

CS Champion Guidelines

Building Regional Capacity to Scale K-12 CS Pathways





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Lead Agency:	Small School Districts' Association (SSDA) 925 L Street, Suite 1185 Sacramento, CA 95814
Project Directors:	Kathy Hamilton Karen Mix
Author:	Jonathan Rhodea
Editor:	Jared Amalong
Producer:	Jessica Heidrich
Contributors:	Kathy Hamilton Karen Mix Jonathan Rhodea
Contacts:	Karen Mix - karen@ssda.org Jonathan Rhodea - jrhodea@scoe.net
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Abstract

Small, rural school districts in Northern California face significant systemic barriers to providing K-12 computer science (CS) education, creating a significant opportunity gap for students. To address this, the CS4NorCal project aimed to build regional capacity for creating and sustaining equitable CS pathways across six remote counties. The project utilized an intermediary strategy, initially deploying localized CS Champions from California County Offices of Education (COEs) to foster strategic planning and local buy-in. As the project scaled, it introduced a centralized CS Ambassador to provide high-intensity, in-person mobilization, recruitment, and data collection support across the vast region.

This article analyzes the design, implementation, and outcomes of this hybrid approach. Findings indicate that the CS Champion model was vital for adapting the initiative to diverse local contexts, while the CS Ambassador model was essential for accelerating growth and ensuring research fidelity, overcoming the inherent capacity limitations of small COEs. The project's success in connecting 275 educators with professional learning and implementing CS instruction in 77 schools stemmed from the synergy between these two complementary roles. The CS4NorCal experience concludes that a flexible, hybrid intermediary structure offers a viable blueprint for scaling educational reform in under-resourced rural settings.



CS4NorCal

www.cs4norcal.org



PART I - Background & Context

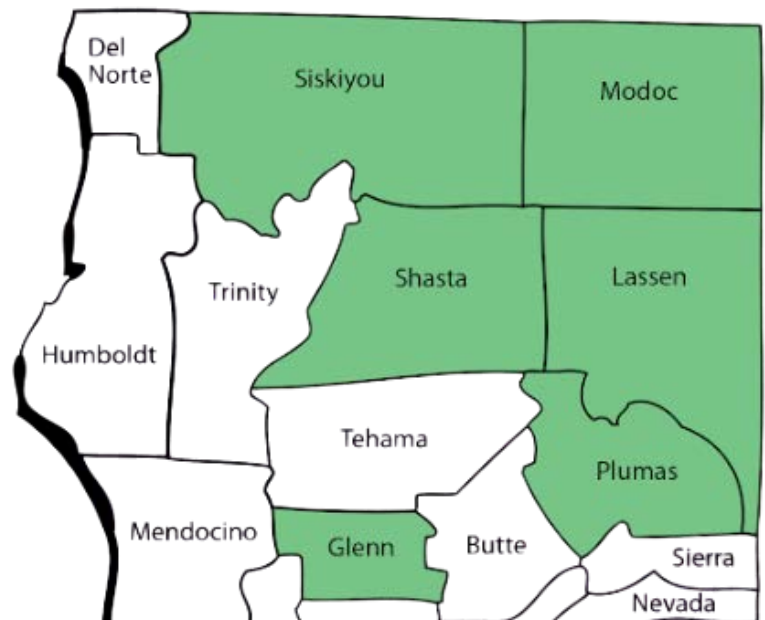
In 2018, California established statewide computer science (CS) standards but failed to provide a clear implementation plan for its numerous small, rural school districts. These districts face systemic barriers, including funding inequities, insufficient technological infrastructure, and limited access to professional learning (PL), that have impeded their ability to offer the same opportunities as their urban equivalents. During the 2019-2020 school year, only 24% of California's rural high schools offered a CS course, compared to 56% of schools in suburban and urban areas (Code.org et al., 2020).

One in every ten students in California lives in a rural area—over half a million students—and 67% of the state's school districts are classified as small (Jones, 2019).

The reasons for this gap are systemic. A national report found that superintendents in rural districts are significantly less likely than their urban counterparts to agree that their school board is committed to offering CS (Google & Gallup, 2020). These barriers include funding inequities, insufficient technological infrastructure, and limited access to PL.

“Why not here? Why should our kids be behind the 8-ball because of where they live?”
– Rob Adams, retired Superintendent, Redding Elementary School District

To address this disparity, the Small School Districts' Association (SSDA) secured a nearly \$4 million federal grant to launch CS4NorCal. The project focused on six of California's most remote counties (Lassen, Modoc, Siskiyou, Glenn, Plumas, and Shasta), where some districts serve fewer than 100 students, educators may drive hours for training, and unreliable internet can hinder online learning. CS4NorCal designed and delivered PL and student-facing resources tailored to overcome these specific challenges, building local capacity to create sustainable CS pathways.



Additionally, CS4NorCal sought to empower County Offices of Education to support local K-12 CS pathways while building lasting capacity to address systemic gaps in access to CS education in small and rural schools.



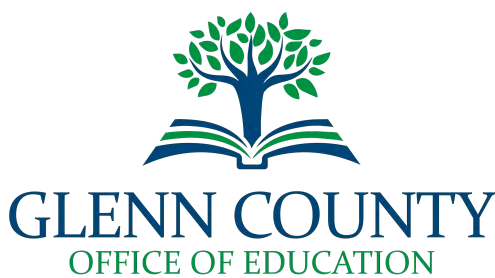
PART I - Background & Context

Target Literature Review

The strategies employed by CS4NorCal are well-supported by a significant body of research on the educational challenges in rural communities. With that said, the challenge of delivering equitable, high-quality education, particularly in specialized subject areas like CS, is amplified in small and rural school districts. These schools often contend with systemic barriers, including geographic isolation, limited budgets, and difficulties in recruiting and retaining teachers with specialized expertise (Martin et al., 2024). In CS education, the lack of qualified teachers is a primary reason cited by administrators for not offering courses, a challenge disproportionately affecting smaller, rural districts (Warner et al., 2019).

To address these disparities, the role of intermediary organizations, such as COEs, Educational Service Agencies (ESAs), and other regional collaboratives like SSDA, is essential. These entities operate at the "middle tier" of the education system, serving as a critical link between central policy and school-level implementation (Tournier et al., 2023). Intermediaries function as "the new middle management," providing essential resources, specialized knowledge, and administrative infrastructure necessary for implementing complex educational changes that often exceed the capacity of individual small districts (Honig, 2004).

The foundational purpose of COEs and ESAs is to promote efficiency, quality, and equity across the educational system by leveraging economies of scale (AESAs, 2021). They provide cost-effective PL and technical assistance that small districts cannot sustain independently. Furthermore, because they operate closer to the local context than state agencies, intermediaries are important partners that align state initiatives with local needs, thereby increasing the coherence and equity of educational support systems (EducationCounsel, 2021).





