

Scaling Goodwill: The Challenges of Implementing Robust Education Data Sharing Through Regional Partnerships

Part three in the series:

California Education Policy, Student Data, and the Quest to Improve Student Progress

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In the first of this four-part series of policy briefs on student data in California, we noted a disconnect in the views of state policy staff and local educators on the need for a statewide longitudinal student data system (see About This Series). The local educators we interviewed expressed a readiness to participate in a state data system to gather and track information about student progress in and across schools and colleges. State officials were not convinced that gathering and sharing this information should be a top priority for a variety of reasons, including the challenges of overcoming the politics of gaining agreement across systems and the expense of performing the work and sustaining it over time. In our second brief, we reported that California already collects an expansive set of data about the students in each of its education systems, but that those data are maintained in a maze of separate systems. We identified concerns about the incompleteness and inefficiency of third party data-sharing efforts statewide. We also reported that, given the disconnected data systems and lack of a centralized entity that makes it possible to access, share, and use student data from these different sources, California and its public schools and colleges cannot answer basic questions about student outcomes across institutions.

About This Series

California Education Policy, Student Data, and the Quest to Improve Student Progress

This brief is the third in a four-part series examining California's approach to gathering and sharing longitudinal data about students' progress through the state's education systems. The series includes four briefs:

- [*Gaps in Perspective: Who Should Be Responsible for Tracking Student Progress across Education Institutions?*](#) An analysis of the perspectives of state and local leaders on who should be responsible for gathering and sharing data about students' progress.¹
- [*California's Maze of Student Information: Education Data Systems Leave Critical Questions Unanswered.*](#) An overview of student-level data collected and maintained in California, a summary of past efforts to develop a more comprehensive system, and an exploration of the strengths and weaknesses of the state's approach to education data.²
- *Scaling Goodwill: The Challenges of Implementing Robust Education Data Sharing through Regional Partnerships.* An analysis of local and regional efforts to share data across institutions and systems that includes the benefits and challenges of participating in these efforts.
- *Untitled* (forthcoming). An exploration of lessons for California from some other states' efforts to improve their education data systems, a summary of our findings across the series, and some conclusions concerning a path forward to improve California's data systems for use in understanding and improving education policy and practice.

In our interviews with state policy staff for those two briefs, we heard a common refrain—that in the absence of a statewide student data system, regional collaborations are an effective way for schools and colleges to share data in order to understand student progress across institutions and to take local action to improve student outcomes. For this third brief, we examined this premise by studying six regional collaborations among education institutions in California that had been described to us or reported in documents as good examples of sharing and using student-level data across institutions. While there were efforts in all of these regions to improve cross-sector data sharing, we found that most were still in the early stages of developing or implementing data-sharing plans.

Educators working in these regions identified significant challenges they faced in sharing student data regionally. These challenges mirrored the ones identified for us earlier by state-level stakeholders as too formidable to overcome statewide, including navigating the politics across systems, covering the costs of creating the databases, and sustaining them over time. Postsecondary institutions, in particular, address partnership requests from multiple school districts. Multiply these challenges by the number of school districts in California, and it's clear that a region-by-region approach may not be the most *efficient* or *cost-effective* system for routinely tracking student data. In addition, a regional approach to understanding student progress and outcomes may not be the most *effective* system for the state for a variety of reasons, including: (1) incomplete coverage statewide (most school districts do not have these agreements); and (2) incomplete coverage within regions (many high school students move out of their regions for postsecondary education).

The educators we spoke with did identify key benefits to working regionally on sharing student-level data across institutions, especially in understanding student progress through the regional education pipeline; examining the impact of initiatives; improving educational attainment regionally; and understanding and addressing the greatest barriers to student success. Given the challenges and limitations of developing and maintaining regional databases, the majority of interviewees favored state action to improve statewide data systems, along with continued work on regional data-sharing arrangements.

These observations are based on interviews with 23 people in six regions across the state who are involved in local efforts to share data across institutions and systems. To encourage frank discussion, we offered anonymity to the people we interviewed and, therefore, do not identify the specific regions included, the interviewees' names, or their institutions or organizations.³ The interviewees differed somewhat across regions and included K-12 superintendents and researchers; administrators, faculty, and institutional researchers from community colleges and four-year institutions; representatives from county offices of education; and representatives from community organizations participating in education partnerships. The regions included urban as well as rural institutions that represent multiple geographical areas in California.

