The Educational Technology Local Assistance Program

A Sunset Review

Office of the Legislative Analyst
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Introduction

Introduction

This report is submitted pursuant to the "sunset" review procedures enacted by Chapter 1270, Statutes of 1983 (Senate Bill 1155).

The Educational Technology Local Assistance program, as amended by Chapter 1133, Statutes of 1983 (Assembly Bill 803), provides support for the use of technology in the classroom. Chapter 1133 provides for termination of the Educational Technology program on June 30, 1989 unless the Legislature continues the program following the sunset review process prescribed by Chapter 1270.

As part of the sunset review, Chapter 1133 (1) required the State Department of Education (SDE) to prepare a report on the Educational Technology program, (2) required the Educational Technology Advisory Committee to review the report for submittal to the State Board of Education, and (3) directed the State Board of Education to transmit the report to the legislative fiscal committees by March 1, 1987.

The State Board of Education transmitted the report in March 1987. Chapter 1270 also requires the Legislative Analyst to review the department's report and submit her own findings, comments, and recommendations regarding the program to the Legislature.

Specifically, Chapter 1270 directs the SDE and the Legislative Analyst to address as many of the following issues as possible:

(1) The appropriateness of formulas used to identify children who have special needs.

(2) The appropriateness of formulas used to allocate funds and the adequacy of funding levels for the program.

(3) The effectiveness of the program.

(4) The appropriateness of local control.

(5) The appropriateness of state involvement in monitoring, reviewing, and auditing to assure that funds are being used efficiently, economically, and legally.

(6) The appropriateness of the administrative costs of these programs.

(7) The appropriateness of placing administration of these programs under SDE.

(8) The interrelationships among state and federal categorical programs providing this type of assistance.

(9) The characteristics of the target population being served by the program.

(10) The need for the program.

(11) The purpose and intent of the program.

The law also requires that the report submitted by SDE include, but not be limited to, all of the following topics:

(1) A description of the program, including a description of how the program is

administered at the state and local level.

(2) The history of the program and previous legislative action.

(3) Relevant statistical data.

(4) Related federal programs.

(5) Whether there is an unmet need for the intended purposes of the program and, if any, an estimated cost of serving the unmet need.

(6) Findings regarding the program, including comments on whether any identified problems are implementation issues that require revision of law or regulations.

(7) Recommendations of ways to improve the program while maintaining its basic purposes.

Chapter I of this report provides a description of the Educational Technology program, including a summary of its funding history. Chapter II contains (1) our findings regarding the program's implementation and effectiveness and (2) our recommendations for improving the program, based on both our own and SDE's findings regarding the program. Chapter III contains our responses to recommendations made by the SDE in its sunset review report.

This report, as specified by law, is based largely on our review of SDE's report. Some information contained in that report, such as an in-depth description of the program, is not repeated here. We suggest, therefore, that this report be read in conjunction with the SDE report in order to obtain a more complete understanding of the program and our comments on SDE's findings and recommendations.

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Executive Summary

Executive Summary

Program Description

- The Educational Technology Local Assistance program, authorized by Ch 1133/83 (AB 803), provides support for the use of educational technology in the public schools. The authorizing legislation defines the term "educational technology" to include instructional television, video tapes and discs, computers, and any "emerging state-of-the-art equipment" used for classroom instruction.
- Unlike many categorical education programs in which funds are directed toward a single activity or goal, funding for the Educational Technology program supports a variety of activities, including (1) grants to schools and school districts, (2) grants for regional support services, (3) grants for staff development, and (4) state leadership activities.

Purpose and Goals of Program

- Neither the authorizing legislation (Ch 1133/83) nor the State Department of Education's (SDE's) sunset review report explicitly states specific goals and objectives for the Educational Technology program. A long-range educational technology plan adopted by the State Board of Education (SBE) in November 1986 contains general program goals, but fails to provide (1) an assessment of schools' current needs for educational technology funding, in light of their existing resources, (2) specific, *measurable* goals and objectives related to the identified needs, and (3) a timetable and funding plan for achieving the goals and objectives. As such, our review indicates that the plan is of limited assistance to the Legislature in determining the effectiveness of various components of the program and the appropriateness of funding levels for them.

Funding History

- Over the four-year period from 1984-85 through 1987-88, the Educational Technology program received General Fund appropriations totaling nearly $80 million. Almost two-thirds ($53 million) of this funding has been allocated as grants to schools and districts; the bulk of this amount ($49 million) has gone to support "adoption and expansion" grants. These grants, which range from $8,000 to $17,000 for elementary schools and from $12,000 to $24,000 for secondary schools, provide modest amounts of "seed money" for the purchase of computer and/or video equipment, software, and teacher training.

Legislative Analyst's Findings and Recommendations

Findings Regarding Program Implementation

- The SDE estimates that, through 1987-88 (four cycles of grant awards), a total of 4,914 schools will have received adoption/expansion grants. These schools represent two-thirds of the total number of schools statewide and enroll 78 percent of the state's students. (For purposes of these calculations, a "school" includes programs operated by such entities as county offices of education and regional occupational centers.)
- Although demand for funds has exceeded the available amount in each year, a significant number of schools have not applied for adoption/expansion grants. The SDE estimates that, as of the end of the fourth grant funding cycle, 1,287 (17 percent) of the state's eligible schools had not applied for grants. According to a survey of nonapplicant schools conducted by SDE, the most important reasons for not applying all relate to the difficulty of the grant application process.
- Current law does not specify how available Educational Technology program funds are to be allocated; instead, this function is assigned to SBE "upon the advice of" the state Educational Technology Committee. In the case of the adoption/expansion grants, the funding mechanism adopted by the board provided for (1) the allocation of funds to Teacher Education and Computer Centers (TECCs) in proportion to the share of statewide average daily attendance (ADA) located within each and (2) the distribution of funds by the TECCs on a per-school basis, using a competitive grant award process.
- The allocation of adoption/expansion grant funds on a per-school basis has resulted in some inequities: (1) a smaller percentage of schools in rural TECC regions have received grants than in more urbanized regions, (2) those rural schools that have received funding have tended to receive more funding *per average daily attendance (ADA)* than urban schools, and (3) the amount of funding per black and Hispanic student—on a statewide basis—has been less than that per white student.
- As a result of the Governor's elimination of funding for the Teacher Education and Computer Centers in 1987-88, there currently exist no entities to provide the kinds of regional support services previously provided by the TECCs. These support services included (1) the administration of the adoption/expansion grant application process and (2) the provision of technical assistance to schools in developing educational technology plans and applying for adoption/ expansion grants. At the same time, there appears to be a continuing need for these kinds of services, as evidenced by the number of schools citing the difficulty of the grant application process as an obstacle to program participation.
- Under current law, it is unclear which entity—the State Board of Education or the Educational Technology Committee—has the ultimate authority to determine the allocation of Educational Technology program funds. This ambiguity has resulted in disputes between the committee and the board, and should be clarified in any legislation to reauthorize the Educational Technology program.

Findings Regarding Need for Program

- There currently exist no good estimates of the overall level of state funding needed for the various components of the Educational Technology program, because there has been no attempt to define schools' needs for educational technology in light of (1) measurable goals and objectives and (2) the availability of local resources. Because neither the department's sunset review report nor any other documentation addresses these issues, we are unable to determine an appropriate level of state funding for the program.

Findings Regarding Program Effectiveness

- An independent evaluation of the adoption/expansion grant component cited the process of local planning for the use of educational technology, required as part of the grant application process, as one of the program's more significant benefits. This evaluation, however, was unable to develop any conclusions regarding the impact of the program in terms of educational outcomes.
- There are no state-level data to determine the impact of the Educational Technology program in terms of educational outcomes. Our review indicates that responsibility for failing to compile such data lies with SDE, and constitutes a significant weakness in the department's administration of the program.