PART I - Background & Context

In the specialized domain of CS, intermediaries are vital for building the necessary teacher capacity in areas where local expertise is scarce. Research highlights the effectiveness of "collective impact models," often facilitated by intermediary organizations, to scale professional development in rural areas. By pooling resources, coordinating high-quality training, and connecting local education agencies with external expertise, these models have demonstrated significant success in increasing the number of certified CS teachers in rural settings (Warner et al., 2019). This coordinated approach is essential for overcoming the challenges of scalability and sustainability, ensuring that students in small and rural schools are not excluded from foundational CS learning opportunities (Martin et al., 2024).

Conceptual Framework

Building on the research highlighting the critical role of intermediaries, the CS4NorCal project was grounded in a clearly articulated Theory of Action: that "a regional capacity-building approach... can provide students in high-need rural areas with a progressive continuum of exposure to STEM-CS instruction and experiences." To operationalize this theory, SSDA selected the Sacramento County Office of Education (SCOE) to lead the development and delivery of CS PL while expanding the capacity of the other participating COEs.

The CS Champion Model: A Context-Responsive, Intermediary Approach

As an alternative to a one-size-fits-all approach, the project's design was driven by a detailed needs assessment completed by each participating county. This process revealed significant variability in the capacity of the partner COEs and surfaced common regional challenges, including a lack of specialized CS knowledge, geographic isolation, and inconsistent infrastructure. In response, the project developed the CS Champion model, which positioned key COE staff as the intermediaries capable of building and guiding county-level implementation.

The foundation of this capacity-building effort was the "Seasons of CS" PL model, a year-round continuum of training for K-12 educators. CS Champions were not merely coordinators of this training; they were active participants, deepening their own CS content knowledge and developing equity-minded facilitation strategies. This dual role as both leaders and learners was essential for equipping them to provide localized instructional leadership. The model incorporated intensive scaffolding from SSDA and SCOE, as well as a strategy of "gradual release of responsibility." This strategy is intended for Champions to progressively assume ownership as their expertise grows. To expand COE capacity and ensure implementation remained locally responsive, a tiered governance structure, consisting of a Steering Committee, a Task Force, and Local Planning Committees (LPCs), was established.



PART I - Background & Context



The CS Champions were the linchpin of this structure, translating the project's high-level goals into strategic plans co-designed with local stakeholders.

Adapting the Framework: The CS Ambassador Role

As the project matured, SSDA introduced additional support for implementation. The intensive logistical demands of outreach, relationship-building, and data collection across a vast six-county region began to exceed the capacity of the COE-based Champions. In response to this emergent need, the CS Champion model was enhanced midway through the grant by introducing a regional "CS Ambassador."

This adaptation was a critical enhancement, not a replacement. The CS Ambassador provided a dedicated, in-person presence across all counties, focusing on high-intensity mobilization to participating school sites. This enhancement freed the CS Champions to maintain their focus on local strategic planning and instructional leadership, creating a more robust hybrid intermediary model that combined localized guidance with intensive regional support.

“So, our role is really primarily to support educators, by providing resources, professional development, instructional coaching, and guidance on implementing new initiatives in our county.”

-Lassen County CS Champion



PART II - County-Level CS Champions

Model Design & Development

The design of the CS Champion model aimed to translate the high-level strategic goals of CS4NorCal into tangible, locally relevant actions across diverse and geographically isolated contexts. Recognizing that sustainable pathways require buy-in from numerous partners and adaptation to local capacity, the model integrated structured planning tools, formalized organizational structures, and collaborative support mechanisms.

The Foundation: Local Planning Committees (LCPs)

The primary means for localized adaptation of project PL and resources was the LPC. Champions were tasked with convening and leading these committees, which included a cross-section of local stakeholders: district and site administrators, teachers, counselors, post-secondary staff, and community partners. For example, Modoc County's LPC actively engaged partners like Advancing Modoc, RISE (Resources for Indian Student Education), and MESA (Math, Engineering, Science Achievement). The LPCs functioned as local "think tanks," responsible for analyzing needs assessment data, defining a shared vision, and developing concrete implementation goals tailored to their county.



Marian Murphy-Shaw
Siskiyou County
CS Champion



Tanja Ramming
Modoc County CS Champion



Sherry Rodgers
Shasta County CS Champion



PART II - County-Level CS Champions



Bobbie Kirkpatrick & Jodi Neuenschwander
Lassen County CS Champions



Anna Lane
Glenn County CS Champion

Structured Visioning and Goal Setting

To guide the LPCs through the strategic planning process, CS4NorCal utilized standardized tools developed by CSforALL. The process was intentionally scaffolded: SCOE initially facilitated activities during LPC meetings to model the strategic planning process and ensure fidelity. Later in the grant period, formal facilitation training from CSforAll was made available to the Champions to build their facilitation skills.

“We connect well with our with our schools, our districts and our teachers, so that we can have the best relationships when we are doing initiatives.”

-Glenn County CS Champion

Task Force: Boots on the Ground Support as CS Champions

Structure

- 1 representative from each county's Planning Committee
- Participates in monthly meetings and asynchronous tasks throughout the year

Role

- Gain expertise to practice as the local CS subject-matter expert
- Handle logistics for local professional learning events
- Handle immediate local communication, including outreach and recruitment
- Manage local implementation plan
- Contribute to dissemination of project findings

Desired candidate

- Consider an instructional leader at the county or district level
- Consider an individual with long-term leadership potential
- May need to contribute up to 75 hours/year
- SSDA will offer to offset cost of time committed to implementation





PART II - County-Level CS Champions

The "CS for What?" framework (Santo et al., 2019) was a tool that prompted LPCs to articulate their core motivations for implementing CS education, such as economic opportunity, equity and social justice, or school improvement. This ensured that the resulting pathways aligned with local values. For example, Modoc County's vision focused explicitly on breaking the "generational cycle of poverty," while Lassen County emphasized fostering "creativity, collaboration, and communication."

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Following visioning, the LPCs utilized the CSforALL SCRIPT Rubrics (CSforALL, 2023), which provided a structured mechanism for assessing existing capacity and prioritizing efforts across six key areas, including Leadership, Technology Infrastructure, and Professional Learning. This allowed LPCs to identify gaps and set specific and measurable 3-month, 6-month, and 1-year goals.

The outputs were synthesized into formal County CS Strategic Implementation Plans. These were designed as living documents intended to guide implementation iteratively. During the initial years of the project, these plans were regularly revisited during LPC meetings to track progress and adjust strategies.

