

SRI International

March 2005

THE INDEPENDENT EVALUATION OF THE SCIENCE TEACHERS INITIATIVE (CASCITI)

DRAFT

YEAR 1 REPORT

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CHAPTER 1—INTRODUCTION

In July 2003, the California Science Project (CSP) received funding from the federal No Child Left Behind Act (NCLB) for the California Science Teachers Initiative (CASCITI) to improve science instruction in California by providing professional development to teachers. This evaluation describes the CSP’s work since from 2001-02 (the time of the last California Subject Matter Projects [CSMP] evaluation) to 2003-04 and assesses whether it met its goals under CASCITI. This chapter first outlines the CSP’s background to enable the reader to understand CASCITI in context and then presents an overview of this evaluation and report.¹

The CSP operates in a larger statewide network of professional development providers. California’s policy-makers, in an effort to improve the instructional skills and content knowledge of beginning and experienced teachers, have developed a series of professional development programs. Key among these initiatives has been CSMP, a long-standing operation administered by the University of California Office of the President (UCOP) and housed on university campuses across the state. The network of nine CSMP was established in 1988 by SB 1882 (Swofford) and provides content-rich subject matter professional development in the following academic areas: art, foreign languages, history-social studies, international studies, mathematics, physical education and health, reading and literature, science, and writing. The CSP has one of the most extensive networks in the CSMP, operating 19 sites across the state.

The approach of all CSMP is to bring teachers together for extended periods to build the content-specific expertise and pedagogical skills necessary to help students meet California’s K-12 standards and curriculum frameworks. To achieve these goals, the CSP, like all CSMP, provides professional development to teachers, develops teacher leadership, and builds discipline-specific networks of teachers and faculty.

The CSMP has historically provided activities that include many of the features identified in research on effective professional development. These include: sufficient duration (longer events are more likely to improve teacher practice), collective work (teachers are more likely to implement new knowledge and skills if they attend events with colleagues), content focus (teachers need deeper content knowledge to teach to challenging academic standards), active learning (the more engaged teachers are, the more likely they are to learn), coherence (teachers are more likely to implement new strategies if they are aligned with curricular materials, standards, assessments, and other policies affecting teachers), differentiation (professional development should match the skill level of participating teachers), and ongoing “reform” activities like study groups or mentoring that seek to change teacher practice (one-time

¹ Because this evaluation overlaps with the larger CSMP study, some of the text in this report appears in that report as well.

workshops tend to be minimally effective) (Birman, Desimone, Porter, & Garet, 2000, May; Garet et al., 1999; Kennedy, 1999; Loucks-Horsley, 1999).

During its many years of operation, the CSMP has been subject to many changes due to the constantly evolving education policy environment. Periodically, UCOP issues a Request for Proposals (RFP) to approve potential and existing CSMP sites. Each RFP includes specific requirements that sites must meet to receive funding, and policy-makers have used these reauthorizations to focus the work of the CSMP on state priorities. Although the Projects have continuously provided discipline-specific training to teachers, they have made shifts in their target audiences and adjusted their menu of activities to meet the requirements of new RFPs and federal legislation. In recent years, for example, the state has increased efforts to boost achievement in low-performing schools and has focused reform initiatives around the content standards. To support these efforts, AB 1734 (1998, Mazzoni) and the reauthorizing RFP directed the CSMP to reserve 75% of available institute slots for teachers from “low-performing schools” (schools in the bottom 4 deciles of the state’s Academic Performance Index [API]), to partner with low-performing schools, and to provide standards-based professional development. In addition, the RFP required sites to evaluate site activities, with a particular focus on student achievement. The 2001 RFP expanded partnership work to focus on districts and also reflected the state’s growing attention to English language learners (ELLs) by requiring that Projects provide activities that addressed literacy through the content areas and the needs of teachers of ELLs.

In 2003-04, the CSMP received substantial funding from NCLB. CASCITI augmented that funding for the CSP. Overall, these funds added two new requirements: providing professional development and training programs for teachers who needed to achieve “highly qualified” status, and serving and supporting schools that missed their targets for Adequate Yearly Progress (AYP) under the federal law. CASCITI also included the following additional goals: help teachers teach literacy through science, prepare teachers to meet the needs of ELLs in science, improve the knowledge and qualifications of teachers who teach science—especially fourth- and fifth-grade teachers, and conduct research and evaluation that generate knowledge about effective instructional practices.² These goals complemented the work the CSP had been doing for several years while responding specifically to the current needs of California’s science teachers.

² The CASCITI proposal also sought to develop rural networks to meet the needs of rural teachers better; however, because of delays in funding (caused in part by the recall of Governor Gray Davis), that work is in preliminary stages and is not discussed in this report.

OVERVIEW OF THE CSP EVALUATION

Because CASCITI is aligned with the ongoing work of the CSP, it would be both challenging and unhelpful to disentangle the work done with CASCITI funds from the CSP's overall program. Accordingly, this evaluation examines the CSP's effectiveness both in meeting its goals under CASCITI and, more broadly, under the current RFP from UCOP. This study is one of three reports on the CSMP to be completed by SRI International (SRI) under contract with UCOP. This report and the final report evaluate the effectiveness of the CSP by addressing the following five research questions:

1. How is the CSP responding to the current policy context, including changes in funding and organizational pressures for fiscal efficiency?
2. What are the scope and scale of CSP activities? To what degree do CSP activities address the needs of:
 - a. Teachers of ELLs?
 - b. Low-performing schools?
 - c. Underprepared teachers?
3. What is the nature of the professional development provided by the CSP, and to what extent is it consistent with the literature on high-quality professional development?
4. To what extent has the CSP been able to meet its goals under CASCITI of:
 - a. Increasing the number of "highly qualified" science teachers?
 - b. Improving teachers' ability to integrate science, reading, and writing?
 - c. Preparing teachers to provide all students, particularly ELLs, with high-quality, standards-based science instruction?
 - d. Building stronger rural networks?
 - e. Increasing fourth- and fifth-grade teachers' abilities to teach all students to standards?
 - f. Building and disseminating knowledge of effective practices?
5. How does the CSP affect teachers' abilities to provide high-quality, standards-based instruction in specific content areas? How does the CSP affect teachers' abilities to provide high-quality, standards-based instruction for ELLs in specific content areas?

This report addresses the first four research questions. The final report on the CSMP will include a chapter that specifically addresses the impact of the CSP on participating teachers' practices (Question 5).

DATA COLLECTION ACTIVITIES

The evaluation will encompass several data collection activities over 2 years (Exhibit 1-1). This first year report is based on findings from an analysis of prior research on the CSP; a review of CSMP internal data files; visits to summer institutes at three CSP sites; a site director survey; and interviews with the CSP executive director, site director(s) from each site, and consultants providing technical assistance. The second year's report will detail findings from additional evaluation activities, including surveys and case studies of participating teachers.

**Exhibit 1-1
Evaluation Activities**

Year 1	Year 2
<ul style="list-style-type: none">• Review of CSMP internal data files and documents• Interviews with the CSP executive director, site leaders, and consultants• Observation at a CSP site director meeting• Survey of site leaders• Review of prior research conducted on the CSP	<ul style="list-style-type: none">• Review of prior research conducted on the CSP• Review of internal CSMP data files• Interviews with Project leaders• Survey of participating teachers• Case studies of participating teachers

Interviews with the executive director, director(s) of all sites, and CSP consultants formed the core of our data. The interviews provided data on the goals of CSP sites, the nature of sites' work, funding for CSP sites, the influence of state and federal policies on the CSP, sites' self-evaluations, and the work of the CSP network. Observing a site director meeting allowed us to triangulate the interview data.

Visits to summer institutes at three CSP sites underscored themes that arose during interviews and at the site director meeting. For example, we were able to observe activities that site directors indicated as exemplifying the work of their sites. Many of the internal evaluations we reviewed contained substantial information about events at other CSP sites and furthered our understanding of the CSP's work. We also reviewed Project materials, including budgets and Web-based program descriptions. In combination, these data sources provided evidence about how the CSP was addressing CASCITI goals and managing other demands made by the current policy context.

The review of CSMP internal data files consisted of an analysis of Project data collected from UCOP's Online Information System (OIS), including information on site partnerships, CSP participants, and CSP events. Readers interested in greater detail about our analyses than is

provided in this report should consult the *Evaluation of the California Subject Matter Projects: Technical Appendix* (Hough, Price, Satele, Gallagher & Shields, 2005).³

Finally, we conducted an online survey of all site directors at the nine Projects during fall 2004. Site directors from all 19 CSP sites responded. Survey analysis included a longitudinal component, in which we compared site director responses in 2004 to survey responses from previous CSMP evaluations in 2001 and 2000 (Quick et al., 2002). The 2004 survey contained a mix of closed- and open-response items. In this report, we sometimes quote open-response items to give voice to a site director's thoughts. In each instance, the response is representative of those by several individuals who made similar statements. For a more detailed discussion of survey methods, please see Appendix A.

REPORT ORGANIZATION

This report, organized into six chapters, describes the work of the CSP from its last evaluation in 2001 through the conclusion of CASCITI funding in September 2004. Chapter 2 discusses important budget and policy changes that have affected the CSP. Chapter 3 describes the scope and scale of the CSP, including the partnership structures, participants served, and types of events offered. Chapter 4 describes the nature of the work of the CSP. Chapter 5 addresses the effectiveness of the CSP by discussing findings from sites' evaluations of their work. Chapter 6 presents a summary of the report and of CSP's effectiveness in meeting its goals under CASCITI.

³ This evaluation does not use data from either the OIS or the site director survey to compare the CSP with other Projects. Interested readers can consult the CSMP Year 1 evaluation for all such comparisons.

CHAPTER 2—BUDGET AND POLICY

The CSP faces a persistent challenge as it tries to adapt to constantly shifting policy and financial contexts. In the past few years, while the California state budget went from surplus to crisis, the federal government, through NCLB, began holding public schools to higher standards and closely scrutinizing their instructional efforts. Even before NCLB was passed, California had begun implementing standards and accountability policies that offered rewards to, and exerted pressures on, low-performing schools in hopes of spurring improvement. To focus more resources in those schools, state policy-makers charged the CSMP with helping achieve state standards. This chapter provides the context for the remainder of the evaluation by describing how the CSP responded to changes in funding and accountability over the last few years.

FUNDING FOR THE CSMP AS A WHOLE: 1999-2000 TO 2003-04

The CSP began in 1990 under state legislation (SB 1882, Swofford) that authorized the creation of a network of nine subject-specific professional development providers. Since its inception, the state has provided, and UCOP has administered, the core funding for the CSP. UCOP allocates funding to the sites through RFPs. During each funding cycle (typically once every 3 years), UCOP issues an RFP that invites institutions of higher education and county offices of education across the state to become a CSMP site or to continue their work as members of the CSMP network. UCOP approves sites for up to 3 years, and each site must undergo an annual review and rebudgeting process.

The 2001 RFP required sites to offer institutes (each of which had to include a focus on content knowledge; an emphasis on ELLs, and discipline expertise from university academic departments); support subject-specific regional teacher networks; and evaluate site activities, with a particular focus on student achievement. In addition, UCOP expected that CSMP sites working with the same partner district would collaborate with each other to produce “a coherent, coordinated set of plans and program goals.”

Each site approved in the 2001 RFP process was to receive \$130,000 in core funding for the infrastructure required to operate essential programs and services. The state also provided supplementary funding to sites for two activities—district partnerships and Teacher Pathways (discussed below).

UCOP, which wanted sites to move from a school partnership model to a district partnership model, developed a funding formula that favored the latter model.⁴ After submitting

⁴ Sites could apply for funds up to the following amounts per eligible district: \$3,500 for very small districts (fewer than 1,000 students); \$10,000 for small districts (1,000–9,999 students); \$35,000 for medium districts (10,000–34,999 students); and \$50,000 for large districts (35,000 students or more). Sites working with low-performing schools that were not in low-performing districts were eligible for half of the amounts listed above.

a partnership letter of intent, each site received district partnership funds based on the size of the district, the number or percent of low-performing schools, and the degree of service outlined in the partnership plan. The money was to be used to offset the overhead costs of initiating and managing a district partnership. The funds covered only 75% of the expected costs, however. The state expected the districts to pay the “lion’s share” of associated programming costs (i.e., fees required to produce activities), and the site would be responsible for helping its partners determine how to meet costs with internal and external resources (e.g., AB 466, Title I, etc.). Because sites received allocations for each partnership, they were able to offer partner districts and schools resources in return for entering into formal partnership agreements.

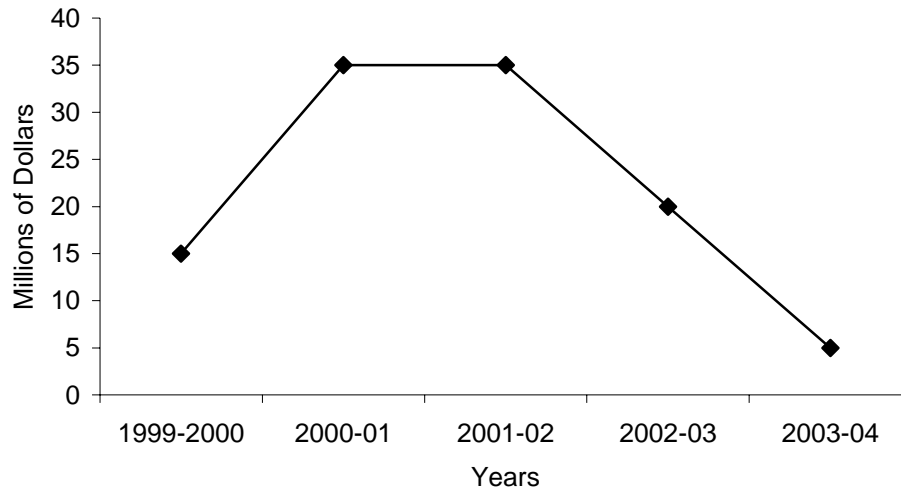
Sites could also receive up to \$40,000 for committing time and resources toward aligning teacher education programs along Teacher Pathways. These programs supported the development of teachers throughout their professional career, from their undergraduate years to retirement. Teacher Pathways’ funds supported site infrastructure for planning and maintaining agreements with teacher education entities on and off campus.

Recent Decline in State Funding

Over the past few years, the CSMP, much like the state’s economy, experienced a boom and bust funding cycle. In the early 2000s, as part of a larger effort to improve teacher quality in California, the state dramatically increased CSMP allocations from \$15 million in 1999-2000 to \$35 million in 2000-01—the largest amount in the program’s history.⁵ As Exhibit 2-1 illustrates, after rising dramatically at the beginning of the decade, state funding for the CSMP declined precipitously, falling from \$35 million to \$5 million (and is expected to remain at \$5 million for 2004-05). A percentage of this decreased allocation was offset by an annual federal contribution of \$4.4 million from NCLB beginning in 2003-04 (and continuing to 2004-05) and by the CSP’s CASCITI grant.

⁵ All figures cited as funding are budgeted figures, not expenditures. Accordingly, they do not represent funding streams, which allow unspent funds to be carried over from one year to another. Nor do they account for funding that arrives late in the fiscal year for which it is budgeted. Reporting budgets, rather than expenditures, makes achieving consistency in reporting across years relatively straightforward, even though doing so may exaggerate differences between years. We thus report budget figures, except when otherwise noted.