Legislative Analyst's Recommendations

We recommend that the Educational Technology program be continued, with the following modifications:

- The Educational Technology Committee, in conjunction with the State Board of Education, should revise the state long-range educational technology plan in order to develop more specific estimates of funding needs, and a timetable for meeting those needs;
- The Legislature should (1) require all recipients of Educational Technology program funds to perform program evaluations based on educational outcomes, using models developed by SDE and (2) require SDE to use these evaluation results to identify cost-effective uses of educational technology;
- The Legislature should explicitly address the issue of "equitable access" to Educational Technology program funds, by (1) clarifying the meaning of this term, as it is used in the enabling legislation, (2) specifying funding allocation mechanisms for each grant program, based on the definition of equity adopted, and (3) indicating whether grant funds may be "targeted" to particular uses;
- The Legislature should reestablish a network of regional support service delivery centers, in order to administer the adoption/expansion grant process and provide local education agencies with needed technical assistance; and
- The Legislature should amend ambiguous provisions of current law to clarify the responsibilities of the Educational Technology Committee and the State Board of Education in establishing a budget for the Educational Technology program.

Comments on Recommendations of The State Department of Education

- In its sunset review report, SDE makes nine recommendations. For the most part, these recommendations propose the continuation of existing aspects of the Educational Technology program and do not suggest ways in which it may be improved. In cases where a change is suggested, the proposal is usually described in general terms and is not supported by any analysis presented in the report. Consequently, we are unable to comment on four of the nine recommendations, because they lack sufficient specificity.
- We concur that, on grounds of equity, it is reasonable to continue the adoption/expansion grant process until all schools that wish to participate in the program have had an opportunity to receive funding. We further recommend, however, that the Legislature address the issues of (1) whether the adoption/expansion grant program should continue once all such schools have been funded and (2) if it should continue, the mechanism that should be used to distribute the funds.
- We generally concur with SDE's plans to expend up to $900,000 of Educational Technology funds in 1988-89 for the purpose of contracting with regional agencies to (1) provide technical assistance to schools receiving adoption/expansion grant funding in 1987-88 and 1988-89, (2) assist nonapplicant schools in the development and submission of grant applications, and (3) assist schools in conducting program evaluations.
- We concur that research and development activities begun through an existing, multi-year "model technology schools" project should be continued to completion.
- We generally concur that "Educational Technology Summer Institutes," which train teachers in uses of educational technology and prepare them to train other teachers, should be continued. We further recommend, however, that SDE evaluate the cost-effectiveness of the various summer institutes, and compare them to other approaches to training educators in the uses of educational technology.
- We concur that software development partnerships, in which SDE and software developers team up to produce high-quality video and computer software for areas of the curriculum in which it is lacking, should be continued. ❖

Chapter I

Chapter I
Program Description

The Educational Technology Local Assistance program, authorized by Ch 1133/83 (AB 803), provides support for educational technology in the public schools. As used in the authorizing legislation, the term "educational technology" includes instructional television, video tapes and discs, and computers, plus any other "emerging state-of-the-art equipment," used as instructional devices for classroom instruction.

Chapter 1133:

- Requires the State Board of Education (SBE) to adopt rules and regulations governing the administration of the Educational Technology program, and requires the Superintendent of Public Instruction to administer the program accordingly;
- Establishes the Educational Technology Committee to advise SBE on issues relating to educational technology policies, and allocations of Educational Technology program funds; and
- Authorizes the expenditure of program funds for a variety of uses, including grants to schools to support the acquisition of computer hardware and software, the purchase of statewide software and instructional television (ITV) licenses, and various resource and support services and projects that support the use of technology in the classroom.

Unlike many categorical education programs in which funds are directed toward a single activity or goal, funding for the Educational Technology program supports a variety of activities, including:

- Grants to schools and districts,
- Grants for regional support services,
- Grants for staff development, and
- State leadership initiatives.

The distribution of funds among these activities, described more fully below, is determined by SBE with the advice of the Educational Technology Committee.

Purpose and Goals of Program

Neither the authorizing legislation (Chapter 1133) nor the State Department of Education's sunset review report explicitly states *specific* goals and objectives for the Educational Technology local assistance program.

In November 1986, SBE adopted a Long-Range Educational Technology Plan for California Schools, which sets forth the goals for the Educational Technology program as follows:

- ***Technology-Infused Demonstration Schools.*** To develop technology-infused demonstration schools to evaluate the appropriate use of technology in site management, instructional materials, and delivery of instruction;
- ***Leadership.*** To provide a long-range vision and to stimulate broad commitment to the achievement of a comprehensive implementation plan which promotes utilization of technology as an effective educational tool;
- ***Staff Development.*** To assist teachers and administrators to develop skills needed to use technology effectively in the classroom;
- ***Instructional Materials.*** To assure the development of the highest quality technology-based instructional materials, including video programming, computer software, interactive video and printed support materials, in all areas of the curriculum and at all grade levels in a cost-effective manner;
- ***Hardware.*** To promote acquisition and integration of technological hardware for maximum effectiveness in California schools; and
- ***School Facilities.*** To ensure that the state's policies on aid for school facilities support local education agency initiatives to construct technology-infused school environments.

Our review indicates that, while SBE's Long-Range Plan provides a general framework for the development of the Educational Technology program, it fails to provide (1) an assessment of schools' current needs for educational technology funding, in light of their existing resources, (2) specific, *measurable* goals and objectives related to the identified needs, and (3) a timetable and funding plan for achieving the goals and objectives. As such, the plan is of limited assistance to the Legislature in determining the effectiveness of various components of the Educational Technology program and the appropriateness of funding levels for these components. (We address this issue in greater detail in Chapter II of this report in our discussion of the need for the program.)

History of Legislative Action

Chapter 94, Statutes of 1982 (Assembly Bill 2190) deleted provisions of law relating to classroom instructional television and established in their place authorization for an "Educational Technology Local Assistance Program." In so doing, it broadened the definition of educational technology to include computers, rather than just television. The statute did not specify how the program was to be administered, but required the State Board of Education to develop rules and regulations for this purpose. Chapter 94 also established the Educational Technology Committee, to apprise the Superintendent of Public Instruction of developments in information technologies and their application to education and, in conjunction with the State Board of Education, to allocate available grant funds.

The measure declared legislative intent that funding for its purposes be provided in the 1982 Budget Act, which appropriated $870,000 for educational technology local assistance. Of this amount, however, only $16,000 was expended in 1982-83, and the remaining $854,000 was carried over for use in 1983-84.

In addition to this carryover balance, the local assistance program received $870,000 in the 1983 Budget Act and $552,000 in SB 813 (Chapter 498, Statutes of 1983). Of this latter amount, however, $300,000 was redirected in Chapter 1133 to the State Department of Education for its start-up costs associated with administering an expanded Educational Technology program.

Chapter 1133, Statutes of 1983 (AB 803) repealed and recast the provisions of Ch 94/82, and established the current Educational Technology Local Assistance program. Specifically, Chapter 1133 authorized a variety of grant programs, including grants to school districts and county offices of education for implementing applications of educational technology; grants to Teacher Education and Computer Centers (TECCs) for providing assistance in implementing technology programs; and grants for research. This measure also revised the composition of the Educational Technology Committee and expanded the provisions of Chapter 94 relating to educational technology. Finally, it declared legislative intent that funding for the Educational Technology Local Assistance program be provided in the annual Budget Act, commencing in 1984-85.

Funding History

Over the four-year period 1984-85 (the first year of "full funding" for the program established by Chapter 1133) through 1987-88, the Educational Technology program has received General Fund appropriations totaling nearly $80 million. Table 1 displays these funds for each of these years, by expenditure category.