Cross-County Collaboration: The Task Force

While the LPCs focused on county-level work, the model established a regional Task Force, composed of the CS Champions from all six counties. The Task Force was intentionally designed not as a conduit for project updates (which were often handled via email), but as a collaborative problem-solving space. It functioned as a professional learning community for the intermediaries themselves, mitigating the isolation often felt in rural leadership. It provided a venue for Champions to share best practices, co-design solutions to common challenges (such as recruitment or PL delivery), and leverage diverse expertise across the region.

Streamlining Outreach and Communication

A critical function of the Champions was mobilization, which included recruiting educators for PL and advocating for pathways with school leadership. To support these efforts and reduce the administrative workload, the model included centralized communication resources. SSDA and SCOE provided toolkits with adaptable templates for emails, recruitment flyers, and talking points. Task Force meetings also facilitated the organic sharing of high-value resources; for instance, materials developed by one Champion for a local School Board presentation were shared for adaptation by others. Regular newsletters were also distributed to keep CS Champions and the Steering Committee informed.



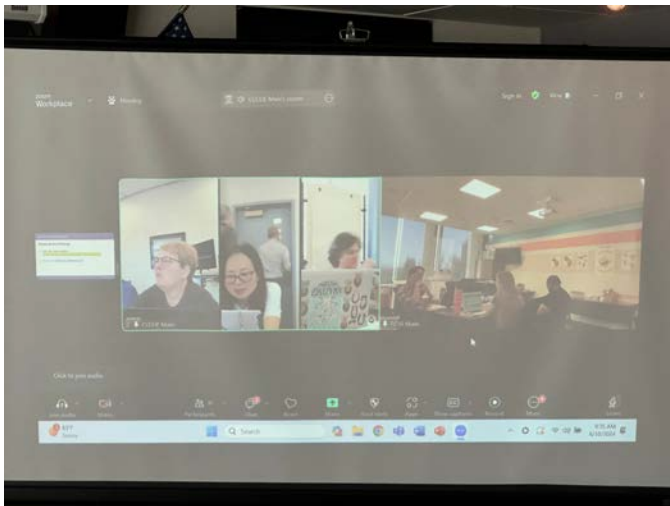
PART II - County-Level CS Champions

Innovating Professional Learning Delivery

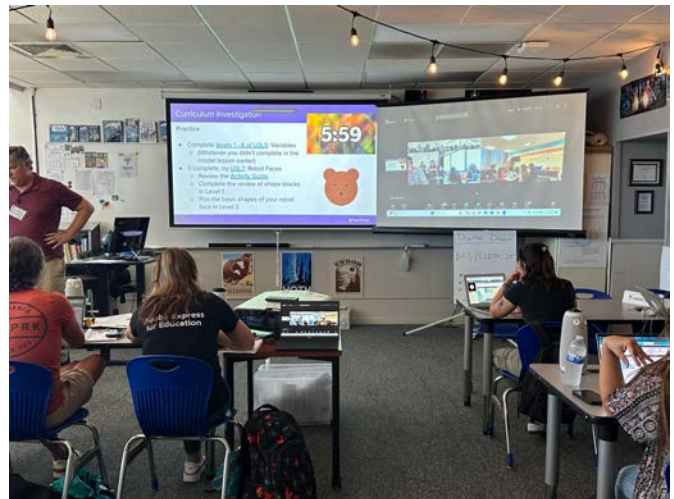
Lastly, the CS Champion model design also supported innovation in PL delivery, exemplified by the piloting of a hybrid delivery model during the Summer of CS. The "Hybrid Day" in June 2022 linked local, in-person workshop sites (spokes) to a central virtual hub, testing the feasibility of the Hub-and-Spoke model. CS Champions were instrumental in the execution of this pilot.

Implementation & Fidelity

The implementation of the CS Champion model was characterized by significant variability across the six counties, reflecting differing capacities, staffing structures, and local priorities. While the project design provided a structured framework, SSDA and SCOE prioritized flexibility as opposed to rigid adherence to the structures themselves. Implementation of the CS Champion model was tracked primarily through annual reports submitted by the COEs, asynchronous updates to the County Strategic Implementation Plans, and verbal reports during project leadership meetings.



Hybrid CSD workshop virtual participants



Hybrid CSD workshop in-person participants

Initial Mobilization and Planning

In the initial years of the grant, the model was implemented with high energy and adherence to the designed structures. CS Champions successfully generated significant interest among the first cohort of schools, leading to strong recruitment for the initial "Summer of CS."

Champions effectively established and convened their LPCs. Guided by SCOE facilitation, these LPCs engaged deeply with the "CS for What?" visioning tools and the SCRIPT rubrics. This process resulted in the development of detailed County Strategic Implementation Plans, which were actively used as living documents and revisited during the monthly LPC meetings held in the first year.





PART II - County-Level CS Champions

The Central Tension: Structure vs. Capacity

A significant and consistent tension emerged between the structured approach required by the grant and the significant capacity limitations faced by the COEs and participating educators.

The execution of the CS Champion model varied depending on the context and the individual selected. CS Champions were drawn from different departments of each participating COE, introducing variability in focus. Also, in smaller COEs, the role sometimes fell to individuals already overburdened. For instance, in COEs that also function as the school district, a "computer science teacher was also the champion, which is a lot for one person to carry".

The tiered meeting structure (Steering Committee, Task Force, and LPCs), while designed for distinct audiences, created a significant burden in practice. In rural COEs, the same individuals often wear multiple hats, meaning the intended audiences frequently overlapped. This led to frustration and burnout.

"I think having fewer meetings would be really helpful. It was always, you know, it's always the same players at the table. And I think we often felt that it was a lot of repetition... I think we could have been more effective by having fewer meetings for sure."
- COE CS Champion

This capacity strain was exacerbated by systemic challenges, including high teacher turnover and staff shortages. As one CS Champion explained, educators were overwhelmed: "There is such little time for them... it becomes one more thing." This highlights a deeper tension: the amount of staff time required to participate in and coordinate PL often exceeded the modest financial support provided to participating educators, as well as to the COEs for the CS Champion role.

Adaptation and Declining Engagement

In response to feedback gathered through interviews and listening sessions, SSDA and SCOE proactively adapted the CS Champion model. The cadence of meetings was reduced significantly over the life of the grant; for example, LPC meetings shifted from monthly in 2020-2021 to bimonthly in 2021-2022, quarterly in 2022-2023, and sporadically thereafter.

Despite these efforts to reduce the burden, meeting attendance declined as the grant matured, with some counties eventually ceasing participation in the collaborative meetings. Concurrently, the active use of the County Strategic Implementation Plans sunsetted. The intensive mobilization efforts of the regionally based CS Ambassador, introduced in 2022-23, were crucial in making up for the declining participation of the COE-based Champions and ensuring the project met its scaling targets.





PART II - County-Level CS Champions

Flexibility and Localized Execution

The flexibility inherent in the model was necessary for implementation, allowing counties to adapt the strategy to their local context.