**Exhibit 2-1
State Funding for CSMP, 1999-2000 to 2003-04**



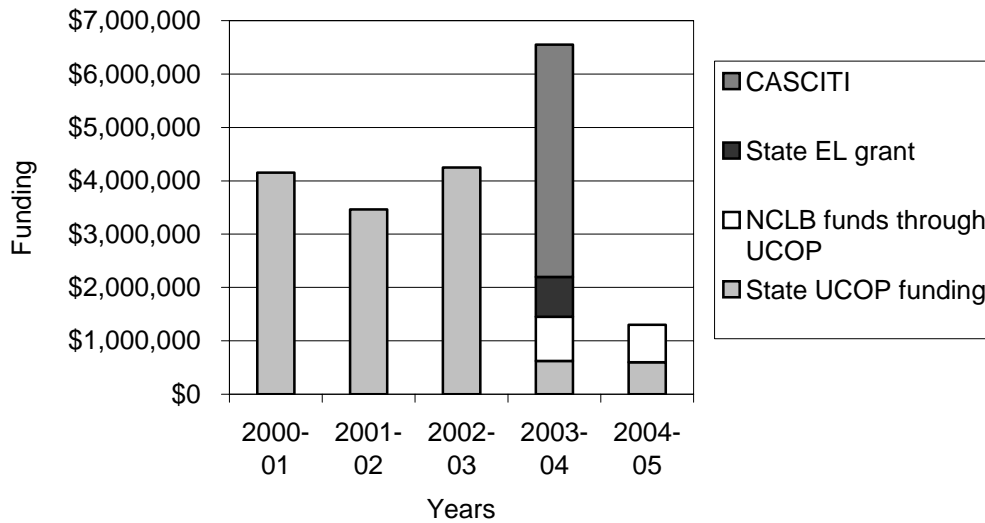
Source: UCOP (2003, 2004a).

Funding for the CSP 2000-01 to 2004-05

Funding for the CSP mirrored that for the CSMP as a whole from 2000-01 to 2004-05.⁶ While California enjoyed a strong financial position, the CSP received significant funding. As the state's fiscal situation deteriorated, however, the state allocated increasingly lower levels of funding to the CSP. Exhibit 2-2 shows CSP funding from 2000-01 through 2004-05.

⁶ At the time of this writing, the state has not finalized the allocations of either state or federal funds to the CSP (or the CSMP as a whole) for the 2004-05 school year; thus, all figures for 2004-05 are estimates.

Exhibit 2-2
Funding for the CSP 2000-01 through 2004-05⁷



Source: UCOP (2004b).

As Exhibit 2-2 shows, the state allocated approximately \$4.1 million to the CSP in 2000-01, with the allocation declining slightly to \$3.4 million in 2001-02. State support peaked at \$4.3 million in 2002-03. In 2003-04, the CSP received \$2.2 million through UCOP; of that amount, the \$1.5 million in core funding included a mix of state (\$625,000) and federal NCLB (\$825,000) dollars allocated through UCOP. An additional \$750,000 came from a one-time state allocation for work with ELLs. The sharp decline in funding through UCOP, however, was offset by the \$4.3 million of California’s NCLB funds that the CSP received from the CASCITI grant.⁸ In September 2004, CASCITI ended, and the state allocation is expected to drop to about \$600,000, with an additional \$700,000 of NCLB funding also provided through UCOP. This change will represent a dramatic decline in CSP funding.

The budget picture provided by the allocations masks an aspect of funding that has had a dramatic effect on sites, however. The state’s fiscal year runs from July 1 through June 30 of each year. For many sites, summer institutes (intensive professional development activities that

⁷ Note that the California and federal fiscal years are not aligned. Funding reported in this report for 2003-04, for example, covers the state fiscal year from July 1, 2003 to June 30, 2004, and the federal fiscal year from October 1, 2003 to September 30, 2004.

⁸ The federal allocation for CASCITI was first made in October 2002, but a variety of circumstances (including the recall of former Governor Gray Davis) led to a delay in sites’ receipt of funds until spring 2004. Although core CSP funding generally flows through UCOP, the University of California, Los Angeles (UCLA), administered CASCITI funding. Because the CASCITI funds went through the California Department of Education to UCOP and then to UCLA, we concluded that UCLA’s administration of the grant was not a large enough distinction to warrant treatment as a separate category of funding.

average a week in length) have been the single biggest expense each year. These institutes have generally taken place at the start of each state fiscal year, and have required sites to plan their expenditures far in advance so that they could hire presenters, acquire materials, and recruit participants. (Recruitment has frequently included payment of stipends to teachers for attending institutes and related follow-up.) The availability of federal funds (like CASCITI) has further complicated the timing of institutes and funding, because the federal fiscal year does not begin until October 1, long after the completion of summer institutes at CSP sites. The different timing of the state and federal fiscal years has frequently required sites to carry forward funding from previous fiscal years to pay for summer institutes and sometimes to “re-charge” by paying costs after they have been incurred.

This informal, but necessary, system of “carryover” and “re-charge” has had both benefits and drawbacks. On the one hand, carrying funds over into leaner years has allowed the CSP and its sites to tolerate some of the more dramatic fluctuations in funding allocations. On the other hand, because of the delay in the allocation of CASCITI funding, 2002-03 state funds (which represented the highest state allocation ever for the CSP) had to be used to pay for summer institutes conducted in both 2002 and 2003; thus, the peak in state funding did not enable sites to increase expenditures.

At the site level, funding became increasingly complicated from 2001-02 to 2004-05. As CSP funding declined, the CSP statewide office reduced the funding that most sites received. To offset the decline in UCOP funding, other sites tried to secure federal funding and undertook major grant-writing activities. In addition, as UCOP-distributed funding for the CSP declined, sites were encouraged to move from a model of offering free professional development to participating teachers and districts to a “fee-for-service” model, under which districts or participating teachers paid a fee for attending activities.

VARIATIONS IN FUNDING AMONG CSP SITES

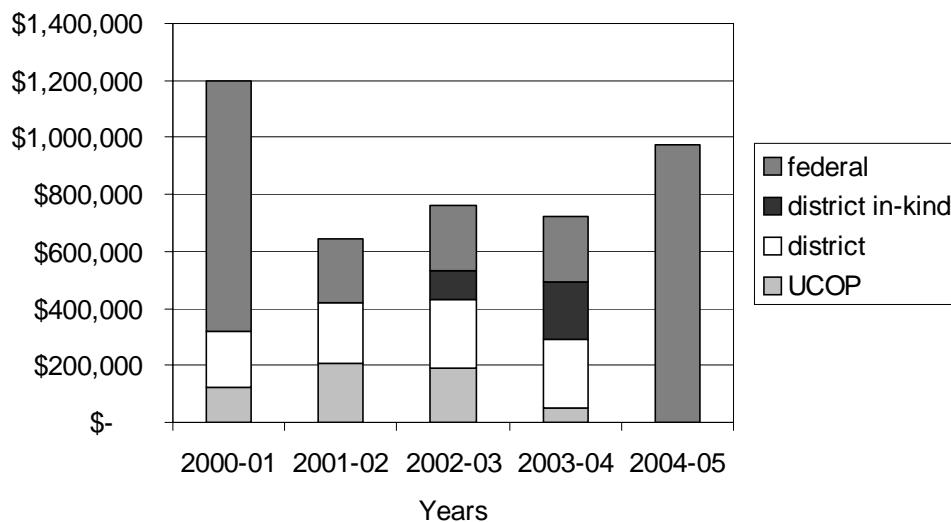
Understanding a particular site’s funding situation is made difficult by the multiple funding sources possible. Focusing on tracking UCOP funding for a site may ignore shifts in funding from other sources. To shed light on sites’ specific funding situations, we describe fluctuations in funding from 2000-01 through 2003-04, with projections for 2004-05, for three cases. The first case study site began with an NSF grant and received substantial funding from multiple sources since its inception. The second case study site also began with an NSF grant and received substantial NSF support for several years, but the site then saw a decline in all funding

sources. The third case study site relied almost solely on UCOP funding.⁹ Although these case study sites do not represent the funding patterns for all CSP sites during this time, they illustrate the wide range of differences that exist across sites and variations in the degree to which sites have been affected by fluctuations in CSP funding.

Case Study Site 1: External Roots Provide a Deeper Foundation

The first case study site tapped into multiple sources of funding, demonstrating how a diverse funding base can protect a site from state budget reductions. The site began as an NSF-funded science education project in the late 1990s. As Exhibit 2-3 shows, site funding varied substantially between 2000-01 and 2004-05, reaching a high of \$1,196,000 in 2000-01, the last year of NSF funding, and a low of less than \$643,574 the following year. Since then, funding fluctuated from year to year, with increases in 2 out of 3 years.

Exhibit 2-3
Funding Trends for Case Study Site 1 from 2000-01 to 2004-05



Source: Case Study Site 1 (2004).

This overall variation, of course, reflected changes in the level of funding from its various sources. For example, the bottom section of each bar in Exhibit 2-3 shows that funding from UCOP rose from \$125,000 in 2000-01 to about \$200,000 in each of the next 2 years before dropping precipitously to \$50,000 (funded by CASCITI) in 2003-04. Over this same period, funding from three partner districts increased slightly each year—from \$196,000 in 2000-01 to

⁹ For all cases, we refer to funding received from the CSP or other UCOP initiatives as “UCOP” funding, regardless of whether the funds originated in state or federal allocations. We chose to include this funding under UCOP because it partially replaced the stream of funding the state historically provided to the CSMP.

\$242,000 in 2003-04. Additionally, beginning in 2002-03, at least one partner district paid the full-time salary and benefits of a teacher and released the teacher full-time to serve on the science project staff. This in-kind contribution amounted to approximately \$100,000 per teacher each year. (Two full-time teachers were funded in 2003-04.)

From 2000-01 to 2004-05, the site also consistently won federal funding. In 2000-01, the NSF provided this support (the final year of a 3-year NSF grant); from 2001-02 to 2003-04, federal funding came from Title VII (which funds activities related to the education of Native Americans); in 2004-05, the site partnered with a local educational agency (LEA) to win a federal California Mathematics and Science Partnership (CaMSP) award (initially given for 1 year, with 2 additional years possible).¹⁰ The district and site used the CaMSP funding to provide instructional coaches and other resources that the districts supplied directly to this site in previous years.

Fortunately for this site, the increases in all other sources of funding compensated for the decline in UCOP funding, in part reflecting that UCOP funding amounted to only 17% of the site's budget from 2000-01 to 2003-04.¹¹ Consequently, severe cuts from UCOP (74%) did not lead to a drastic reduction in overall funds available for the site. The close relationship this site had with partner districts also contributed significantly to its financial stability. The districts not only provided direct resources, but also trusted the site and allowed it to re-charge as needed to weather funding lags.

Case Study Site 2: Declining District Support

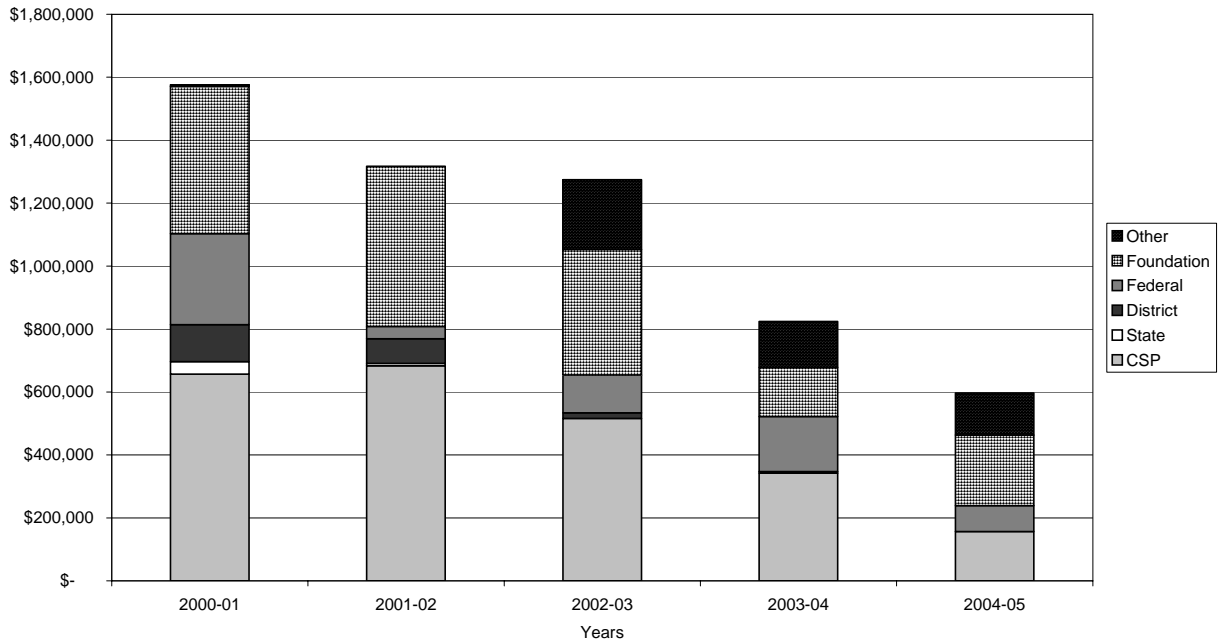
The second case study site provides a contrasting example of site funding where declines in UCOP funding were accompanied by reduction in funding from other sources as well, resulting in a steady decline from a high of \$1,709,000 in 2000-01, to a low of about \$607,000 for the projected budget in 2004-05 (Exhibit 2-4).¹²

¹⁰ Some funding streams flow to CSP sites through other organizations. The CaMSP awards, for example, were federal funds that went to LEAs. For the sake of consistency, throughout this section we categorize the initial source of the funding, rather than the type of organization that administered the grants. The one exception was NCLB funding that flowed through UCOP.

¹¹ The percentage does not include funding for 2004-05 because only the CaMSP funds have been confirmed.

¹² Unlike other case study sites, carry forward is listed in the year expended, as opposed to the year that funding was initially allocated.

**Exhibit 2-4
Funding Trends for Case Study Site 2 from 2000-01 to 2004-05**



Source: Case Study Site 2 (2004).

Examining trends in UCOP support for this site further highlights the complexity of the funding situation. Overall UCOP funding decreased from more than \$650,000 in both 2000-01 and 2001-02 to \$516,000 in 2002-03 and then dropped further to \$342,200 in 2003-04. The site expects that amount to decline to \$157,000 in 2004-05. Exhibit 2-5 displays Case Study Site 2’s specific UCOP funding allocations.

**Exhibit 2-5
Disaggregated UCOP Funding, 2000-01 to 2003-04**

	2000-01	2001-02	2002-03	2003-04	% UCOP funding 2000-01 to 2003-04
CSP Core	\$138,000	\$149,000	\$232,000	\$145,000	30%
CPDI UCOP/ELL	\$518,000	\$187,000	\$187,000	\$171,000	48%
UCOP Other	\$ -	\$346,000	\$96,000	\$26,000	21%
CSP Total UCOP Funding	\$656,000	\$682,000	\$515,000	\$342,000	

Source: Case Study Site 2 (2004).

Over this period, CSP core funding made up 33% of this site's UCOP allocation. The largest contribution came from various ELL initiatives, which, on average, supplied 48% of the site's UCOP funds (and in 2000-01, provided 79% of the site's UCOP funds). Other funds (e.g., preintern funding) accounted for an average of 26% of the UCOP allocation. These data show that shifts in one (relatively) small priority at the state level can have a major impact on a specific site.

Unlike Case Study Site 1, funding provided by districts for this site drastically decreased from 2000-01 to 2003-04. In 2000-01, the site received \$117,000 in district funding, but that amount decreased to \$78,000 in 2001-02, \$18,000 in 2002-03, and \$5,000 in 2003-04. District in-kind contributions, which included the hiring of coaches, payment of teachers to attend preservice trainings, and substitute costs for teachers amounted to \$133,000 in 2000-2001 and 2001-02. In 2002-03, in-kind contribution, however, dropped to \$98,00, and in 2003-04 declined to a low of \$8,000, reflecting the increasing budget crisis in partner districts; the amount increased only slightly to \$10,000 in 2004-05. This decline in district support might be a function of the site losing some partner districts when the CSMP required the sites to work with low-performing districts. Other districts interested in this site's services might have been unable to pay for them (at least at previous levels) because of the funding crisis.

