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Supports for Students with Disabilities in the Math in Common Districts

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WestEd's Evaluation of the Math in Common Initiative

Math in Common® is a five-year initiative, funded by the S. D. Bechtel, Jr. Foundation, that supports a formal network of 10 California school districts as they are implementing the Common Core State Standards in Mathematics (CCSS-M) across grades K–8. Math in Common grants have been awarded to the school districts of Dinuba, Elk Grove, Garden Grove, Long Beach, Oakland, Oceanside, Sacramento City, San Francisco, Sanger, and Santa Ana.

WestEd is providing developmental evaluation services over the course of the initiative. The evaluation plan is designed principally to provide relevant and timely information to help each of the Math in Common districts meet their implementation objectives. The overall evaluation centers around four central themes, which attempt to capture the major areas of work and focus in the districts as well as the primary indicators of change and growth. These themes are:

- » Shifts in teachers' instructional approaches related to the CCSS-M in grades K–8.
- » Changes in students' proficiency in mathematics, measured against the CCSS-M.
- » Change-management processes at the school district level, including district leadership, organizational design, and management systems that specifically support and/or maintain investments in CCSS-M implementation.
- » Development and sustainability of the Math in Common Community of Practice.

Together, the Math in Common districts are part of a community of practice in which they share their progress and successes, as well as their challenges and lessons learned about supports needed for CCSS-M implementation. Learning for district representatives is supported by WestEd team members who provide technical assistance related to goal-setting and gathering evidence of implementation progress (e.g., by advising on data collection instruments, conducting independent data analyses, participating in team meetings to support leadership reflection). An additional organizational partner, California Education Partners, works with the community of practice by offering time, tools, and expertise for education leaders to work together to advance student success in mathematics. California Education Partners organizes Leadership Convenings three times per year, summer Principal Institutes, "opt-in" conferences on high-interest topics (e.g., formative assessment), and cross-district visitation opportunities.



Executive Summary

As school districts across California work to implement the Common Core State Standards in Mathematics, thousands of students with disabilities are falling behind. On the 2016 California Assessment of Student Performance and Progress (CAASPP), 37 percent of all California students across tested grades (grades 3–8 and 11) met or exceeded standards in mathematics, while only 11 percent of students with disabilities did. Under the state's new accountability system, 163 school districts were flagged as requiring Level 2 support, or "differentiated assistance," due at least in part for failing to meet state targets for their students with disabilities subgroup on state priorities.

Answers to a survey of administrators in the 10 Math in Common (MiC) school districts laid out some of the challenges that districts face in building strong systems of support for students with disabilities. Most crucially, they reported that it is difficult to schedule necessary collaboration time to enable general education teachers and special education teachers to plan and co-teach together. In addition, special education teachers have not been offered adequate professional development to improve their math content knowledge.

Two MiC districts, Sanger Unified and San Francisco Unified, have shown an improvement in mathematics achievement for their students with disabilities' from 2015 to 2017. These districts have also been the subjects of prior research that identified them as having implemented districtwide systemic and instructional practices for supporting their students with disabilities. To learn more about how these districts are making improvements for their students with disabilities, we conducted interviews with math administrators and special education specialists in both districts. To describe our findings, we use a framework from one of the few longitudinal studies that tracked long-term outcomes in districts that have focused on making systemic improvements with their students with disabilities in mind (Ellis, Gaudet, Hoover, Rizoli, & Mader, 2004).

This framework outlines 11 practices that were seen in these districts; we found that most of these practices were also important in Sanger and San Francisco's efforts to better serve all students:

- » The determination that effective leadership is essential to success
- » A pervasive emphasis on curriculum alignment with the state framework
- » An emphasis on inclusion and access to the general education curriculum
- » Unified practice supported by targeted professional development
- » Culture and practices that support high standards and students' achievement
- » Access to targeted resources to support key initiatives
- » Well-disciplined academic and social environments
- » Flexible leaders and staff working effectively in a dynamic environment
- » The use of student assessment data to inform decision making
- » Effective staff recruitment, retention, and deployment
- » Systems to support curriculum alignment

Based on our findings from conversations with Sanger and San Francisco, we offer the following set of recommendations to other districts who seek to build supports for students with disabilities more deeply into all their work for math instructional improvement.

Develop a culture of high expectations. As leaders in both our focal districts emphasized, it takes time and dedication to bring the message to all stakeholders that



"all students can succeed" and to make sure this is not just a slogan but a practice embedded in everyone's daily work.

To improve inclusion, support general education and special education teachers to teach collaboratively.

Co-teaching between general education and special education teachers is one of the best ways to support students with disabilities to stay in general education classrooms. It requires district- and site-level leaders to remove systemic barriers and make dedicated time for these teachers to collaborate, plan, and learn together.

Use a lesson-design framework such as the principles of Universal Design for Learning to inform the development of accessible lessons.

When teachers are supported to rely on a framework like Universal Design for Learning to design accessible lessons that will benefit all students, there is less of a need for additional differentiation and extra supports throughout the year.

Clarify and support the role of special education staff.

Everyone across the system should develop a shared understanding of the roles and responsibilities of special education staff to address the specific needs of identified students. While their expertise is critical, they

cannot be the only ones tasked with supporting students with disabilities.

Develop skills at all levels of the district system in collecting, analyzing, and utilizing data to guide planning and continuous improvement.

Both teachers and district staff should be supported to use data to understand specific needs for both for individual students' access and achievement, and for system-wide improvements.

Utilize a systemic framework such as Multi-Tiered System of Supports (MTSS) to guide an effective and efficient system of support that works for all students.

To provide meaningful support to all students, many layers and roles within a system need to align, including teachers (general and special education), support staff (speech and language specialists, therapists, counselors, psychologists, paraprofessionals), and administrators from multiple district offices (assessment, curriculum and instruction, English Language Learner support). MTSS is one option for a framework to bring these stakeholders to the table, and to align initiatives, resources, and practices to develop a comprehensive and coordinated system of support to benefit all students.