When faced with teacher burnout and the inability to establish formal pathways, effective CS Champions pivoted to more accessible strategies. Modoc County provided a strong example of this adaptability. Recognizing that teachers were overwhelmed, the Modoc CS Champion adopted a strategy to "follow the energy" by mobilizing community partners and non-traditional staff, such as paraprofessionals and staff from partner organizations embedded on school campuses.

By providing stipends and connecting the CS training to their upskilling goals, Modoc achieved high engagement outside the traditional teacher ranks. As the Modoc Champion noted, this became a "grassroots kind of group," where everyone was "pulling what they can from it," thereby building interest and demand for CS through flexible means. In contrast, other counties struggled to establish momentum or define unique goals early in the grant period.

Realizing the “Gradual Release of Responsibility”

The CS Champion model was designed for a "gradual release of responsibility," where SSDA and SCOE would initially lead professional learning efforts, eventually handing off coordination and facilitation to the CS Champions and participating educators. In practice, this transition proved difficult. The persistent capacity challenges meant that most counties required sustained, high levels of support from SSDA and SCOE throughout the entirety of the grant.

SCOE led the professional learning efforts for the duration of the project. However, CS Champions were essential for logistical support (recruitment, managing registration, and securing physical meeting space for PL). While three project participants eventually became PL facilitators, the goal of COEs independently coordinating and delivering their own CS PL was realized only to a very limited extent.

Model Outcomes

The outcomes of the CS Champion model demonstrate that while leveraging County Offices of Education as intermediaries faced significant challenges related to capacity and sustainability, the model was instrumental in achieving the project's primary goals: mobilizing regional CS content and PL experts, building foundational awareness of CS education, and supporting the widespread delivery of CS instruction in previously underserved areas.



PART II - County-Level CS Champions



Awareness and Accomplishment

The most significant outcome of the CS Champion model was its contribution to the overall scale and reach of the CS4NorCal project. Through the coordination efforts facilitated by the Champions (and later enhanced by the Ambassador), the project successfully connected 281 educators to high-quality professional learning between June 2021 and June 2025. This mobilization resulted in the implementation of computer science instruction in 77 K-12 schools across the six participating rural counties.

Another success of the model was establishing an awareness for computer science in counties where it was previously absent or marginalized. The initial work of the CS Champions created necessary awareness among teachers and administrators.

"I think one of the impacts has been awareness... I think it has brought awareness to some educators in the county that wouldn't be thinking about computer science... outside of 'we teach students how to type.'
-CS Champion

This awareness translated into opportunity and demand. The model effectively demonstrated the necessity of early exposure to build long-term pathways. The Modoc CS Champion observed that initial efforts to start high school courses struggled due to a lack of student familiarity with the subject.





PART II - County-Level CS Champions

However, the CS4NorCal strategy of introducing CS content to elementary students fundamentally shifted this dynamic: "Now, five years later, I have a whole cohort of students saying, 'Where's computer science? We're ready for computer science. We want this because they know about it.'"

Reflections from SCOE and SSDA staff suggest that CS Champions developed confidence and became strong local advocates for CS education. The model also succeeded in fostering regional collaboration. The Task Force provided an opportunity for CS Champions to connect with others in the region and "learn things that are outside of the norm".

However, the expectation that COEs would assume responsibility for coordinating and delivering CS professional learning was largely unmet. The intensive demands of the role and the systemic issues of turnover and burnout hampered the transition to autonomy.

Challenges and Emerging Sustainability

The primary challenge highlighted by the model's outcomes was the mismatch between the coordination required and the capacity of the intermediaries. The feedback regarding meeting fatigue and the eventual decline in engagement highlight that the coordination demands of a large-scale initiative often exceed the available capacity in small, rural COEs, particularly when staff have multiple and disparate responsibilities.

The model also revealed limitations in the influence of COEs over district priorities. As one CS Champion noted, COEs must recognize the autonomy of district leaders: "as a county office of education, we don't really have a say over what initiatives the districts do or don't do".

Despite these challenges, the CS Champion model successfully laid the groundwork for sustainability, tailored to the unique strengths and priorities of each county. These emerging efforts demonstrate that the investment in local intermediaries did result in long-term commitments to CS education:

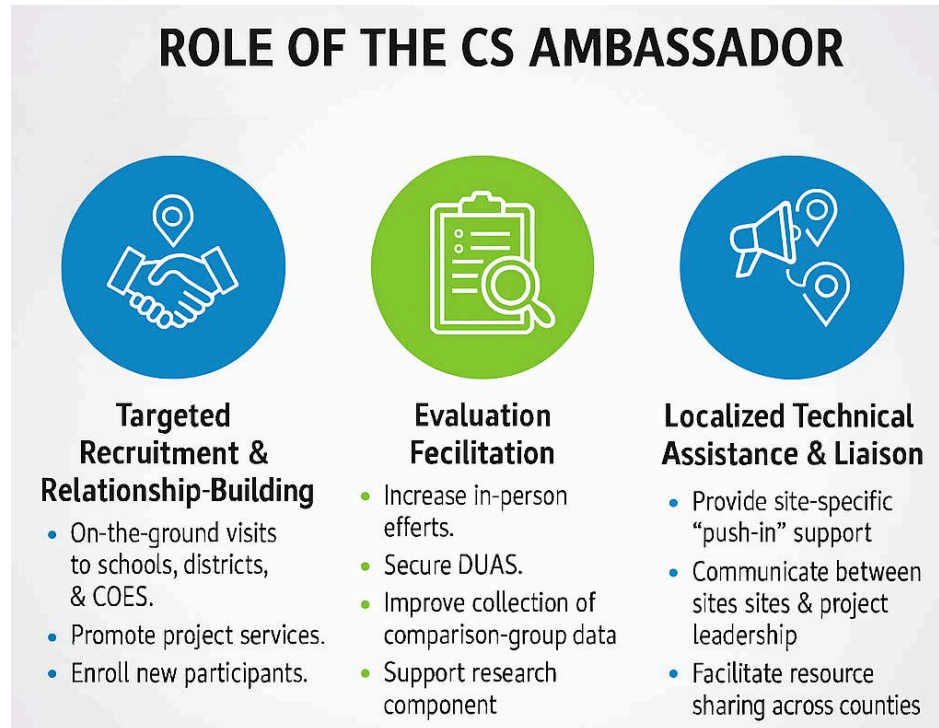
- **Collaborative Infrastructure and Resources:** Glenn COE is developing a Collaborative Learning Space to serve as an ongoing hub for innovation and PD, complemented by a lending library of CS tools, which is an approach also utilized by Siskiyou COE. Shasta COE is developing STEM Family Engagement Night Kits to support community outreach.
- **Regional Partnerships:** Lassen COE committed to continued participation in regional partnerships and collaboratives to maximize access to resources, mentorship networks, and ongoing CS professional development.
- **Pathway Articulation and Dual Enrollment:** Siskiyou COE and Modoc County are leveraging Golden State Pathways grants to articulate CS coursework from grades 9 to 16. Modoc is expanding concurrent enrollment options with College of the Siskiyous and mapping pathways to regional community colleges and CalPoly Humboldt.
- **Maintaining Existing Programs:** Despite significant financial constraints, Plumas County (a single-district county) aims to maintain data science offerings at two of its three high schools and continue providing access to CS professional development.