Federal funding was also uneven and declined for this site. In 2000-01, the site had a significant amount of federal money, primarily in carryover from an earlier NSF grant. From 2001-2004, the site was able to obtain additional grants, but these were relatively small and were insufficient to make up for the loss of the NSF funds.

The second largest source of the site's money in over the 2000-01 2003-04 period was foundations, which provided 30% of the site's budget during these years. Money from foundation grants ranged from a high of \$509,000 in 2001-02 to a low of \$156,000 in 2003-04. In each year, Case Study Site 2 secured grants from an average of 5 foundations, ranging from \$247,000 given one year by a large computer corporation, to about \$5,000 given by a local restaurant. Although foundation funding slightly increased in 2000-01 and 2001-02, from 2001-02 to 2003-04 funding decreased at a slow but steady rate, increasing slightly in 2004-05 to \$224,000. The most marked decrease in foundation funding occurred between 2002-03 and 2003-04.

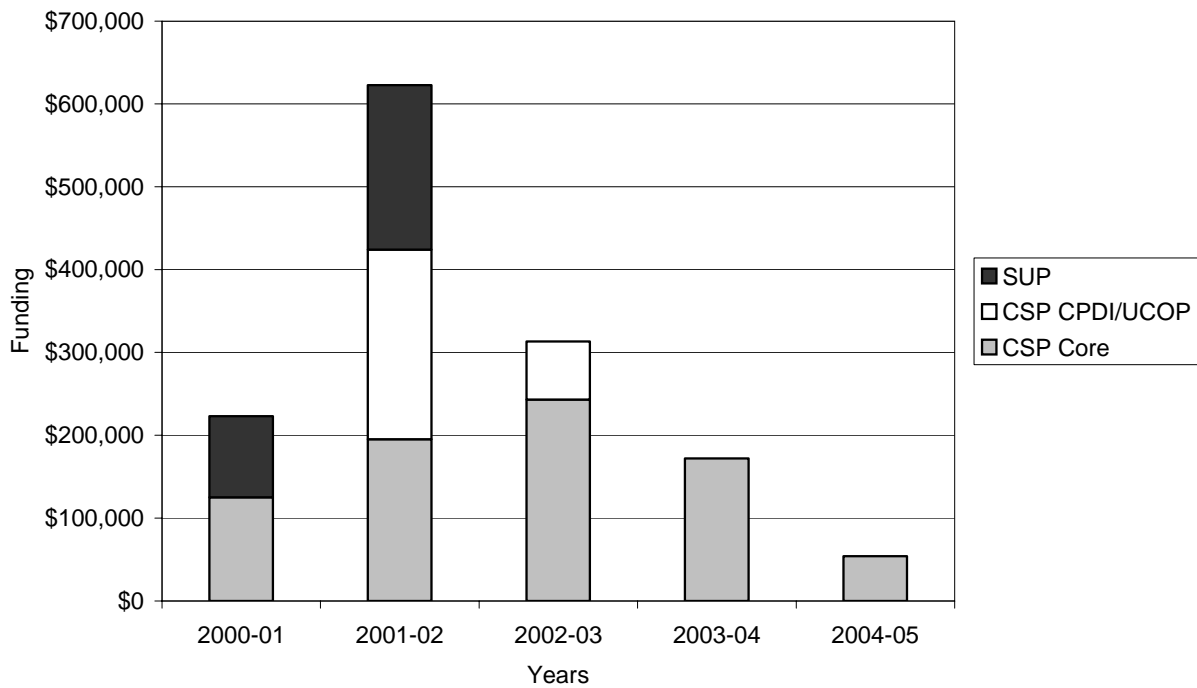
Although this site did a remarkable job of obtaining funds outside of UCOP, it still suffered an overall decline in funding. As was the case for Case Study Site 1, state funding for Case Study Site 2 declined, along with precipitous declines in funding from other sources as well. District contributions had the highest percentage declines—a 93% reduction of district in-kind

and a 75% reduction in other district support from 2002-03 to 2003-04. Because of sharp funding cuts, the site lost staff and no longer has full-time site directors. This, in turn, has left the site struggling to find capacity to successfully raise funds.

Case Study Site 3: The Perils of an Undiversified Funding Portfolio**

The third case study site demonstrates the perils of relying on a single funding source. Unlike the other two case study sites, this site received all of its funding during this period from the state.¹³ For this site, funding increased between 2000-01 and 2001-02, but was cut by more than 70% from 2001-02 to 2003-04 (Exhibit 2-6). The projected CSP financial support for 2004-05 suggests that state funding will decrease further. As Exhibit 2-6 shows, about 22% of the funding for this case study site over the 2000-01 to 2003-04 period came from state funding for the School/University Partnerships (SUP) program.¹⁴ The remainder of the funding came from the CSP.

**Exhibit 2-6
Funding Trends for Case Study Site 3, 2000-01 to 2004-05**



Source: Case Study Site 3 (2004).

¹³ The 2004-05 amount is a projection of the amount the site expects to receive from the CSP, and is not included in totals.

¹⁴ The SUP program builds relationships between University of California campuses and local schools to improve academic achievement and increase student eligibility for college. The program also promotes professional development opportunities for teachers and administrators. More information about the SUP can be found at <http://k12.ucop.edu/school.html>.

CSP Core funding, totaling \$735,150, made up the largest portion of the site’s funding for the period from 2000-01 to 2003-04. The site also received funding for specific purposes from the state (Exhibit 2-7).

**Exhibit 2-7
Special One-time Funding for Case Study Site 3, 2000-01 to 2003-04**

Purpose of Funding	Funding Amount
ELLs	\$238,000
High school	\$50,000
Technology	\$8,000
Staff development	\$3,000
Total	\$299,000

Source: Case Study Site 3 (2004).

Of the total funding from 2000-01 to 2003-04, 22% was special one-time funding for particular purposes, the most important of which was for work relating to ELLs as part of the California Professional Development Institutes (CPDI).¹⁵ The site received \$229,000 of this funding in 2001-02 and an additional \$70,000 in 2002-03.

If funding continues to decline as predicted, this site may find it difficult to continue providing science professional development to teachers. This site illustrates the vulnerability to fluctuations in state CSP allocations of sites that rely mostly or solely on state funding.

These three cases highlight the critical role of diverse funding sources in enabling sites to withstand funding fluctuations from any particular source. The reduction in UCOP funding from 2002-03 to 2003-04 created challenges for sites as CSP leadership asked them to solicit more funds from their partner districts; at the same time, the decline in state education funding reduced the amount of money many districts had to expend on professional development. Simultaneously, many foundations had less money because of the poor performance of the stock market. Federal funding continued to provide substantial financial support to some sites, but it included requirements that might or might not have been closely aligned with the core goals of individual sites. The combination of all of these factors resulted in sharp competition for existing funds, leaving many sites financially less secure than they were several years ago.

¹⁵ The CPDI offered training to teachers in the areas of reading/writing, mathematics, and English language development. The programs were hosted by college and university campuses throughout the state. More information about the CPDI can be found at http://tepd.ucop.edu/tepd/cpdi/cpdi_home.html.

BUDGET IMPACTS AT THE SITE LEVEL

How did these budget instabilities and cuts affect the sites? As Exhibit 2-8 shows, site directors felt that a lack of funding inhibited their ability to serve teachers effectively. They were even less likely to agree that they had secured enough funding to reach their goals for 2003-04 and were most pessimistic about their funding for the 2004-05 school year. This view probably reflects their concerns about the end of CASCITI funding and the low likelihood of the CSP receiving a comparable influx of external funds, and that initial discussions about the upcoming funding cycle indicated reducing the number of sites in all nine Projects. Perhaps the strongest evidence of site directors' concerns about funding was that, when asked to describe their greatest concerns or challenges in 2003-04, all responding site directors identified funding as a major challenge.

Exhibit 2-8
Site Directors' Beliefs about their Financial Situation

	Strongly Disagree	Disagree	Agree	Strongly Agree
It was difficult to obtain enough funding [in 2003-04] to serve all of the teachers in the way that we believe is most effective.	0%	5%	37%	58%
Our site was successful in securing enough money to reach its goals for 2003-04.	21%	42%	37%	0%
Our site will have enough funding this coming year (2004-05) to serve teachers/schools/districts in the way that we believe is most effective.	74%	21%	5%	0%

Source: CSMP Site Director Survey (2004).

Although site directors' perceptions of their financial viability are important, policy-makers are more concerned about the impact of the budgetary struggles on sites' services. As the case studies presented above suggest, the impacts varied significantly across sites, depending on the sources that provided funding and the proportion of site funding that came from UCOP.

In interviews, site directors discussed several impacts of declining budgets. Most sites, for example, had to reduce the size of their permanent staff in the wake of budget cuts. This attempt at financial efficiency appears to have negatively affected what sites can accomplish. Our survey asked site directors about the extent to which they disagreed or agreed with the statement, "Our site had the staff needed to serve teachers/schools/districts [during 2003-04]"; 68% of site directors either disagreed or strongly disagreed. One site director explained the situation as follows:

In 2001, our site had a staff of 6.75 Academic Coordinators, and 2.75 administrative staff. By the 2003-2004 academic year, our staff had been reduced to 3.3 academic staff, 1 full-time administrative support person, with additional part-time support for some of our activities. This reduction in staff (due to funding decreases) necessitated a proportionate decrease in programmatic activity—both in terms of the numbers of events/programs we could offer and the number of teachers we could support in those programs.

It is not surprising that a reduction in funding led to cutbacks in the services sites provide. Of greater consequence, unless the funding situation changes, some CSP sites will struggle to satisfy their region’s needs.

Writing and Winning Grants: A Mixed Blessing

As sites received less funding from the UCOP and cut core staff, the remaining staff were forced to spend more time writing grants and negotiating memoranda of understanding with districts to obtain funds. Our survey asked site directors to compare how often they undertook particular activities in 2003-04 compared with 2001 (when state support for the CSMP was at its height). Exhibit 2-9 shows the responses¹⁶; 78% indicated that they wrote more grants for supplementary (non-CSMP) funding in 2003-04 than in 2001, and an additional 53% reported charging more fee-for-service than in 2001. Both of these activities involve time-intensive commitments, and site directors reported spending time on fund raising that they previously devoted to developing programs. As one site director wrote, “The frequency with which the site has to respond to RFP’s reports, etc. ... detract[s] from the main work of the site.”

**Exhibit 2-9
Changes in the Frequency with which Site Directors Raised Outside Funding**

	Never done this	Do this less than or the same as in 2001	Do this more than in 2001
Wrote grants for supplementary (non-CSMP) funds	6%	17%	78%
Charged fee-for-service for our site’s activities/events (29%	18%	53%

Source: CSMP Site Director Survey (2004)

Our survey also asked site directors about the amount of time they spent writing grants. When we asked site directors the extent to which they disagreed or agreed with the statement, “The site director/s spent too much of his/her/their time writing grants,” 68% agreed or strongly agreed. As one site director noted:

¹⁶ For each question, one site director responded, “don’t know,” perhaps because either that site director or the site itself was too new to enable an appropriate comparison. This response has been excluded from the analysis.

What do we do when the money runs out?!! The money situation means we have to constantly look for/write for grants to fund either directly to our university or to our partnership districts in order to continue the work we have begun.

Site directors may have perceived grant writing as requiring too much time because many grants were competitive (often with other sites), and many sites lost more bids than they won.

Grant writing did result in sites seeking access to new funding sources, however. The federal government has been a key source of grants. The recently instituted federal initiative, the CaMSP¹⁷, has enabled the CSP to access additional funds. The CaMSP is not a large program (\$20.3 million in 2004-05), and Mathematics Project sites competed with CSP sites for fewer dollars. Some CSP sites obtained other federal funds by partnering with a university to win California Postsecondary Education Commission (CPEC)¹⁸ grants. Because sites did not receive this money directly from the federal government (they contracted with the recipient LEA or institution of higher education [IHE]) and the size of the partnership varied, the total amount the sites received could not be easily determined.

In the best of cases, winning grants, especially multiyear ones, helped alleviate sites' uncertainty about funding. The director of one site that received such a grant indicated that its receipt was her site's greatest accomplishment, "We have some sense of stability because we have secured NSF ... funding that cost shares with CSP money for the next 3 years."

Nonetheless, new funding sources can introduce additional complications and make goals diffuse. As one site director stated, "We have focused our work to meet the needs of the granting organization... instead [using funds to meet]... district needs." Funding from the state and district is likely to be aligned with state or local needs. Funding from federal or foundation sources, on the other hand, may entail requirements that are not congruent with local priorities, reducing sites' effectiveness in meeting state goals and local needs. The reduction in state

¹⁷In 2002, Title II, Part B of NCLB, created the CaMSP. This competitive grant program allows LEAs serving high-need student populations to partner with an engineering, mathematics, or science department of an IHE, with the goal of improving the content knowledge of teachers in those fields. Partnerships may also include a nonprofit or for-profit organization. Recipients of the grant funds must use the money for California state standards-based professional development of mathematics teachers in grades 6 through 9 and science teachers in grades 4 through 8.

¹⁸CPEC administers federal Teacher and Principal Quality Training and Recruitment Program funds to support teacher professional development in mathematics and science. CPEC awards competitive grants to IHEs to collaborate with LEAs to create teacher development initiatives that increase teachers' pedagogical and content knowledge in the subject area, their awareness of changing assessment strategies; and their understanding of how to best to serve culturally diverse student populations. The Projects target teachers in schools with student populations that have low college attendance rates and low participation in mathematics and science college preparation.

funding may have already led to such a shift in the work done by some sites. For example, one site director reported that the:

[L]ack of receipt of state funding has resulted in federal funds being the bulk of funds for almost 2 years now and has produced a shift in the focus and work that the site does ... [One of the biggest challenges for our site is d]ealing with the uncertainty of funding and what it brings with it (i.e.. time taken to pursue other funding, dilution of the CSP objectives or realignment of the CSP purpose...).

In addition to the burden created by the need to fulfill the requirements of multiple funders, site directors indicated that financial instability frustrated program planning. When sites knew that their UCOP funding was stable, they could make financial commitments well in advance. For example, they could hire staff to present at their summer institutes or recruit teachers before summer institutes took place with the promise of stipends. When CASCITI funds did not arrive until spring 2004, however, many sites were hesitant to commit resources. As one site director said, “When funding is erratic, do we go ahead and be optimistic and plan it or do we put the brakes on it?” Another explained:

Our funding for the year was very uncertain and was very late in coming. This had a big impact on our core work supporting K-8 professional development. Changing state and federal requirements continued to force us to change our direction. The lack of policy and financial certainty means that we cannot plan in advance as well as we ought to.

In sites where UCOP funds accounted for a relatively small portion of the total budget or in cases where sites had especially good relationships with partners and teachers, the sites planned as usual and hoped that the funding would arrive as promised. Another site director stated, “Because of the delays in funding, we were challenged to make commitments and carry them out.” This statement aptly characterizes the sentiments of other site directors who did not feel able to plan as far in advance as usual.

The Impact of Budget Cuts on CSP Activities

As a result of budget reductions, sites did less, provided fewer stipends, conducted fewer institutes or shortened those they did conduct, and undertook less self-evaluation. Moreover, the funding cuts often strained relationships with partner districts, which were asked to use their dwindling resources to support professional development activities that previously had been provided free. Of course, the severity of these impacts varied widely across sites.

The loss of teacher stipends was especially problematic for some sites. Several site directors noted that teachers had become accustomed to receiving stipends to compensate them for attending professional development activities. Some site directors stated that eliminating

stipends represented a devaluing of teachers; others cited specific instances of how eliminating stipends hurt their effectiveness. For example, one wrote:

In the past we met with our participants monthly, but these get-togethers have been severely curtailed. We were able to provide stipends for teachers and were able to require they submit a portfolio of lessons and collaborative work at their school for that stipend. This has been discontinued.

