology applications can foster increased student performance, positive school work attitudes and

* Based on an Article published by the Association of California School Administrators (ACSA) in *Thrust for Educational Leadership*.

school-to-work preparation. For example, Far West Laboratory studied California technology programs from 1984 to 1991 and reviewed current research on the impact of technology in education. This study showed that technology alone does not have a significant effect on teaching and learning—it is a tool that when used with tested and instructional practices and curriculum can be an effective ingredient to foster change. Examples of the many findings show that for technology applications to be effective. . .

- educators must integrate technology into the ongoing educational programs and reforms.
- teachers and administrators must jointly plan for the use of technology.
- education agencies must promote educationally sound applications of technology and development of software and video programs that meet educational content standards.

Other findings from this study showed that . . .

- student access to technology increases opportunities and incentives for students to construct and invent their own learning; it gives students more control over learning, while teachers serve as facilitators.
- technology provides many new opportunities for students to solve problems and develop solutions.

3. Past Efforts to Implement Technology in California Lacked Sufficient Funding

Major interest in technology for education emerged in 1984 with the passage of legislation that brought together previous initiatives such as the Instructional Television Agency (ITV) funding and grants for equipment to schools. Funding of AB 803 began with about \$10 million and increased to \$26 million by its sunset in 1989. AB 803 was best known for the school-based competitive grants offered each year. AB 803 also funded the start-up of the model technology schools and the California Technology Project (CTP) and maintained the seven regional ITV Agencies.

Another bill, SB 813, the Hart California education reform legislation incorporated the Teacher Education and Computing (TEC) Centers. This provided approximately \$15 million to fund up to 17 regional centers that offered a wide variety of resources to include in-depth training in technology integration, software and video demonstration programs, grant preparation assistance, local business partnerships, and a variety of other support resources to schools. However, in 1987, funding for TEC Centers was eliminated and the AB 803 funding cut from \$26 to \$13 million. A major reason for this reduction was a lack of widespread interest among the education community in saving these programs when many other issues threatened the state's overall education system.

Subsequently the California Legislature determined that it would be necessary to develop a strategic plan to improve statewide coordination of technology, reduce duplication of effort, and establish guidelines for planning, implementing, evaluating, and funding technology in California schools. Senator Becky Morgan and Assembly Members Sam Farr and Charles Quackenbush authored legislation (AB 1470) that would establish the *California Planning Commission for Educational Technology* to develop a *Master Plan for Educational Technology* and maintain the school-based grants and other basic programs previously funded through AB 803. The plan was informed by a comprehensive study of the implementation, use and impact of technology in California schools (Far West Laboratory, 1991). The Commission issued the Master Plan recommendations that offered an agenda that emphasized:

• Technology in every learning environment	• Professional development and support
• A Golden State Education Network	• Access to instructional resources
• A statewide student information system	• Management information resource
• Coordinated governance	• Comprehensive evaluation
• Sustained and adequate funding	

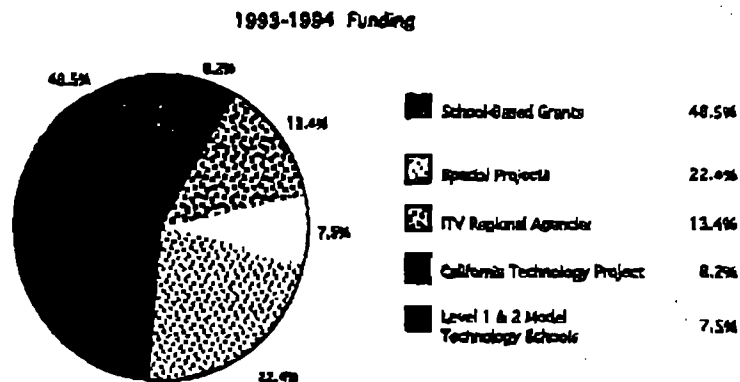
In 1992, SB 1510, the *Morgan-Farr-Quackenbush Educational Technology Act of 1992* was passed to implement the Master Plan and reauthorize and restructure effective components of the state's existing educational technology programs. Most of the recommendations of the Master Plan could not be accomplished as the funding level remained at \$13 million. The Commission estimated that it would cost at least one billion dollars to fully implement the plan. The result was that equity and opportunity for both students and teachers to access and utilize technology in education could not be realized.