PART III - Regional CS Ambassador

Modern Design & Development

The introduction of the Regional CS Ambassador role represented a responsive adaptation to the operational realities of scaling the CS4NorCal project. The initial model relied on a decentralized structure of COE-based CS Champions for localized leadership, utilizing primarily virtual modes of communication and training. However, as the project moved toward full implementation across the vast six-county region, the limitations of this approach became evident.



Responding to Operational Challenges

The primary catalysts for developing the Ambassador role were specific operational challenges that impeded the project’s reach and research fidelity: lagging recruitment targets for new cohorts and low response rates to surveys, particularly from the comparison schools essential for the external evaluation of the project. Virtual engagement from the Sacramento-based Leadership Team, located over 100 miles from implementation sites, was insufficient for high-touch recruitment and technical assistance.

Recognizing these challenges, SSDA and SCOE determined that a dedicated, in-person presence was necessary. Alternative approaches, such as increasing funding for existing COEs, were considered but proved unviable as COEs declined the additional support. Furthermore, the responsibility for rigorous data collection remained with SSDA, SCOE, and UC Davis (the external evaluator), necessitating dedicated personnel capable of navigating school administration to secure research data. In response, the Ambassador role was therefore conceptualized as a centralized, highly mobile asset designed to improve "data collection, recruitment and technical assistance... through in-person contact".



PART III - Regional CS Ambassador

The Ambassador role was designed to complement, rather than supplant, the CS Champions. The Ambassador assumed responsibility for intensive outreach and data logistics, which intentionally freed the Champions to maintain their focus on instructional leadership and local strategic planning. Coordination between the Ambassador and the Champions was designed to be organic rather than rigidly formalized. The Ambassador was integrated into existing meeting structures to share notes from the field and assist with the coordination of PL. This integration ensured the Ambassador could serve as an effective operational "thought partner" by relaying real-time feedback and contextual insights from the field to inform ongoing planning with SSDA, SCOE, and the COEs.



Karen Mix
SSDA CS4NorCal Far North Regional Ambassador

Implementation & Fidelity

The implementation of the Regional CS Ambassador role was characterized by high-intensity mobilization across the six-county region. Establishing a consistent, in-person presence where virtual engagement had previously been insufficient required extensive logistical commitment. From September 2022 to June 2023, the Ambassador traveled approximately 8,000 miles, conducting 79 visits across 53 schools, as well as engaging with district offices, COEs, and community events.

The strategy for prioritizing these visits was adaptive, balancing proactive targeting with opportunistic engagement. Efforts were directed toward schools that had not responded to research requests, aiming to improve the fidelity of the evaluation study. Concurrently, the Ambassador also responded to sites ready for deeper engagement or requiring specific technical assistance.





PART III - Regional CS Ambassador

Executing Core Functions: Data Collection and Technical Assistance

A primary implementation goal was to improve the acquisition of research data. The Ambassador utilized in-person connections to navigate the administrative complexities of securing Data Use Agreements and facilitating data extraction from varied Student Information System platforms; these tasks that had proven largely intractable solely through virtual connections. When specialized technical expertise was required for data extraction, the Ambassador facilitated direct connections between school administration and the external evaluator at UC Davis. This localized, relational approach proved highly effective, increasing the number of comparison schools providing data from 13 to 32.

In delivering technical assistance, the Ambassador engaged a wide spectrum of stakeholders, including superintendents, principals, teachers, and support staff. Site visits provided granular insights into the hyperlocal realities of implementation, revealing common themes such as severe staffing vacancies, limited time in the master schedule, and students lacking foundational technology skills. The Ambassador provided immediate "push-in" support, ranging from curriculum planning at Happy Camp Elementary to identifying next steps for specialized programs at William Finch Charter School.

Fidelity and Role Evolution

While the model design intended a clear delineation of roles, where the CS Ambassador focused on operations and the CS Champions on instructional leadership, the implementation blurred these lines. As the frequency and intensity of the Ambassador's visits increased, the relationships formed naturally led to requests for instructional support and curriculum guidance.

The Ambassador's responsiveness to these emergent needs enhanced site-level implementation but represented a deviation from the initial design. This functional overlap, while beneficial for individual schools, potentially contributed to the declining participation of some CS Champions, illustrating the tension between centralized mobilization and the "gradual release of responsibility" intended by the original CS Champion model.

Coordination and Feedback Loops

During the period in which the CS Ambassador provided support, coordination with CS Champions remained organic. In counties with engaged Champions, the Ambassador typically provided notification before visits to coordinate messaging and leverage local expertise. However, fidelity to the project's scaling goals required the Ambassador to engage across all six counties, regardless of the consistency of local CS Champion participation. The detailed observations captured during site visits served as a critical feedback loop.