Table 1
Educational Technology Program
Distribution of Expenditures
1984-85 through 1987-88
(dollars in thousands)[a]

Expenditure Category	*1984-85*	*1985-86*	*1986-87*	*1987-88*	*Total*	*Percent of Total*
1. Grants to Schools and Districts						
Adoption and Expansion Grants	$8,925	$17,024	$16,056	$6,590	$48,595	
Developmental/Dissemination Projects						
Developmental Projects	984	—	927	64	1,975	
Dissemination Projects	—	390	500	—	890	
VCR Distribution	1,755	5	—	—	1,760	
Subtotals, Local Grants	$11,664	$17,420	$17,483	$6,654	$53,221	67.2%
2. Grants for Regional Support Services						
Teacher Education/Computer Centers	$554	$563	$1,088	—	$2,204	
Instructional TV Regional Agencies	996	1,369	1,702	$1,751	5,819	
Subtotal, Support Services	$1,549	$1,932	$2,790	$1,751	$8,023	10.1%
3. Grants for Staff Development						
Summer Training Institutes	—	$2,903	$996	$2,004	$5,903	
Mechanical Universe	—	—	77	—	77	
Subtotal, Staff Development	—	$2,903	$1,073	$2,004	$5,980	7.6%
4. State Leadership Initiatives						
Model Technology Schools						
Level I	—	—	$1,000	$1,500	$2,500	
Level II	—	—	790	—	790	
Instructional Materials						
Software Development	—	—	504	520	1,024	
Technology in Curriculum (TIC) Guides	$1,330	$398	1,091	132	2,950	
Statewide Licenses/Acquisitions	403	2,809	561	57	3,830	
Teaching Videotape Pilot Project (SB 2130)	—	—	275	—	275	
Statewide Communications						
Telecommunications	—	—	49	—	49	
Videosource Newsletter	18	60	50	—	127	
Committee Expenses, Consultant Services, New Initiatives	75	77	144	77	373	
Subtotals, State Leadership	$1,825	$3,343	$4,464	$2,286	$11,917	15.1%
Totals, Educational Technology	$15,038	$25,599	$25,810	$12,694	$79,141	100.0%

[a] Details may not add to totals due to rounding.

Table 1 shows that Educational Technology funds have been distributed as follows:

Grants to Schools and Districts. Since 1984-85, nearly two-thirds of funding—$53.2 million—has been allocated as grants to schools and districts. Of this amount, the bulk ($48.6 million) has gone to support the "adoption and expansion" grants, and the remainder has

supported "critical needs developmental and dissemination projects" ($2.9 million) and a one-time distribution of one videocassette recorder (VCR) to each school in the state ($1.7 million).

The *adoption and expansion grants*, which are awarded directly to schools through a competitive process, provide modest amounts of "seed money" for the purchase of computer and/or video equipment. (Funds may also be used to purchase software and to support teacher training.) During the first two years of the program, elementary schools were eligible for grants of $8,000 and secondary schools for grants of $12,000. In subsequent years, the maximum grant level for larger schools was raised to $17,000 for elementary schools and $24,000 for secondary schools, using an incremental scale based on school size.

According to the State Department of Education, the "typical" elementary school used its $8,000 grant to purchase five computers, about $1,300 worth of instructional materials (mostly computer software), $500 for video equipment (TV monitors and VCRs), and $550 for staff training. The technology and training was likely to have been focused on teaching writing in grades 3 through 6. The typical secondary school, in contrast, used a grant averaging $16,000 to purchase seven computers, $2,300 worth of instructional materials, $1,000 worth of video equipment, and $250 in staff development. This technology was also likely to have been focused on a specific curriculum area, such as writing, math, or computer awareness.

The State Department of Education estimates that, over the four-year period, a total of 4,914 schools received adoption/expansion grants. These schools represent about two-thirds of the *total* number of schools statewide, and over 80 percent of the number of schools *that have applied for funding*. (For purposes of this calculation, a "school" includes programs operated by such entities as county offices of education and regional occupational centers.)

The *critical needs developmental and dissemination projects*, funded through grants to school districts and county offices of education, developed models for (1) the integration of educational technology into various aspects of the curriculum and (2) technology-based staff development activities. Of 28 such projects funded in 1983-84 and 1984-85, 11 were judged effective by panels convened by the State Department of Education and received funding for dissemination during 1985-86. In 1986-87, one of these projects was discontinued and the remaining 10 projects received funding for further dissemination activities. Funding for the critical needs projects was discontinued in 1987-88.

Grants for Regional Support Services. Over the four-year period, a total of $8 million (10 percent of funding) has been allocated to regional support services provided through Teacher Education and Computer Centers (TECCs) and Instructional Television (ITV) Regional Agencies. Until recently, a statewide network of 17 TECCs provided staff development services to school districts on a regional basis. The TECCs also administered the adoption and expansion grants, and provided technical assistance to schools wishing to participate in the Educational Technology program. The Governor, however, vetoed all funds for the TECCs—$12.7 million—from the 1987 Budget Act. The seven ITV regional agencies continue to receive funding to provide greater consistency in the provision of instructional television services throughout the state.

Grants for Staff Development. A total of $6.0 million (7.6 percent of funding) has been allocated from 1984-85 through 1987-88 for staff development purposes. Nearly all of these funds have been used to support Educational Technology Summer Institutes in which selected teachers receive a month of intensive training in the use of technology. These teachers then return to their respective schools to train other teachers in the use of educational technology.

State Leadership Initiatives. A total of $11.9 million (15 percent of funding) has been allocated in 1984-85 through 1987-88 to four state leadership initiatives: (1) $3.3 million for "model technology schools," (2) $8.1 million for instructional materials, (3) $0.2 million for statewide communications projects, and (4) $0.4 million for various expenses, consultant services, and unsolicited projects.

Under the *model technology schools* initiative, grants were awarded in 1986-87 and 1987-88 to study two approaches to introducing technology into schools. The first approach provided grants of $500,000 to each of five school complexes for in-depth study of the application of technology in all phases of the schools' operation. The second approach provided smaller grants (approximately $80,000) to 10 schools to develop applications of technology in a single subject area, across all grade levels.

In the area of *instructional materials*, the program has supported the Technology in the Curriculum (TIC) guides. The TIC guides identify computer software and video programs that support the state curriculum frameworks and model curriculum standards. The program has also (1) purchased licenses for the distribution of software and video programming to schools at reduced cost and (2) contracted directly for the development of specific computer software and video programming in areas where it is lacking.

A more complete description of the Educational Technology program is provided in the department's sunset review report. ❖

Chapter II

Chapter II

Legislative Analyst's Findings and Recommendations

As detailed in the introduction to this report, the sunset review legislation (Ch 1270/83) specifies seven items that the State Department of Education's (SDE) report *must* address, and 11 items that it *may* address. Our review indicates that, of the 7 required items, the department's report fails to address—or addresses incompletely—5 items. Of the 11 optional items, the department's report does not address 8 items, and only partially addresses the remaining 3 items. Topic areas in which we believe the department's report is particularly deficient include:

- the need for the program;
- the effectiveness of the program;
- the appropriateness of formulas used to allocate funds and the adequacy of funding levels for the program; and
- whether there is an unmet need for the intended purposes of the program and, if any, an estimated cost of serving that need.

In general, we find that the department's report presents a great deal of descriptive information regarding the Educational Technology local assistance program, but provides little or no information regarding the need for the program, the program's goals, or its effectiveness in meeting those goals. Moreover, most of the department's recommendations either (1) are not supported by any analysis presented in its report or (2) merely call for a continuation of the status quo. As a result, our review indicates that the department's report provides little analytical assistance to the Legislature in determining whether the program should be continued and, if so, how it may be improved.

This chapter contains (1) our findings concerning the Educational Technology program's implementation and effectiveness and (2) our recommendations for improving the program, based on both our own and SDE's findings regarding the program. In the discussion which follows, we focus primarily on the *adoption/expansion grant* component of the Educational Technology program, as this accounts for the largest single category of program expenditures in any year.

Legislative Analyst's Findings

This section presents our findings, organized in three categories: (1) findings regarding the implementation of the Educational Technology program, (2) findings regarding the need for the program, and (3) findings regarding its effectiveness.

Program Implementation

Level of Participation. The State Department of Education estimates that, through 1987-88 (four cycles of grant awards), a total of 4,914 schools will have received adoption/expansion grants, totaling $48.6 million. These schools represent about two-thirds of the *total* number of schools statewide, and over 80 percent of the schools *that have applied for funding*. In total, 78 percent of the state's students are enrolled in schools that have received adoption/expansion grants. (For purposes of these calculations, a "school" includes programs operated by such entities as county offices of education and regional occupational centers.)