Educators Participating in Regional Collaborations Recognize Key Benefits of Sharing Student-level Data

The six regional education collaborations examined in this study developed their data-sharing efforts under different circumstances, and most of these efforts continue to evolve. Some of the collaborations began with the ad hoc sharing of aggregate data among two or more institutions—for example, through the creation of spreadsheets that summarize the progress or outcomes of groups of students. Other endeavors evolved from long-standing partnerships that, over time, recognized the importance of sharing data across sectors. In some regions, there were multiple efforts at data sharing underway, often a combination of agreements among two or three institutions as well as a larger county- or region-wide effort. Regardless of how the data-sharing efforts began, interviewees from all the sites said their intention in sharing data was to serve students better. In addition, some interviewees from each collaboration said they are seeking to



share individual student-level records, if possible, not just aggregate data, to allow for a broader range of analyses examining the relationships between education programs and student outcomes.

Respondents identified three primary purposes for sharing student-level data across sectors:

- **To understand student progress through the education pipeline.**

Because students move through multiple institutions in their educational trajectories, data focusing solely on what students do in one institution or sector provide only a limited understanding of the factors that can help or hinder student progress along the pipeline. Interviewees said that cross-sector student records can help identify and address issues in one sector that affect student success at the next level of education. These individual student records are particularly valuable for examining what is happening at key transition points. As an example, one interviewee from a postsecondary institution noted, “If we know that students who get passing grades in math in certain high schools still struggle when they get here, then we could do outreach to those particular schools. So, there’s a lot of benefit both ways for those sorts of data.”

“We were all sort of bringing our own little slice of the story to the meeting. But we couldn’t really make it student centric. We couldn’t make it about the students’ whole experience as they traverse all of our institutions.”

– *Community college administrator*

Interviewees in regions with a history of bringing people together across sectors to discuss aggregate data on student progress and outcomes said that those data do not provide the level of detail about students’ experiences that is needed to identify opportunities for the institutions to improve their programs and services.

- **To respond to reporting requirements for state and philanthropic grants.**

Many recent education reforms in California seek to improve student transitions from one level of education to the next, including college and career readiness efforts for K-12 districts and the California Career Pathways Trust (CCPT) grants.^{4, 5} These opportunities typically require the reporting of student outcomes

“If we could get more detailed data about incoming students to build better predictive models, then faculty, advisors, [and] administrators would be able to better identify students who could use additional types of support, to better retain them.”

– *California State University (CSU) campus institutional research director*

across the systems. Interviewees noted that institutions need to share their data in order to assess and report the impact of these programs. As one California State University (CSU) official said, “Tracking [individual students] is going to be really key, and having that identity that we can track from high school through college is really important to allowing this major educational initiative to show what it can do.”

- **To support current students better.** While the focus is often on using student-level data to study general patterns for use in improving programs and services, institutions also intend their data-sharing efforts to help them provide better service to current students. For example, giving community college or university counselors and advisors access to students’ K-12 records could allow them to better meet those students’ needs for academic, financial, and personal supports in college. In addition, access to “real-time” data can provide academic departments and advisors with information about students’ coursework, academic performance, and other experiences in their prior school or college, giving the



institutions a better sense of students' preparation in specific areas. Recent legislation, AB 705 (Irwin, 2017), requires community colleges to include consideration of high school coursework and grades in their decisions about placement of students into college-level math and English coursework.⁶ This will necessitate colleges having access to students' high school transcript data.⁷

Interviewees said that data sharing that is done with a clear purpose and aims to answer specific questions can inform institutions about what is working and what is not, and where there are challenges that still need to be addressed. Ultimately, the hope of regional stakeholders is that the deeper understanding provided by sharing student-level data will lead to improved educational attainment in their regions.