PART III - Regional CS Ambassador

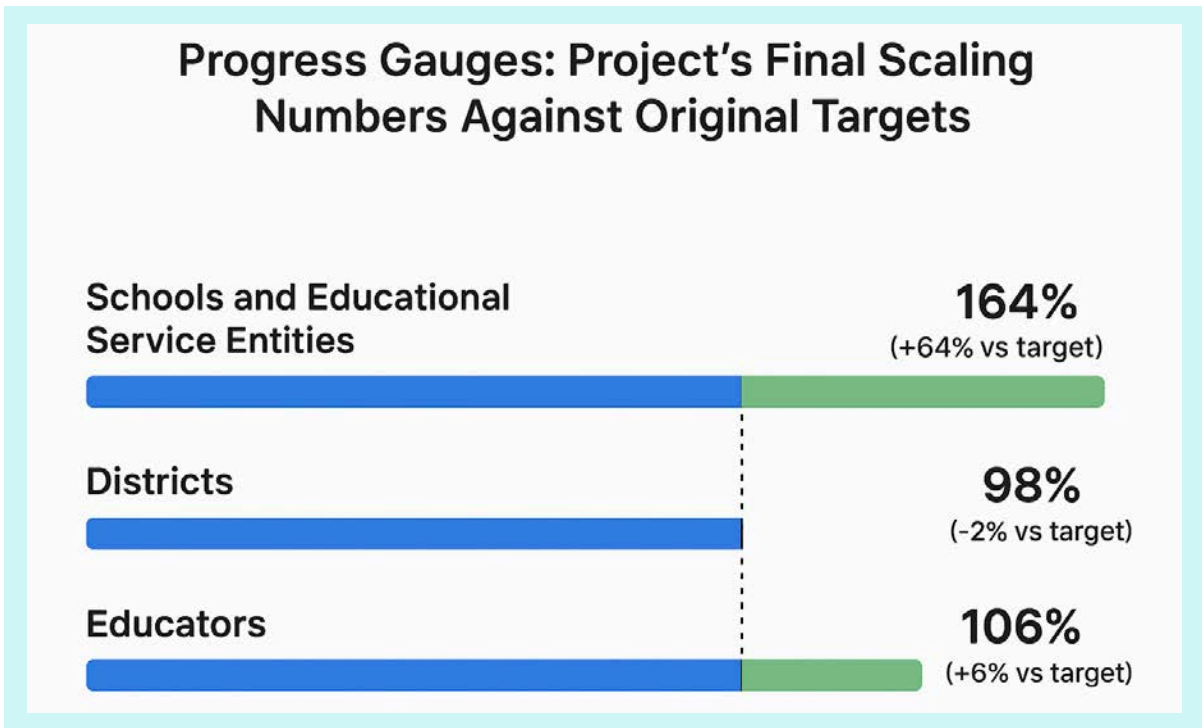
These findings were systematically relayed to the centralized leadership team during recurring meetings and formally documented in SSDA’s annual reports. This process allowed SSDA and SCOE to analyze field realities and inform ongoing adjustments to the broader CS4NorCal implementation strategy.

Model Outcomes

The implementation of the CS Ambassador role influenced the trajectory of the CS4NorCal project, most notably by accelerating recruitment, stabilizing the research design, and increasing regional connectivity. However, these outcomes also highlighted the inherent trade-offs between rapid mobilization and the localized capacity-building goals of the original model.

Accelerated Scaling and Reach

The most visible outcome of the CS Ambassador role was the significant acceleration of project scaling. The project ultimately exceeded its target for engaging with schools and educational support entities (164%) and educators (106%), and approached targets for engaging with districts (98%). A substantial portion of this growth occurred after the role was implemented in September 2022.



While this success is notable, the precise reach of the Ambassador cannot be disaggregated from other concurrent factors. Increased participant stipends and alignment with the statewide Seasons of CS project, funded by the California Department of Education’s \$20 million Educator Workforce Investment Grants for CS, also contributed. Therefore, the scaling success is a result of the Ambassador’s mobilization efforts converging with additional incentives and statewide resources.





PART III - Regional CS Ambassador

Enhanced Research Fidelity

One outcome directly attributable to the CS Ambassador was the stabilization of the project's research design. Prior to the implementation of this role, low data return rates from comparison schools posed a significant challenge to research. The CS Ambassador's efforts to secure Data Use Agreements and facilitate data extraction successfully increased the number of comparison schools providing data from 13 to 32. This achievement significantly increased the statistical significance of the external evaluation, mitigating what had been a threat to the study's validity.

Implementation Support and Connectivity

Beyond recruitment and data collection, the CS Ambassador also provided technical assistance across the region. While data are unavailable to directly correlate CS Ambassador site visits with higher fidelity of implementation or teacher persistence, the role served as a conduit for support. When implementation challenges arose, the Ambassador frequently connected sites directly with subject matter experts, often staff at SCOE, ensuring educators received necessary guidance.

The CS Ambassador also contributed to regional connectivity, most notably through the Computer Science Teachers Association California Far North chapter. Participation increased in 2023-24, with an average of 34.7 participants per meeting and 151 unique participants attending at least one event. Additionally, the CS Ambassador's efforts helped accelerate the gradual release of responsibility for the CSTA Chapter, fostering local leadership.

However, the increased reach resulted in occasional audience mismatches. The meetings were promoted to many new-to-CS educators who had not participated in foundational project PL. This deviated from the intended design of the meetings as communities of practice (CoPs) for implementing educators, rather than introductory experiences; the impacts of this mismatch are unknown.

Challenges and Trade-Offs

These outcomes highlight the inherent trade-offs of the centralized CS Ambassador model. The blurring of roles between the Ambassador and the CS Champions, while arguably necessary to achieve scaling targets, created conditions for confusion and miscommunication. Early in the project, CS Champions were methodical in connecting participants with relevant PL experiences based on grade level, subject area, and course structure. Furthermore, the Ambassador sometimes circumvented the Champions to connect sites directly with SCOE experts. While the Ambassador achieved extensive reach, a consequence of the mobilization was occasionally mismatching educators with workshops, underscoring the tension between scaling and fidelity.



PART IV - Next Steps and Closing

Discussion

The implementation of CS4NorCal confirms the essential role of intermediaries in scaling K-12 computer science (CS) education in rural contexts. The project's findings demonstrate the viability of distinct intermediary models, the localized CS Champion and the centralized CS Ambassador, to address different operational needs. The CS Champion model was effective in fostering local awareness, strategic planning, and advocacy, adapting the project's goals to diverse county contexts. Conversely, the CS Ambassador model proved critical for high-intensity mobilization, accelerating recruitment, and ensuring research fidelity across a vast geographic region. The variability in implementation underscores a key learning: the role of County Offices of Education (COEs) is not monolithic. Depending on local capacity and context, COEs can serve effectively as conveners, advocates, or drivers of implementation.

sum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for 'lorem ipsum' will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like).

Champion vs. Ambassador		
Attribute	CS Champion	CS Ambassador
Structure	Localized (Often embedded within specific departments or regions)	Centralized (A distinct, dedicated unit or team)
Primary Focus	Strategic Planning (Identifying needs, securing resources, and long-term advocacy)	Operational Mobilization (Implementing projects, coordinating activities, and direct outreach)
Key Strength	Contextual Adaptation (Deep understanding and tailored solutions for local environments)	Rapid Scaling (Efficient, standardized deployment of activities across broad areas)

A key lesson is the need to actively balance structured implementation with limited local capacity. The original design, with its heavy meeting cadence and formal planning, often exceeded what rural COEs could sustain and contributed to burnout. In sum, the project maintained both fidelity to the grant application while providing local flexibility. This was exemplified by Modoc County's choice to "follow the energy." Intermediary models should therefore prioritize the minimum necessary structure to ensure quality and equity, and deliberately leave room for adaptation to local relationships and readiness.



PART IV - Next Steps and Closing

While the project's goal of a "gradual release of responsibility" for PL delivery was largely unmet, the findings suggest a need to reframe what successful capacity building entails in these contexts. The CS Champion model successfully achieved certain project targets and triggered sustainability efforts, such as establishing lending libraries and articulating pathways with higher education.