4. Limited Funding for Many Effective and Valued Programs and Services

With the available \$13.6 million, California offers grants, programs, and resources that are of great value. These limited resources have leveraged, through matching funds, dollars and business donations of over \$15 million in resources. However, even with leveraged resources, California still falls short of meeting its needs for educational technology. The following are brief descriptions of the current resources:

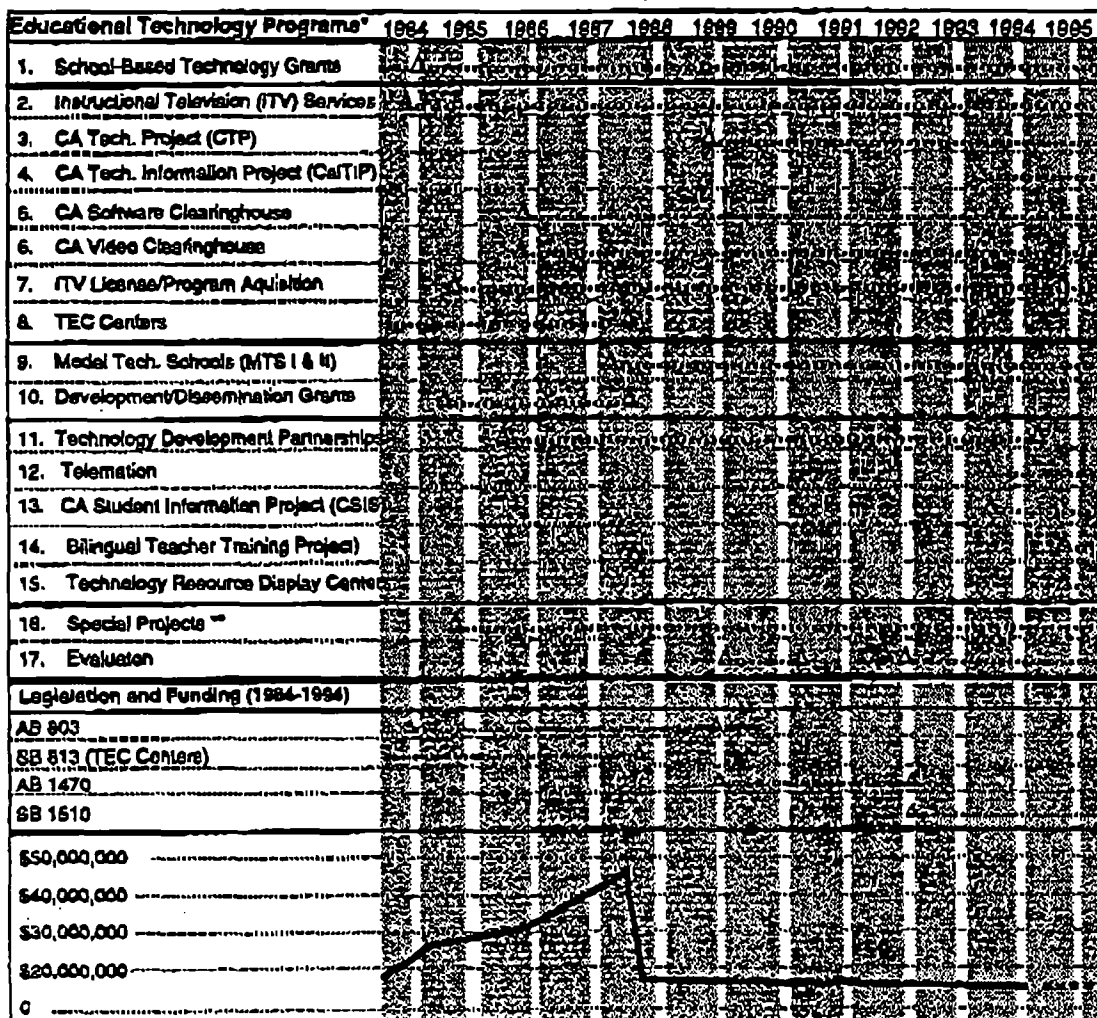
- *School-Based Educational Technology Grants.* These grants to school districts and county offices of education are to develop, adapt, or expand existing technological applications in teaching and learning. To receive a grant the school shall develop a Technology Use Plan (TUP) that: addresses the needs of students and teachers, is part of existing district programs, contains school-level planning, supports the local and state curriculum frameworks, includes teacher staff development, and provides for evaluation.
- *California Technology Project.* The California Technology Project (CTP) Regional Affiliates receive limited funding to provide professional development programs and technical assistance to schools.
- *California Online Resources for Education (CORE).* CORE is a statewide information service accessed via CSUnet that offers many valuable information resources to K-12 educators.
- *Instructional Television Regional Agencies.* Seven Instructional Television (ITV) Regional Agencies provide advice on instructional television programming and offer staff development and printed resources to help teachers make better use of instructional television programs.
- *Model Technology Schools (Level I and II).* The Model Technology Schools (MTS), provide information about carefully researched procedures, planning approaches, and instructional practices for implementing educational technology programs.
- *The Telemation Project.* Telemation is a collaborative effort to provide professional development in telecommunications for teachers and administrators. A team of 'telementors' help school teams to integrate electronic learning resources into curricular plans.
- *California Instructional Video and Computer Software Clearinghouses.* These agencies have implemented a nationally recognized system for evaluating instructional video and computer and software programs, as well as CD-ROM and video disc programs. These evaluations are available on request to guide educators in the selection and purchase of technology-based resource to support the California Curriculum Frameworks.
- *California Technology Information Project (CalTIP).* CalTIP offers a toll free "help-line" that provides grant applicants with answers to questions about the SB 1510 grant development process and information about many programs and resources, including funding sources, legislative updates, curriculum support, and much more. The CalTIP toll-free "help-line" number is 1-800-240-2744.
- *Special Projects.* Included in the special projects are: CalTIP, Telemation, Program/License Acquisitions, High-Tech learning Resources Display Center, Software and Video Clearinghouses, California Student Information Services, Building the Future Project, Bilingual Teacher Training Project, and program evaluation and review.