Introduction

In 2017, about a quarter (228) of all California school districts were identified by California Department of Education officials as requiring Level 2 support, or “differentiated assistance,” under the state’s new accountability system. This means that, for those 228 districts, at least one student group was performing at the lowest performance level in two or more of the state’s priority areas,¹ which are based on factors of a quality education, including high school graduation rates, college/career readiness, student test scores, English learner progress, suspension rates, and parent engagement (see Figure 1 for specific indicators related to these state priority areas). Of these 228 districts, 163 were identified at least in part for failing to meet state targets for their students with disabilities subgroup on state priorities.

Mathematics achievement statistics are included as part of California’s overall tiered rating system, but when looked at separately, the math achievement data tell a specific and daunting story. On the 2016 California Assessment of Student Performance and Progress (CAASPP) across tested grades (grades 3–8 and 11), 37 percent of all California students met or exceeded standards on the CAASPP in mathematics, while only 11 percent of students with disabilities did. While all students are performing in mathematics more poorly than hoped for, the performance gap between students with disabilities and all students is significant and troubling.

Who are the students with disabilities?

The term “students with disabilities” refers to the approximately 11 percent of California students (in 2016–17) who were identified as eligible to receive special education services. To qualify for special education services, students must have one of 13 disabling conditions and need special education services to benefit from their education. There is a great diversity in definition across the different disability categories,

Figure 1. California Dashboard Indicators for Differentiated Support

- Academic achievement indicator based on student test scores on English Language Arts (ELA) and Math for grades 3–8, including a measure of individual student growth, when feasible, and results on the Next Generation Science Standards assessment, when it becomes available
- College and career readiness indicator, which combines Grade 11 test scores on ELA and Math and other measures of college and career readiness
- English learner indicator that measures progress of English learners toward English language proficiency and incorporates data on reclassification rates
- High school graduation rate indicator
- Chronic absence indicator, when available
- Indicator for suspension rates by grade span

Source: California Department of Education (2017)

¹ Using ratings on these indicators, the state accountability system employs a “tiered system of support” for districts not meeting achievement and access targets and struggling to meet students’ needs. Through this system, districts may be identified to receive differentiated assistance from the state to improve their support for student performance and progress. See <https://www.cde.ca.gov/ta/ac/cm/index.asp> for more information.



but only three of the categories include intellectual or cognitive disability as a part of the definition. Together, these three categories account for only 6 percent of students with disabilities; instead, by far the most prevalent conditions are the following:

- » Specific learning disabilities (39%, for example dyslexia and perceptual disabilities)
- » Speech and language impairment (22%)
- » Autism (13%)
- » Other health impairment, including attention deficit disorder (11%) (California Department of Education/ Special Education Division, 2017)

These four categories account for about 85 percent of the students with disabilities in California receiving special education services, and the majority of students with disabilities who receive most of their education in general education classrooms with varying levels of support from special education staff.

Why are students with disabilities not achieving as well as their peers?

Research suggests that students offered appropriate evidence-based instructional practices can make significant gains in their academic performance, especially in the realms of problem solving and knowledge application within academic content areas (Vaughn, Danielson, Zumeta, & Holdheide, 2015), both of which are demands made by the California content standards. Furthermore, student difficulties and differences in learning should not be interpreted as indicators of students' intelligence but as expected variations in how learning happens (see sidebar: A Glimpse at Student Learning). These variations can be accommodated through thoughtfully designed instruction such as described in the Universal Access chapter of the California state mathematics framework

(California Department of Education, 2015; see Appendix A). Performance gaps between student groups suggest that there is significant room for improvement in how district education systems serve students with disabilities and their typically developing peers.

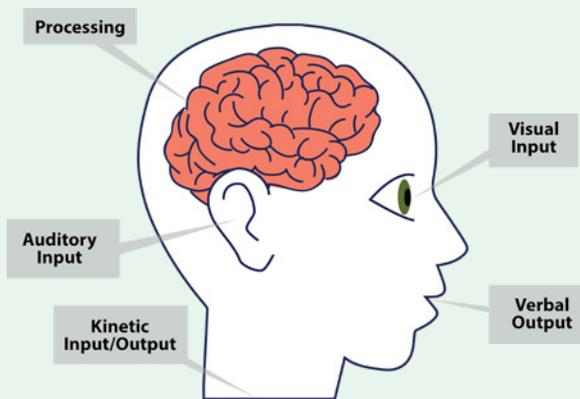
The vast majority of the students receiving special education services have learning, language, or attention disabilities and not a cognitive disability, and therefore have the capacity to achieve academically. So why are these students not achieving at the same levels as their non-disabled counterparts across the state? Rachel Quenemoen (2008), a researcher with the National Center on Educational Outcomes and the National Center and State Collaborative, argues that the lack of progress on grade-level standards for many of these students is related to educators' erroneously low expectations and a corresponding lack of systems planning that takes these students into account. In short, she writes, there's a general acceptance that children with disabilities have lower achievement "because 'they have disabilities'" (p. 6).

If we can set high standards both for what kids should learn and how well they should learn it in our schools, and we systematically instruct all students in that content toward those achievement targets, and we hold the adults in the systems accountable for that to happen, we can help children be more successful than ever before. (Quenemoen, 2008, p. 6)

Research shows that the achievement gap for students with disabilities can be addressed using many of the same practices that districts in the Math in Common (MiC) network are already investing in as they realign their systems to implement the new standards. In this report, we will highlight some of these practices being carried out in two particular MiC districts, which are showing some promise at improving the achievement of students with disabilities and reducing the achievement gap.

A Glimpse at Student Learning

To understand how learning, language, or attention disabilities may impact learning, it's helpful to look at how we all receive, process, retrieve, and express information. We all have strengths in one or more ways that information can be received (e.g., through seeing, hearing, and physically doing), or what can be called the **input**. Once we receive the information, then the brain has to **process and store** the information for later **retrieval**. The **output** of learning can then be expressed verbally, in writing, or kinetically through doing something.