In each of the cycles of grant awards, more schools applied for funds than could be accommodated within the level of funding available. Through the fourth funding cycle (1987-88), SDE received a total of 10,020 applications (including applications from the same school submitted in more than one year) requesting a total of $97.7 million. During this same period, 4,950 schools received adoption/expansion grants, totaling $46.7 million.

Although demand for funds has exceeded the available supply in each year, there were a significant number of schools that chose not to apply at all for an adoption/expansion grant. The SDE estimates that, as of the end of the fourth grant funding cycle, 1,287 (17 percent) of the state's 7,386 eligible schools had not applied for grants. These schools' inability or unwillingness to apply is probably influenced by their relatively small size, compared to schools that have applied for grants. (In 1987, for example, the median enrollment among schools that had never applied for an adoption/expansion grant was 289; among schools that had applied, in contrast, it was 531.) These schools' smaller size results in fewer administrative and teaching staff and, therefore, fewer resources with which to complete the application process. Based on a survey of a sample of nonapplicant schools, SDE concluded that "[t]he perceived difficulty of the application, the level of effort involved to prepare one, and lack of assistance in preparing the application were clearly the most important reasons for not applying."[1]

Appropriateness of Administrative Costs. The department's report contains no information about the amount of funding provided at the state level for overall administration of the Educational Technology program, or for the adoption/expansion grant component in particular. We have subsequently been advised by the department that, in 1986-87, state-level administrative expenses for the Office of Educational Technology totaled $852,000. About 75 percent ($628,000) of this amount came from federal funds, and the remainder ($224,000) came from the state General Fund. The department is unable to determine how much of these administrative expenditures was specifically attributable to the adoption/expansion grant component.

The department's sunset review report, however, provides information on the amount of funds allocated to the Teacher Education and Computer Centers (TECCs) for administering the adoption/expansion grant

[1] Attachment G in a letter from Superintendent of Public Instruction Bill Honig to Assembly Members Sam Farr, Richard Katz, Teresa Hughes, and Lucy Killea, dated December 23, 1987.

award process and providing technical assistance to districts and schools applying for grants. In 1986-87, a total of approximately $1.1 million was provided TECCs for these purposes, which equals about 8.4 percent of the total amount of adoption/expansion grant funds awarded in that year. (As a result of the Governor's veto of funding for the TECCs, the State Board of Education allocated no funds for administration and technical assistance related to the adoption/expansion grants in 1987-88.)

Allocation of Funds. Current law does not specify how available Educational Technology program funds are to be allocated; instead, this function is assigned to the State Board of Education "upon the advice of" the Educational Technology Committee. In the case of the adoption/ expansion grants, the board determined that funding would be allocated among the TECCs in proportion to the share of statewide average daily attendance (ADA) located within each.

Each TECC administered a competitive grant award process for distributing the available funds. In order to receive funding, a school had to (1) develop a plan for using educational technology support at the school site, (2) describe how the adoption/expansion grant would support the plan, and (3) provide matching funds equal to 10 percent of the grant amount. During the program's first two years, elementary schools were eligible for grants of $8,000 and secondary schools for grants of $12,000. In 1986-87 and 1987-88, however, elementary schools could receive grants of $8,000 to $17,000, and secondary schools grants of $12,000 to $24,000, using an incremental scale based on the school's size.

In 1987-88, the Governor vetoed over half of the funding for the Educational Technology program—from a legislatively-approved level of $26.1 million to an actual implementation level of $12.7 million—and, as noted earlier, eliminated funding for the TECCs. In distributing total Educational Technology funds among various purposes, the State Board of Education reduced the amount budgeted for adoption/expansion grants from $12.7 million to $6.6 million. The department then allocated this funding to the highest-ranking schools on lists compiled by the TECCs in the spring of 1987 and tentatively plans to use a comparable amount of funding to provide grants in 1988-89 to as many schools remaining on the list as possible.

As detailed in the department's report, the allocation mechanism used during the first two years had the (presumably unintended) consequence of resulting in a smaller percentage of schools in rural TECC regions receiving adoption/expansion grants than in more urbanized regions. At the same time, those rural schools that did receive funding tended to receive a greater amount of funding *per ADA* than did urban schools. This occurred due to three factors:

- Funds were allocated to each TECC region based on its share of statewide ADA;
- Funds were distributed by the TECCs in fixed increments of $8,000 and $12,000, so that all schools of the same type received the same amount of funding, irrespective of size; and
- Rural areas tended to have larger numbers of smaller schools, relative to urban regions.

Thus, if two TECC regions were of relatively the same size in terms of student population (thereby receiving the same amount of funding), they would both be able to fund approximately the same number of schools. With a larger *total* number of schools, however, the rural region would be able to fund a smaller *percentage* of its schools than would the urban region. But, because they were smaller in size, those rural schools which did receive funding would receive a greater amount of funds *per ADA*.

Finally, because blacks and Hispanics tended to be concentrated more highly in

urban areas, the amount of funding per black and Hispanic student—on a statewide basis—was less than that per white student.[2] This is illustrated in Table 2, which shows the average amount of funding per ADA, broken down by racial/ethnic status, after the first three cycles of grant funding.

Table 2
Distribution of Adoption/Expansion Grant Funds
By Student Racial/Ethnic Category
(Through Three Grant Funding Cycles)
1984-85 through 1986-87

Racial/Ethnic Category	*Statewide Total ADA*	*ADA in Funded Schools*	*Percent in Funded Schools*	*Grant Funds Allocated To Category*[a]	*Average Grant Per ADA*
White	2,303,078	1,490,503	64.7%	$21,957,208	$14.73
Hispanic	1,264,961	875,496	69.2	10,761,619	12.29
Black	422,311	281,578	66.7	3,597,170	12.78
Asian	289,754	205,369	70.9	2,449,492	11.93
Filipino	85,415	56,234	65.8	678,313	12.06
Am. Indian	33,072	18,729	56.6	293,117	15.65
Pacific Isl.	23,208	15,177	65.4	199,738	13.16
Totals	4,421,799	2,943,086	66.6%	$39,936,657	$13.57

[a] Calculated as the sum, for all funded schools, of each school's racial/ethnic ADA times its total grant amount, divided by its total ADA.

As Table 2 shows, about 65 percent of the state's white students attend schools that have received adoption/expansion grant funding, with an average of $14.73 per ADA in funding attributable to them. In contrast, 67 percent of black students and 69 percent of Hispanic students attend schools that have received funding; these students account for an average of $12.78 and $12.29 per ADA, respectively.

Regional Support Services. Prior to 1987-88, a statewide network of 17 Teacher Education and Computer Centers (TECCs) provided staff development services to teachers and administrators, on a regional basis. The TECCs were charged with providing such services in all areas of the curriculum, but with particular emphasis on the areas of math, science, and other areas in which there existed teacher shortages.

In addition to these duties, the TECCs administered the application process for adoption/expansion grants. Specifically, they accepted applications from schools in their regions, rated the applications according to specified criteria, and, based on the ratings, assigned each applicant a priority ranking for funding. Finally, the TECCs were required, to the extent feasible, to assist schools in developing educational technology plans and applying for adoption/expansion grants.

In his budget for 1987-88, the Governor had originally proposed $12.6 million to fully fund the TECCs, and this amount (plus $126,000 for a cost-of-living adjustment) was approved by the Legislature. In signing the budget, however, the Governor vetoed all funding for the TECCs.

Our review indicates that, as a result of the Governor's action, no entities are offering the

[2] This latter finding, not discussed in the department's sunset review report, was addressed in correspondence dated May 18, 1987 from James R. Smith, Deputy Superintendent for Curriculum and Instructional Leadership, to Assembly Member Teresa Hughes.

kinds of regional support services that were previously provided by the TECCs. At the same time, there appears to be a continuing need for these kinds of services. As noted earlier, the most important reasons cited for not applying for an adoption/expansion grant among nonapplicant schools related to the difficulty of the application process. It would appear, therefore, that as long as adoption/expansion grants continue to be available, and the application process is not significantly simplified, these schools will need some technical assistance in developing their educational technology plans and completing their applications.