The 1993-94 state funding allocation for these programs is distributed as shown in the following:



The next chart illustrates the major programs funded from 1984 to the present time, indicates the legislative timelines, and shows the funding levels authorized for educational technology over the past ten years.

State Funded California Educational Technology Programs from 1984-1995



* Technology Programs are grouped as follows: 1) Grants directly to schools to fund planned use of technology integrated instruction; 2-8) Statewide and regional support resources for local technology implementation; 9-10) Model programs for local adoption and adaptation; 11-15) Specialized projects established to meet specific statewide priorities and technology resource needs; Evaluation of particular programs as determined by the state committee.

** Special Projects include: VCR distribution, Technology in Curriculum (TIC) consumer guides, video productions, summer training institutes, Tri-state software development, ITV evaluation, MTS evaluation and dissemination, and more.

5. Education and Business Councils Help Coordinate and Initiate New Programs

The Master Plan and SB 1510 also established the Education Council for Technology in Learning (ECTL) and the Industry Council for Technology in Learning (ICTL). The ECTL is an 11 member council of teachers, administrators, and business representatives that advises the State Board of Education, with input from the education community and the California Department of Education, on funding and program priorities.

The ICTL was established to provide executive level involvement of business and industry in the planning and implementation of technology in California education. The ICTL represents over 50 companies that meet monthly to plan and coordinate various initiatives with the ECTL. The ICTL has and continues to be an important advocacy group for educational technology. Presently the ICTL is planning a series of regional forums for the planning and application of technology in education. The first forum will be in San Bernardino County during November of 1994.

Continued funding for SB 1510 Programs. The State budget includes continuation of the \$13.6 million to fund the programs authorized by SB 1510 already described in this article. The California Department of Education with local support provided by the CTP Affiliates will soon be announcing another cycle of School-Based Educational Technology Grants to schools. This will fund over 250 projects to schools from a total allocation of \$6.5 million for these grants. The state will continue to fund the services and programs already described as well as some additional projects such as the Bilingual Teacher Training Project, the California Student Information Services Program (CSIS), and the High-Tech Learning Resources Display Center.