While individuals with learning, language, and attention disabilities typically do not have a cognitive

impairment, they may have difficulty in how information is received through seeing (visual), hearing (auditory), or physically doing (kinetic), or during some aspect(s) of the input process. Once the information is received, they may have difficulty in processing, storing, or retrieving the information. And finally, some people with learning, language, and attention disabilities may have difficulty expressing information verbally, in writing, or in doing something (i.e., the output).

These difficulties or differences in how information is received, processed, and expressed are not indicators of intelligence or how "smart" someone is — they are simply indicators of the variations in how the human brain works. Knowing this has huge implications for instruction. Understanding these variations and designing instruction that addresses these variations, with all types of learners in mind, is the concept behind Universal Design for Learning (UDL), which is widely being utilized as a framework to guide instructional planning from the beginning of the lesson planning process to address the needs of many types of learners and learning variations. (Appendix B includes additional information about the UDL Framework.)

Students with Disabilities in the Math in Common Districts

Mirroring the statewide pattern, the achievement gap for students with disabilities is demonstrated within the 10 Math in Common (MiC) districts. Six of the 10 MiC districts were identified as "differentiated support" districts by the California Department of Education, with 4 of the 10 identified for this support at least partially due to the underperforming status of their students with disabilities subgroup. In these 10 districts, the average achievement score for the students with disabilities on the 2017 CAASPP in mathematics is well below the standard for all students. In addition, the gap in scores between all students and the students with disabilities subgroup across the MiC districts is significant (ranging from 65 points to more than 115 below scores for all students in the districts). However, despite these existing achievement gaps for students with disabilities, 2 of the 10 MiC districts, Sanger Unified and San Francisco Unified, have shown an increase in their students with disabilities' achievement scores in mathematics from 2015 to 2017. Seven of the 10 districts maintained the same level of scores for students with disabilities while, only one district's students with disabilities' achievement scores in mathematics declined.²

We wanted to learn more about the district structures, systems, and processes underlying the improvements in Sanger and San Francisco (as well as the other eight MiC districts). We asked two district leaders, in math and special education, in each of the 10 MiC districts to respond to a brief online survey in February 2018. Twelve individuals from nine districts responded. Our findings from the survey included the following:

- » While general education teachers often meet *weekly* (6/12 respondents) or *monthly* (4/12 respondents) to collaborate for grade-level/course instructional planning in math, special education teachers are only *occasionally* (9/12 respondents) included in these collaborative discussions.
- » Good collaboration between special education teachers and general education teachers is deemed very important, but often difficult to accomplish.
- » When asked to identify the greatest challenge to improving outcomes for the students with

disabilities in mathematics, four of the respondents indicated that lack of content expertise in mathematics for the special education teachers was a big issue. One leader said, "SpEd teachers' credentials do not have content expertise. This lends itself to lack of knowledge of what should be emphasized in math."

In other words, we learned that MiC districts are still struggling with how to organize their district systems to best support their students with disabilities, even as some maintain or improve achievement for students with disabilities.

Over the course of the Math in Common initiative, WestEd has highlighted policies, practices, and strategies that the MiC districts have employed to implement the California mathematics standards. Although there were only two of an already small sample of MiC districts showing promising improvements for their students with disabilities, we wanted to build from the

² Data accessed via the California School Dashboard: <https://www.caschooldashboard.org/>.

A Framework for Understanding District Systems of Support for Students with Disabilities

When district leaders search for promising practices to support their students with disabilities, they find a dearth of research tracking long-term outcomes in districts that have focused on making systemic improvements with their students with disabilities in mind. However, the University of Massachusetts Donohue Institute conducted one of the few longitudinal studies in this area (Ellis, Gaudet, Hoover, Rizoli, & Mader, 2004). We believe this study's focus and findings are particularly aligned to the work already underway in some MiC districts.

The study focused on several large, urban districts in Massachusetts that were able to close achievement gaps for students receiving special education services. The study identified 11 practices, which relate to systems, staffing, and leadership concerns, that were common across the schools where there was better than expected achievement for the students receiving special education services. These practices are:

- Pervasive emphasis on curriculum alignment with the state framework

- Emphasis on inclusion and access to the general education curriculum
- Unified practice supported by targeted professional development
- Culture and practices that support high standards and student achievement
- Access to targeted resources to support key initiatives
- Well-disciplined academic and social environments
- Flexible leaders and staff working effectively in a dynamic environment
- Use of student assessment data to inform decision making
- Determination that effective leadership is essential to success
- Effective staff recruitment, retention, and deployment
- Systems to support curriculum alignment

survey findings and go deeper to learn more about what might be happening in these two seemingly more successful MiC districts. Prior research in these districts identified them as having implemented districtwide systemic and instructional practices for supporting their students with disabilities. With this information, we also conducted a series of interviews and focus groups with representatives from these two districts, talking to math office staff (administrators and coaches) and staff who work closely with or are part of the districts' special education offices.

It will be a long, challenging road for districts to design systems to provide learning that truly reaches every student under their care. But we know the path forward is lighted by practices, strategies, and structures that have been successful for other districts. To that end, we hope this report can help readers in districts across the state understand more about these two district systems and identify promising systemic practices that they can use to provide differentiated support for their own students with disabilities.



How staff in San Francisco and Sanger Unified School Districts describe their work to support students with disabilities

This section describes examples from the two focal districts, Sanger and San Francisco, of their practices for supporting students with disabilities. We have aligned these examples with the categories of effective practices identified in the University of Massachusetts Donohue Institute study (as listed in the sidebar on page 5, A Framework for Understanding District Systems of Support for Students with Disabilities), to show how our focal districts are embodying or working toward some of those same promising practices.³ Each practice listed below includes our brief synthesis of how the Massachusetts study describes that practice, followed by details on how the focal districts are doing work related to the respective practice.