Most Data-sharing Efforts are in Early Planning Stages

The potential benefits of shared student-level data were widely acknowledged by our interviewees, and the six regions we chose were identified as places that currently engage in cross-sector data sharing. Yet, we found that most of the data-sharing arrangements were in the early stages. The partners were still developing data-sharing agreements between their institutions, such as memoranda of understanding (MOUs), or they had signed agreements and were still working out specific details on important questions such as what data to share, where it would be housed, and who would have access to the data, or they were sharing student-level data, but only on a pilot basis or for a targeted population of students.

In three of the six regions we examined, partners (or a subset of partners) had adopted MOUs, and the institutions were providing each other with access to some student-level data. One of those efforts involved sharing student-level records between a K-12 district and a university for a targeted group of students in a particular program. The other two efforts involved at least one institution from each of the three public sectors (K-12, community college, and university) exchanging student-level data through a shared-access database. One of those efforts is still in the pilot stage and not yet institutionalized, and some interviewees from the region expressed uncertainty about its sustainability.

Most interviewees understood that exchanging individual student records would be necessary to allow for the kinds of analyses of student progress and outcomes across institutions that could inform efforts to improve programs and pathways. Yet, across all the data-sharing efforts we identified in the six regions, the majority still primarily involve aggregate data rather than student-level records. Often this sharing occurs through spreadsheets summarizing student progress and outcomes at the individual institutions, rather than through individual student data. A staff member from a community organization told us, "So, I guess the short answer is that [this partnership] really [does not

"It's not just so we could say, 'This [K-12 district] kid went to [this community college] and then went to [that CSU],' but how all of that could be used to improve college access, college-going rates, college retention rates, college success rates, graduation rates, all of those things."

– CSU campus institutional research director

"We're trying to establish evidence of how data collaborations between just two or three partners can have a significant impact, hoping that will get them to be more willing to accelerate the signing of data-sharing agreements."

– K-12 district research director



involve] individual-level student data. We are working just with the aggregate-level data...In fact, part of the way that we get people to agree to data sharing is the protection that this is not going to be individually identifiable data.” The six regions we examined were among those considered to be on the leading edge of data-sharing efforts in the state, making it somewhat surprising to find that most efforts are still in the planning stages, include only a few institutions, and/or involve fairly limited exchanges of information.

Silicon Valley Regional Data Trust

During our interviews, several regional stakeholders mentioned the Silicon Valley Regional Data Trust (SVRDT). While not in one of the six regions we examined for this research, this similar effort to share data across public agencies illustrates the time involved in getting these kinds of efforts up and running. SVRDT has been working for the past five years to develop a secure system for sharing data across three counties and multiple public agencies, beginning with K-12 public education, behavioral health, child welfare services, and juvenile justice. The purpose is to provide cross-disciplinary data to inform school and agency staff and administrators who directly serve children and youth or manage youth programs, to educate policymakers who govern schools and agencies, and to support researchers who partner with practitioners and policy makers.⁸ The effort was initiated by individuals from the University of California, Santa Cruz; the Santa Clara County Office of Education; and formerly from the San Jose Unified School District, through a planning grant from the National Science Foundation. A grant from the Chan Zuckerberg Initiative is intended to enable SVRDT to build the policy/legal and technological infrastructures and to develop partnerships among schools, agencies, and university-based researchers.

The [DataZone](#) data warehouse at the Santa Clara County Office of Education serves as the repository for data from participating public schools in Santa Cruz, Santa Clara, and San Mateo counties. A secure information-sharing environment will enable partner schools and agencies to share data. We spoke with SVRDT’s founders, who said that developing a “network of trust” has been a long-term process that began with face-to-face meetings with major agency and education partners. SVRDT is now developing legal and policy structures and a secure information-sharing architecture that aims to sustain trust over time.

According to SVRDT officials, a key challenge for this effort, as with the regional data-sharing efforts we examined for this research, involves the extensive staff time and capacity needed to develop and construct the system. SVRDT was developed through the efforts of four retired individuals who were able to dedicate significant time to establish relationships, work through the legal issues, and develop technical mechanisms for sharing data, while also maintaining data security and privacy.



Stakeholders Identify Significant Challenges to Sharing Data in Regional Partnerships

Given the substantial interest in achieving the benefits of sharing student-level data across institutions, we asked interviewees to identify the barriers that account for the extensive time—often several years—spent discussing and planning their data sharing. Their answers indicate that the challenges they face are similar to ones we had documented from state officials in earlier interviews for the first two data briefs in this series (see About This Series on page 1). In those interviews, state officials said that comparable challenges at the state level make it unlikely that California will be setting up a statewide longitudinal student data system.