Other Implementation Issues. Finally, our review indicates that, under current law, the governance structure of the Educational Technology program is not clearly spelled out. Specifically, current law (Education Code Section 41920) provides that "[a]llowances for the educational technology... program shall be made by the State Board of Education upon the advice of the Educational Technology Committee." Another provision (Education Code Section 51873.1) declares that one of the committee's duties is "[s]ubmitting an annual budget request identifying proposed funding levels for the...program to the State Board of Education and the Legislature." It is not clear whether these provisions allow the State Board of Education to revise the committee's funding proposals, or whether they instead require that the board merely perform the ministerial duty of carrying out the committee's recommendations. Moreover, this ambiguity has resulted in actual disputes between the committee and the board in the past.

Need for Program

There currently exist no good estimates of the level of state funding needed for the various components of the Educational Technology program, including the adoption and expansion grant component.

In information provided subsequent to publication of its sunset report, the department estimates that, following the most recent (fourth) cycle of grant allocations, there remain 2,472 schools that have not received an adoption/expansion grant (including 1,185 schools that have applied for, but not received funding and 1,287 schools that have never applied). The department further estimates that, based on an average grant amount of $10,322 during the fourth funding cycle, it would cost approximately $26 million to provide funding to these remaining schools.[3] This figure, however, merely indicates what it would cost to extend the existing program (at current funding levels) to schools which heretofore had not received a grant—and does not address the issue of the *need* to provide ongoing state funding for the adoption/expansion grant component.

We believe that, in order to determine this need, the department should address the following issues for each component of the Educational Technology program:

- What are the specific, measurable goals of the component?
- What level of educational technology resources do schools need (in light of the amount of resources they currently have), in order to achieve the goals?
- What is an appropriate sharing ratio between state and local funding?
- What is the funding timetable for achieving the goals?

Because neither the department's sunset review report nor any other documentation addresses these issues, we are unable to determine an appropriate level of state funding for the Educational Technology program.

[3] Letter dated December 23, 1987 from Superintendent of Public Instruction Bill Honig to Assembly Members Sam Farr, Richard Katz, Teresa Hughes, and Lucy Killea. Figure on number of remaining schools subsequently updated by SDE.

Program Effectiveness

Local Planning Stimulated. In August 1987, SDE contracted with the Far West Laboratory for Educational Research and Development to conduct the only state-level evaluation of the adoption/expansion grant component to date. In the latter half of 1987, Far West Laboratory undertook case studies of 37 schools that had received grants, and submitted its final report in December 1987. Because this study was not based on a random sample, its results may not be generalizable to the entire population of schools that have participated in the program. Nevertheless, the study's results are probably suggestive of the program's general impact.

The Far West Laboratory study cites the local planning process that goes into the completion of an application for a grant as one of the more significant benefits of the adoption/expansion grant component of the Educational Technology program:

> *The schools, themselves, were able to determine the best applications of these—and other—funds from the district and the state that related to technology. In order to do this, schools had to clarify their goals for the program, analyze effective approaches to implementation and develop clear planning processes.* ***That schools began thinking seriously about the appropriate uses of technology may be one of the more significant benefits of the adoption/expansion effort.***[4]

The study also concludes that:

- Local, school-site efforts were designed to meet locally- defined needs;
- Small grants resulted in small scale start-up efforts or modest expansion of existing technology programs;
- In some instances, and in a variety of ways, schools were able to leverage other fiscal resources; and
- Schools did not adopt model technology programs from other schools.[5]

No Evaluation of Program Based on Educational Outcomes. In its discussion of "program impact," the department's sunset review report states:

> *The initial impact of the adoption/expansion grant program has been to increase the availability of technology resources for curriculum and instruction: more technology hardware, more software and improved staff readiness to utilize technology... [Among schools receiving funding] adoption/expansion funds have increased the number of computers by 58% in elementary schools and by 28% in secondary schools, for an overall increase of 40%.*

The report also presents data showing that, among funded schools, the adoption/expansion grants have resulted in an increase in the average number of computers per school, and a decrease in the average number of students per computer. Together with a brief discussion of the distribution of funds among schools, this constitutes the department's entire discussion of the impact of the adoption/expansion grant component.

These findings, in our opinion, fail to address the most important question regarding the impact of the adoption/expansion grants. Clearly, a program that provides funds for the purchase of computer hardware *should* have resulted in an increase in the availability of computers among schools receiving funding. We believe, however, that the important issue is, "How has the increased availability of computers affected *educational achievement*?" Unfortunately, the department's report provides no information on this issue.

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[4] Saul Rockman, Kayla Kirsch, and John Mergendoller, *Powerful and Empowering (But Almost Invisible): Research on the Impact of the AB 803 Adoption/Expansion Program*, (San Francisco: Far West Laboratory for Educational Research and Development), December 1987, p. 16 (emphasis added).

[5] *Ibid.*, p.1.

In their review of the adoption/expansion grant component, cited above, the Far West Laboratory researchers also noted the lack of any significant *local* program evaluations among the schools they visited. Specifically, they found that (1) these schools rarely collected formal impact and outcome data and (2) their evaluation plans were generally based on faulty assumptions and sometimes used inappropriate methodologies.[6]

Our review indicates that responsibility for failing to compile meaningful evaluative data on the effectiveness of the adoption/expansion grants lies with SDE, and constitutes a significant weakness in the department's administration of the Educational Technology program. One of the criteria used in judging applications for adoption and expansion grants was the inclusion of an evaluation plan that covered "both a review of implementation activities and strategies to measure the results of the program." The department, however, did not require grant recipients actually to conduct evaluations, took no steps to ensure that evaluation methodologies would be consistent among programs, and did not attempt to compile the results of the evaluations.

Summary

Our review of the Educational Technology program indicates that one of the program's primary documented benefits has been the promotion of school-level planning for the use of educational technology, through the adoption/expansion grant process. Not unexpectedly, the program has also increased the amount of educational technology hardware (such as computers) among schools that have received adoption/expansion grants.

Our review, however, also identifies the following problems:

- There is no good estimate of the level of state funding needed for the program, because there has been no attempt to define schools' needs for educational technology in light of (1) measurable goals and objectives and (2) the availability of local resources.
- There are no state-level data to determine the impact of the program in terms of educational outcomes (for example, increases in student achievement) because there is no existing, effective evaluative process.
- The allocation of adoption/expansion grant funds on a per-school basis has resulted in some inequities in the amount of available support, when measured on a per-pupil basis.
- The Governor's veto of funding for the Teacher Education and Computer Centers in 1987-88 has left the Educational Technology program without a network of regional support service delivery centers.
- Current law contains some ambiguities regarding the roles of the Educational Technology Committee and the State Board of Education in the governance of the Educational Technology program.

[6] *Ibid.*, p. 12.

Legislative Analyst's Recommendations

In this section, we present our recommendations for improving the effectiveness of the Educational Technology program, while maintaining its basic purposes. These recommendations are based on the findings presented above, as well as on those contained in the SDE's sunset review report.

Continue Program in Revised Form

We recommend that the Educational Technology program be continued in a modified form.

The problems with the current version of the Educational Technology program noted above result from (1) weaknesses in the administration of the program by the State Department of Education, (2) gubernatorial funding vetoes, and (3) ambiguities in the authorizing legislation. These problems do not, in our opinion, reflect an inherently flawed program design. Accordingly, we do not recommend that the Educational Technology program be eliminated. Instead, we believe that the problems should be resolved in order to (1) bring the program into line with legislative objectives and (2) improve program effectiveness and efficiency. Accordingly, we recommend that the program be continued in a modified form, as discussed below.

Develop Estimates of Funding Needs

We recommend that the Educational Technology Committee, in conjunction with the State Board of Education, revise the Long-Range Plan for Educational Technology to identify for each component of the Educational Technology program: (1) specific, measurable goals; (2) the level of educational technology resources needed by schools (in light of the resources they currently have), in order to achieve the goals; (3) an appropriate sharing ratio between state and local funding; and (4) a funding timetable for achieving the goals.