Pervasive emphasis on curriculum alignment with the state framework

[The study found] a tremendous emphasis at both the district and school levels on curriculum alignment with the [state] Curriculum Frameworks.... There was a strong consensus that curricula and instructional lesson plans should be evaluated and re-evaluated for fidelity with the Frameworks and that attention to this task is fundamental to the ... achievement of all students, including those with special needs. (Ellis et al., 2004, p. 3)

Individuals from both districts said their approaches to building a supportive learning environment for all students began with a focus on what happens in general education classrooms. In particular, they prioritized selecting curriculum materials that were aligned to the

new standards and focused on addressing the broadest range of student needs.

Often, curriculum designers have treated supports for diverse learners as an afterthought, offering a standalone chapter or other additional materials that are up to the educators to decide to use. Even so, curriculum designers rarely offer supports for the full range of learners. When staff from San Francisco set out to identify a curriculum aligned to the new math standards, they searched for materials with guiding design principles that included supports for all learners. They did not find materials that aligned with either the standards or with their beliefs and values as a district. In response, district mathematics specialists (with support from outside experts and teachers) opted to develop a “homegrown” curriculum over multiple years.

In their design process, San Francisco educators looked to the mathematics progressions documents that were developed in support of the Common Core State Standards. Informed by research on children’s cognitive development and by the logical structure of mathematics, these documents describe how the mathematical concepts in the standards develop and deepen in a progression across grade levels. San Francisco’s development of a progression-based and standards-aligned curriculum aims to help teachers think about how students’ mathematical ideas develop from simpler to more complex logical understandings across grade levels – that learning for each student follows a trajectory of mathematical understanding. The curriculum has been piloted and revised based on feedback across the district’s system over the last few years to ensure that the materials are standards-aligned and enable educators to effectively implement the standards.

While this foundational mathematics curriculum is appropriate for the majority of students with disabilities, staff in San Francisco have also developed a supplemental set of curriculum materials for students in special education who are achieving well below grade level,

³ Two of the practices from the study did not come up in our conversations with district staff, but we attribute this absence more to our interview questions than to these practices not currently happening within the districts.

including developing combined-grade (e.g., grades 1 and 2 together) materials. With the idea that students in combined-grade classes may be at different places in their understanding, these materials aim to support special education teachers in their lesson planning and instruction to think holistically about each student's possible learning trajectory through mathematics. Crucially, these materials still align with the standards and progressions, ensuring students in all types of classrooms have access to appropriate materials.

Emphasis on inclusion and access to the general education curriculum

Districts and schools expressed a commitment to inclusion... distinctions between regular and special education are blurred through the use of flexible groupings that integrate students with special needs and other students in an included environment throughout the school day... Considerable attention [is paid] to the delivery of the general education curriculum to all students, including those who spend substantial time outside the regular classroom... Among the most common phrases heard during discussions of curriculum access was "they are all our kids." (Ellis et al., 2004, p. 4)

Both Sanger and San Francisco tell us they have carefully built a culture of inclusion across their systems, and have focused their efforts on improving the amount and the quality of time students receiving special education services spend within general education classes.

One of San Francisco's core beliefs is that "all kids are smart" and it's the role of adults to locate and develop this intelligence in every student — never to label some students as "good" or "bad" at math or divide them into "high" and "low" learners. With these beliefs in mind, teachers and administrators in the district designed the

curriculum to provide equitable access for all students (i.e., strong Tier 1 instruction⁴) in four ways:

- » The curriculum was designed with **Universal Design for Learning (UDL)** principles in mind. Interestingly, curriculum writers in San Francisco reported that initially, they were not always sure of the finer points of UDL. But they mentioned that learning more about UDL has greatly helped to sharpen their thinking about making math accessible and rigorous for all students, and has given them more precise language to communicate with schools and other departments regarding supporting all students. (See Appendix B for more information on UDL.) One of the revisions they made recently to the elementary curriculum materials was to present common student challenges and misconceptions alongside strategies for providing universal support, so that teachers are more clearly able to see the connection between the two.
- » The curriculum, centered around big mathematical concepts, is **task-based** — with problems that provide multiple entry points for students with different levels of understanding and opportunities for teachers' assessment of student learning. **Instructional strategies** like math talks and a three-read protocol are also built-in practices to benefit all students.⁵
- » The curriculum also **positions all students as inherently strong learners individually**. The teachers' role is positioned as setting up the right collaborative classroom structures to develop each student's individual strengths and ability to learn together in groups.
- » The curriculum includes a "unit zero," with **lessons designed to establish classroom norms and routines that emphasize practices for inclusion**. District administrators told us that "when classrooms do [unit zero], then inclusion happens."

4 Tier 1 refers to the high-quality, standards-based, differentiated instruction in general education classrooms that all students receive under the Multi-Tiered System of Supports (MTSS) framework that is being used in this district and many others across California. Additional information on MTSS is provided in Appendix C.

5 See <http://www.sfusdmath.org/signature-strategies.html> for information on San Francisco's signature instructional strategies.



Reflecting on the process of creating the curriculum, one administrator from San Francisco told us, "When we were first introduced to the term UDL, it seemed like jargon. But in the end, I think our curriculum exemplifies [UDL]: we developed curriculum designed for all students." Although the curriculum does provide support for educators to consider the needs of all students, one San Francisco representative reported on some of the persistent challenges with implementing the curriculum: "We struggle with finding ways for our students with disabilities to meet the challenging demands of the standards. How do we modify without losing the rigor?"

Two practices within the district are designed to help with maintaining the access and rigor for all students in the general education curriculum. First, administrators gave credit to the introduction and implementation of a program called Complex Instruction (CI) for helping the district move toward achieving an inclusive culture. CI is "a pedagogical approach that enables students to learn and teachers to teach at a high intellectual level in academically, linguistically, racially, ethnically, and socially heterogeneous classrooms" (Stanford Graduate School of Education, n.d). San Francisco Unified has had CI programs in place at a subset of school sites for the last nine years. While not all San Francisco schools participate in the program, educators and administrators in our focus group credit the CI trainings with creating a meaningful change in how district staff think about students. This positive outlook about students' capabilities has slowly rippled across the district, within the math department at the district level, and even out to schools and teachers that don't participate in CI.

