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# Improving the Dynamics of Classroom Instruction in Response to the Common Core

## Results from the Annual Math in Common Teacher and Administrator Surveys

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# Table of Contents

WestEd's Evaluation of the Math in Common Initiative .....	i
Executive Summary .....	iii
Introduction .....	1
Changing the dynamics of classroom instruction .....	1
Teachers' Beliefs About CCSS-M-Aligned Instruction .....	4
Differences in results by teachers' years of experience.....	4
Administrators' Capacity to Lead CCSS-M Implementation.....	8
Professional Learning and the Dynamics of Classroom Instruction.....	11
Differences in results by teachers' years of experience.....	11
Conclusion.....	18
References.....	19
Appendix A. Research Methodology and Survey Sample .....	20
Research methodology .....	20
Survey items.....	20
Survey administration.....	20
Respondent sample .....	20
Appendix B. Results from the 2018 Math in Common Teacher Survey.....	22
Background.....	22
Professional Learning Opportunities.....	24
Curriculum, Instruction, and Teacher Decision-Making .....	31
Appendix C. Results from the 2018 Math in Common Site Administrator Survey.....	33
Background.....	33
Professional Learning Opportunities.....	34
Preparedness to Enact the Common Core State Standards in Mathematics.....	35
Steps Taken by Site Administrators to Support Implementation of the CCSS-M.....	36
Curriculum, Instruction, and Decision-Making.....	39

## Figures

Figure 1. Teachers' perceptions of their content knowledge and preparation for CCSS-M.....	5
Figure 2. Teachers' perceptions of their instruction in relation to CCSS-M.....	5
Figure 3. Teachers perceptions of preparation to support students to achieve proficiency in the CCSS-M, by years of experience.....	6



Figure 4. California Public Schools, CAASPP Mathematics Results..... 6

Figure 5. Teachers' perceptions of site administrators' capacity to lead CCSS-M ..... 9

Figure 6. Site administrators' perception of preparation to support elements of CCSS-M implementation at their schools ..... 10

Figure 7. Teachers' perceptions of support provided by professional learning activities for elements of instruction..... 12

Figure 8. Teachers' perceptions of support provided by professional learning activities for elements of instruction, by years of experience..... 13

Figure 9. Teachers' perceptions of receiving one-on-one coaching or mentoring, by years of experience ..... 15

Figure 10. Teachers' perceptions of observing another teacher's classroom, by years of experience..... 15

Figure 11. Teachers' perceptions of receiving classroom observation and feedback from other teachers, by years of experience..... 16

Figure 12. Teachers' perceptions of participating in professional learning communities (PLCs) or other discussion groups, by years of experience..... 16

## Tables

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Table A1. Survey sample size, 2016–18.....21

Table A2. Characteristics of the Math in Common 2018 survey respondents.....21

## 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

Over the last few years, WestEd has conducted a survey of mathematics educators in the 10 Math in Common districts, asking a wide range of questions about their beliefs and efforts toward implementing the Common Core State Standards in Mathematics (CCSS-M). In our review of teacher and administrator survey findings from 2016 through 2018,<sup>1</sup> we see educators' steadily increasing levels of confidence and feelings of support for making the serious changes required by the CCSS-M.

With several years of implementation efforts behind us, districts and policymakers across the state are wondering how best to understand the effects that these efforts are having in classrooms. Because deep reform efforts like the CCSS-M tend to require years of incremental progress toward a shared goal for changed instruction, the changes in teaching and learning can be difficult to measure. In analyzing the results of the 2018 survey, we wondered in particular what the responses could tell us about teachers' changing beliefs about the standards and their sense of readiness to implement them, since research tells us that beliefs can serve as indicators for teachers' instructional choices in the classroom.

We looked more closely at teachers' beliefs about the following: CCSS-M-aligned instruction, their administrators' capacity to lead their sites in implementation, and several professional development structures that aim to support changes to the dynamics of classroom instruction. We also examined administrators' feelings about their own preparation to lead CCSS-M implementation at their sites. To learn more about variation within the population of teachers, we further broke down some responses according to teachers' professional experience levels. We found that teachers of different experience levels responded differently to some prompts about their confidence in shifting their instruction to align with the CCSS-M, and they valued some professional development structures differently.