- **Lack of an entity responsible for cross-sector data.** Some interviewees at the regional level said the biggest barrier to data sharing across institutions is that no entity or individual is responsible for coordinating efforts to share student-level data across institutions. For example, a director of institutional research at a CSU campus said, “There’s no one responsible for [coordinating efforts to share student data], no one whose job it is to do this. And if it’s not someone’s job, then they probably get a lot of pushback when they try. And if it’s not a huge priority, why would they invest that much into it?” This comment was consistent with others at the regional level. Similarly, a state policy staff member said in an interview for our last brief that “[the education systems] don’t see this as their role...That’s not part of what they do. There isn’t anybody in the state [who] does that. There is no intersegmental entity; it’s a vacuum.”⁹

“For so long, we’ve just used data as a way to measure effectiveness, and to place blame or to celebrate successes. The emphasis has not been on using data as a tool to affect change. It’s not whether the [data] systems are there, it’s changing what people know about how to use data.”

– Community college institutional research director

- **Limited understanding of the purpose and value of data sharing.** Some interviewees noted that it can be difficult to generate interest in “data for data’s sake,” as one interviewee described it, and to get leaders to understand the potential value of the process for their own institutions and students, and for addressing the public good through improved educational outcomes. They said that in order to promote greater interest in data sharing, participants need to develop and communicate a set of questions that cannot be answered with each institution’s own data, issues that all parties can agree are important to address for student success. Even after achieving such understanding and agreement among institutional leaders, however, interviewees said that another layer of understanding and cooperation must be established among the people at the institutions who do the work. Again, this challenge is similar to what we heard from state policy staff about the difficulty in getting policymakers interested in “getting a better toolkit” without tying the effort to specific problems to be solved.¹⁰

“So much of it is based on individual relationships that we’ve been able to build. But if one superintendent leaves, or if one college switches [staff], or there’s one mistake where somebody puts somebody on blast for something they did, will we continue? It’s fragile, even though it’s solid, because it’s all about the goodwill of everyone at the table.”

– Community college dean

- **Difficulty reaching agreement across many institutions.** In order to track students across the education pipeline at the regional level, data-sharing agreements often need to include numerous K-12 and postsecondary institutions. These institutions must typically address legal issues, regulations, and



institutional policies regarding exchange of student records. The engagement of institutional leaders is crucial in this process, but there is often frequent turnover among such positions, making it difficult to sustain progress. Interviewees noted the importance of developing relationships of trust among leaders, due to concerns over protecting student data and the potential for data to be misinterpreted or used in damaging ways. A number of the interviewees noted that university partners are often the most

difficult to engage in such efforts, perhaps because universities generally receive students from a broad set of K-12 schools and community colleges, limiting the value of engaging in data exchanges with only a few local institutions. That is, university campuses would need to work with many individual K-12 districts and community colleges to get useful information about the bulk of their students.¹¹

- **Difficulties in determining a “home” for the data.**

After reaching agreement on the general concept of sharing student-level data, another challenge is posed by the need to determine who will house and manage the shared data, and who will have access to it and for what purposes. Even if an entity takes the lead on coordinating cross-sector efforts, where and how to house the shared data is a major consideration. Trust is an important issue in this decision, as well as deliberations about who bears the cost of necessary investments in technology and staffing to develop and maintain a shared data system. Several people noted this challenge as one of the main reasons partnerships have difficulty moving from developing an MOU to implementing data-sharing efforts. Some interviewees

said that third party providers can be considered for the housing and management of shared data, but they also warned that this can lead to additional costs over time (see Use of Third Parties as a Data Hub).

- **Limited capacity and resources.** Interviewees said it takes substantial time by many people to build the relationships and trust required to develop data-sharing agreements, especially in areas of the state that have multiple school districts, community colleges, and university campuses. Time must be invested to establish agreements, to work out the technical details of data sharing, to put together data files to be shared, and to analyze and use the data in order to understand and improve student progress. In addition to staff time, the effort often requires that money be invested in new hardware and software. Institutions need people who, in addition to having time, possess the technical expertise to design and construct a data system, standardize data formats, and clean and maintain data files. In addition, they need people with the requisite knowledge to match student records across different systems, which can be challenging given the lack of a consistent identifier, and to analyze those data and apply the results once a shared data system is in place. The challenges around staffing and other resources are particularly daunting for smaller districts and colleges with little existing capacity in institutional research offices.