San Francisco district leaders have also revised their Individualized Education Program (IEP) process to better reflect and uphold an inclusion priority. Instead of siloing the responsibility for inclusion within a program called "inclusion," the district directs all schools to use inclusive practices. "Our district has worked really hard to individualize the IEP process," a district leader told us, "so that more students are in general education and are receiving Tier 1 instruction." San Francisco has also focused on decreasing suspensions and expulsions,

to protect student access to instruction and to more thoughtfully address behavioral issues. The administrators reported that this policy allows more students with disabilities to spend more time included in the general education classroom.

Unified practice supported by targeted professional development

Staff were operating from the same playbook, with the same end goal ... to work together to make all of their students successful... Districts reported key professional development initiatives targeted to large segments of staff... It was through coordinated and consistent professional development that staff ... began to develop common methods, language, and perspectives, which they believe support a consistent and effective approach to education. (Ellis et al., 2004, p. 8)

In order to make sure everyone across the Sanger district system takes responsibility for and grows their capacity to support all students, leaders include all staff in professional development based on UDL principles and supports within Tier 1/general education classroom instruction. The UDL framework provides a foundation for all of their content-area professional development. Critically, they chose to introduce UDL through professional development for general education teachers, instead of sidelining it as a special education initiative. "This was an important step," an administrator told us, as it led to general education teachers feeling that "they owned it. The [general education] teachers are the ones who felt the momentum about the UDL roll-out. They are excited about the implementation."

In order to support widespread use of the UDL framework, Sanger has invested in making sure site leadership and coaches are just as bought into and informed about UDL as teachers are. Site leaders and coaches attend UDL trainings side-by-side with teachers, and the district offers UDL leadership training for each site principal, lead teacher, and coach to attend together. In Sanger's implementation framework, with this support,

the principal is expected to assume leadership for UDL implementation at their site.

District leaders in Sanger have also designed training for special education teachers to emphasize the best ways to do their work within general education classes. With a continued focus on access to quality Tier 1 instruction for all students, Sanger has implemented several tiers of coaching across the district, one of which is dedicated to supporting curriculum and instructional design for teachers and providing consultation with teachers on individual student progress in class and on IEP goals. Additionally, Special Day Class teachers (those who lead separate, self-contained classrooms only for identified students with intensive needs) in the district attend all of the professional development on standards and curriculum offered to general education teachers, so that even when students are out of the general education classrooms, the instruction they receive is still aligned to the standards.

A San Francisco district representative reported in the survey about the difficulty of ensuring that everyone gains the content knowledge they need to support all students, writing, "Many of our teachers don't seem to understand the concepts behind the procedures in mathematics; nor do they (as a whole) seem particularly versed in various strategies. Overall, most are still attached to a teacher manual and just do what it says, teaching one lesson for all." To address this need for content knowledge, the curriculum has been revised to be more educative for teachers, including features intended to help teachers who are unsure of their own content knowledge to access math concepts. For example, in the 2016–17 revision of the elementary materials, curriculum writers added clearer guidance on the key mathematical ideas to emphasize during their instruction. These features of the curriculum provide particular support for the special education teachers who may not have as much math content training as their general education colleagues. The curriculum also provides material for general education and special education teachers to discuss and learn about together (e.g., in school-wide or grade-level learning communities) to

improve everyone's math content knowledge. District leaders did express concern that not all teachers access these elements of the curriculum – some teach lessons without reviewing the teacher-directed features.

San Francisco leaders also report that their use of Complex Instruction strategies have particularly strengthened and unified practice for their educators. A guiding element of CI is that the process of change at a site or in a classroom must be teacher-led and teacher-driven in order for deep shifts in belief and practice to take root. Schools that elect to adopt CI have the same trainings for general education teachers and special education, enabling staff to collaborate more closely on instruction and develop their thinking together. As a result of this shared purpose to align teaching and learning to CI principles, San Francisco staff tell us that students are more likely to stay in a classroom and be co-taught by a special education and general education teacher together and less likely to be pulled from class for remediation.

Culture and practices that support high standards and student achievement

School leaders and most staff... related a firm and convincing belief that students with special needs should pursue mastery of the general curriculum and that most of them can succeed on [state tests], if properly prepared. For some teachers, this belief translated into an obvious emotional investment in the success of their students, particularly those who struggle to achieve mastery. (Ellis et al., 2004, p. 5)

Both focal districts told us their district vision and culture rely on a strong emphasis on a growth mindset, high standards for student achievement, and a belief that all students can succeed.

In Sanger, posters adorn every district and school office and some classrooms, laying out the district's vision that all adults are responsible to "help every child learn – and learn to high levels" with the following core



principles: "Don't blame the kids. Hope is not a strategy. It is all about the learning. All kids can and must learn."

In San Francisco, district staff reported that "access and rigor" is the mantra guiding their work toward equitable classrooms – including the idea that these concepts are inseparable. "It's not access for some kids, and rigor for others," a district math leader told us, "it's accessible rigor for everyone."

Some schools in San Francisco, district personnel told us, have built a culture they call "all my students" – meaning every teacher has come to feel responsible for every student in the school. These schools hold a corollary belief that "time spent outside class is instructional minutes wasted." Coupled together, classrooms and schools that have taken up these beliefs have created a culture where general education teachers take personal responsibility for their students with special needs, ensuring that their learning occurs in the same classroom as everyone else, not pushed off to someone else's remediation elsewhere. In these classrooms, we were told, "you cannot tell who is the math teacher and who is the special education teacher: both have the belief that kids can do math."