This site discontinued professional development work that had several characteristics that research has shown to be effective in changing teacher practice (Birman, Desimone, Porter, & Garet, 2000; Garet et al., 1999). Given site directors' beliefs in the importance of paying teachers, it is not surprising that the sites that could still provide teacher stipends (through outside grants) continued using them to motivate teachers to attend summer institutes and complete follow-up activities.

Many site directors reported that budget cuts, in addition to eliminating stipends, caused them to curtail their offerings. In discussing the impact of these reductions, one site director noted, "We are doing less coaching with teachers at the site level." This site director expressed concern about reducing coaching because evidence collected in evaluations in previous years illustrated how critical that approach was to changing teachers' instructional practices. The literature on effective professional development supports this finding (Birman, Desimone, Porter, & Garet, 2000; Garet et al., 1999). Another site director mentioned that the reduction in funding had a major impact on her site's programming:

The finances have continued to dwindle. We get less and less money every year. [Due to t]he changes in funding...we will have to cut back or not offer our summer institutes and follow-up programs.

Several site directors reported that the reductions affected their partnerships with low-performing districts. As many site directors noted in the interviews, when UCOP initially required sites to partner with low-performing schools and districts, state funding for such partnerships enabled the sites to offer resources to the low-performing districts that agreed to work with them. In 2003-04, sites did not receive funds ear-marked for work with low-performing districts. Instead, the CSP encouraged sites to charge districts fees for teacher participation in site activities.

Some districts were committed to working with the CSP and had the discretionary funds available to purchase CSP services. Other low-performing districts, however, lacked one or both of those elements. In one region, for example, the site had a strong commitment from the largest district to work with the CSP. Not surprisingly, however, that district directly funded only those services that benefited its teachers. As a result, the site dramatically reduced, and in some cases

eliminated, many of the services it used to provide to the more rural districts in the region. This situation is typical of CSP sites that struggled to find the funding necessary to work with all of the interested low-performing districts in their regions.

The reluctance of some low-performing districts to pay for professional development in science is understandable. In the current policy context, state and federal accountability measures exert substantial pressures on low-performing districts to improve their performance in reading, language arts, and mathematics—the subjects that count most heavily under state accountability policies. Because science counts minimally in the state accountability system, district administrators in low-performing districts may find it difficult to justify allocating their limited resources to the subject. In such cases, some sites found implementing a fee-for-service model to be a barrier to creating and maintaining partnerships with low-performing districts. Several sites found a way to serve low-performing districts by obtaining funds from non-UCOP sources. Case Study Site 1's successful application for a CaMSP grant with high-need LEAs exemplifies this strategy.

In addition to jeopardizing program offerings, the delay in the arrival of funding led many sites to postpone planning evaluations of their work in 2003-04. As discussed in more detail later, this decision adversely affected the sites' abilities to improve their evaluations, which the CSP proposed to undertake in its CASCITI proposal.

Given the diversity in funding across CSP sites, the budget cuts affected different sites unevenly. Case Study Site 1, for example, was not forced to cut staff and also won a CaMSP grant which reduced that site's need to use staff time to write grants. CaMSP funding has allowed local districts to continue to receive on-site coaches from the CSP without having to pay for them out of their limited district budgets. At Case Study Site 2, in contrast, the only remaining full-time person on staff was an administrative assistant; the site director reported scaling back offerings; and the staff appeared to lack the capacity necessary to mount a strong fundraising campaign, much less invest in developing new programs. Case Study Site 3 also struggled.

Looking across all of the sites, two things are clear: first, cuts in UCOP funding affected sites differently, depending on their overall funding. The most successful sites were those with diverse funding sources. This situation led some site directors to believe that in order to succeed they needed to be more entrepreneurial. As one site director said, "I think I need another degree to be good at that. We are trying to build programs you can sell...To do fee for service, I need an MBA." Although this opinion is understandable, when we analyzed the relative stability of sites' funding, we found that sites with the most stable funding were those that had close relationships

with partner districts with stable district leadership, like Case Study Site 1. As Case Study Site 2 exemplified, grant funding from the federal government, state (such as CPDI), or foundations was not a guarantee of long-term stability. Strong grant-writing skills will clearly be critical for sites in the coming years, but having strong relationships with districts willing to commit funding also appears to play a key role in helping sites survive fluctuations in funding.

THE CSP AND STATE AND FEDERAL ACCOUNTABILITY POLICIES

Just as CSP sites have had to weather budget fluctuations, they have also needed to respond and adapt to shifts in the policy environment. In particular, growing accountability mandates, at both the state and federal levels, have posed increasing challenges for the CSP sites. In fact, site directors reported that state accountability mandates affected their site to a larger extent (84%) than any other aspect, including CSMP policies (68%) and NCLB requirements (53%) (Exhibit 2-10). In this section, we discuss the impacts of both state and federal policies on the CSP.

Exhibit 2-10
Percent of Sites Reporting Influence of State, Federal,
and CSMP Policies on their Activities

	Not at All	Small Extent	Moderate Extent	Large Extent
State standards and accountability measures	0%	0%	16%	84%
CSMP policies and regulations	0%	0%	32%	68%
NCLB requirements	5%	5%	37%	53%

Source: SRI CSMP Site Director Survey (2004).

State Policy and the CSP

Over the past decade, California has created a series of accountability measures designed to assess student progress and hold schools and students accountable for meeting state standards. Some of these efforts, most notably the API and the California High School Exit Examination have marginalized science at the expense of the “core” subjects of reading and mathematics. Others, like the new fifth-grade science testing requirements, have created more interest in, and demand for, high-quality science teaching.

At the heart of the state’s accountability system for schools is the API, which is used to rank school and district performance. The API score includes a variety of performance indicators, but standardized test scores receive the greatest weight. Schools considered to be low-performing

face a range of sanctions, ranging from being labeled low-performing to losing control of school governance.

California calculates the API slightly differently for different levels of schools. For elementary and middle schools, student performance in science is not factored into the evaluation; at the high school level, it accounts for 3% of a school's API. Science's small role in the API, which is what the accountability system values, has had major implications for the CSP—particularly those sites working with low-performing schools.¹⁹

As a result, at the elementary level, and to a lesser extent at the middle school level, the position of science in the curriculum has become less secure. Because the API emphasizes reading/language arts and mathematics in the elementary and middle grades, low-performing schools and districts face significant pressure to improve student performance in those areas. Low-performing schools tend to perform a type of educational triage, allocating their limited instructional and professional development resources accordingly. Schools often must choose among competing priorities and may shift resources to reading/language arts and mathematics from other subjects, including science.

This situation has two major consequences for the CSP. First, school districts, especially if they are identified as low-performing, may feel pressured to expend increasingly scarce professional development funds on improving teachers' skills in areas most likely to increase student test scores. Second, some schools reserve specific blocks of instructional time for reading/language arts and mathematics, and in the process reduce the time available for teaching science and other subjects.

Some CSP sites adapted to the policy-induced realities by marketing pedagogical strategies that build students' skills in reading, language arts, and/or mathematics through science. One site, for example, cited the strategy of using student "notebooks" for learning both science and literacy skills. At this site, student notebooks were seen as a tool to organize and explain various processes of scientific experiments. As the site director stated:

It's not just for students to write down the scientific method. [It's a] notebook to collect primary source data from their activities, and to use the notebook as practice to write

¹⁹ The State Board of Education is working to define science performance levels for grades 5 and 8 and plans to add science to the API calculations for elementary and middle schools. At the high school level, even though science scores count for only a small portion of the API, several factors ensure that science is given the status of a core subject. California's A-G requirements, which specify the courses required for admission to the University of California and California State University systems, include at least 2 years of laboratory science courses. The departmental structure of most high schools and the nature of single-subject preparation (which requires teachers to have a depth of content knowledge in one particular area, and with NCLB requiring a major or the ability to pass a content knowledge test in that area) serve to protect instructional time and resources for science.

sentences—justification, evidence from their experiments, method of scientific inquiry. It's not just a place to store a 'feel-good' thought or 'This is what happened today in science' ... We're really trying to get the critical thinking piece in, and get it in full sentences. We want teachers to grade it by science content, and then re-grade it for literacy.

A more recent development in state accountability policy is refocusing schools and districts on science in the elementary grades. In spring 2004, California implemented a fifth-grade science test²⁰ that was implemented in advance of an upcoming NCLB requirement that states administer science assessments once in grade spans 3-5, 6-9, and 10-12. To meet this obligation, California chose to test students in grades 5, 8, and 10. According to the site directors, the new assessment increased teacher and district interest in science professional development for elementary teachers. One noted, "For the first time since the SAT 9 was instituted, administrators were supportive of fourth- and fifth-grade teachers pursuing professional development in science."

The CASCITI proposal specifically targeted the CSP's work to help improve fourth- and fifth-grade teachers' ability to teach California's science standards at those grade levels. Preparing teachers for the test was a challenge for the CSP. According to site directors, fourth- and fifth-grade teachers often lacked the content knowledge necessary to teach their grade-level standards effectively. Many site directors explained this situation by noting that the university science courses that teachers take to fulfill requirements do not align with the content of the state standards. To reconcile this incongruity and satisfy CASCITI goals, the CSP designed offerings to provide teachers with in-depth knowledge of the content in state standards as well as pedagogical strategies for teaching that content. At one site, for example, the site director reported offering institutes covering fourth- and fifth- grade standards in earth, life, and physical science content on a rotating basis. He stated that "[they] also bridge it with, 'What were the students supposedly learning grades K through 3?' and 'How do you reach down to ensure that they've got the background?'" He also noted that one of their biggest challenges at the elementary level was:

With all the emphasis on language arts and mathematics, science is basically non-existent. So, I think the state's in for a big surprise when they do the 4/5 tests that there are a lot of kids who haven't learned the science standards K-3.

Providing elementary students with minimal exposure to science before fourth grade and the advent of the fifth-grade test appear to be both the most complex and most pervasive issues for site directors. One site director described the confounding effects of the pressure to improve

²⁰ The fifth-grade science test is not yet a factor in an elementary school's API, but it is believed that it soon will be.

student performance in reading/language arts and mathematics, and the recent addition of the fifth-grade test as follows:

Teachers, particularly elementary school teachers, are feeling increasingly pressured by the push to increase reading and math scores on standardized exams. This, coupled with the adoption in our district of scripted reading and math programs, has significantly reduced the time available for teachers to teach science. At the same time teachers at the fourth- and fifth-grade levels are pressured by the science assessment. Despite having little time to teach science, and students who have had decreased access to science learning as the reading and math pressures have increased, the 4/5 teachers are expected to adequately prepare their students for this assessment. Many are panicked. As a result, we have had an increase in the number of 4/5 teachers applying to our programs—with the goal of learning how to implement standards aligned instruction for their students.

As this site director's comments show, some fourth- and fifth-grade teachers are feeling pressure to prepare students for the fifth-grade science test and are realizing they may need additional knowledge and skills to accomplish this task. The CASCITI proposal made addressing the needs of these teachers a CSP priority and, as a result, most sites offered institutes targeted at those teachers by the summer of 2004.

Site directors described the fifth-grade test as a mixed blessing. On the one hand, it helped them demonstrate to district audiences that science instruction is important in the elementary grades and increased interest in CSP professional development. Some site directors questioned, however, whether or not the test would lead districts to be truly committed to improving science instruction or if district leaders were actually narrowly motivated by accountability pressures. "I think that's very frustrating for us, now that districts are sending their teachers here now just because of the test," reported one site director. At the same time, this site director reported that most of the teachers who chose to attend CSP events exhibited a broader interest in improving their science instruction that extended beyond the district administrators' rationale for sending them.

NCLB and the CSP

NCLB includes multiple accountability provisions in addition to the testing requirement discussed above. The law also focuses on teacher quality by setting minimum standards for teacher qualifications and on creating a system to identify persistently struggling schools. Both of these provisions have affected the CSP.

Under NCLB, all teachers need to be designated "highly qualified." Teachers of core academic subjects must have:

- A bachelor's degree;

- A state credential or be enrolled in a credential program (e.g., an intern program) for no more than 3 years;
- Demonstrated subject matter competence.

California teachers can demonstrate subject matter competence by passing an appropriate examination in their content area (e.g., the California Subject Examinations for Teachers [CSET]), having a major in their subject area (for single-subject teachers only), or by documenting their qualifications through the High Objective Uniform State Standard of Evaluation (HOUSSE). HOUSSE regulations are designed so that veteran teachers who did not major in a content area and did not have to pass a content area test to get their credential have an alternative route for establishing their qualifications. Each district sets specific HOUSSE regulations, but they generally include documentation of participation in a wide variety of activities (e.g., undertaking content-based professional development, serving as a department chair) that are assumed either to require or provide content area expertise.

Many sites provided professional development and training programs for teachers who needed to achieve “highly qualified” status, and site directors reported that they focused more on these teacher quality provisions of NCLB than they did in 2001 (the first year of NCLB). According to our survey, 58% of sites in the CSP reported addressing the need to make teachers “highly qualified” more than they did in 2001 (Exhibit 2-11).

Exhibit 2-11
Percent of Sites Reporting Working with Schools/Districts to
Ensure Teachers Are Highly-Qualified More than They Did in 2001

	N/A	Less than in 2001	Same as in 2001	More than in 2001
Working with schools/districts to ensure teachers are highly qualified	0%	5%	37%	58%

Source: SRI CSMP Site Director Survey (2004).

Some sites offered CSET test preparation for teachers who had not yet received a preliminary credential in science, whereas others helped teachers become “highly qualified” through more typical content-rich professional development activities. These activities, which varied by site, were often developed in consultation with district partners as part of ongoing needs assessment.

CSP sites also focused resources on documenting veteran teachers’ participation in CSP events to help them demonstrate their subject matter competence under HOUSSE. CSP sites reported that veteran teachers requested documentation of the number of hours of content and standards-based professional development they attended so they could demonstrate that they meet their districts’ definition of “highly qualified.” No sites reported, however, that preparing

HOUSSE documentation consumed much of their time during 2003-04. The impact of HOUSSE on sites' work could increase slightly during 2004-05, however, as more districts become aware of federal requirements and implement their own plans under HOUSSE. After that time, however, complying with HOUSSE is no longer likely to be part of sites' work as veteran teachers come into compliance and as all new teachers demonstrate their subject matter qualifications in other ways.

NCLB also requires states to develop a way of identifying schools and districts that fail to make AYP. In California, performance under AYP is calculated through a formula that includes API scores, assessment participation rates, graduation rates, and percent proficiency in schoolwide and subgroup annual measurable objectives. In fall 2003, California released its first list of the 3,942 schools and 611 districts that failed to meet AYP.²¹ As more schools and districts are identified as failing to meet AYP over time, the CSMP expects to provide increased levels of technical assistance and support to help them improve. AYP provisions are in the early stages of implementation, however; thus, although some site directors reported helping districts conduct assessments of their district's needs under NCLB, AYP provisions had not yet had a large effect on the CSMP.

Although NCLB added additional requirements for the state, it also partially offset the loss of some professional development money. The CSMP received \$4.4 million in NCLB Title II funds for 2003-04 (and will receive the same amount for 2004-05); the CSP received an additional \$4.4 million from NCLB in 2003-04. Such assistance does not come without restrictions or requirements on the type of professional development that the CSMP should provide. By NCLB definitions, effective professional development activities:

- Improve teachers' content knowledge and help them become "highly qualified"
- Are integrated into school and district improvement plans
- Provide participants with the knowledge and skills to ensure students meet standards
- Are sustained, intensive, and classroom-focused (and are, therefore, not 1-day or short-term workshops)
- Advance teachers' understanding of effective instructional strategies
- Are aligned with state standards and assessments
- Provide teachers with the knowledge and skills necessary to provide appropriate instruction to ELLs (U.S. Department of Education, 2004).