“Part of the problem is finding a data Switzerland, finding somebody to host this collection of data.”

– K-12 district research director

“I worked really, really hard to get the data-sharing agreement, but then I was still fighting up a road. I couldn’t really do anything once I got it all. So, I got everyone to share data, and then I [didn’t] have time to do anything with it.”

– Community college dean

“The only way it can happen is on the basis of goodwill, but you do it understanding that you can’t scale goodwill. The idea is that you have to put it into an infrastructure that is really difficult to break down when someone leaves.”

– K-12 district superintendent



Use of Third Parties as a Data Hub

Where to house the data is a major sticking point for many regional efforts. In one region we studied, the university partner is housing the data and taking responsibility for enforcing data-sharing rules. Other sites are considering using outside entities to provide a more neutral and objective mechanism for hosting the data. Several sites are considering using Educational Results Partnership (ERP), a nonprofit organization that manages Cal-PASS Plus. Cal-PASS Plus uses state funding to collect and match de-identified student records for member institutions.

In one pilot currently underway, ERP is serving as a data hub for cross-sector sharing. According to interviewees familiar with the effort, partner institutions in each sector upload their data to ERP, which then assigns a unique identifier to each student, allowing data to be cross-checked across institutions. The partner institutions agree on a “data exchange calendar” where they determine the data they are each interested in, as well as how often and in what time period to expect those data to be uploaded to the shared site. While most of the data shared in this pilot effort represent information typically shared by institutions participating in Cal-PASS Plus, interviewees say that institutions in the pilot effort are not limited to those data.

This pilot is still in its early stages, and some partners are apparently accessing the data more than others, so its overall efficacy has not yet been determined. It is also not clear whether ERP can continue to provide this service without charging additional fees. Several interviewees across the regions we studied said they had been optimistic that the Cal-PASS Plus system would eventually serve as the prevalent mechanism for cross-sector data sharing. However, they said that limited participation by K-12 districts and universities, as well as limited flexibility in data types and collection timelines, have led them to question this as a viable solution.

- **Technical challenges.** Schools and colleges employ a variety of data platforms and software programs, collect different data elements, use varying definitions and formats for similar elements, and utilize different student identifiers. In order to share data that allow for tracking student progress across multiple institutions, the regional partners must navigate these differences. They have to find means for transmitting data securely and develop mechanisms for validating the quality of data submitted. While these challenges were described as significant, interviewees said that, compared with the barriers associated with the politics of sharing and housing the data and addressing capacity and resource issues, the technical aspects represent a relatively minor challenge.
- **Sustaining the effort over time.** The challenges of finding the leadership, knowledge, capacity, and technical solutions to engage in these efforts are not limited to the stage of developing and implementing data-sharing agreements. The challenges are ongoing, with turnover in leadership and other staffing, changing budgetary circumstances, and new developments in technology. Existing regional data-sharing efforts are often based, at least in part, on state or philanthropic grants that serve as a foundation for initiating or expanding the work. Some interviewees said the money itself is not the primary issue. Instead, the grant provides a reason for the various institutions to participate, one that can prove to be less compelling when the grant period ends.

“We need to start from somewhere, so [the largest feeder school district] is a good place to start, given our partnership that we have. At the same time, it’s only going to tell us about one-fourth of what a successful program looks like.”

– CSU campus faculty member

- **Limited value of the narrow coverage.** Interviewees said a significant limitation of regional data-sharing efforts is that, even if all of the above challenges are addressed, regional data sharing captures only a percentage of the student population at any institution. Not all high school students attend local postsecondary institutions, and colleges and universities enroll students from across the state. The mobility of California’s K-12 and postsecondary student populations can limit the benefits of using locally-shared data for both studying patterns of student progress and outcomes and for serving the immediate needs of current and prospective students.