The findings suggest two main takeaways for school district staff supporting their educators:

- » **Stay the course.** MiC districts have moved toward professional learning supports for teachers and principals that are tied closely to shifts in classroom instruction and teachers' everyday practices — what we like to call “the dynamics of classroom instruction.” Often these models are based in classrooms and school sites, instead of offered at the central office. Positive responses from teachers and administrators about their professional learning supports show that this is likely the right professional learning approach to continue (and a model districts can look to as they begin implementing the Next Generation Science Standards).
- » **Deepen work that has been started.** Teachers and principals are feeling comfortable and confident with what they've learned so far. This is a great indication that they are ready to go deeper and take on new challenges around CCSS-M instruction.

In the responses of all of these groups (teachers, teachers and principals, and new and experienced teachers), we find a wealth of information that confirms for us that MiC districts are right to focus on implementing new standards through changes to the dynamics of classroom instruction. The slow and steady improvements to teacher and principal confidence and feeling of preparation over the years of the survey should be taken as evidence that although progress may feel slow, MiC districts are on the right path.

<sup>1</sup> Although our survey began in 2015, we changed response options on several questions in subsequent survey years. In those cases, we do not include 2015 data and describe only three years of comparable data.







## Introduction

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The history of past education content standards implementation suggests that putting the Common Core State Standards in Mathematics (CCSS-M) in place would require a process of incremental improvement over a long period of time (see e.g., O'Day & Smith, 2016) for consideration of implementation progress and challenges). A look at this history signals that even now, several years into the implementation process, we might not yet see radical changes in classrooms, even though the CCSS-M requires significant shifts in instructional practice. The most accurate way to assess implementation progress is to systematically examine what is happening in classrooms between teachers and students (how, specifically, are teachers organizing CCSS-M-aligned mathematical content and practices for their students), and then to widen the focus to examine the supports that are put in place by school and district systems to help teachers realize CCSS-M goals. In other words, *actions* taken in classrooms and across a system may be the most accurate indicators of implementation progress.

At the same time, research tells us that educators' actions are the result of their underlying beliefs (e.g., Clark & Peterson, 1986). This idea that beliefs influence actions is the basis for significant education research on, for example, teachers' sense of efficacy (Bandura & Wessels, 1997; Tschannon-Moran & Hoy, 2001) and the importance of teachers' attention to students' mathematical mindsets (Boaler, 2015). For example, teachers who believe their students are capable of learning cognitively demanding mathematics may be more likely to organize more cognitively demanding classroom experiences that give students agency and require them to carry the cognitive load (Henningsen & Stein, 1997; Schoenfeld, 1992). So in addition to other indicators like student achievement and observations of classrooms, gauging teachers' beliefs about the standards and teachers' confidence in their ability to realize them can tell us a lot about the progress of CCSS-M implementation.

In this report, we describe what we have learned over the last several years about CCSS-M implementation through our annual Math in Common (MiC) survey, in which we ask educators about their *beliefs*. This annual survey of thousands of teachers and administrators in the 10 MiC school districts is the most comprehensive longitudinal survey of CCSS-M standards implementation in California (see Appendix A). It offers a yearly

snapshot of educators' perceptions of the standards and the district supports they use, and still need, in order to implement them successfully. Alongside anecdotes and student achievement indicators, these survey responses provide a perspective of implementation as it looks to practitioners in the field.

In a forthcoming report, we will describe some of what we have learned about CCSS-M implementation from the MiC initiative through twice-yearly classroom observations with a protocol that helps us understand the classroom *actions* that reveal the relationship of instruction to the goals of the CCSS-M. Taken together, these reports will offer two views of CCSS-M implementation progress and a richer understanding of how these standards are influencing mathematics education.