This indicates that lasting capacity may be better defined by sustained awareness and local adaptation rather than the independent delivery of specialized PL. While COEs remain critical partners, ensuring long-term access to specialized expertise may require alternative structures, such as a regional hub capable of efficiently providing PL and technical assistance across multiple counties.

Limitations

The findings regarding the CS Champion and CS Ambassador models must be interpreted within the context of the design of the CS4NorCal project and the realities of implementation in rural settings. These considerations are essential for accurately understanding the outcomes and the complexities of utilizing intermediaries for educational change.

First, the external evaluation was not designed to rigorously isolate the impact of the intermediary models from other project components. The CS4NorCal project utilized a broad approach to capacity building, encompassing high-quality professional learning delivered by SCOE, resource provision, and participant stipends. Therefore, while the activities of the CS Champions and the CS Ambassador contributed to project outcomes, their specific impact cannot be definitively disaggregated from other supports.

Second, the evolution of the project implementation and concurrent initiatives complicates the analysis. The CS Ambassador role was introduced midway through the grant in response to operational challenges, making it difficult to assess the efficacy of the original CS Champion model in isolation. Furthermore, the accelerated scaling observed in the latter half of the grant coincided with increased financial incentives and alignment with broader statewide CS initiatives.

Third, the implementation was significantly impacted by the systemic capacity constraints inherent in small, rural COEs. High staff turnover, burnout, and the burden of multiple, disparate responsibilities limited continuity and the depth of the CS Champions' engagement. These persistent challenges, which were exacerbated by external factors such as the COVID-19 pandemic and regional wildfires, affected the realization of the project's capacity-building goals and the intended "gradual release of responsibility."

Finally, the findings from this project may not be universally applicable. The CS4NorCal initiative was tailored to the specific context of geographically isolated, small COEs in Northern California. Urban or suburban regions, or systems with different governance structures, resource levels, and capacities, might experience different results. The successes and challenges detailed here should be viewed as a case study of intermediary approaches within a specific environment, rather than a universally applicable blueprint.



PART IV - Next Steps and Closing

Future Research

The experience of the CS4NorCal project highlights several opportunities for future research regarding the use of intermediaries to scale educational initiatives, particularly in challenging rural contexts.

First, further research could compare the efficacy and sustainability of different intermediary structures. The CS4NorCal experience utilized both localized (CS Champion) and centralized (CS Ambassador) approaches. Given the persistent capacity constraints that limited the COEs' ability to independently deliver specialized PL, future studies could investigate the comparative effectiveness of these models against alternative structures, such as a centralized regional hub. Research could examine how these different models impact the depth of implementation, cost-effectiveness, and long-term viability of CS pathways across diverse rural geographies.

Second, the challenge of achieving a "gradual release of responsibility" presents an opportunity for deeper research into how capacity building is defined and measured in intermediary organizations. Independent delivery of specialized PL may be an unrealistic benchmark for small COEs. Future research could focus on developing validated metrics for alternative indicators of capacity, such as the strength of regional networks, the successful mobilization of community partnerships, or the establishment of sustainable infrastructure.

Third, the tension between structured implementation and local adaptation warrants targeted investigation. While the project delivered with fidelity and flexibility, more research could identify the minimum necessary structure required to support emerging K-12 CS pathways in small and rural schools. Studies could explore the effectiveness of different accountability mechanisms to determine the optimal balance that preserves coherence without stifling local innovation.

Finally, longitudinal studies could track the sustainability of efforts identified in this report to understand the factors that contribute to the long-term integration of computer science education after grant funding concludes.



“So when you talk to someone and they're excited about it, just go with it. It doesn't matter if they're a teacher, it doesn't matter if they're the janitor. It doesn't matter if they're the school secretary; if they're excited about it, they can be involved.”

-Modoc County CS Champion



PART IV - Next Steps and Closing

Conclusion

The implementation of CS4NorCal demonstrates the viability of two distinct intermediary models for scaling educational initiatives in rural contexts. The localized CS Champion model proved effective for fostering deep, context-specific implementation, building foundational awareness, and adapting strategic goals to the unique needs of individual small schools. Conversely, the centralized CS Ambassador model focused on mobilization, successfully accelerating recruitment and ensuring research fidelity across a vast geographic area. Each model addressed different and important operational needs. As such, each model could be viable on its own depending on a project's primary goals.

The unique success of the CS4NorCal project, however, stemmed from its responsive integration of both approaches. The project's evolution to a hybrid model was not a course correction, but a strategic enhancement that combined the strengths of localized leadership with the efficiency of centralized support. The CS Ambassador was introduced to complement the Champions, addressing the inherent capacity limitations of small, rural COEs and managing the operational demands of scaling that the initial model was not designed to handle alone. This synergy allowed the project to achieve both depth and breadth, balancing the critical need for local ownership with the logistical force required to bridge the computer science access gap in one of California's most remote regions.



“Every teacher in California should be teaching computer science, and every county office can help support what that looks like for them.”