As noted previously, there currently exist no good estimates of the level of state funding needed for the various components of the Educational Technology program, or for the program as a whole. This information, however, is essential if the Legislature is to determine the appropriate level of funding for the program.

We believe that an appropriate starting point for developing estimates of funding needs is the long-range plan developed by the Educational Technology Committee, and adopted by the State Board of Education in November 1986. In order to be useful for this purpose, however, the plan needs to be revised to include, for each component of the Educational Technology program:

- ***Specific, Measurable Goals.*** Where possible, goals should be stated in terms of desired program outcomes (for example, impacts on educational achievement), rather than in terms of inputs (for example, decrease the student/computer ratio by 50 percent). In the case of pilot projects, where outcomes are unknown, the plan should specify which types of outcomes will be measured in the project evaluation.
- ***Assessment of Schools' Educational Technology Needs.*** The plan should estimate the amount of additional educational technology resources schools need to meet the identified goals, in light of the resources they already have.
- ***State/Local Sharing Ratio.*** The plan should specify what portion of the identified funding needs should be met by local educational agencies, and provide a rationale for the particular local matching rate chosen.

- *Funding Timetable.* Finally, the plan should include a funding timetable, showing the amount of state funding needed each year to achieve the goals of the particular component.

With this information, the Legislature will have an analytical basis on which to make decisions regarding funding levels for each of the components of the Educational Technology program.

Evaluate Program in Terms of Educational Outcomes

We recommend that all recipients of Educational Technology funds be required to evaluate the impact of their uses of these funds in terms of educational outcomes. We further recommend that the State Department of Education (1) develop model evaluation designs and (2) provide technical assistance to local education agencies, in order to ensure that the results of these evaluations are, to the extent possible, comparable. Finally, we recommend that SDE use the results of these evaluations to identify those applications of educational technology which appear to be most cost-effective and disseminate this information annually.

Our review indicates that there currently exists no effective process for evaluating the impact of state spending on educational technology. As noted above, although applicants for Educational Technology adoption/expansion grants were required to include an evaluation plan as part of their application, SDE did not require grant recipients actually to conduct such evaluations. Moreover, the department took no steps to ensure that evaluation methodologies would be consistent among programs, and did not attempt to compile the results of the evaluations that were conducted.

If the Legislature is to maximize the state's return on its investment in educational technology, it needs to have information on the relative cost-effectiveness of various uses of program funds. This information can then assist the Legislature and/or local education agencies in reordering relative funding priorities in future years. Accordingly, we recommend that all recipients of Educational Technology funds be required to complete evaluations based on educational outcomes, using models developed by SDE. We further recommend that SDE use the evaluation results to identify cost-effective uses of educational technology, and disseminate this information annually.

Address Equity in Grant Funding Formulas

We recommend that the Legislature clarify the definition of "equitable access," as that term is used in the enabling legislation. We further recommend that the Legislature (1) indicate how this concept is to be implemented in the allocation of funds for various types of Educational Technology program grants and (2) stipulate for each grant program, whether funding may be "targeted" to particular uses.

The program's authorizing legislation (Ch 1133/83) declares legislative intent that "...budget allocations for educational programs designed to strengthen technological skills be structured to ensure that all California school pupils will have equitable access to those programs..." As noted above, however, the method adopted by the Educational Technology Committee for allocating adoption/expansion grant funds had the unintended consequence of resulting in inequities among students of various racial/ethnic groups in the average amount of funding provided per pupil. In order to address this problem, SDE has proposed (subsequent to the publication of its sunset review report) that, in 1989-90 and thereafter, *all* Educational Technology local assistance grants be based on (among other things) an equal per-ADA allocation "with

adjustments for small schools and, possibly, an upper limit for very large schools."[7]

We believe that the Legislature should address the issue of equitable access and its implications for Educational Technology grant funding formulas. We do not agree, however, that "equitable access" to educational technology resources necessarily implies a distribution of grant funds based on equal amounts per ADA. This is because "equitable access" may be defined in different ways, with each definition having different implications for the design of a grant distribution formula.

Accordingly, we believe that the Legislature should first clearly define what it means by "equitable access" to educational technology resources. After doing this, the Legislature should then specify grant distribution formulas that are consistent with the definition of equitable access.

How is "Equitable Access" Defined? The choice of a particular definition of "equitable access" cannot be made analytically. Rather, it involves a *value judgment* which only the Legislature can make. We note, however, that there are two major approaches to defining equity in this context. Specifically, equitable access to educational technology may be defined in terms of *educational inputs* (for example, each student receives 30 minutes of computer time per week), or in terms of *educational outcomes* (as measured by an appropriate test).

- ***Educational Inputs.*** The first, input-based definition of equity generally leads to grant formulas in which funds are distributed based on an equal amount of funding per ADA. There may be cases, however, in which the particular type of educational technology is such that a fixed per-ADA distribution is not appropriate. In the case of Instructional Television Regional Agencies, for example, it may not be appropriate to base funding entirely on the total ADA within the service region. (Presumably, it costs no more to broadcast programs to 100,000 ADA within a broadcast area than to 10,000 ADA; nor does the viewing of a television broadcast by one student diminish another's ability to view it.) Accordingly, we believe that a fixed per-ADA funding mechanism should be used only where (1) "equitable access" is defined in terms of educational inputs *and* (2) the *need* for funds and the ability to benefit from them is reasonably related to enrollment.
- ***Educational Outcomes.*** The second definition of equity, based on educational outcomes, generally leads to allocation formulas that provide different amounts of funding for different types of pupils, based on their "need."[8] For example, the Legislature may wish to define equitable access in terms of ensuring that all pupils shall have sufficient resources to attain a specified level of educational achievement. Alternatively, equitable access could be defined in terms of all students showing a specified *increase* in educational achievement. In either case, educational technology resources would need to be distributed on a basis which takes into account the fact that certain students may need more funding than others, in order to meet the goals set by the Legislature in its definition of equitable access. Thus, an outcome-based definition of equity could lead to a per-ADA distribution of funds in which certain types of ADA receive different "weights," depending on their needs.

[7] "Proposal for Distribution of Educational Technology Funds to Schools," Attachment A in a letter from Superintendent of Public Instruction Bill Honig to Assembly Members Sam Farr, Richard Katz, Teresa Hughes, and Lucy Killea, dated December 23, 1987.

[8] For an argument in favor of the "educational outcome" approach to equity, see Stanley Pogrow, "Policy Recommendations for Developing Appropriate Uses of Technology in California Schools," (Berkeley: Policy Analysis for California Education), p. 4.

A final issue involving the definition of equitable access concerns the ability of schools to "target" their educational technology funds towards particular uses. For example, if the Legislature were to adopt a definition of "equitable access" in which all schools receive sufficient funding to provide one-half hour of computer time weekly for each of their students, could a school choose to target all of these funds to computer programs designed to teach English to its fourth-graders? Arguably, such a school would not be in compliance with legislative intent, as all its students except those in the fourth grade would be denied access to the educational technology. Yet, research indicates that some of the more cost-effective applications of educational technology may occur in such targeted uses.[9] We recommend, therefore, that the Legislature clearly specify those types of grants for which targeted use of educational technology funds is permissible.

In sum, we recommend that the Legislature (1) clearly define in legislation the term "equitable access," (2) specify, based on the definition adopted, funding mechanisms for each Educational Technology grant program, and (3) stipulate, for each grant program, whether funding may be targeted.

Reestablish Regional Support Service Delivery Centers

We recommend that the Legislature reestablish a network of regional support service delivery centers, because the Governor's elimination of the Teacher Education and Computer Centers (TECCs) has left the Educational Technology program without an entity to (1) administer the adoption/expansion grant process and (2) provide local education agencies with needed technical assistance regarding applications of educational technology. We further recommend that the State Department of Education develop a specific funding proposal for the new network of support service delivery centers, based on anticipated workload in these areas, and submit the proposal to the Joint Legislative Budget Committee, the legislative fiscal committees, and the Department of Finance by November 15, 1988.

Prior to the Governor's veto of funding for the TECCs in 1987-88, these entities (among other duties) rated applications for adoption/expansion grant funding and, based on these ratings, assigned a priority for receiving funding to each applicant. The TECCs also provided technical assistance to schools in the development of educational technology plans.