As is apparent, the federal government's expectations for professional development complement the work the CSP has been undertaking for several years, including providing

²¹ In the fall of 2004, the state released its 2004 list, under which more schools and districts failed to meet AYP. Because this list was released too late to affect the CSP during the 2003-04 school year, we do not discuss it in this report.

content-rich professional development, supplying technical assistance to high-need districts, and partnering with low-performing districts. Consequently, although NCLB requirements may require sites to modify the focus of services being offered by CSMP sites, they have not forced CSP sites to change most of their offerings significantly. One likely explanation for the minimal change is that the CSP and NCLB share a focus on improving teachers' content knowledge.

CONCLUSION

The CSP, like all educational reform initiatives, operates within a broader political context that periodically reorders priorities and reallocates resources. The last 4 years, however, were especially disruptive, with large increases and then large decreases in funding, accompanied by substantial uncertainty over prospects for resources in the future. Federal funding helped offset some state losses, and some districts contributed substantially to sites' funding needs. But funding was reduced overall, activities were curtailed, greater efforts were expended on fund raising with concomitantly reduced effort on programs, and the future remained quite clouded.

Concurrently, state and federal accountability policies affected the CSP. On the one hand, accountability pressures that emphasize reading and mathematics over science narrowed the curriculum and minimized elementary science instruction. This lack of focus on science, in turn, limited districts' willingness to pay for teachers' professional development in science—a situation that made it challenging for some sites to secure district funding. The new fifth-grade science test, however, created increased demand for professional development in science for elementary teachers. In addition to the new elementary science test, several sites worked to design professional development that concurrently increased teachers' science content knowledge and provided them with pedagogical strategies to build students' skills in science, reading/language arts, and mathematics. These sites were able to leverage the demands created by the policy environment to their benefit. With a return to previous levels of state funding unlikely in the near future, the CSP will have to continue seeking external funds and using policy-specific marketing expertise to accomplish its goals. Chapter 3 explores the scope and scale of the CSP in the midst of these many changes.

CHAPTER 3—SCOPE AND SCALE OF THE CSP

Over the past 4 years, the CSP, along with the CSMP as a whole, has been buffeted by policy and budgetary shifts—as outlined in the preceding chapter: changes in state and federal policy have modified the Project’s official mandates; funding from other sources has placed extra requirements on CSP sites; and reductions in state funding have reduced the staff capacity in many sites. In this chapter we assess the impacts of these changes, asking whether these policy and budget shifts have altered (1) the participants targeted and served, and (2) the types of events and activities supported.

Our findings derive in large part from our survey of CSMP site directors and from UCOP’s OIS. Developed and maintained by UCOP since 2000-01, the OIS contains variables designed to enable users to quantify the work of the CSMP in terms of partnerships, participants, and events. As such, the OIS represents a major effort to provide a level of data on program outputs that is uncommon for programs as large and complex as the CSMP. Unfortunately, the database is missing a substantial proportion of data. In some cases, data are missing for participants contained in the database, raising serious questions about how to interpret the frequencies we report. To address this issue, we always report the amount of data missing for each variable to indicate how likely it is that the data contained in the database portray an accurate picture of the participants.²² A second problem is that an unknown number of participants are missing from the database altogether. This problem is sufficiently severe for 2000-01 that we do not report data for that year.

Although interpreting OIS data is difficult for these reasons, the system nonetheless is the best source available for quantifying CSP work. Given the unevenness of data in the OIS, we attempt, wherever possible, to use the site director survey to triangulate statements about CSP work.

WHO IS SERVED BY THE CSP?

The CSP partners with schools and districts to reach teachers, their primary targets. The general patterns described below show the impact of funding fluctuations—as the number of CSP partnerships and participants rose from 2001-02 to 2002-03 and then decreased. Below we present the relevant data for partnerships and participants separately.

²² Two things need to be taken into account in determining when the proportion of missing data is high enough to warrant concern in interpretation: (1) whether the participants with missing data may differ from those for whom complete data exist (e.g., teachers who lack appropriate credentials may be less likely than those who are fully qualified to complete credentialing information); and (2) the distribution of known responses in interpreting data when some sizable portion is missing.

Partnerships

In order to develop more systematic approaches to improving student achievement, the 2001 RFP called for sites to move from a school partnership model to a district partnership model. Many sites formed partnerships with districts in which they had existing partnerships with schools. According to the 2001 RFP, the objective of this new model was for “the partnership to plan and implement an instructional program that brings all students up to the state’s high academic standards.” Professional development activities produced by the sites were to be developed with consideration for all of the other factors affecting the district, including induction, administrative leadership development, and staffing concerns. All planning, the RFP explained, should also involve the district and external providers with the goal of reaching “at least all of the teachers in all low performing schools in the district (including new teachers each year) over 3 to 5 years.” UCOP encouraged sites to draw on the lessons they learned through their school partnerships as they expanded to district partnerships.

The OIS includes data on both school and district partnerships. Exhibit 3-1 shows that CSP had substantial growth in the number of partnerships from 2001-02 to 2002-03, but was unable to maintain that growth and in fact reported fewer partnerships in 2003-04 than in 2001-02.

Exhibit 3-1
Number of CSP Partnerships, 2001-02 to 2003-04

	Number of CSP Partnerships
2001-02	43
2002-03	72
2003-04	34

Source: OIS; SRI analysis.

The decline in the number of CSP partnerships recorded in the OIS does not reflect a lack of effort on the part of sites. In fact, more than half (53%) of CSP site directors reported increased work to develop partnerships in 2003-04 as compared with 2001 (Exhibit 3-2).²³

²³ Although we recognize that OIS data may be incomplete, we also recognize that site directors’ perceptions of their work (especially work that took place several years ago) may not be completely accurate.

**Exhibit 3-2
Developing CSP Partnerships in 2003-04, Compared with 2001**

	N/A	Less than in 2001	Same as in 2001	More than in 2001
Developing school or district partnerships	5%	11%	32%	53%

Source: SRI CSMP Site Director Survey (2004).

These data suggest that site directors spent more time developing partnerships in 2003-04 than in 2001, but were able to develop fewer partnerships. This interpretation is consistent with site directors' reports that developing partnerships became more challenging when they no longer received funding to partially support the costs of their partnership work but still had a directive to focus on low-performing districts (from the 2001 RFP). Unfortunately, the available data sources do not enable us to paint a conclusive picture of how CSP partnership work changed in recent years.

Participants

As discussed previously, state funding for the CSP declined between 2001-02 and 2003-04, but the CSP received additional federal dollars and a one-time grant for ELL work in 2003-04 that more than compensated for the decrease in state funding for that same year. However, federal CASCITI funding did not reach sites until spring 2004. The fluctuating number of participants served by CSP from 2001-02 to 2003-04 mirrored the changes in state CSP funding levels over that period. Exhibit 3-3 shows that the number of participants (see the discussion below of who is considered to be a "participant") served by the CSP increased by approximately 500 from 2001-02 to 2002-03 and then dropped by more than 1,100, for a total of 3,905 participants in 2003-04.

**Exhibit 3-3
Participants Served by CSP, 2001-02 to 2003-04²⁴**

	Number of Participants
2001-02	4,517
2002-03	5,037
2003-04	3,905

Source: OIS; SRI analysis.

²⁴ OIS includes data on many types of people, including attendees, presenters, and facilitators. Participant counts include only those identified as attendees. In addition, OIS has the capability to track anyone who is interested in participating but may not attend a professional development event. Participant counts include only those who attended an event.

CSP participants span a wide range of education stakeholders from teachers and administrators to college students, K-12 students, and parents. Unfortunately, a large portion of these data are missing. For 2003-04, for example, more than half of all participants (49%) were missing participant type data.²⁵ Exhibit 3-4 shows the type of participants served by the CSP from 2001-02 to 2003-04.

**Exhibit 3-4
CSP Participants by Type, 2000-01 to 2003-04**

	Missing Data	Teachers	Administrators	College Students	Other	Total
2001-02	1,338 (30%)	2,570 (58%)	39 (1%)	89 (2%)	405 (9%)	4,441
2002-03	1,922 (40%)	2,393 (50%)	26 (1%)	119 (3%)	298 (6%)	4,758
2003-04	1,900 (49%)	1,695 (44%)	12 (0%)	56 (1%)	231 (6%)	3,894

Source: OIS; SRI analysis.

From 2001-02 to 2003-04, the proportion of participants in most categories was relatively stable. The percentage of missing data, however, increased by 19%, and the percentage of participants identified as teachers declined by 14%. As a result, it is impossible to determine if the proportion of CSP participants who were teachers changed at all in this period.

Teachers' years of experience

The CSP has always sought to reach teachers who are at various stages in their teaching careers. The data from the OIS indicate that approximately 40% of CSP teacher participants had 2 or fewer years of teaching experience (Exhibit 3-5). The remaining participants were relatively evenly distributed across the categories of less than 3 to 5 years, 6 to 10 years, and more than 10 years of experience.²⁶ This distribution across teaching experience categories remained relatively constant over the past 3 years of available data.

²⁵ All data from the OIS that describe teacher participants' characteristics have this problem, which should be considered when interpreting them. These numbers could change substantially if the participant data were more complete.

²⁶ Recall that from about one-third to more than half (see Exhibit 3-5) of the participants in OIS do not have information on their role (e.g., are they teachers, administrators, preservice teachers, parents) thus, any analysis of "teachers" excludes large percentages of CSP participants. In addition, a small percentage of participants who were identified as teachers were missing information on their years of experience—7% of CSP teachers in 2001-02, 11% in 2002-03, and 7% in 2003-04.

**Exhibit 3-5
CSP Teachers by Years of Teaching Experience, 2001-02 to 2003-04**

	Missing Years of Experience	0 to 2 Years	3 to 5 Years	6 to 10 Years	Greater than 10 Years	Total Teachers
2001-02	180 (7%)	1,036 (40%)	412 (16%)	378 (15%)	564 (22%)	2,570
2002-03	259 (11%)	910 (38%)	363 (15%)	368 (15%)	493 (21%)	2,393
2003-04	113 (7%)	627 (37%)	300 (18%)	283 (17%)	372 (22%)	1,696

Source: OIS; SRI analysis.

Teacher Leaders

Since their inception, a key strategy of the CSP has been to prepare experienced teachers to become teacher leaders in their content area. The CSP believes that teacher leaders are in an excellent position to teach their peers, both through CSP activities and informal roles they play in their schools and districts. Comparisons of site survey data from 2000-01 and 2003-04 suggest that the number of teacher leaders has declined substantially, even though site directors believe they are important.

**Exhibit X-X
Number of Teacher Leaders Actively Involved in Site Activities in 2000-01 versus 2003-04**

	25 or fewer*	Between 26-50*	Between 51-75*	More than 75*	Median*
2000-01	53%	13%	13%	20%	23
2003-04	94%	0%	6%	0%	9

Sources: AIR Site Director Survey (2001); SRI CSMP Site Director Survey (2004); SRI analysis.

**p < 0.05*

Teachers of ELLs

The 2001 RFP specified that sites should emphasize working with teachers of ELLs. Exhibit 3-6 shows that more than 40% of the teachers participating in CSP activities each year from 2001-02 to 2003-04 reported teaching ELLs.

**Exhibit 3-6
CSP Teachers of ELLs, 2001-02 to 2003-04**

	Number of Teachers with Missing Data	Number of Teachers who Teach ELL Students	Number of Teachers who do not Teach ELL Students	Total Teachers
2001-02	1,039 (40%)	1,188 (46%)	343 (13%)	2,570
2002-03	1,082 (45%)	1,019 (43%)	292 (12%)	2,393
2003-04	753 (44%)	707 (42%)	235 (14%)	1,696

Source: OIS; SRI analysis.

Like the data on the type of participants served, a high percentage of teachers were missing data on whether or not they taught ELLs. Although the percentage of teachers who taught ELL students declined by 4% from 2001-02 to 2003-04, the number of teachers missing data increased by 4% over that same period. The substantial percentage of missing data from 2001-02 to 2003-04 complicates any attempt to make a definitive statement about whether or not the CSP served a greater or lesser proportion of teachers of ELLs in 2003-04 than in 2001-02.

Teachers needing to become “highly qualified”

One of the CSP’s roles through CASCITI was to serve teachers who need to become “highly qualified” under NCLB. Because the OIS is not set up to measure which teachers met the federal and state definitions of “highly qualified,” we could not estimate the number and percentage of CSP participants who did or did not meet that standard.²⁷ Specifically, the OIS does not track subject matter competency (one of the standards) or whether a teacher is working “out of field.”

The OIS does track data on the types of credentials teachers hold and also the subject area(s) in which they hold credential(s). Teachers are not “highly qualified” if they are teaching on an emergency permit or waiver. Exhibit 3-7 shows the breakdown of CSP participants who reported holding a multiple- or single-subject credential for 2003-04. Unfortunately, 42% of the CSP’s teacher participants were missing information on their credential type.²⁸

²⁷ Because the federal and state definitions are relatively new, this should not be considered a flaw in the database.

²⁸ Because teachers can hold multiple credentials, Exhibit 3-10 probably counts a small number of teachers more than once. For example, a teacher could hold a multiple-subject professional clear while being an intern in a single-subject program.

Exhibit 3-7
Multiple-Subject and Single-Subject Credentials
by Credential Term for CSP Participants, 2003-04

	Multiple-Subject Teachers	Single-Subject Teachers
Missing Data	101 (14%)	58 (20%)
Emergency or Waiver	22 (3%)	20 (7%)
Intern	13 (2%)	7 (2%)
Preliminary Credential	85 (12%)	21 (7%)
Professional Clear	488 (69%)	189 (64%)
Total	709	295

Source: OIS; SRI analysis.

The majority of CSP-participating teachers who hold a multiple- or single-subject credential reported having a preliminary or professional clear credential. The OIS reports that 7% of CSP-participating teachers with single-subject credentials and 3% of teachers with multiple-subject credentials held an emergency permit or waiver and thus failed to meet NCLB standards for “highly qualified” on the basis of their credential.

Site directors’ reports of characteristics of participating teachers

In addition to data from the OIS, the study also collected site directors’ perceptions of the characteristics of the teachers they served. The results are not strictly comparable with the OIS data, but there are two common areas. Site directors reported that 73% of their participating teachers worked with ELL students (Exhibit 3-8), compared with the OIS figure of 42% (Exhibit 3-6). Site directors also estimated that more than 11% of their teachers lacked a basic teaching credential (Exhibit 3-8); the OIS estimates this number to be 5% for teachers with multiple-subject credentials and 9% for those with single-subject credentials (Exhibit 3-7). Site directors estimated that the majority (60%) of participating teachers taught in low performing schools. Finally, site directors estimated that 39% of the teachers they served were working to demonstrate subject matter competence under HOUSSE (Exhibit 3-8). As mentioned earlier, the OIS has no comparable data. Because many of these teachers might have asked the site directors to verify their CSP participation as part of HOUSSE, this estimate is likely to be more accurate than some of the others, but it cannot be independently confirmed.

Exhibit 3-8
Mean Percentage of Site Reports of CSP Teacher Participant Characteristics

	CSP
Teachers of ELLs	73%
Teachers at low-performing schools	60%
Teachers who need to demonstrate subject matter competency through HOUSSE (to become "highly qualified" under NCLB)	39%
Teachers lacking at least a preliminary credential in the subject they teach	11%

Source: SRI CSMP Site Director Survey (2004).