-Siskiyou County CS Champion



CS4NorCal

www.cs4norcal.org





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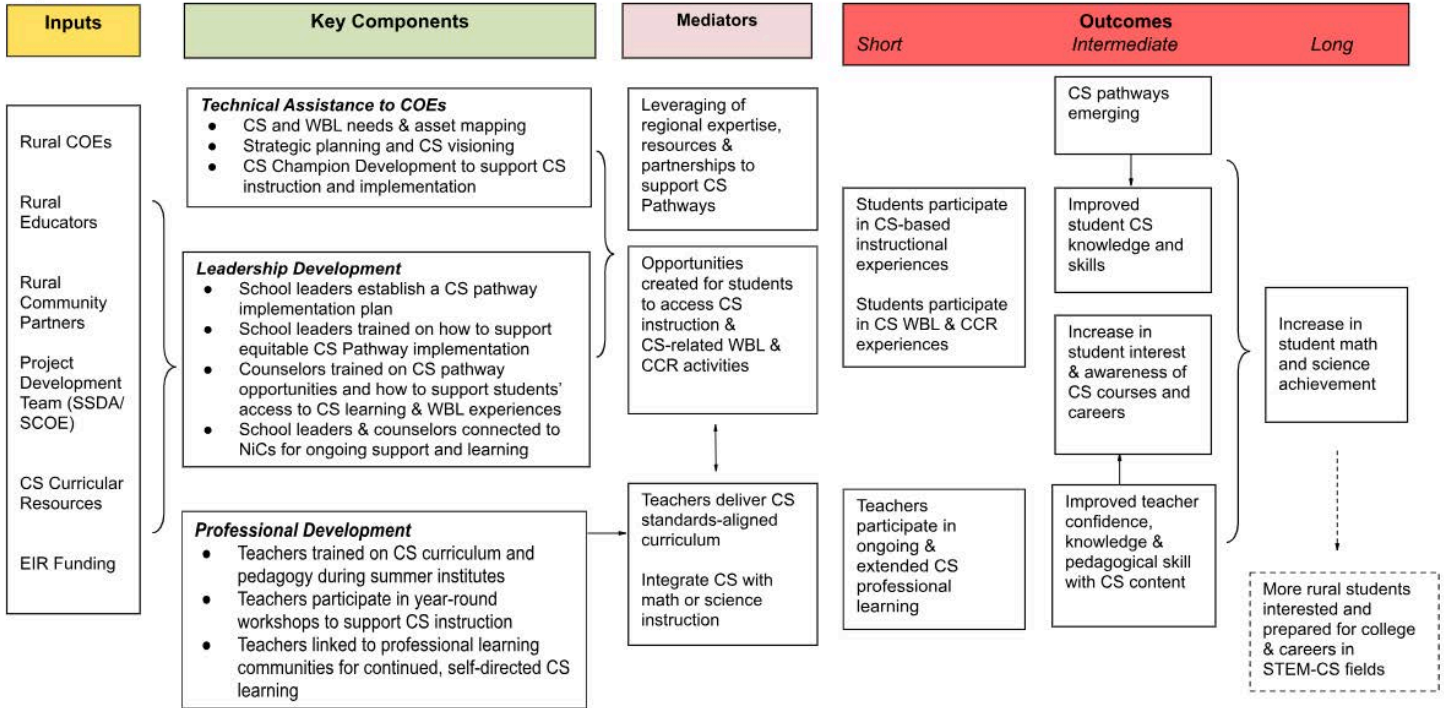
Appendices

Appendix A - CS4NorCal Logic Model

Program: Rural STEM-CS Pathways Implementation Logic Model

Problem: Lack of access to STEM-CS-based instruction and opportunities in high-need rural areas inhibit potential college and career opportunities for students in high demand industry sectors.

Theory of action: A regional capacity-building approach to creating and supporting STEM-CS pathways that is adaptive to local context can promote an innovative field-based approach to providing students in high-need rural areas with a progressive continuum of exposure to STEM-CS instruction and experiences.



Appendix B - CS Champion Guidelines



CS Champion Guidelines

The Role of the CS Champion

The Computer Science (CS) Champion is a pivotal intermediary, typically situated within a regional entity like a County Office of Education (COE) or Educational Service Agency. The Champion serves as the critical link between statewide policy, professional learning resources, and local school implementation.

The primary goal of the CS Champion is to build regional capacity to create and sustain equitable K-12 CS pathways. This requires adapting resources to meet local needs, fostering strategic planning, and engaging local stakeholders. The following guidelines are informed by reflections on the implementation of the CS4NorCal research project.



Appendices

Appendix C - Sample Planning Team Agenda, Slide Deck, & Goal Template



2023-2024

Meeting Name:	CS4NorCal Planning Committees Meeting	Time:	4:00 PM - 5:00 PM
Date of Meeting:	Wednesday, Oct 18, 2023	Meeting Purpose:	<ul style="list-style-type: none"> Review and reflect on County Vision and Implementation Plans

Interactive Slide Deck -  23-10-18 - CS4NorCal Planning Committees Meeting
 Zoom Link - <https://scoe.zoom.us/j/97409792724>

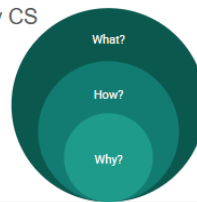
1. Welcome and Introductions (4:00 - 4:05)
2. CS for What?: Revisiting our County Visions and Implementation Plans for CS (4:05 - 4:20)
3. 6, 9, and 12 month goals to develop and support our K-12 CS pathways for students (4:20 - 4:55)
4. Next Steps and Optimistic Closure (4:55 - 5:00)
 - a. Next CS4NorCal Planning Committees Meeting == Wednesday, January 17, 2024 from 4:00 PM to 5:00 PM (following the Administration Roundtable)



Purpose/Outcomes of This Meeting

Planning Committees will start to develop local CS Pathway Implementation plans based on several data points:

- Provide feedback on Kick-Off Meeting and Review Results of School Recruitment
- Reflect on Goals for Project Partners
- Build out Leadership and Community components of County CS Implementation Plan



3-Month Goals	Completed Goals:	Goals to Move Forward:	Goals to Revise/Eliminate:
6-Month Goals	Completed Goals:	Goals to Move Forward:	Goals to Revise/Eliminate:
1-Year/ Long-term Goals	Completed Goals:	Goals to Move Forward:	Goals to Revise/Eliminate:



Appendix D - Ambassador Field Visit Journal



Regional CS Ambassador Job Description

Candidate shall:

1. Make in-person contact, as needed, with the schools and/or district administrator of every currently participating school (35) in order to receive a signed:
 - a. Data Use Agreement
 - b. Commitment Agreement
 - c. Also, collect desired uniform information from each school, e.g., master schedules, about CS implementation.
2. Make technical assistance site visits with participating teachers to support completion of teacher and student surveys and respond to other requests for service as needed.
3. When possible and within FERPA guidelines (i.e., media consent practices), collect artifacts demonstrating CS implementation including, but not limited to quotes from students and teachers, samples of de-identified student work and photos or videos of classroom activities.
4. In collaboration with CS Champions from County Offices of Education, provide in-person recruitment outreach to:
 - a. Schools (about 50) that have expressed an interest in participating as a comparison school and, possibly, joining the professional learning component of the project in 2023-24 or 2024-25.
 - b. New teachers from schools that already are participating who may want to join the professional learning component of the project in 2023-24 or 2024-25.
 - c. Schools (up to 71) in the targeted counties that have not yet expressed an interest in joining the project
5. Upon request, attend virtual or in-person meetings with the Project Director and members of the Project Leadership Team.
6. Assist with the implementation of marketing campaigns to promote CS4NorCal.
7. Other related duties as they arise.



Siskiyou County 11/10

Dunsmuir High School- 68 students- Master Schedule

- Met with *Alysia*, she is the informal IT person on site. She got students their chromebooks, she helped get wi-fi, intranet, and internet at the school when she first arrived at the school.
- Her other jobs are Yearbook/ASB Coordinator, IT Coordinator, Freshman Class Advisor, Drama Teacher and she teaches English and Communications
- She created the CS program at Dunsmuir, she starts with a typing unit, and has a news media unit,
- She is trying to perfect the ECS unit, very grateful that came along. She was building her own program
- Would love to help and be part of CSTA meetings. She would be a valuable asset, she knows what works and doesn't.
- She would love some more cameras, and adobe acrobat to help with a stop motion animation unit.