Our review indicates that if the Educational Technology program continues the adoption/expansion grant component (or a similar component), there will be a need to provide the kinds of regional support services that were previously provided by the TECCs. For this reason, we recommend that the Legislature reestablish a network of regional support service delivery centers to address these needs.

In the absence of specific information regarding the types of grant programs (and their associated needs for support services) to be included in any legislation to reauthorize the Educational Technology program, we are unable to recommend a particular level of funding for this purpose. We recommend, therefore, that the Legislature direct SDE to develop a budget proposal based on anticipated workload for the new network of support services delivery centers. This proposal should be submitted to the Joint Legislative Budget Committee, the legislative fiscal committees, and the Department of Finance by November 15, 1988, so it can be incorporated into the discussions on the 1989-90 Budget Bill.

[9] See Pogrow, *op. cit.*

Clarify Ambiguous Provisions of Current Law

We recommend that the Legislature amend provisions of current law to clarify the responsibilities of the Educational Technology Committee and the State Board of Education in establishing a budget for the Educational Technology program.

As noted above, current law does not indicate clearly which entity—the State Board of Education or the Educational Technology Committee—makes the final determination on how Educational Technology funds are to be allocated among various components. Specifically, it is not clear whether current law allows the State Board of Education to revise the Educational Technology Committee's funding proposals, or whether, instead, it requires the board merely to perform the ministerial duty of carrying out the committee's recommendations.

We have no analytical basis for recommending one entity or the other as being more appropriately responsible for establishing a budget for the Educational Technology program. Rather, this is a policy decision which only the Legislature can make. In order to avoid unnecessary confusion, however, we believe that the Legislature should clarify this matter by amending Sections 41920 and 51873.1 of the Education Code to indicate its intent.

Summary

We recommend that the Educational Technology Local Assistance program be continued, with the following modifications:

- The Educational Technology Committee, in conjunction with the State Board of Education, should revise the state long-range educational technology plan in order to develop more specific estimates of funding needs, and a timetable for meeting those needs;
- The Legislature should require that (1) all recipients of Educational Technology program funds complete program evaluations based on educational outcomes, using models developed by the State Department of Education and (2) the SDE use these evaluation results to identify cost-effective uses of educational technology;
- The Legislature should explicitly address the issue of "equitable access" to Educational Technology program funds, by (1) clarifying the meaning of this term, as it is used in the enabling legislation, (2) specifying funding allocation mechanisms for each grant program, based on the definition of equity adopted, and (3) indicating whether grant funds may be "targeted" to particular uses;
- The Legislature should reestablish a network of regional support service delivery centers, in order to administer the adoption/expansion grant process and provide local education agencies with needed technical assistance regarding applications of educational technology; and
- The Legislature should amend ambiguous provisions of current law to clarify the responsibilities of the Educational Technology Committee and the State Board of Education in establishing a budget for the Educational Technology program. ❖

Chapter III

Chapter III

Comments on Recommendations of the State Department of Education

The State Department of Education (SDE) makes nine recommendations in its sunset review report. For the most part, these recommendations propose the continuation of existing aspects of the Educational Technology Local Assistance program but do not suggest ways in which the program may be improved. In cases where the report does recommend a change, the proposal is usually described in general terms, and is not supported by any analysis presented in the report. For these reasons, our ability to respond to the department's recommendations--as presented--was hindered and, in several instances, it was necessary to obtain additional information from the department before we could respond.

We note those instances in the discussion that follows.

Adoption/Expansion Grant Program

The department notes that, at the time its report was written (following the third cycle of grant funding), the adoption/expansion grant program had reached 52 percent of schools and that the remaining 48 percent of schools should also benefit from the program. The department further states that "continuing expenditures...at the school level are needed to provide the critical mass of hardware and software necessary for improving curriculum delivery with educational technology."

Legislative Analyst's Comments

We concur that, on grounds of equity, it is reasonable to continue the adoption/expansion grant process until all schools that wish to participate in the program have had an opportunity to receive funding. We further recommend, however, that the Legislature address the issues of (1) whether the adoption/expansion grant program should continue once all such schools have had the opportunity to be funded and (2) if it should continue, what mechanism should be used to distribute the funds?

The department's sunset review report does not indicate what level of funding is needed in order to provide a "critical mass" of hardware and software at each school site. In response to our inquiries, department staff indicated that they had no specific amount in mind, but rather that (1) the "critical mass" is determined independently by each school and (2)

various funding sources (including Educational Technology funds) may be combined to provide the resources necessary to create this "critical mass." In this same response, however, the department notes that, *based on the average grant size thus far,* approximately $26 million would be needed to fund all previously unfunded schools. Thus, the department appears to argue for the continuation of the adoption/expansion grants *at existing funding levels per school.*

The department has not provided the Legislature with any analytical basis for the determination of the amount of state funding for educational technology that is *needed* by schools. (We addressed this issue in greater detail previously, in our discussion of program funding needs.) Nevertheless, we believe that, on *equity* grounds, it is reasonable to continue funding for the adoption/expansion program, at current grant levels, until all schools that desire to participate in the program have a chance to do so. For this reason, we concur with the thrust of the department's recommendation.

We also recommend, however, that the Legislature address two issues related to the future of the adoption/expansion grant component. Following the most recent (fourth) cycle of adoption/expansion grant awards, over two-thirds of the state's schools (representing about 78 percent of all students) had received such grants. Thus, if this component of the Educational Technology program continues to receive funding, it will not be long before all schools in the state that desire such an award will have received one. It would be appropriate, therefore, for the Legislature to specify how the adoption/expansion grant component shall continue, once all interested schools have received a grant. In this regard, we believe that the Legislature should consider the following issues:

- ***Should funding for this purpose continue at all?*** Given that the adoption/expansion grants were intended as "seed money" to stimulate local interest in using educational technology, is there an ongoing need to provide state funding for this purpose once all schools have been funded?
- ***If funding is provided, should it be awarded on a formula basis, or through a competitive grant process?*** The current program uses a competitive process--a system that is defended on the grounds that it forces schools to develop meaningful plans for the use of educational technology. Continuing this approach in the future could provide schools with incentives to update their educational technology plans, if required to do so by the reauthorizing legislation. A formula approach, in contrast, would be simpler and less costly to administer--potentially freeing up additional funds for grants. (As noted earlier, in 1986-87, a total of approximately $1.1 million was provided TECCs for administering the adoption/expansion grant award process and providing technical assistance to applicants. This equaled 8.4 percent of the total amount of adoption/expansion grant funds awarded in that year.)

Local Educational Technology Plans

As part of its application for adoption/expansion grant funds, each school is required to develop and submit a local educational technology plan. This plan then becomes the basis for the school's use of educational technology funds. The SDE recommends that "[s]trategies...be developed to encourage and assist districts to continue to implement, and to update, local educational technology plans." The department further recommends that these plans (1) be integrated with school district plans for curriculum and instructional

reform and (2) incorporate the goals, objectives, and strategies of the state long-range educational technology plan.

Legislative Analyst's Comments

We generally concur with this recommendation, as subsequently elaborated upon by the SDE.

The department's sunset review report did not indicate what kinds of strategies should be used to encourage districts to implement and update their local plans. Department staff subsequently indicated that, due to the demise of the TECCs, this recommendation had been rendered moot.

These staff members further indicated, however, that the SDE was considering allocating up to $900,000 from the 1988-89 Educational Technology program budget for the purpose of providing technical assistance in the implementation of their plans to schools receiving funding during 1987-88 and 1988-89. These funds would be distributed to a number of existing regional agencies (such as county offices of education), using a competitive application process. The selected agencies would also be responsible for:

- Assisting nonapplicant schools in the development of local educational technology plans and the submission of grant applications;
- Disseminating findings from the Level I and Level II Model Technology Schools to other schools within their regions; and
- Assisting schools in evaluating the outcomes of their uses of Educational Technology grant funds.