EVENTS

The CSP offers many different types of professional development activities. The OIS allows site directors to enter their activities into the database and categorize them as any one of 19 categories, including one defined as “other.” For the purposes of analysis, we combined somewhat similar types of offerings into six categories: institute, follow-up, series, coaching, inservice, and other.²⁹

Exhibit 3-9 shows the median duration of each type of event from 2001-02 through 2003-04. The data show that in 2003-04 institutes were substantially longer than other activities and were 5 times as long as the median institute in 2001-02. Coaching, meanwhile, saw a dramatic spike in median length in 2002-03 to 40 hours, but then underwent a precipitous fall to just 3 hours in 2003-04. This change may be a function of shifting district professional development priorities and the reduction in teacher leaders at CSP sites. All other forms of professional development had a relatively constant median length from 2001-02 to 2003-04.

²⁹ Some categories combine similar activity types. Institute includes the OIS categories of invitational institute, open institute, and mini-institute; series includes the categories of partnership series and workshop series; inservice includes the categories of partnership inservice, inservice, workshop, and conference; “other” includes the categories of academy, action research, conference, committee or planning meeting, partnership meeting, other, retreat, or study group. Note that because the OIS does not require sites to use consistent definitions in categorizing activities, what one site director might define as a conference, another might define as a retreat.

Exhibit 3-9
Median Length of Professional Development Activities for CSP Participants
in Hours, 2001-02 to 2003-04

	Institute	Series	Inservice	Coaching	Follow-up	Other
2001-02	8.0	4.0	2.0	6.5	8.0	2.0
2002-03	31.0	4.0	4.0	40.0	8.0	2.0
2003-04	40.0	4.0	5.0	3.0	8.0	3.0

Source: OIS; SRI analysis.

The OIS also allows us to examine the total time that participating teachers spend in CSP activities. Exhibit 3-10 shows that the total number of ‘contact hours’ declined from 2001-02 to 2003-04.

Exhibit 3-10
Number of CSP Teacher Contact Hours,³⁰ 2001-02 to 2003-04

	1 to 39 Hours	40 to 79 Hours	80 or more Hours	Total
2001-02	1,215 (48%)	629 (25%)	726 (28%)	2,570
2002-03	1,505 (63%)	411 (17%)	477 (20%)	2,393
2003-04	1,092 (65%)	382 (22%)	221 (13%)	1,695

Source: OIS; SRI analysis.

The 2001 RFP set a benchmark of 40 hours of participation annually per participant, but the CSP fell short of that target. Exhibit 3-10 shows that the percentage of teachers who participated in the CSP for 39 or fewer hours increased each year from 2001-02 to 2003-04. In contrast, fewer CSP teachers participated 80 hours or more in 2003-04 than in 2001-02. More than one-quarter (28%) of CSP teachers participated 80 hours or more in 2001-02, whereas only 13% participated at that level in 2003-04.

The number of teachers participating in institutes, inservices, and follow-up activities declined dramatically from 2001-02 to 2003-04, whereas the number of teachers participating in series and “other” events increased dramatically (Exhibit 3-11).

³⁰ Teachers include participants identified as teachers or interns. Teachers with a total of 0 contact hours in a given year were not included in that year’s analysis.

Exhibit 3-11
Number of CSP Teachers Participating in Various Event Types, 2001-02 to 2003-04

	Institute	Series	Inservice	Coaching	Follow-up	Other	Total
2001-02	2,392 (52%)	383 (8%)	679 (15%)	9 (0%)	741 (16%)	394 (9%)	4,598
2002-03	734 (28%)	318 (12%)	738 (28%)	4 (0%)	446 (17%)	428 (16%)	2,668
2003-04	604 (19%)	796 (24%)	501 (15%)	9 (0%)	538 (17%)	806 (25%)	3,254

Source: OIS; SRI analysis.

Overall, then, CSP teachers on average participated fewer hours in 2003-04 than in 2001-02. Although the median length of institutes continued to rise, the number of teachers participating in institutes continued to fall. In short, fewer teachers received “intensive” professional development. These changes may have reflected changes in sites’ funding or the influence of partnerships on the CSP. (Districts may have asked sites to expose more teachers to professional development, as opposed to having fewer teachers participate more intensively.)

CONCLUSION

Findings reported in this chapter are based in large part on the OIS. A substantial portion of data in the OIS is missing, limiting the system’s usefulness in arriving at conclusive findings. For example, because of missing data, it is impossible to know the extent to which the CSP was meeting the needs of teachers of ELLs or teachers working to become “highly qualified.”

If the OIS data are accurate, however, the period from 2001-02 to 2003-04 was one in which the scope and scale of the CSP decreased. The OIS reports declining numbers of partnerships, participants served, and teachers participating in the more intensive institutes. Both the drop in the number of teachers participating in institutes and the decline in the number of teachers participating in CSP events for more than 40 hours a year are troubling, given research that suggests that the length of professional development activities in which teachers participate (all other things being equal) is predictive of improvements in teacher practice.

CHAPTER 4—NATURE OF CSP WORK

The CSP is a diverse network of professional development providers working with a broad array of districts, schools, and teachers. Despite differences among the sites, they all share certain features, including: participating in the network, working in partnership with districts and schools, offering particular professional development formats (e.g., institutes and coaching), providing content-based professional development, and responding to the state’s need to improve teachers’ skills in working with ELLs and teaching literacy through science. Many of these characteristics overlap or complement the goals and objectives outlined in CASCITI. This chapter looks at each of these common features in turn in light of CSP and CASCITI goals.

CSP AS PART OF A NETWORK

The CSMP are, by definition, a network of professional development providers, and the CSP operates within that context. Through interviews with Project leadership and our site survey, we found that a number of benefits derive from the network structure. First, it has been an effective policy tool for the state: through the RFP process established for the network, the state influenced decisions and actions at the local site level. Earlier, we showed that site directors reported that CSMP policies heavily influenced site goals (e.g., developing teachers’ content knowledge and skills at teaching that content).

Second, the CSMP network helped build shared capacity to develop and provide high-quality professional development within each subject and across subjects in the same region. The CSP routinely convened meetings for all site directors to facilitate sharing of ideas across sites. These meetings allowed for the dissemination of information about key issues in the CSP, for discussions of fund raising ideas, and for sharing of strategies for effective professional development and instruction.

One CSP site, for example, had success in developing teachers’ skills in using a “notebook” strategy that allowed students to record scientific observations. While students learn scientific content and processes through recording data and interpretations in their notebooks, they simultaneously build their literacy skills. This site found that instructional approach to be highly effective in improving the science, literacy, and mathematics skills of students, many of whom were ELLs. The success this site experienced led the statewide office to facilitate a mini-conference around the notebook method, which several other CSP sites then adopted.

Such cross-pollination was facilitated by the formal and informal relationships across the sites, more so than it would have been without the network. The “notebook” strategy is a particularly powerful example of sharing across the network because it addressed the CASCITI

goal of teaching literacy through science and enabled sites to demonstrate to districts that having teachers participate in CSP professional development would help those teachers improve literacy as well as science instruction.

CSMP sites located in the same region also collaborated to conduct needs assessments for partner districts and jointly plan and offer professional development. Ample evidence indicates that CSP sites participated in this type of collaboration, which is in keeping with the 2001 RFP. For example, the multiple Projects, including the CSP, that are sponsored by UCLA, worked together in their partnership with local districts, providing training in literacy through various subject matter areas. Although the main focus of the collaboration was literacy, the Projects also addressed other district needs, including classroom management, training of new teachers, lesson planning, and instruction on different teaching methods. Overall, 37% of CSP sites reported collaboration with other CSMP sites, and 53% reported collaboration with outside organizations (Exhibit 4-1).³¹

**Exhibit 4-1
Percent of CSP Sites Reporting to Statements About Collaboration**

	Strongly Disagree	Disagree	Agree	Strongly Agree
Our site collaborated with other sites in the CSMP in order to reach its goals.	16%	37%	32%	5%
Our site collaborated with organizations outside the CSMP to reach its goals.	5%	42%	37%	16%

Source: SRI CSMP Site Director Survey (2004).

PARTNERSHIP WORK

In addition to its collaborative work, the CSP engaged in a number of activities with its partner schools and districts. One CSP site, for example, was in the fourth year of a partnership that focused on providing literacy instruction through science to high schools. The partnership work expanded beyond its initial literacy goals to include training of new teachers, general pedagogical strategies, and instruction on specific methods for teaching science, such as inquiry and “hands-on” activities. The district superintendent initiated the partnership, and the entire team met at least bimonthly to conduct needs assessments and plan professional development. In addition, through this partnership, the site had two full-time coaches, who were paid by the host university but supervised by the CSP.

³¹ The CASCITI proposal required the development of rural networks. That objective, which would have led to new collaborations within the CSP and between the CSP and other organizations, was postponed when funding arrived later than anticipated.

Although there was a range of involvement among the CSP sites in specific partnership activities, most CSP sites, according to our site director survey, engaged in multiple activities designed to meet the needs of their partner districts. Most site directors reported that they frequently or very frequently invited teachers from their partnership schools/districts to attend activities/events (90%), assessed the specific professional development needs of partner schools/districts (79%), and worked with partner schools/districts to ensure that teachers were highly qualified under NCLB (79%). The majority of sites also frequently or very frequently offered coaching for their partner districts (68%) or developed specialized programs tailored to the unique needs of a partner school/district (58%) (Exhibit 4-2).

**Exhibit 4-2
Percentage of CSP Sites Reporting the Frequency of
Conducting the Following Partnership Activities**

	Never	Infrequently	Frequently	Very Frequently
Invite teachers from their partnership schools/districts to attend activities/events	0%	10%	11%	79%
Assess the specific professional development needs of partner schools/districts	0%	21%	53%	26%
Work with partner schools/districts to ensure that teachers are highly qualified under NCLB	0%	5%	32%	47%
Provide coaching in partner schools/districts	0%	11%	42%	26%
Develop specialized programs tailored to the unique needs of a partner school/district	0%	5%	16%	42%

Source: SRI CSMP Site Director Survey (2004).

TEACHER LEADERS

CSP sites also devoted resources to developing teacher leaders. Teacher leaders are generally experienced teachers, commonly used by sites to plan and provide professional development. The definition of their role varied across sites, sometimes as a function of partners' needs. This model is part of the "teachers training teachers" approach to professional development and, in theory, helps diffuse more content knowledge and pedagogical skill among a greater number of teachers and also helps build cadres of instructional leaders at school sites. Once a critical component of the CSMP strategy, the focus on teacher leaders has been somewhat diminished as a result of shifting priorities in the state. The 2001 RFP, for example, no longer required this activity in order for a site to receive core funding.

Nonetheless, CSP sites were committed to the teacher leader model. One site director explained, “THEY [teacher leaders] are the site. They are decision makers, serve as staff’ and lead all events as well as do planning. Leading is learned by doing.” As indicated earlier, funding cuts restricted the money available to provide these resources and impaired the execution of this model. “We starting working intensely with Teacher Leaders during 2002 and we paid them for their leadership,” a site director noted. “When our funding decreased, we could no longer compensate teacher leaders and, therefore, could no longer expect them to do the work.” Even with the budget cuts, teacher leaders were the third most commonly used CSP professional development providers (23%), behind site directors (39%) and professors in the subject area (24%). (Exhibit 4-3).

Exhibit 4-3
Mean Percentage of CSP Activities Led by Various Types of Providers

Types of Providers	CSP
Site directors	39%
Professors or faculty in the subject area	24%
Teacher leaders	23%
External experts (not from the site, partnership district, or university)	8%
Professors or faculty in education	6%
School and district administrators	1%

Source: SRI CSMP Site Director Survey (2004).

THE FORMAT OF PROFESSIONAL DEVELOPMENT

Chapter 3 discussed the many types of professional development the CSP offered. Of all the event types, two were particularly noteworthy, given research on effective professional development: (1) institutes, which were usually held during the summer and typically included some kind of formal follow up, and (2) coaching, in which teacher leaders or mentors worked directly with participating teachers at the school site. We discuss each in turn.

Institutes

Intensive professional development institutes have been a hallmark of the CSMP for several years. They allow teachers to practice skills or develop content knowledge over a sustained period, often with follow-up during the school year. Data from the OIS (presented in Chapter 3) suggest that institutes continued to be one of the major forms of professional development the CSP provided. Institutes varied significantly in their focus (e.g., content knowledge, strategies

for teaching ELLs in the content area) and length (1-4 weeks, with or without follow-up); in general, however, they provided teachers with at least a week of intensive study on a given topic.

Overall, institutes were of moderate duration, typically lasting about 40 hours. When follow-up was included, some institutes provided teachers with 120 hours or more of professional development. Institutes generally focused on content and included strategies for teaching that content to students (see the example in the text box).

This approach was designed to increase teachers' ability to apply what they learned to their teaching. In the given example, the institute's participants attended separate afternoon sessions that were based on the grade level they taught—an example of the differentiation supported by research on effective professional development. The site directors also reported that in previous years they followed up institutes with coaching to help teachers apply what they learned, another feature of high-quality professional development. Because of reduced funding, however, they could not do so in 2003-04.

A Fourth- and Fifth-grade science institute

One CSP site held a 2-week summer institute for fourth- and fifth-grade teachers that focused on teaching to standards for those grades. Institute participants came largely from partner districts, but teachers also came from elsewhere in the region. The site directors admitted teachers in pairs from the same district to ensure a degree of collective participation, even though they were serving teachers from 11 districts. Each day, morning presentations focused on topics such as teaching science to ELLs, strategies for integrating literacy skills into science instruction, and pedagogical approaches to teaching science. A variety of workshops were held each afternoon, but teachers also had time to identify a scientific question of interest to them and work with other teachers interested in the same question to design experiments and use outside sources of information to answer the question—in other words, to “do” science.

In the afternoon workshops, participants were often broken into groups by grade level. For example, one afternoon the fourth-grade teachers convened for an activity on magnets—a topic that site directors had identified as one that teachers had difficulty teaching well. This workshop sought to give participants an understanding of how to use inquiry teaching to help students meet the content standards. The workshop opened with an inquiry activity in which teachers were given several types of magnets and other materials to explore. After initial exploration, the presenter asked teachers what they knew about magnets. He wrote their comments on the board and asked them to test particular assertions that he drew from their comments. The assertions he chose were related to important concepts about magnets or dealt with specific misconceptions people hold about magnets. The workshop’s culminating activity was watching a video of a teacher from the San Francisco Exploratorium teach a magnetism lesson in a fourth-grade classroom. The presenter frequently paused the tape to comment on how the teacher was following the inquiry model and on what specific things she was doing to shape the students’ work so that they were exposed to all of the key content standards during the lesson. This was an excellent example of a presenter helping teachers see how to do something they frequently struggle with—namely, structuring inquiry lessons to meet specific content standards—through modeling of the technique and guiding them through reflections on exemplary practice.

CSP follow-up activities offered institute participants the opportunity to reconnect with the CSP after they started to implement what they had learned at the institute. Follow-up can play a key role in helping teachers persist with new, but more effective, practices until they become comfortable with them. The CSP employed a great variety of follow-up activities, including workshops, minicourses, and coaching. The research on effective professional development suggests that this type of ongoing support, especially if it is based on the teachers’ context (like coaching), can be a particularly effective form of professional development (Birman, et al., 2000; Garet et al., 1999).

Coaching

Having the opportunity to observe high-quality instruction by peers and receiving feedback on one's teaching are often cited as particularly meaningful professional development activities for teachers (Birman, et al., 2000; Garet et al., 1999). Some sites were able to expand this approach, called coaching, in conjunction with partnerships. Other CSP sites used coaching as a form of institute follow-up. Through this model, teacher coaches who presented at the institute or were aware of the strategies introduced in the institute, visited teachers in their classrooms. Sometimes, the teachers might ask the coaches to conduct a model lesson with the teacher's students, illustrating how to use the strategies in the teacher's context. Other times, the coach might visit and provide feedback on implementation.