Local Educators Call for State Action to Improve Student Data Systems, Along With Continued Work at Regional Level

As reported in our previous data briefs (see About This Series, page 1), state policy leaders told us it was unlikely the state would develop a statewide student data system because of the wide range of barriers to develop and maintain such a system. They described the need to overcome political and cultural barriers imposed by the segmented structure of California’s public education systems, including the need for building relationships and trust across systems. They pointed to issues around limited resources and capacity for developing, implementing, and maintaining a data system; the challenge posed by turnover among top leaders; the need for more understanding among policy and system leaders and their staff about the value and purpose of cross-system student data; and the lack of any organization assigned with cross-system planning. Some policy staff cited these challenges as reasons for suggesting that data-sharing activity at the regional level is a promising alternative to the development of a statewide student data system.

The results of our interviews with participants in some of these regional efforts, however, suggest that those efforts face the same kinds of challenges as those at the state level. To understand the difficulty of meeting California’s need for cross-system data by way of regional data-sharing agreements, one needs to multiply the challenges noted by state-level stakeholders by the number of California’s school districts and postsecondary institutions. Even if these regional challenges are surmounted, data shared at the regional level provide an incomplete view of the state’s mobile student population. The limitations of and gaps in the data available by region suggest that regional efforts are insufficient for answering questions about student progress and completion statewide, particularly as they concern equity across regions that do not compile such data collaboratively.

When asked their opinion about the need for state action to improve California’s education data, most regional stakeholders said state and system leaders should work to develop a statewide student data system that incorporates data from institutions across the four public education systems (K-12, community colleges, California State University, and University of California). Some suggested that a data system should also include information for students enrolled in private colleges and universities as well as workforce data from the Employment Development Department. Many pointed to recent education reforms as justification for state action to improve data, noting that understanding the impact of initiatives—including changes to K-12 funding and accountability mechanisms, the Associate Degree for Transfer, and state investments in career pathway programs—require tracking student progress and outcomes across institutions and systems.¹²

“The state is asking institutions to do things [like increase completion and develop pathways], but we need the ability to track students. We can’t see all the data. You’re asking us to do something, but you’re not giving us the tools and the information we need to do it.”

– *Community college dean*



While most interviewees said there should be a statewide data system, some were skeptical about the state's ability to perform this function well. Some suggested that California should build on current partnership efforts (e.g., Cal-PASS Plus or the California College Guidance Initiative) or otherwise bring private entities into the effort.^{13,14} Others described the important leadership role that system offices could provide, given their experience with their own data systems, the data they already collect from their institutions, and efforts they have made in recent years to share data. Still others expressed hope that successful regional data-sharing efforts could be replicated to demonstrate the possibilities and value of this work, and that they could eventually lead to state action to implement a statewide system.

Even with a statewide student data system, however, many local stakeholders said data-sharing efforts at the regional level would still be needed. Their vision was for a statewide system that included data elements the institutions currently report to their system-wide offices, a data system that institutions could access to understand the larger picture of student progress and outcomes, regardless of the different schools and colleges they attend. But stakeholders also envision continuing their regional efforts, despite the challenges, in order to share more detailed information about local programs that would not be included in a statewide data system, and to provide a forum for institutions to meet and discuss the implications of cross-sector data analyses to improve their programs and student outcomes in the region.

“Frankly, I don’t think [the state has] the track record. I wouldn’t be confident that [it] would be able to pull it off. I think I would feel better if, [while] the state may be involved in some regard, private industry played a significant role. That would inspire more confidence that it could be pulled off and done well.”

– K-12 district research director

Short of developing a statewide student data system, regional stakeholders suggested other ways the state and/or system offices could provide guidance and support for their efforts, including:

- clarifying the legal and regulatory guidelines about sharing student-level data across institutions;
- providing standardized templates for data-sharing agreements and for the design of a regional data system;
- facilitating the sharing of strategies across regions working to exchange student-level data;
- providing funding for staff time and technology to support regional efforts to link data; and
- creating incentives for institutions to engage in these efforts through accountability and other reporting requirements, opportunities for professional development, or technical assistance to support the effective use of data.