Access to targeted resources to support key initiatives

Staffing and other resources varied widely between and within buildings [and]... some districts and schools have shown unusual success in securing critical outside resources to make expanded programming or materials available to students. (Ellis et al., 2004, p. 9)

In Sanger, the district's vision of inclusion has led to nearly 80 percent of students with disabilities spending 80 percent or more of their day in general education classrooms. District staff indicated they accomplished this by supporting meaningful collaboration and co-teaching between general education and resource specialist (RSP) teachers in general education classes. In these classes, "RSP teachers shouldn't be glorified

note-takers" is how one Sanger administrator put it. At the same time, they continued, "RSP teachers are not the teachers of record," meaning that responsibility for teaching the math curriculum to students with disabilities is shared relatively equally between general education and RSP teachers. Students who are in Special Day Classes are also included in general education classes as much as possible, with a focus on standards-aligned instruction that is designed to address the level of the student.

Sanger staff talked about their work toward a "whole child" view in which the social, emotional, and behavioral needs of the students can be addressed. The district has devoted resources to meeting the social-emotional needs of students through hiring psychologists, counselors, and behavior support staff to engage in data-based problem solving and decision making under the Multi-Tiered System of Supports (MTSS) framework.

The MTSS framework helps staff from many different departments across a district system collaborate and combine academic and behavioral supports into a coherent system taken up across all departments (including assessment, curriculum and instruction, English Learner supports, and other leadership teams from across the district). The process often begins with a self-conducted needs assessment that allows district staff to look across large pieces of their system and see where alignment is off, and determine where to begin. (Additional information on MTSS is provided in Appendix C.)

Sanger has focused on MTSS for both academics and behavior for a number of years to identify and design a system of supports in response to student needs. MTSS team meetings happen monthly at the site and district level to analyze data regarding academic and behavioral needs. As one of the administrators in the focus group shared, "As a site leader, we can pick up the phone and get help at any time available. True team approach. The appropriate people will get there quickly. Instant accessibility."

Sanger has a specialized team called CARE that focuses on providing mental health education, support, and case

management for students who have not adequately responded to site-based supports. The district also has a Center for Behavioral Education team that is dispatched to a site to build the capacity of the site's teachers to collect and analyze data to determine which interventions work best for the students.

In addition to the inclusion of UDL principles in all of their content-area professional development, an introductory UDL training has been offered by the Coordinator of Inclusive Practices, and implementation is supported by the district's Designated Instructional Specialist for Inclusion. Both of these staff members have been trained through the Center for Applied Special Technology (CAST)⁶ and continue a rich relationship with that organization. Sanger has also participated in the SUMS project,⁷ a California initiative to provide statewide training on MTSS implementation, which includes an emphasis on inclusion of all students and a focus on alignment of the curriculum and instruction to the standards (see Appendix C for additional information on the SUMS project).

Because of Sanger's relatively small size, the special education program managers are able to work with site principals across the district to support them in problem solving special education needs. They tell us that this support develops leaders' capacity and deepens the implementation of the district's common vision.

Well-disciplined academic and social environment

Interviewees... considered their buildings to be very well-disciplined environments in which students find the structure they need in order to focus on their work.... Both students and staff [are] accountable for, and mindful of, how they

behave and interact with one another. (Ellis et al., 2004, p. 6)

Flexible leaders and staff that working effectively in a dynamic environment

The research team observed a very dynamic situation with regard to curriculum, class configuration, program location, and the racial and ethnic composition of the ... districts and schools.... Schools are scrambling to respond to the many demands for change and improvement, even as the populations they serve, and the tools they use to serve them, evolve. This ... require[s] great flexibility from leaders and staff.... Schools are in the midst of implementing major initiatives intended to improve student achievement, and are working to both provide appropriate training to staff and assess the effectiveness of the initiatives through data analysis. At the same time, classroom models are evolving to provide greater inclusion of students with special needs ... [and] schools are working to implement and/or design an expanding array of student progress measurement tools. (Ellis et al., 2004, pp. 10–11)

In our interviews, when we asked about behavior supports and academic/social environments, both districts brought up the social-emotional learning frameworks they use in professional development and planning instruction. Both districts also discussed positive behavior supports as a focus of their overall district culture of inclusion, access, and equity. Because flexible collaboration among staff is crucial to these districts' efforts to improve their academic environments, in this section we discuss both of the categories of effective practices from the Massachusetts study that are summarized above.

6 The Center for Applied Special Technology (CAST) developed UDL based on brain research. CAST provides resources, training, and support for implementation of UDL. See Appendix B for additional information on CAST.

7 The Scaling Up MTSS Statewide (SUMS) Initiative is funded through 2015 legislation to provide training and support to districts in California for implementation of MTSS. The contract to provide the statewide trainings and support was awarded to the Orange County Department of Education and partner Butte County Office of Education. See Appendix C for additional information.



In Sanger, the collaboration between special education and general education teachers using UDL strategies and principles takes place primarily through professional learning community (PLC) time for whole-class lesson development. Sanger representatives told us that these collaborations bring a wealth of knowledge on how to make instructional content concrete for students with disabilities. The combination of a general education teacher's content knowledge and a special education teacher's experience with scaffolding, accommodations, and supports helps to align instruction for all students with the Common Core.

An example of this type of collaboration occurred recently at an elementary school site in Sanger, when the 5th grade PLC met (including two general education teachers and the 5th grade Special Day Class teacher) to tailor a math lesson around dividing decimals. After planning the lesson together, the Special Day Class teacher joined a 5th grade class to help all students understand this difficult concept through the tangible use of money during the lesson. Her expertise was useful for *all* student learning and created particularly streamlined access for students who were included in the general education classroom for that math lesson. This example embodies the relationship that special education and general education staff have developed, which integrates the expertise of both to provide access and support for all learners.

In San Francisco, schools have worked to increase inclusion and to improve classroom social environments through co-teaching, where the teacher in a general education classroom is joined by a special education teacher, and both work with the whole class on the general education curriculum – instead of pulling students out of the classroom to work with the special education teachers. This process has been smoother in secondary schools, which are larger, offer more courses, and have more staff than elementary schools, allowing for more options within the master schedule for co-teaching. In elementary schools, widespread co-teaching has been more difficult to implement due to fewer special education staff on a campus, and the fact that special

education teachers in elementary schools often have to support multiple grades. District leaders we spoke with reported that many schools who find the co-teaching model difficult to schedule have moved to a model where the special education teachers and paraprofessionals provide support in the general education classroom on an as-needed basis.