Not all sites, however, were able to use coaching in their work, and some that used to employ more coaching reported cutting back in light of budget cuts. According to the site director survey, although 32% of sites overall reported an increase in coaching since 2001, 21% of sites reported a decline in this activity. Funding cuts, as opposed to not believing in the efficacy of coaching, appear to underlie the decline seen at some sites. In response to a question about how funding affected site goals and activities, a CSP site director said, "We are doing less coaching with teachers at the site level."

THE CONTENT OF PROFESSIONAL DEVELOPMENT

Developing and deepening teacher content knowledge in specific subject areas have formed the core of the CSP since its inception. Each of the 19 sites provides discipline-based professional development geared toward improving teacher quality and student achievement in their respective fields in accordance with state standards and curriculum frameworks. Research supports the connection between teachers' content knowledge and their ability to teach their students effectively (Garet et al. 1999). In short, teachers need to know the breadth of the content, how to teach it, and how it was produced in order to be most effective.

Exhibit 4-4 illustrates the emphasis that CSP sites placed on teaching subject matter content and pedagogy: 84% of sites reported helping teachers acquire content knowledge and learn appropriate pedagogy "very frequently." Content and pedagogy were emphasized more than the development of teacher leadership skills (37%) and strategies that help teachers' students do work in the subject (26%).

Exhibit 4-4
Percent of CSP Sites Reporting Giving Teachers the Opportunity to Learn about or Acquire Various Skills and/or Knowledge

	Never	Infrequently	Frequently	Very Frequently
Knowledge of subject matter content	0%	0%	16%	84%
Strategies for using the appropriate pedagogy for their subject area	0%	5%	11%	84%
Leadership skills to improve the content instruction in their schools/districts	5%	16%	42%	37%
Strategies that help teachers' students do work in the subject area (i.e., research, writing)	0%	21%	53%	26%

Source: SRI CSMP Site Director Survey (2004).

Sites offered a variety of activities to help increase teachers' knowledge and skill. For some sites, a key component of these activities involved “doing” the discipline; that is, engaging in work that scientists do. For example, at one institute, teachers brainstormed science questions to which they wanted an answer. After sharing their questions, teachers formed groups around similar topics and shaped their initial questions into a single question they could pursue jointly during the 2-week institute. Depending on the question, the groups used a range of strategies, including researching material on the topic and conducting experiments to find an answer to their question. At the end of the institute, each group created a poster and presentation of its work to the entire institute, much like scientists do at conferences. By having teachers “do” the discipline, site directors believed the teachers gained the skills to return to their classrooms and teach their students how scientists think and work.

Sites also worked to increase teachers' skills in presenting content to their students. This was often done with activities designed to simultaneously increase teachers' content knowledge and pedagogical skills. The example of the fourth- and fifth-grade science institute presented earlier in this chapter exemplifies how a single activity can meet these dual goals.

Many partnership districts are interested in receiving professional development that helps teachers use adopted curriculum and materials. As a result, many sites developed professional development opportunities that helped teachers learn how to use the curriculum that was available at the partner district, or how to teach their content within the framework of the curriculum (Exhibit 4-5). Eighty-four percent of sites were influenced by district-adopted curriculum to a moderate or large extent.

Exhibit 4-5
Percent of CSP Sites Reporting District Adopted Curriculum Influenced their Activities to a Large Extent

	Not at All	Small Extent	Moderate Extent	Large Extent
District Adopted Curriculum	0%	17%	28%	56%

Source: SRI CSMP Site Director Survey (2004).

Similarly, 68% of all sites report training teachers on how to use adopted curriculum more in 2003-04 than they did in 2001, compared with only 11% of all CSP sites that reported training teachers to use adopted curriculum less than in 2001 (Exhibit 4-6).

Exhibit 4-6
Percent of CSP Sites Reporting that They Trained Teachers to Use Adopted Curricula More in 2003-04 than in 2001

	N/A	Less than in 2001	Same as in 2001	More than in 2001
Trained Teachers to Use Adopted Curricula	0%	11%	21%	68%

Source: SRI CSMP Site Director Survey (2004).

The survey findings suggest that the CSP exposed teachers to strategies in their subject area and, more specifically, in the curriculum that they use with their students. These approaches reflect what the research identifies as effective professional development and suggest that the CSP has created an environment that may positively affect teachers' instructional practices (Birman, et al., 2000; Garet et al., 1999).

ELLs

A key component of CSP strategy for improving teacher quality and student achievement involved focusing on instruction of ELLs. The 2001 RFP required the CSMP to focus on the needs of teachers of ELLs, and NCLB (including CASCITI) also promoted improving instruction of ELLs as a priority. With accountability measures requiring all students to meet California's rigorous academic standards, teachers needed access to professional development activities that provided them with the skills to address this population. The CSP worked to meet these demands by offering events that focused on teaching ELLs in the content areas and, more broadly, teaching literacy in all content areas.

Since the 2001 RFP, the CSP invested significantly in building and disseminating knowledge about teaching science to these students. To that end, the Project hired a consultant to compile relevant research on teaching ELLs science and published it so the information could be widely

accessed (Dobb, 2004). The Project is also supporting the development of a unique assessment that enables scorers to differentiate students’ science knowledge from their language proficiency. Survey responses provide further evidence of this commitment. As shown in Exhibit 4-7, all of the sites (100%) reported that they “frequently” or “very frequently” offer professional development designed to help teachers teach their subject area to ELLs.

**Exhibit 4-7
Percent of CSP Sites Reporting that Teachers at their Site Had the Opportunity to Learn Strategies for Teaching ELLs**

	Never	Infrequently	Frequently	Very Frequently
Learn Strategies for Teaching ELLs	0%	0%	47%	53%

Source: SRI CSMP Site Director Survey (2004).

Instruction of ELLs was not always a central goal of the CSP, but the focus on ELLs intensified over the study period. Of CSP site directors, 95% reported that they prepared teachers how to teach ELLs more in 2003-04 than they did in 2001 (Exhibit 4-8).

**Exhibit 4-8
Percent of CSP Sites Reporting that They Prepared Teachers to Meet the Needs of ELLs More in 2003-04 than in 2001**

	Strongly Disagree	Disagree	Agree	Strongly Agree
Prepare Teachers to Meet the Needs of ELLs	0%	5%	16%	79%

Source: SRI CSMP Site Director Survey (2004).

These data strongly suggest that sites were working to respond to CASCITI goals, the needs of California’s teachers, and the requirements of state and federal policies.

Literacy through Science

Another CASCITI goal was to prepare teachers to teach literacy through science. As discussed previously, part of the pressure to move in this direction at the elementary level came from the API, which disproportionately favors reading/language arts and mathematics scores in calculating school performance. At the secondary level, where students need to be able to read and write fluently in order to succeed in most courses, the impetus for teaching literacy across the content area comes from recognition of the role that literacy plays in students’ success in science, as well as other content areas. Nearly all (95%) of the site directors in the CSP reported emphasizing literacy strategies frequently or very frequently (Exhibit 4-9).

Exhibit 4-9
Percent of CSP Sites Reporting that Teachers Had the Opportunity to Learn Literacy Strategies

	Never	Infrequently	Frequently	Very Frequently
Learn Literacy Strategies	0%	5%	58%	37%

Source: SRI CSMP Site Director Survey (2004).

Overall, survey and case study data indicate that CSP sites considered literacy in science an integral component of their professional development activities, both for teachers and the marketing of sites' services to districts.

CONCLUSION

The context in which the CSP operates changed significantly in the past few years. The CSP responded to the state's changing needs by offering activities that focused specifically on preparing teachers to teach literacy across the content areas and meet the needs of ELLs. While these aspects of the CSP evolved, core structures and purposes remained in place. The network, for example, continued to play an important role in the CSP's capacity-building efforts. Additionally, the CSP continued to provide its long-running standards-based, subject matter content and pedagogical preparation in various formats, many of which are strongly supported by literature on effective professional development practices (Birman, et al., 2000; Garet et al., 1999).

CHAPTER 5—IMPACT OF THE CSP ON CALIFORNIA’S TEACHERS AND THEIR STUDENTS

The goal of the CSP is to increase teachers’ content knowledge and skill in order to improve teachers’ practice—with the ultimate goal of increasing student achievement. In this first year of the SRI evaluation, we did not collect original data that directly measure the CSP’s impacts on teachers and students. We plan such original data collection for the second year of the study.

In this chapter, we address the quality and impact of the work of the CSP by reviewing (1) our findings of the degree to which the CSP’s professional development practices were consistent with the research literature on effective professional development; and (2) previous evaluations of CSP work and the evidence they provide about the benefits of CSP participation. We then comment on the degree to which the CSP’s evaluation practices met the Project’s needs.

THE CHARACTERISTICS OF CSP PROFESSIONAL DEVELOPMENT

As noted in Chapter 1, researchers have reached a consensus about the characteristics of effective professional development. These include activities of sufficient duration, opportunities for groups of teachers to learn collectively, a clear focus on content, opportunities for active learning, and a coherent approach across activities (Birman et al., 2000; Garet et al., 1999; Kennedy, 1999; Loucks-Horsley, 1999; Putnam & Borko, 2000). We do not have direct measures of the CSP’s performance for each of these characteristics, but we present data relevant for beginning to address these issues.

We first asked whether the CSP used current research to structure its work. Most site directors (94%) reported that current research in teacher professional development influenced their activities to a “large” or “moderate extent” (Exhibit 5-1).

**Exhibit 5-1
Percent of CSP Sites Reporting Current Research Influenced Their Activities**

	Not at All	Small Extent	Moderate Extent	Large Extent
Current Research Influenced Their Activities	0%	5%	26%	68%

Source: SRI CSMP Site Director Survey (2004).

We also asked site directors how frequently they used a variety of strategies that would build teachers’ content knowledge and pedagogical knowledge, and improve their ability to implement what they learned (e.g., collective participation). Responses indicated widespread consistency

across CSP sites in the use of practices aligned with research on effective professional development (Exhibit 5-2).

**Exhibit 5-2
Percent of CSP Sites Reporting Using Various Professional Development Approaches**

	Never	Infrequently	Frequently	Very frequently
Engaging teachers in activities that are more in-depth or more complex than they would do with their students	0%	0%	26%	74%
Modeling effective instructional practices for teachers	0%	5%	16%	79%
Providing information on subject matter content, through lecture or demonstration	0%	11%	42%	47%
Having teachers work in collaborative groups with colleagues from their school	0%	21%	42%	37%
Engaging teachers in experiences that have them do work in the discipline	0%	21%	26%	53%
Allowing teachers to practice (or learn about) exact lessons that they can use with their students	0%	26%	21%	53%

Source: SRI CSMP Site Director Survey (2004).

In addition to selecting types of activities that are supported by research, site directors often attempted to structure key features of event formats in ways that are research-based. Site directors reported that an average of 54% of participants attended events with colleagues from their schools. These data suggest that many CSP events had the attribute of “collectivity” that research suggests increases the likelihood that professional development will positively affect teacher practice.

CSP SELF-EVALUATION

The 2001 RFP tasked sites with evaluating their work for evidence that student achievement increased as a result of teacher participation in CSMP activities. At a minimum, UCOP wanted these studies to address what participants learned, how what they learned affected their instructional practices, what standards-related topics students learned, what trends were apparent in student achievement in low-performing schools (disaggregated by subgroups), and what the links were between what participants and students learned.

In this section, we review the CSP’s efforts to support internal evaluation and research. Like other activities, the CSP’s evaluations were affected by funding reductions. Site directors reported conducting fewer evaluation activities because of a lack of resources to pay for them. Despite the scarcity of funds, site directors seemed to be positive about their evaluations overall (Exhibit 5-3). A large majority of sites reported that the process of conducting the evaluation was useful (89%), that they had a clear plan for their evaluation (84%), and that they had a good handle on how to analyze their data (74%). Although these responses initially appear to be quite positive, further examination reveals more mixed results. For example, 53% of site directors agreed that “deciding how to collect the data has been a significant challenge of our evaluation,” and only 27% agreed or strongly agreed that they “had the resources needed to collect data” for their evaluation. These findings suggest that sites did not uniformly have the capacity to carry out effective evaluations.

Exhibit 5-3
Site Responses to Statements about Site-Level Evaluation

	Strongly Disagree	Disagree	Agree	Strongly Agree
The process of conducting our site-level evaluation has been useful for us	5%	5%	63%	26%
We have a clear plan for our site-level evaluation	0%	16%	58%	26%
We have a good handle on how to analyze the data we collected	5%	21%	58%	16%
We have the support of researchers/ consultants to guide our evaluation	16%	26%	32%	26%
We have the resources needed to collect the data for our evaluation	21%	53%	16%	11%
Deciding how to collect the data has been a significant challenge for our evaluation	11%	37%	53%	0%

Source: SRI CSMP Site Director Survey (2004)

Another issue for some sites was collecting data that address questions of interest to both the site and UCOP. The 2001 RFP made it clear that UCOP was interested in tangible impacts of CSP participation on teacher knowledge and skills, teaching practices, and student achievement. Exhibit 5-4 displays the types of measures that sites reported using to conduct their evaluations. Almost all sites reported that they found their evaluations of teacher perceptions of the quality of events (95%) and teacher content knowledge (90%) “moderately” or “largely valuable.” The majority of site directors (70%) also viewed measures of teacher practice positively. However, although the 2001 RFP encouraged sites to focus on effects on student achievement, only 32% of

site directors reported that evaluation measures about impacts on student achievement were “moderately” or “largely valuable” and 37% of site directors reported not collecting any student achievement data.

**Exhibit 5-4
Site Responses to Statements about Various Evaluation Measures**

	N/A - we did not collect these types of data	Not valuable at all	Slightly valuable	Moderately valuable	Largely valuable
Teacher perceptions of the quality of events	0%	0%	5%	32%	63%
Teacher content knowledge	0%	0%	11%	37%	53%
Teacher practice	11%	5%	16%	42%	26%
Student achievement	37%	5%	26%	21%	11%

Source: SRI CSMP Site Director Survey (2004).

These data suggest that, for whatever reason, site directors’ beliefs were not fully aligned with the beliefs of UCOP and policy-makers about the usefulness of various measures in evaluating the effectiveness of their work. It is significantly more challenging to collect meaningful data on the effects of teachers’ participation on student achievement than it is to collect data on teachers’ opinions about event quality. In light of site directors’ comments about their evaluation process (Exhibit 5-3), we hypothesize that the difference between UCOP’s goals for evaluation and site directors’ goals may have stemmed partially from a lack of local capacity to conduct meaningful evaluations using student achievement data. An additional cause may be that site directors could immediately use data on teachers’ perceptions of event quality to make decisions about aspects of events that should be changed or remain the same in future iterations of those events. Regardless of the reason for the lack of alignment, the CSP will face a challenge in the coming years as policy-makers and funders increasingly require evaluations that include measures of student achievement.

Under CASCITI, the CSP took an important step toward addressing the challenge of evaluating effects on student achievement by investing in the development of assessment items that provide accurate measures of ELLs’ science knowledge and skills. This central investment in item development could provide student achievement measures that are valid and reliable for a population (ELLs) that is a central focus of the CSP, but whose achievements are challenging to

document. In 2004-05, several sites plan to use these measures to evaluate the impact of teacher participation in their events on student achievement.

RESULTS OF INTERNAL STUDIES OF THE CSP

As part of the evaluation, we requested that the CSP executive director submit studies the Project had conducted or supported since 2000.³² (Appendix B provides a complete list of all studies we reviewed.) The research reviewed varied both in scope and purpose. Many studies focused on a single institute or set of workshops and, as a result, had a relatively small number of participants; others investigated the effects of a program of work on many teachers and students. We initially divided the evaluations into four main groups, based on their primary focus: teachers' perceptions of professional development activities, effects on teacher knowledge, effects on teacher practice, and effects on student achievement. Because no evaluations focused solely on the effects on teacher practice, we eliminated that group.