As California grapples with whether and how to build its capacity to understand and improve student progress and outcomes, other states have taken steps to build comprehensive student data systems. In our fourth and final brief of this series, we will examine efforts by other states, with a focus on the benefits and challenges of their work and their potential implications for California. We will conclude with recommendations for how California can move forward to ensure the state has sufficient information to support student success across the state's education systems.



Acknowledgments

We thank the education officials and representatives of partner community organizations who participated in the interviews. Their generosity in giving their time and expertise and their willingness to provide candid assessments of their efforts to share student data with regional partners was essential to this research. We are grateful for Thad Nodine's guidance in structuring and framing the content of the report and for the additional review and comments provided by Jorge Aguilar, Kathy Booth, Kevin Cook, Orville Jackson, Valerie Lundy-Wagner, and Andrea Venezia that helped us improve an earlier draft. We appreciate the editorial assistance of Gretchen Kell and Sasha Horwitz and the graphic design work of the Foundation for California Community Colleges. The authors take responsibility for all content.



Endnotes

- 1 Moore, C., Grubb, B., & Esch, C. (2016). *Gaps in perspective: Who should be responsible for tracking student progress across education institutions?* Sacramento, CA: Education Insights Center, California State University, Sacramento.
- 2 Moore, C., Bracco, K. R., & Nodine, T. (2017). *California's maze of student information: Education data systems leave critical questions unanswered.* Sacramento, CA: Education Insights Center, California State University, Sacramento.
- 3 The interviews we conducted were semi-structured, following a protocol with set topics and questions but allowing for flexibility in follow-up questions depending on the interviewees' responses and their level of knowledge of the topics. The interviews were recorded and transcribed; we reviewed the transcriptions and coded them to find common themes.
- 4 For example, the College/Career Indicator in California's K-12 accountability system includes a measure of whether students have enrolled in and passed community college courses, which would require matching their K-12 and community college records. For more information on the indicator, see <https://www.cde.ca.gov/ta/ac/cm/cci.asp>. For a description of ongoing challenges in developing good metrics of college and career readiness, in part related to a lack of cross-agency data, see Leal, F. (2016, September 6). California's first college and career readiness metric still being fine-tuned. *EdSource*, Retrieved from <https://edsources.org/2016/californias-first-college-and-career-readiness-metric-still-being-fine-tuned/569042>.
- 5 For a summary of lessons learned through the California Career Pathways Trust (CCPT) grants, including challenges related to the availability and use of data, see McLaughlin, M., Lundy-Wagner, V., & Groves, B. (2017). *Two years into CCPT: Many challenges & great promise.* Oakland, CA: Jobs for the Future.
- 6 Seymour-Campbell Student Success Act of 2012: matriculation: assessment. Cal. Education Code § 78213 (2017).
- 7 The Assembly Floor Analysis of the bill, dated September 14, 2017, noted that the California Community Colleges Chancellor's Office (CCCCO) estimated a potential cost of \$500,000 to establish a systemwide data solution to support using high school transcript data. The CCCCCO suggested that the cost could be lower, to the extent that its data-sharing agreement with the California Department of Education (CDE) could allow colleges to access students' high school data through CDE's student data system (CALPADS).
- 8 More information about the SVRDT is available online at <http://www.svrdt.org>.
- 9 Moore et. al., 2017, p. 11.
- 10 Moore et. al., 2016, p. 7.
- 11 Universities already receive information about incoming students' course-taking, grades, and test scores through the admissions process. However, student transcripts are generally shared as pdf documents (sometimes even in hard copy form) rather than in an electronic format that would enable the information to be readily incorporated into universities' student data systems and then analyzed.
- 12 The Associate Degree for Transfer is a degree awarded by a California community college that guarantees its recipient admission to the CSU, though not necessarily to the applicant's preferred campus or major. For more information, see <https://www2.calstate.edu/apply/transfer/Pages/cc-associate-degree-for-transfer.aspx>.
- 13 More information about Cal-PASS Plus is available at <https://www.calpassplus.org>.
- 14 The California College Guidance Initiative (CCGI) has developed a technological platform that houses and transmits student data across participating K-12 school districts and postsecondary institutions in order to support admissions, financial aid, and placement processes. For more information, see <http://foundationccc.org/What-We-Do/Student-Success/California-College-Guidance-Initiative>.