### Changing the dynamics of classroom instruction

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Reflecting on the five years of the MiC initiative (2013–2018), one of the stories we see most clearly is MiC districts approaching CCSS-M implementation by working with teachers to change what we call “the dynamics of classroom instruction”—that is, the nitty-gritty of how teachers plan and facilitate interactions



### Dynamics of classroom instruction

In this report, we use the term *dynamics of classroom instruction* to refer to all the interlocking elements that teachers and students engage with moment-by-moment during a classroom lesson, including instructional materials, norms of discourse, content knowledge, lesson structure, instructional routines, and instructional decisions teachers make on the fly. In short, we use this term in recognition of the incredible complexity that underlies everyday learning environments.

The dynamics of classroom instruction are impacted by myriad forces, from pedagogical theory to professional development to state and national politics and policies. Educators at all levels of the system may be unfamiliar with the specifics of the dynamics of typical classroom instruction as they play out in the moment each and every day (see e.g., Lewis & Tsuchida, 1999), which can present a significant roadblock to realistic implementation goals.

between students, instructional materials, and mathematical concepts and procedures.

In order to offer professional development that best addresses these classroom dynamics, districts have in many cases moved the primary locus of teacher learning from centralized professional development at the district office to school site-based professional development, where teachers can learn with their colleagues in the context of their real classrooms. Structures like peer classroom observation, lesson study, and professional learning communities (PLCs) have been particularly helpful (see our 2016 report, *Bringing the Common Core State Standards to Life Through Site-Located Teacher Learning Structures*). At the same time, MiC district


leaders have also learned that in order to support site-based teacher learning and professional development, principals need to be supported to understand and prioritize CCSS-M implementation at their sites.

Although our survey is comprehensive, touching many different areas of CCSS-M implementation, this report focuses on school site-based professional learning as a way to change the dynamics of classroom instruction and support CCSS-M-aligned teaching and learning. We studied what teachers and administrators told us in the 2016–2018 annual MiC teacher and administrators surveys<sup>2</sup> about their experiences with the CCSS-M, and we describe findings about three topics related to changing the dynamics of classroom instruction that we think will help districts clarify how their choices are playing out for teachers and administrators.

Of course, teachers are not a monolithic population, and there are important differences in beliefs and opinions based on different facets of teachers' identities and demographics. We believe teachers' years of professional experience is one such distinction that has bearing for district staff designing professional development structures. Teachers' pedagogical experience and pedagogical content knowledge develops and deepens over years of practice (Darling-Hammond, 2000), meaning that experienced teachers have knowledge, capacities, and beliefs that districts may want to engage and capitalize on. In several areas of our report, we broke down responses by whether teachers were newer to the profession (fewer than 5 years of teaching experience), mid-career (5–10 years), or very experienced (11+ years) in order to understand how professional experience may lead teachers to respond differently to supports, or to have different needs for support.

We first examine teachers' beliefs about their preparation and readiness to teach the CCSS-M, with the understanding that positive changes to these beliefs can contribute to positive changes in teachers' actions in the classroom and, ultimately, student achievement. We

<sup>2</sup> Although our survey began in 2015, we changed response options on several questions in subsequent survey years. In those cases, we do not include 2015 data and describe only three years of comparable data.



further break down some of these answers according to teachers' experience levels.

Next, we report on teachers' beliefs about their principals' instructional leadership around the CCSS-M, and on principals' beliefs about their own leadership. We consider what investments MiC districts have made in supporting and developing principals' instructional leadership capacities that may be contributing to findings that we are seeing.

Finally, we examine how teachers' responses to professional development have changed over the years to understand what supports are bearing fruit and which could be better tailored to teachers' needs. We break down some responses about site-located professional development to see how novice and veteran teachers are attending and responding to professional learning opportunities offered at their school sites, and consider whether these responses suggest different actions for district leaders planning professional learning and supporting instructional improvement at school sites.



## Teachers' Beliefs About CCSS–M-Aligned Instruction

For many California educators, the CCSS–M requires a fairly significant departure from the traditional approaches to American mathematics instruction – including those most educators experienced in their own years of schooling, those they learned about in their preservice training, and those they use professionally. The focus on rigor, coherence, and mastery are certainly more central in the CCSS–M than in prior standards. And important instructional themes (e.g., students being able to identify and describe mathematical ideas across representations) are now called out explicitly as the Standards for Mathematical Practice that educators across all grade levels are expected to attend to.