The studies varied substantially in the level of detail of reporting. Some evaluations were reported in articles published in refereed journals; some had full descriptions of the intervention, research design, and analysis; and others mostly consisted of raw data or brief descriptions that did not enable SRI to evaluate the findings. As a result of uneven reporting, the discussion below does not include all evaluations conducted by the CSP over the past few years.

Teachers' perceptions of professional development activities

Much of the research reviewed focused on teachers' perceptions of the quality and utility of their professional development, often limited to a particular set of workshops or a single summer institute. Such studies cannot be used to support broad statements about the effects of the CSP, although they may be highly relevant to site-level decision-making. One evaluation, for example, examined a summer institute and presented copious data that included participants' perceptions of the applicability of each workshop to their classrooms, the reported effect of each workshop on participants' content knowledge, and perceived quality of each presenter. The study also extensively categorized the characteristics of the approximately 30 teachers who participated (Mark, 2002). The amount of information presented in this report suggests a genuine effort to provide comprehensive data on the institute to the site director. The site could use the data collected to decide which presenters to retain (or replace) for future institutes or to identify perceived weaknesses in the institute. As such, this type of evaluation could be valuable for a site director; however, it did not provide strong evidence of the quality or impact of the CSP.

³² Some of the research submitted was conducted before 2000, but was still included in our review.

Effects on teacher content knowledge

Many sites used pre-/post-teacher content knowledge tests as a measure of growth in participants' knowledge over the course of an institute or professional development series. Some of these tests were analogous to the examinations a teacher might give at the end of an instructional unit: they were designed, in large part, to test whether participants recalled particular information presented during an institute. These tests can be useful to site directors seeking to determine whether their institute was effective at delivering specific content knowledge to participants. The Inland Area Science Project (Inland Area Science Project Summer Institute, 2003), for example, created a standards-based assessment of teacher content knowledge using items developed by university professors. Administering the test at the beginning and the end of the 1-week institute, they found that the average increase in scores ranged from 8% to 35% on 5 science strands tested. Although identifying the effects of teachers' participation on their content knowledge is clearly important for evaluating the quality of an institute, the tests generally appear to have lacked the psychometric properties necessary to generalize much beyond the specific items included in the assessments. Moreover, changes in teacher content knowledge do not necessarily lead to improved teaching or increased student achievement. As a result, whereas tests of teacher content knowledge can provide useful feedback to site directors, they do not in and of themselves provide evidence that the CSP contributed to improved student outcomes.

Effects on student achievement

Teacher professional development is predicated on the assumption that teachers will acquire information and skills, implement this new knowledge properly on returning to their classrooms, and contribute, in turn, to the academic achievement of their students. Demand for evidence of such impacts is increasing as federal and state accountability requirements continue to mount. We reviewed four studies that addressed the CSP's impact on student achievement. The studies used a varied mix of data collection methods and different types of quantitative and qualitative analyses. Generally, the studies tended to find that the CSP had a positive impact on California's teachers and students.

Stoddart (1999) conducted an evaluation of a 4-week summer school academy for teachers, preservice teachers, and ELLs in grades K through 6.³³ The goal of the Language Acquisition through Science Education in Rural Schools (LASERS) academy was to show teachers how to use inquiry methods of teaching science to simultaneously build students' language and science

³³ Although the program studied did not occur under the auspices of the CSMP, we include the evaluations by Stoddart in 1999 and Oliver in 2000 in the review because LASERS evolved into the Monterey Bay Science Project in 2000 and continues to use many of the strategies evaluated in the study.

knowledge and skills. Researchers collected pretest and posttest data on teachers' beliefs about the integration of science and language instruction; evaluated videotapes of teacher practice for evidence of the integration of science and language development strategies; and administered pretests and posttests of student achievement in science and on multiple measures of language development. The study found that participation in the academy led to increases in teachers' beliefs in the benefit of integrating language and science in instruction, as well as improvements in student knowledge of science and language skills on all measures. Measures of teacher practice also roughly corresponded to teachers' beliefs (although the authors acknowledged that the small sample size of 10 teachers made this conclusion tentative). Their use of data from multiple sources supports the authors' positive findings about the benefits of the academy.

Oliver (2000) examined a partnership between Life Lab at the University of California, Santa Cruz, and seven rural school districts (in the central California coast region) over a 4-year period; the partnership was also part of the LASERS project. The program, which involved 51 elementary schools, 1,650 teachers, and 34,000 students (about 50% ELLs), emphasized the interaction between English language acquisition and science. The professional development intervention evolved over the 4 years to become fairly intensive and entailed a range of modes of delivery. Data collection occurred over 4 years, beginning with baseline data collection in 1995-96. It included a survey of 300 randomly selected teachers, annual surveys of all 51 principals, classroom observations, interviews with 10 randomly selected K through 5 teacher-participants, and observations of 43 professional development events over the course of 4 years (5 to 12 per year). Classroom videotapes confirmed teacher reports of practices they implemented as a result of participation. Teachers with 100 hours of professional development were compared with those with 20 hours in regard to their readiness to teach various aspects of the science curriculum. Those with more professional development had consistently higher means on self-reported survey measures of preparedness to teach science content and to use pedagogical strategies taught by LASERS. Those with more professional development also spent more classroom time on science, until year 4, when time spent on this subject decreased. The author speculated that the decline was due to accountability pressures that focused more instructional time on reading and mathematics.

Stoddart and Clinton (2002) conducted another evaluation of the Monterey Bay Science Project's work—an evaluation of LASERS that compared SAT-9 performance in language, reading, and mathematics for students whose teachers had participated in LASERS to those whose teachers had not participated in LASERS. More than 3,000 students (1,300 of whom had teachers who had participated in LASERS) participated in an initial study, which was then replicated in a second district with 1,300 students (650 of whom had teachers who had participated in LASERS).

The authors compared student gains for 2 years and consistently found that students whose teachers had participated in LASERS performed significantly better in all three subjects, regardless of the students' English proficiency. The effect was generally strongest for students who had LASERS-participating teachers both years. In the context of this review, the most salient feature of this study is that it was replicated in a second district: the results are more convincing because they do not appear to be contingent on the particular context of the first district studied.

Nordstrom and Delgado (2002) conducted an evaluation of the effectiveness of a different project designed and implemented by the Monterey Bay Science Project. The Designing Integrated Garden Systems Project (DIGS) used a lead teacher model at six elementary schools to disseminate a strategy of using the school garden as the context for activities that integrated science and language. The evaluation reported positive findings on the impact of the program on teacher knowledge of standards and inquiry strategies for teaching science. It also presented data that suggest that having a teacher or teachers who participated in DIGS positively affected student achievement (although many of the comparisons between DIGS and non-DIGS students were not statistically significant).

Amaral, Garrison, and Klentschy (2002) connected elementary school students' achievement to teacher participation in a 4-year, kit-based science instruction program developed by the Valle Imperial Project in Science. The authors compared student achievement in science and writing proficiency across the different participant groups and found that the achievement of ELLs increased relative to the number of years they participated in kit- and inquiry-based science instruction using science notebooks (the pedagogical strategies developed and taught by the site). They also found a positive correlation between the number of years students had teachers who had participated in the program and their achievement in science, reading, writing, and mathematics. These findings support the site's continued professional development around kit-based science.

CONCLUSION

CSP leadership at both the Project and site level is aware of research on effective professional development and attempts to provide professional development consistent with that research. Of particular note, the CSP's core focus on content, subject-specific strategies for teaching content, and the collaborative work of teachers set it apart from many other professional development efforts.

Site leaders were also aware of the importance of evaluating their efforts, both to improve their work in the future and to report to policy-makers and funders. Under CASCITI, all sites

appeared to have conducted some form of evaluation that provided site directors with feedback on their offerings. A relatively small set of studies conducted before CASCITI showed the beneficial effects of CSP on teacher practice and student achievement in two CSP sites (Monterey Bay Science Project and the Valle Imperial Project in Science), both of which disseminated the core strategies studied in their evaluations to other sites. Unfortunately, the majority of evaluations do not enable an outside audience to determine with great certainty how and to what extent the CSP affected teachers and students in California. Studies that would provide such evidence are costly and require substantial capacity to conduct. Because CASCITI funds did not reach sites until the spring of 2004, they did not provide the resources necessary for sites to undertake such sophisticated evaluations. As site budgets decline, it will become increasingly less likely that sites will be able to conduct the types of evaluations that satisfy the need for strong evidence of the CSP's effect on California's teachers and students.

CHAPTER 6—SUMMARY

This report is a legislatively mandated evaluation of CASCITI and the CSP. The document relies on secondary data SRI obtained from the CSP and UCOP, a set of case studies, and an online survey of site directors. Subsequent SRI data collection will include a teacher survey and more case studies of local sites, and both will be reported on in December 2005. This final chapter summarizes our findings.

The first key finding is that the capacity of the CSP to deliver high-quality professional development has been affected by policy and budgetary shifts. Most sites have experienced a reduction in resources and/or confronted new challenges of meeting the requirements of multiple funding sources. From 2002-03 to 2004-05, the CSP saw its state funding cut from \$4.25 million to \$600,000. An influx of money from NCLB, largely through CASCITI, helped to temporarily offset the loss in state funds. To further compensate for the decline in state allocations, sites made substantial efforts to raise funds from other sources. Sites varied significantly in the degree to which they were successful at raising outside funding, however. And even when sites attracted other funding, those dollars brought with them additional goals and requirements, which site leadership had to balance against the core work of the CSP.

As funding declined and district partners requested different types of activities, the CSP altered its operations. Fewer teachers participated in institutes and follow-up activities in 2003-04 than in 2001-02, for example. As the number of teachers served in long-duration events declined, it appears that the number of teachers and other participants being reached by the CSP also fell. Because of missing data in the Project's OIS, it is not possible to tell whether these declines have negatively affected the CSP's ability to meet its targets for serving teachers of ELLs or of teachers who need to become highly qualified under NCLB.

The second key finding is that CASCITI funds enabled CSP sites to continue serving teachers in low-performing schools and districts. The federal money allowed the CSP sites to continue serving their targeted teacher populations in a period of declining state financial support.

The third key finding is that the "highly qualified" teacher requirements outlined in NCLB and CASCITI did not place a great burden on CSP sites. More than half of all sites reported addressing the need to make teachers "highly qualified" more in 2004 than in 2001. These activities involved CSET preparation, providing documentation for teachers seeking to satisfy HOUSSE requirements, and providing high-quality, content-rich professional development congruent with NCLB guidelines for effective professional development. Although the OIS did

not effectively track the CSP's work in this area, the evidence that exists suggests that the CSP increased the number of highly qualified teachers.

The fourth key finding is that CASCITI funds enabled CSP sites to continue offering professional development activities that supported the incorporation of literacy in science. Nearly all CSP site directors indicated that their site emphasized literacy strategies, suggesting that the CSP met its CASCITI goal in this area.

The fifth key finding is that CASCITI funds enabled CSP sites to continue providing professional development that supported teachers of ELLs. Although reaching teachers of ELL students did not represent a radical departure from ongoing CSP work and investment, CASCITI funds allowed the sites to deepen their offering of this type of professional development to teachers. Unfortunately, the limitations of extant data systems make it challenging to gauge the extent of CSP work in this area. Additionally, CASCITI supported the development of assessment items that, in the future, are likely to enable the CSP to collect evidence about the effects that teacher participation in CSP activities has on ELLs' achievements.

The sixth key finding is that, as a result of CASCITI, the CSP shifted significant resources to providing professional development to fourth- and fifth-grade teachers. A new state science assessment for elementary students created an opportunity for CSP sites to offer professional development to teachers they had had difficulty reaching in recent years. Districts requested more professional development for their fourth- and fifth-grade teachers, and sites responded by creating institutes and other events designed to build those teachers' knowledge of content and effective pedagogical strategies for delivering standards-based instruction in science to all students.

Finally, although the CSP values evaluation and previous evaluations had demonstrated the effectiveness of the Project in specific sites, no site evaluations conducted under CASCITI provided evidence of the CSP's impact on student achievement. Because earlier studies conducted demonstrated the effects of specific content and formats of professional development provided by the CSP, there is evidence that the CSP provided high-quality professional development under CASCITI. Survey and interview results suggest that site directors understood the importance of conducting evaluations. Many site directors stated that the late arrival of CASCITI funds significantly impaired their ability to plan comprehensive evaluations of the effects of teacher participation on student achievement. Because it is unlikely that CSP funding will increase or become more predictable in the near future, the CSP needs to develop a strategy for supporting evaluation through uncertain fiscal times. The centralized development

of assessment items for ELLs that the CSP undertook under CASCITI could be an example of such a strategy.

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APPENDIX A—CSMP SITE DIRECTOR SURVEY METHODS AND ANALYSIS

This appendix details the design and procedures for the data collection methods and analyses of the 2004 CSMP Site Director Survey. The separate report, “Evaluation of the California Subject Matter Projects: Technical Appendix” (Hough et al., 2005) provides technical information for exhibits throughout the report.

SITE DIRECTOR SURVEY

The 2004 CSMP Site Director Survey was designed to provide a representative report of the work of CSMP sites. A site director from each site was asked to report on a variety of topics, grouped into the following sections:

- Work of the site
- Teacher participants
- Teacher leadership
- Professional development provider characteristics
- Collaboration and support
- Evaluation
- Summary

For most questions, respondents were asked to consider the period from July 1, 2003 to June 30, 2004.

Sampling Procedures

UCOP provided a list from the OIS of the site directors and codirectors associated with each of the 19 CSP sites. Because we wanted only one response from each site, we sent only one e-mail notification of the online survey. In cases when a site had only one director, we sent the survey to that person, even if the site had multiple codirectors. When a site had multiple directors, we sent the e-mail to the director listed first on the Web site. Because we wanted to accurately represent the responses of a site rather than of a single site director, we asked site directors to collaborate with others in completing the survey.

Survey Administration

The survey was administered using a Web-based survey tool. The first notification of the online survey was sent on October 19, 2004. Returned surveys were automatically logged. An automated reminder e-mail was sent on October 26, 2004 to the nonresponding sites, and the deadline for completion of the survey was set for November 1, 2004. On November 1, another automated e-mail was sent to sites that had not returned surveys, and the deadline was extended

to November 5, 2004. On November 8, we began telephone follow-up with the 1 CSP site that had not returned the survey. We used the contact information provided through UCOP, as well as the CSMP Web site, to contact the site director and request a response. By mid-November, all CSP sites had completed the survey.

Survey Analysis

Because we had a 100% response rate for the CSP, unweighted data are reported throughout this report. We conducted all survey analyses with the statistical software package SUDAAN, and used a finite sampling adjustment in analysis. The finite sampling adjustment (Agresti & Finlay, 1997) is equal to zero when the sample size is equal to the population size, indicating that when all population members are respondents, there is no uncertainty with respect to the value in the population of the parameter being estimated.

We conducted the following analyses:

- We examined the response distributions for each item and computed simple summary statistics.
- The longitudinal analyses consisted of comparing identical items across the 2003-04 site director survey, and the 1999-2000 and 2000-01 surveys conducted by the American Institutes for Research (AIR). The process of our cross-sectional analysis is detailed below.

Cross-Sectional Analysis

We conducted the cohort analysis of the CSP by using survey data from 2000 and 2001 collected for the previous evaluation conducted by AIR. Sites were weighted to the population of the Project at the time the survey was administered. Exhibit A-1 shows the populations in 2003-04, 2000-01, and 1999-2000, as well as the number of respondents and their assigned weights.

**Exhibit A-3
Weights for 2003-04, 2000-01, and 1999-2000 Surveys: CSP Sites**

	2003-2004 Survey	2000-01 Survey	1999-2000 Survey
Population	19	18	13
Responded	19	16	13
Weights	1.00	1.13	1.00

APPENDIX B —REVIEW OF CSP STUDIES

STUDIES REVIEWED

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