6. Additional Funding and Support Leveraged by State Educational Technology Funding.

AB 1470 mandated a comprehensive study of the programs and project authorized by AB 1470. The study provided the detailed analysis of the programs and the educational technology infrastructure in an effort to make recommendations to the legislature about what programs should be continued and in what form. Programs continued would be those with the greatest cost benefit to educators and students in the state. These include the California Technology Project and California On-line Resources for Education (CORE), regional instructional television services, school based grants with increased planning, staff development, and matching requirements, and research and development partnership programs. Some new programs that emerged from the study were the California Technology Information Project--the "one stop" electronic information resource for educators, the Telemation training project to facilitate effective teacher utilization of telecommunications, the California Student Information System (CSIS), and a program for the dissemination of the various programs and practices that were identified as effective resources for teachers to be able to adopt or adapt in their classrooms. The following identifies the documented levels of funding leveraged from a variety of sources that have supported California's educational technology programs.

Developmental Partnership Programs (1990-91)

This program funded the development and research of new software and multimedia programs designed to support and expand instruction in alignment with the California State Curriculum Frameworks.

<i>State Investment</i>	<i>Private Investment</i>	<i>Gain</i>
42% (\$1.8 million)	57% (\$2.4 million)	75%

California Technology Project (1990-91)

The California Technology Project provided limited state funding to 14 regional consortia to provide assistance and training to educators at schools sites to facilitate the implementation and effective use of technology to support teaching and learning.

<i>State Investment</i>	<i>Consortia Investment</i>	<i>Gain</i>
32% (\$.8 million)	68% (\$1 million)	50%

Telecommunication Resources for K-12 from CSU-Net (1990-91)

The California State University telecommunication network (CSU-Net) is made available to K-12 because of the state educational technology funding that provides for the staffing and maintenance of the network for K-12 utilization. The cost to duplicate a similar network for K-12 would be prohibitive and in the millions of dollars.

<i>State Investment</i>	<i>CSU Investments</i>	<i>Gain</i>
70% (\$6 million)	29% (\$.25 million)	41%

Instructional Television Agencies (1990-91)

The state provided funding as an incentive for public television agencies and county offices of education to assist the use of instructional television and to provide information on how to integrate ITV into curriculum and instruction.

<i>State Investment</i>	<i>Matching & Donations</i>	<i>Gain</i>
21% (\$1.9 million)	79% (\$7.1 million)	373%

Model Technology Schools (1989-90)

The state has funded a total of 13 model technology schools projects since 1988. Six of these were K-12 demonstration programs (MTS Level I) that would offer educators a resource to visit and then adopt or adapt desired products and practices at any grade level and for all curriculum topics. Seven of the projects were funded to develop adaptable models for integrating technology in specific content areas and at particular grade levels (MTS Level II).

MTS Level I

<i>State Investment</i>	<i>Matching & Donations</i>	<i>Gain</i>
57% (\$4.0 million)	42% (\$3.0 million)	73%

MTS Level II

<i>State Investment</i>	<i>Matching & Donations</i>	<i>Gain</i>
71% (\$1.0 million)	28% (\$.4 million)	39%

Undocumented Savings: The study showed that all schools surveyed indicated that they saved time and resources by being able to adopt or adapt resources, ideas, products, and practices developed by the MTS projects. This resulted in a potential saving of cost in re-inventing or developing resources by using those that have already been developed and field tested. SB 1510 makes it possible to issue Dissemination Grants to fund the dissemination of resources developed by MTS Projects as well as others determined to meet state criteria.

School Based Educational Technology Grants (1989-90)

Over past 10 years the state with advise of the education community developed a process for effectively distributing funding to school in ways that would maximize planned change, sustained use, and local investment in school-based educational technology programs.