Use of student assessment data to inform decision making

Routine use of data...shapes the curriculum, lesson planning, approaches to instruction of individual students, and the identification of students who may be at-risk academically. ... Data has come to play a central role in informing district, school, and class-level strategies to improve student learning [and in] highlighting student strengths and weaknesses, which support[s] the flexible grouping and re-grouping of students throughout the school year. . . . [Data] also play a central role in the identification of students who are at risk of falling behind their peers academically [and in] the establishment of professional development priorities and initiatives. (Ellis et al., 2004, pp. 7–8)

Both of the focal districts indicated that their teacher collaboration time, often spent reviewing various kinds of student data, is essential to supporting teachers to make decisions about classroom instruction to support all students.

Sanger discussed its PLC approach as a "loose/tight" model in which all teachers are expected to participate in a PLC, but how the PLC ultimately works and what it works on is a site decision. The PLCs discuss data from benchmark assessments and student work to think through where students may need extra support. These discussions have been a critical component in implementing UDL and supports for students, as has the participation of many of the elementary special education teachers. These teachers may participate in multiple grade-level PLC teams, and choose which PLC to join

based on the needs of particular students or on teacher requests for them to attend.

Sanger also indicated a strong emphasis on identifying accommodations based on student need. Guidance on the use of accommodations is built into teacher professional development, and the accommodations are used throughout the school year – never just during the standardized assessments. The district also relies on its MTSS data to identify the needed supports for students in academics and behavior. Data discussions are scheduled monthly at the site and district levels to review state data (including CAASPP data and data from the California School Dashboard on suspensions/expulsions, attendance, graduation, and achievement) and local data (including Advanced Placement data, Response to Intervention tier data, and survey data from students, parents, and staff).

Determination that effective leadership is essential to success

District and school leaders...have very clear direction and a strong commitment to building systems that support the success of all students...and implementing a vision for their district or school building....This study emphasize[s] the institutional structures and culture established within...districts, rather than the attributes of the [individual] leaders, [although] leaders related a strong sense of purpose and personal accountability for the success of their students and staff. (Ellis et al., 2004, p. 11)

Without continual emphasis and thoughtful attention from district leaders and decision-makers, it's easy for students with disabilities to fall out of focus as systems are being designed and improved. In both of the MiC focal districts, district administrators and coaches tasked with designing math-focused system improvement efforts undertook their charge with their struggling learners and students with disabilities in mind. Both districts begin by describing their overarching vision for their districts as one of "access and equity" for all students. With this vision front and center, each of the districts worked to align their curriculum and instruction to the new standards while emphasizing the need to build supportive learning environments that work for all of their children.

Conclusion

While districts across the MiC network, the state, and beyond continue to struggle to improve outcomes for students with disabilities in mathematics, the practices that district representatives described being implemented in Sanger and San Francisco offer practical examples of strategic and systemic ways to support students with disabilities. It was clear in the conversations with the administrator groups from both districts that improvement in outcomes for students with disabilities cannot be tied to a single practice. Instead, each group described the need for a systemic approach to changes and alignment across the system.

The districts' systems differ significantly and they take different approaches to supporting their students with disabilities. However, both districts indicated that their starting point was a commitment to focusing on the needs, strengths, and inclusion of their students with disabilities, as well as a firm belief that all students can learn and succeed. From this starting point, each district worked carefully and thoughtfully to align its systems to support meaningful inclusion and high expectations for all students.

Recommendations

Based on our findings from these two districts, we offer the following set of recommendations to other districts who seek to build supports for students with disabilities more deeply into all their work for math instructional improvement.

- » **Develop a culture of high expectations.** As leaders in both our focal districts emphasized, it takes time and dedication to bring the message that "all students can succeed" to all stakeholders, and to make sure this isn't just a slogan but a practice embedded in everyone's daily work. Teachers need to be supported with teaching and learning structures that enable high expectations to translate to higher achievement. Communicate consistently to all audiences that all students can succeed — if provided the right kinds of supports.
- » **To improve inclusion, support general education and special education teachers to teach collaboratively.** Widespread implementation of inclusive practices requires a culture of high expectations and professional development that supports teachers to design lessons that provide access and equity in general education classrooms. Co-teaching between general education and special education teachers is one of the best ways to support students with disabilities to stay in general education classrooms. It is critical to offer shared professional learning opportunities to both general and special education teachers, so they can learn to co-teach and collaborate in various ways. The district and site levels should identify and remove systemic barriers (e.g., lack of scheduled collaboration time, master scheduling issues) that are preventing special education teachers and general education teachers from creating inclusive instructional environments.
- » **Use a lesson-design framework such as the principles of Universal Design for Learning to inform the development of accessible lessons.** It helps to rely on a framework like Universal Design for Learning (UDL) when supporting general education teachers to design lessons that will benefit all students (see Appendix B for additional information on UDL). When teachers understand the principles of UDL, work together to develop accessible lessons, and provide multiple ways for students to engage in and express their learning, there is less of a need

for additional differentiation and extra supports throughout the year.

- » **Clarify and support the role of special education staff.** Everyone across the system should develop a shared understanding of the roles and responsibilities of special education staff to address the specific needs of identified students. While the expertise of special education staff is critical, they cannot be the only ones tasked with supporting students with disabilities. Their knowledge of appropriate supports for diverse learners needs to be brought to general education classrooms regularly, and leaders should make this clear to everyone in the district. Additional professional development for special education staff in content areas such as mathematics can also help build their knowledge of content standards and their ability to support students across different learning environments.
- » **Develop skills at all levels of the district system in collecting, analyzing, and utilizing data to guide planning and continuous improvement.** Teachers and district staff should use individual students' data (e.g., assessment, observations, data from IEPs, lesson participation, assignments, homework) to determine a student's strengths and challenges, and to choose the most appropriate types of supports, including collaborative supports

within the classroom. At the district level, staff should collect and analyze large-scale data (e.g., benchmark/interim assessments, formative assessments, improvement-plan implementation progress) to understand the impact of systemic change and to identify where and when improvements to the system need to occur.