Based on our findings presented earlier, we believe that this would be a reasonable use of Educational Technology funds, on a one-time basis, in 1988-89. Consistent with our recommendation in Chapter II, however, we also recommend that (1) the Legislature enact legislation to reestablish a network of support services delivery centers and (2) the SDE develop a specific funding proposal for these centers and submit it for consideration in the 1989-90 Budget Bill.

Model Technology Schools

The department recommends continuation of research and development through the Level I and Level II phases of the Educational Technology Model Schools Project.

Legislative Analyst's Comments

We concur with this recommendation.

The Educational Technology Model Schools Project provides grants to study two approaches to the infusion of technology into schools.

The first approach (Level I) provides grants to each of five school complexes (a school complex consists of an elementary school and an intermediate school and high school into which it feeds students) for in-depth study of the application of technology in all phases of the schools' operation. In support of this objective, each Level I complex is required to establish an ongoing research relationship with a local higher education institution. Level I projects are anticipated to last between three and five years; during 1986-87 and 1987-88, five selected complexes have each received a grant of $500,000 to support the first 13 months of program operation.

The second approach (Level II) provides smaller grants to develop applications of technology in a single subject area, across all grade levels. Once developed, these applications will be packaged and disseminated to interested schools throughout the state. The Level II projects are anticipated to last about two years each; in 1986-87, nine schools received

grants of $80,000 and one school received a grant of $70,000 to support 15 months of program operations.

Our review indicates that the Model Schools Project generally--and the Level I projects in particular--are likely to provide useful information regarding the most cost-beneficial applications of educational technology in schools. The department's sunset review report merely recommends continuation of funding for the projects that have already begun. We concur that this is appropriate.

Staff Development

The department's sunset review report states that "additional district-level planning is required to provide adequately for the training of teachers and administrators through the development of peer training and support teams." It then goes on to recommend that (1) the Educational Technology Summer Institutes focus on training teachers who can be trainers within their own districts and (2) the district educational technology plans of sponsoring districts incorporate the use of these trainers.

Legislative Analyst's Comments

We generally concur with these recommendations. Consistent with our recommendations in Chapter II, however, we further recommend that the SDE evaluate the cost-effectiveness of the summer institutes, versus other approaches to training educators in the uses of educational technology.

The department's recommendation with respect to the summer institutes merely calls for a continuation of the status quo; the summer institutes currently use a "trainer of trainers" approach, in which teachers attending the institutes are expected to train other teachers upon returning to their respective districts. This approach, which has been used in other staff development programs, is generally more cost-effective than training all of the teachers directly. The department, however, was unable to provide specific information regarding the cost-effectiveness of the institutes.

In response to our inquiries, department staff stated that evaluations of the 1986 summer institutes (the only evaluations currently available) "varied in their focus as well as their level of detail." They further stated that the department had not reviewed the evaluations in sufficient detail to provide estimates of the numbers of additional teachers trained by the participants in the summer institutes.

We think that this information, together with some measurement of the effectiveness of the training (for both participants and those trained by them) is necessary, if the Legislature is to make an informed decision regarding the continuation of this component of the Educational Technology program. For this reason, we recommend that the summer institutes--as well as all of the other components of the Educational Technology program--be subject to the kinds of rigorous evaluation requirements discussed earlier in this report.

Pre-Service Training of Teachers

Chapter 1433, Statutes of 1985 (AB 1681) requires that, as of July 1, 1988, the minimum requirements for a clear teaching credential shall include completion of a course in computer education. The department states that, "[a]s the provisions of AB 1681 are put into place, there are many opportunities for the K-12 system...to cooperate with IHEs [(institutions of higher education)] in the provision of the necessary training." The department rec-

ommends that, "on a matching basis" with these institutions, Educational Technology local assistance program funds be used "to fund a series of initiatives to develop course materials for use in pre-service training and to train IHE faculty in the implementation of technology in their curriculum specialties."

Legislative Analyst's Comments

We are unable to comment on this recommendation, because it lacks sufficient specificity.

The department's sunset review report does not indicate (1) what level of funding is needed for this purpose or (2) what the appropriate matching rate should be between funding provided by the Educational Technology program and the IHEs (such as the California State University). In response to our inquiries, department staff noted that the Educational Technology Committee had not set the amount of funding to address this recommendation. Accordingly, we have no basis on which to comment on this recommendation.

Software Development Partnerships

In 1986-87 and 1987-88, the state spent a total of $1 million on six software development partnerships to address areas of the curriculum where high-quality video and computer software is currently lacking. Under these partnerships, the SDE defines the subject areas to be covered, establishes criteria for measuring quality, and shares in the development costs. Software developers produce the specified software, pay the remainder of the development costs, and agree to sell the products to California schools at a discount and/or provide a royalty to the SDE on out-of-state sales. The department recommends that the software development partnerships be continued "...to ensure that high-quality materials geared to California's curriculum frameworks and standards continue to be produced."

Legislative Analyst's Comments

We concur with this recommendation.

There is general agreement that, compared to the market for business software, the market for educational software is quite limited. The educational software which is produced tends to be rather general in application (in order to reach the broadest possible segment of the market), and often is designed for use both at home and in the schools. As a result, high-quality software tied to specific areas of California's K-12 curriculum is frequently lacking (these gaps were identified as part of the Technology in the Curriculum project). Our review indicates that the software development partnerships appear to be an appropriate means of stimulating the production of such software, at a reasonable cost to the state. Accordingly, we concur with the department's recommendation that they be continued.

Telecommunications Pilot Project

The department recommends that a pilot project to test the use of telecommunications technology for instructional and administrative purposes be funded, based on "[t]he strong rationale for a state leadership role" in this area.

Legislative Analyst's Comments

We are unable to comment on this recommendation, because it lacks sufficient specificity.

In response to our inquiries, department staff indicated that work on the telecommunications pilot project had been suspended as of November 1987. They further stated that "[a]dditional policy review and studies will need to be completed in order for a new project to be funded in the future." Accordingly, we have no basis on which to comment on this recommendation.

Ongoing Software Reviews

In 1984-85 and 1985-86, the department allocated approximately $1.8 million for the development of Technology in the Curriculum (TIC) Resource Guides in each of six academic subject areas. These guides review and identify computer software and video programming which support the state curriculum frameworks and model curriculum standards. In 1986-87, the department contracted for the development of an "update guide," to cover software that had been published since the original guides were written. Each school in the state received a copy of the TIC Resource Guides and the update guide.

In its recommendation, the department states that "eventually, all educational computer software and video programming with potential for use in California schools should be reviewed." To this end, the department recommends (1) the establishment of "a comprehensive review procedure for computer software and video programming" and (2) "implementation, on an extended basis, of the Technology in the Curriculum type of review."

Legislative Analyst's Comments

We concur that there is a need to provide educators with information to assist them in choosing high-quality, curriculum-related educational software. We are unable to comment on this recommendation, however, because it lacks sufficient specificity.

The department's report does not specify the type of "comprehensive review procedure" it has in mind, nor does it indicate a timeline and funding plan. In response to our inquiries, department staff indicated that they had hoped to test some type of "on-line" method of updating software and video reviews as part of the proposed telecommunications pilot project. When the project was put on "hold," however, this plan was abandoned. Consequently, the department allocated approximately $130,000 from the 1987-88 Educational Technology budget for the publication of one more volume of the TIC update guide, and has no definite plans for further updates in the future.

Our review indicates that there will be an ongoing need on the part of educators for a source of impartial guidance in choosing among the increasing number of educational software products that are available each year. Accordingly, we encourage SDE to develop a specific proposal that would meet this need in a cost-effective manner.

Technical Amendments to Chapter 1133/83

The department recommends that it seek unspecified "technical, clean-up changes" to Chapter 1133, in order to rectify (1) problems that have led to delays in disbursement of funds to eligible agencies and (2) other technical inconsistencies.

Legislative Analyst's Comments

We are unable to comment on this recommendation, because it lacks sufficient specificity.

The department's sunset review report does not identify either (1) the specific problems that have led to funding delays or (2) the changes in law that would address these problems. In response to our inquiries, department staff stated that the department had sought clean-up legislation, but that this legislation had subsequently been withdrawn. ❖