<i>State Investment</i>	<i>Matching & other sources</i>	<i>Gain</i>
69% (\$6.0 million)	33% (\$2.6 million)	47%

Sources of School-Based Grant Funding

<i>Source of Support</i>	<i>Average Amount</i>
AB 1470 Funding	\$21,000
School District General Funding	\$5,003
School Site	\$2,763
School Improvement Funding	\$2,113
Business and Industry	\$1,225
Lodery	\$1,098
Chapter I	\$1,038
Mentor Teacher Program	\$496
Private Foundation	\$429
Community Donations	\$276
Chapter II	\$207
Prop. 98 Supplemental Grants	\$80
Federal Grants	\$60
State Funding other than AB 1470	\$45
Colleges and Universities	\$25
Average Grant Value	\$35,668

In one year the state invested \$15.1 million in the development and implementation of a variety of programs just summarized. The return on this investment was \$16.75 million—over 100% return on the state investment in educational technology. This does not include the undocumented value added by the schools and districts utilizing the services of the regional programs (that they would need to finance without this resource) and the value of the CSU-Net provided for access by K-12. Additionally, the state now has a valuable resource and infrastructure to support the expansion and use of technology in its schools. All agencies surveyed mentioned that without the state support (small as it is) that they would not be able to justify and obtain the funding to accomplish their objectives. Business mention that the state must show some support and be an active partner in the development and implementation of the statewide technology infrastructure.

7. Educational Technology Funding in California May Improve

As was mentioned earlier California is 50th among the states in the ratio of computers to students. Most other states are now moving ahead of California in their support for technology in education. It is hoped that the emerging interest in technology expressed by the state leadership and education organizations will result in some action that will further technology in California. Following are some concrete initiatives and actions that suggest possible increases in future funding for educational technology from both state and federal sources.

California Public Utilities Commission. The California Public Utilities Commission (CPUC) released a report to the Governor, *Enhancing California's Competitive Strength: A Strategy for Telecommunications Infrastructure*, recommending its plan for developing a state-wide telecommunications infrastructure. To "ensure universal access and enrich the state education system," the CPUC recommends support for the use of advanced telecommunications in California's K-12 schools and public libraries. The CPUC also recommends creation of a Schools and Libraries Information Technologies Grant Program to provide up to \$150 million annually. Funding could come from a variety of sources such as issuance of state bonds, a small end user surcharge on telecommunications services, a direct appropriation of state funds, or some combination. Additionally, Governor Wilson has urged the CPUC to allocate the money to support telecommunications access for schools and libraries and endorsed the expenditure of the \$150 million for school and library access to telecommunication networks.

The CPUC set a precedent with the announcement that \$40 million from the \$49 million Pacific Telesis spin-off of its wireless operations will fund educational technology. The funding will be allocated for

telecommunications connectivity to schools and related staff development, hardware, software, and other resources for public schools. Of the remaining amount, \$7.9 million will be refunded directly to ratepayers and \$2.1 million will be used to continue the Telecommunications Education Trust Fund.

The Governor has designated the Office of Local Assistance (OLA) to administer the funds. The SB 600 *Task Force on Telecommunications Network Infrastructure* will serve as the advisory body to assist the design of various programs, funding allocation criteria, and evaluation of strategies to determine the effectiveness of various approaches to develop telecommunications infrastructure in schools. The SB 600 Task Force consists of representatives from CTA, CUE, ACSA, CSU, the telecommunications industry, libraries, and ratepayer groups.

The Speaker of the House (Willie Brown) and a ratepayer advocate group (TURN) filed a petition for a rehearing on the \$49 million as these groups believe that it is not legal for the CPUC to allocate the funds to education. The Speaker supports the concept of the funding going to education but believes that legislation is necessary to make it legal for the CPUC to allocate these funds. Delaine Eastin had a bill that would have done this but it died in committee. A third petition for rehearing has been filed with the Commission by the Mexican-American Political Association and Latino Issues Forum. The CPUC and the Governor are taking the position that special legislation is not necessary to allocate these funds, and the CPUC and the Governor have the authority to administer the program in cooperation with the Department of Education and the SB 600 Task Force.

The OLA Director, Oscar Wright, recently stated that his office desires to take it's time so that the use of funds is balanced between local access while leveraging other funds available from federal and private sources.

The California Task Force on Telecommunications Network Infrastructure. This task force was established by SB 600 (Rosenthal) to represent business, K-12 and postsecondary education, libraries, and ratepayer advocates in the development of a telecommunications plan to serve education, libraries, and communities. The Task Force focus is on the development of a plan and strategy to implement the CPUC recommendations mentioned above and devise and implement the means to provide telecommunication technologies and services to schools, libraries, and communities.