- » **Utilize a systemic framework such as MTSS to guide an effective and efficient system of support that works for all students.** To provide meaningful support to all students, many layers and roles within a system need to align, including teachers (general and special education), support staff (speech and language specialists, therapists, counselors, psychologists, paraprofessionals), and administrators from multiple district offices (assessment, curriculum and instruction, English Language Learner support). MTSS provides a framework to bring these stakeholders to the table, and to align initiatives, resources, and practices to develop a comprehensive and coordinated system of support to benefit all students. MTSS also provides a structure and process for collaborating across the system; collecting and analyzing data on needs within the system; and developing an implementation plan with monitoring for continuous improvement. (See Appendix C for additional information on MTSS.)



Appendix A. California Mathematics Framework

The Universal Access chapter of the *Mathematics Framework for California Public Schools: Kindergarten Through Grade Twelve* (<https://www.cde.ca.gov/ci/ma/cf/documents/mathfwuniversalaccess.pdf>) describes an approach for addressing the instructional needs of students in California. Although suggestions and strategies for mathematics instruction are provided, they are not intended to be prescriptive step-by-step rules for teachers and other educators to follow to effectively meet the instructional needs of every student. The instructional needs of each student are unique and change over time.

To ensure universal access to mathematics learning, educators should focus on several essential components of teaching and planning, such as high-quality curriculum, purposeful planning, uninterrupted and protected instructional time, scaffolding, flexible grouping strategies, differentiation, and progress monitoring. The first sections in this Universal Access chapter discuss planning for universal access, differentiation, Universal Design for Learning, the new language demands of the California mathematics standards, assessment for learning, and California's Multi-Tiered System of Supports. Later sections focus on students with targeted instructional needs: students with disabilities, English learners, at-risk learners, and advanced learners.

Appendix B. Universal Design for Learning

Developed by the Center for Applied Special Technology (CAST), Universal Design for Learning (UDL) has a foundation in brain research that supports visual, auditory, and kinesthetic inputs and also allows students to present what they have learned through multiple means or outputs. Additionally, UDL takes into consideration the importance of student engagement and motivation. The three principles and nine guidelines for implementation are summarized in Figure B1.

Figure B1. Three Principles and Nine Guidelines for Implementation of Universal Design for Learning

PRINCIPLE I: PROVIDE MULTIPLE MEANS OF REPRESENTATION: THE "WHAT" OF LEARNING	PRINCIPLE II: PROVIDE MULTIPLE MEANS OF ACTION AND EXPRESSION: THE "HOW" OF LEARNING	PRINCIPLE III: PROVIDE MULTIPLE MEANS OF ENGAGEMENT: THE "WHY" OF LEARNING
Guideline 1: Provide options for perception.	Guideline 4: Provide options for physical action.	Guideline 7: Provide options for recruiting interest.
Guideline 2: Provide options for language, mathematical expressions, and symbols.	Guideline 5: Provide options for expression and communication.	Guideline 8: Provide options for sustaining effort and persistence.
Guideline 3: Provide options for comprehension.	Guideline 6: Provide options for executive functions.	Guideline 9: Provide options for self-regulation.

Source: CAST (2014).

For additional information on UDL see the CAST website at <http://www.cast.org/our-work/about-udl.html#.Wr1M49Pwb0Q>.

Appendix C: Multi-Tiered System of Supports

As defined in the report, alignment and integration of systems of support has shown promise in improving outcomes for students with disabilities. Multi-Tiered System of Supports (MTSS) is a systemic framework in which data-based problem solving and decision making is used across all levels of the education system to ensure that every student receives the appropriate level of support to be successful.

California Department of Education's MTSS

<https://www.cde.ca.gov/ci/cr/ri/index.asp>

California's vast and complex prekindergarten through grade twelve education system requires a multifaceted approach that is scalable and sustainable. MTSS offers the potential to create systematic change through intentional integration of services and supports to quickly identify and meet the needs of all students.

MTSS focuses on aligning initiatives and resources within an education organization to address the needs of all students. It is an integrated, comprehensive framework for local education agencies (LEAs) that aligns academic, behavioral, and social-emotional learning in a fully integrated system of support for the benefit of all students. MTSS draws on a variety of evidence-based interventions, such as improvement science, Universal Design for Learning, and the whole-child approach.

MTSS, Response to Instruction and Intervention (RtI²), and Positive Behavioral Interventions and Supports (PBIS) are often spoken of synonymously. For those new to MTSS, it can be difficult to determine what people mean when these terms are used interchangeably. It is important to keep in mind, though, that MTSS is a framework for aligning resources and initiatives – it is

a method of organization. As such, MTSS encompasses both RtI² and PBIS, and systematically addresses support for all students.

California Statewide Initiative on MTSS — Scaling Up MTSS Statewide (SUMS)

<https://www.cde.ca.gov/ci/cr/ri/index.asp>

In 2015, Assembly Bill 104, Chapter 13, Statutes of 2015, appropriated \$10,000,000 for [Developing, Aligning, and Improving Systems of Academic and Behavioral Supports](#) (ISABS). The California Department of Education conducted a competitive grant process and awarded the funds to the Orange County Department of Education (OCDE) for their SUMS proposal. In 2016, an additional \$20,000,000, appropriated by Senate Bill 828, Chapter 29, Statutes of 2016, augmented the original grant award. The purpose of the full \$30,000,000 is to encourage LEAs to establish and align schoolwide, data-driven systems of academic and behavioral supports to more effectively meet the needs of California's diverse learners in the most inclusive environment. The SUMS initiative enables the OCDE to develop and disseminate statewide resources and technical assistance for this purpose.

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