California Legislation. Several bills were considered this year in response to the CPUC initiative and various education organizations, to include CTA, ACSA, CUE, CSU, the Department of Education, and a number of school districts.

SB 1960 (Rosenthal). This legislation would fund a process to provide telecommunication connectivity into California public schools and libraries; however, the funding formula and source is yet to be determined at this time. The bill would also establish a Golden State Education Network Authority representing K-12 and institutions of higher education to administer the program.

AB 3607 (Moore). Schools and districts which have locally approved educational technology plans for classroom level telecommunication connectivity with staff development support and curriculum integration would be eligible for funding to implement such plans. Funding would be provided through a telecommunication surcharge to generate \$150 million dollars annually for the schools.

AB 3031 (Eastin). This bill would require the State Superintendent of Instruction to prepare and execute a long-range plan to equip every public school classroom in the state with specified basic technology tools by January 1, 2000, and order the CPUC, in a specific case, to transfer \$48 million to fund this effort.

AB 1261 (Eastin). This bill would authorize a statewide bond to fund hardware and connectivity for California schools.

Telephone Company Support. Pacific Bell announced *Education First*, an initiative to connect all schools to the information infrastructure to provide free telecommunication connection to two classrooms per school and one year of free monthly service to use these connections. Pacific Bell is now establishing demonstration test sites and a process for distributing the resources. General Telephone (GTE) announced its *California Education Initiative* which will soon provide technical support to assist schools in connectivity utilizing telecommunication services within the GTE service areas.

8. Current Status of Funding for California Technology Programs

FY 1994-95 Appropriations. The State Legislature has appropriated \$13,398,028 per year for K-12 educational technology programs. Of this \$13 million, the following budget items relate to telecommunications for education.

Project	FY 93-94	FY 94-95 Recommended
<i>California Technology Project</i> , which includes professional development, support of regional services, CTP affiliate agencies, and support of CSU Net access for teachers.	\$1.1 million	\$1.265 million
<i>Telemation Project</i> . A project that offers specific training through "telementors" to assist teachers in using telecommunications in the classroom	\$350,000	\$350,000
<i>California Technology Information Project (CalTIP)</i> . An information collection and analysis service to put content and resources information on-line.	\$294,390	\$198,028
<i>California Online Resources for Education (CORE)</i> . Telecommunications networking services.	\$0	\$735,000
<i>School Based Grants</i> . Grants directly to schools for the planned use of technology, which may or may not include telecommunications access. Average school grants are about \$15,000 and can range from \$4,000 to \$90,000.	\$6.5 million	\$6.5 million
<i>California Student Information Services</i> . A start-up project to provide student information and resources on-line.	\$300,000	\$300,000
<i>Model Technology Schools</i> . Classroom-tested technology activities and staff development for adoption or adaptation.	\$1 million	\$1 million
<i>Instructional Television (ITV) Regional Agencies</i> . Instructional television programming and videos, to include staff development.	\$1.8 million	\$1.8 million
<i>Software and Video Clearinghouses</i> . Evaluation and information dissemination on effective instructional video and computer software.	\$300,000	\$300,000
<i>Evaluation</i> . Review of state technology programs.	\$14,638	\$200,000

The remainder of funding supports other educational technology programs and resources, such as the program licensing, acquisition of video programming, high technology learning resources display centers, and bilingual teacher training programs. The fiscal year 1994-1995 budget has been approved by the State

Board of Education and Legislature. However, funding distributions are subject to change throughout the year. No additional state funding is anticipated other than the possible user surcharge on telecommunications services or the use of Pacific Bell "spin" money, which seems unlikely for FY 1994-95.

9. Federal Initiatives.

The Clinton Administration is promoting the NII and its potential benefits to education. This has resulted in an increased level of legislative activity and potential funding for educational technology.

Goals 2000: The Educate America Act. The Act provides funding to support development of a State plan for technology integrated into the State Goals 2000 Improvement Plan. The California Department of Education has received approval for its already authorized \$10 million entitlement for the initial planning and pilot testing of a California Goals 2000 Educational Improvement Plan. Of the \$10 million, \$390,000 is allocated for the development of an educational technology plan that is integrated into the State's overall Goals 2000 Improvement Plan. The state intends to use the Goals 2000 planning as an opportunity to consolidate and coordinate its existing technology plans and initiatives in an effort to efficiently target resources to schools.

The Goals 2000 Plan will serve to guide the use of funding for subgrants to schools that will become available in 1996. These subgrants can be used for educational technology resources to support the state's Goals 2000 Improvement Plan. Congress recently appropriated \$388.4 million for Goals 2000 for 1996 with approximately \$39 million for California. Although no amount was set specifically for technologies, states may use its Goals 2000 funds for the continued development and implementation of state technology plans.

Improving America's Schools Act. The reauthorization of the Elementary Secondary Education Act (ESEA) will incorporate technology provisions for: regional staff development, technical assistance, distance learning, research and development related to new and emerging technologies to support teaching and learning, and the use of technology in federally funded programs such as Chapter 1 and the new Eisenhower Professional Development Programs. At this point it is anticipated that \$40 million will be allocated for technology in ESEA. Of this \$40 million, approximately \$25 million will be awarded to consortia of education agencies for R&D on new and emerging technologies that would support national education reform initiatives, such as Goals 2000 and School to Work. Approximately \$10 million may be allocated for regional staff development and technical assistance to support education uses of technology. It is anticipated that between \$3 and 5 million will be allocated to the recently formed U.S. Office of Educational Technology.

School-to-Work. Grants will be available for states to apply for school to work programs and will emphasize the development of local work skill standards and educational strategies for their implementation. These grants can be used to fund the integration of technology into school-to-work programs.

Star Schools. Distance education funding will be increased. California has benefited from Star Schools funding. The TEAMS distance learning program of the Los Angeles County Office of Education has been and continues to be funded by Star Schools to deliver distance education and staff development in math and science for elementary grades. The Distance Learning Resource Network of the Far West Laboratory offers information resources about distance education to educators throughout the western states.

Department of Commerce. The U.S. Department of Commerce issued grants to local educational agencies and schools for the planning and implementation of telecommunications to support teaching, learning, and administrative applications of technology. The funding for this national grants program will increase from its current \$26 million to \$100 million for 1996.

Education Access to the Information Superhighway. Congress has introduced legislation that would establish regulatory authority and other actions to enhance the availability of advanced telecommunications services to all educational institutions by mechanisms such as preferential rates for telecommunications services.

Technology Reinvestment Program (TRP). TRP is a grants program which emphasizes conversion of defense funding in combination with funds from other agencies, such as NSF, in the form of competitive grants. A few of these grants have been awarded to education agencies for digital libraries and telecommunication infrastructure. However, most of these grants are awarded to defense contractors for the development of high performance computing technology.

10. State by State Funding Comparison for Technology

Far West Laboratory is conducting a new survey on state funding for educational technology and telecommunications. The enclosed chart shows the initial findings of the Far West study, as well as information obtained from a Council of Chief State School Officers survey to expand the scope of the state comparison. Notice where California is ranked for per pupil expenditures for educational technology.

Information for the Far West Laboratory study is being gathered through a series of phone interviews with each state department of education and/or agency responsible for coordination of statewide technology programs. In order to provide an accurate comparison and include as many states as possible, the figures shown in the chart represent state education funding, either general education funds that may be used for technology equipment and programs or funds designated for educational technology.

Educational technology/ telecommunications initiatives also rely on financial assistance from other state agencies, local discretionary funds, public and private foundations, telephone and technology companies, and others. However, accurate records do not exist to monitor the extent to which schools utilize these sources.

Other funding sources may include the following federal funds: Chapter 1, Chapter 2, Special Education, and various other federal sources. Districts may decide whether or not to use these funds for technology, and most of the funds that are used for technology are applied to the acquisition of computers, software, and computer labs -- not for telecommunications. Most state and federal education agencies do not have in place a system to monitor the extent to which these funds are used for technology.

It should be noted that California ranks 50th in computers per student (19.7) as determined by Quality Education Data, and is ranked 44th according to Market Data Retrieval, another national survey agency. Most states are not only ranked ahead of California, but are planning significant increases in funding for educational technology and telecommunications in the next year.

Far West Laboratory is continuing to update this information for comparison of state-by-state educational technology appropriations and eventually collect information on alternative funding sources.