Despite these significant changes in the expectations for math instruction, teachers reported in the surveys that they are rising to the sizable task of learning about the standards and beginning to realign beliefs about themselves and their students accordingly.

Specifically, as shown in Figures 1 and 2, the percentage of teachers who agreed or strongly agreed with each of four positive statements, about their preparation to teach the CCSS–M and the influence of the CCSS–M on their teaching, has steadily increased over three years. Across all three years of our survey, teachers reported having adequate content knowledge to teach the CCSS–M, as well as the ability to support students to use the Standards for Mathematical Practice; over 90 percent of teachers agreed or strongly agreed with both statements over all three years of the survey. Teachers' 2016 responses were less positive about their preparation for teaching the CCSS–M and whether the CCSS–M would positively influence their instruction; the percentage of teachers agreeing to these two items in 2016 was about 10 percentage points lower than in 2018. Over the three years of the survey, teachers' perceptions of their own preparation and of the CCSS–M's influence on instruction grew more positive but remained less so than perceptions that they had adequate content knowledge and that their instruction supports students' use of the SMPs.

The commensurate improvement in teachers' perceptions of preparedness and impact of the CCSS–M on their instruction suggests to us that teachers are continuing

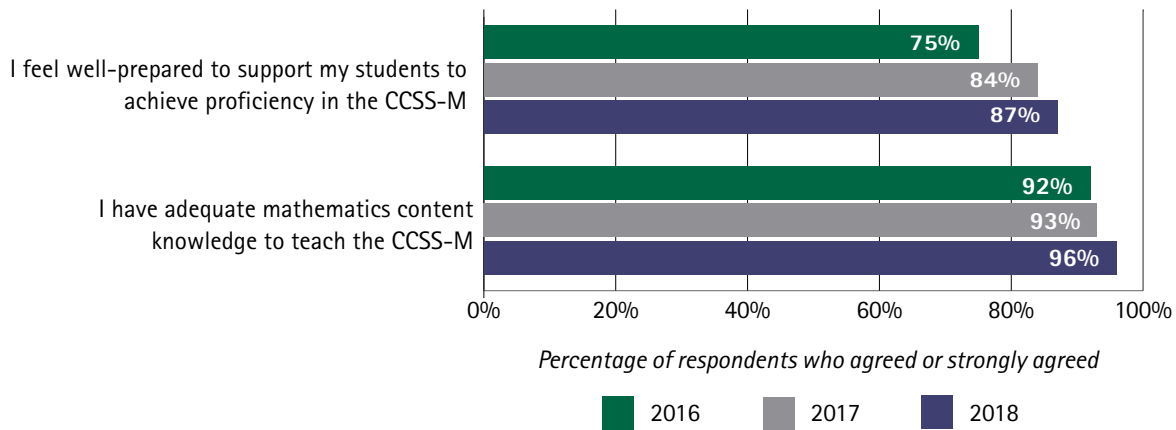
to learn and apply their learning about the CCSS–M in the classroom. We think district administrators should see in these increasingly positive findings a confirmation that they are on the right track with the supports they have offered teachers, and that with such strongly positive responses, teachers may be ready to take on new challenges with new aspects of standards-aligned implementation.

It is clear from these results that teachers in the MiC districts strongly believe they are ready and able to support students in math. However, the survey does not tell us the extent to which these beliefs translate into improvements in instruction and learning within classrooms – we hope to touch on this issue in our forthcoming evaluation cycle report examining trends from classroom observations across the network.

### Differences in results by teachers' years of experience

We examined our 2018 survey results more closely to understand how teachers' years of classroom experience may lead them to respond differently to some survey items. We grouped teachers into three experience levels: those with fewer than 5 years of teaching experience (21 percent of the sample), those with 6–10 years (10 percent), and those with more than 11 years of experience (70 percent). Although most of the teachers in our survey sample were more experienced, we found

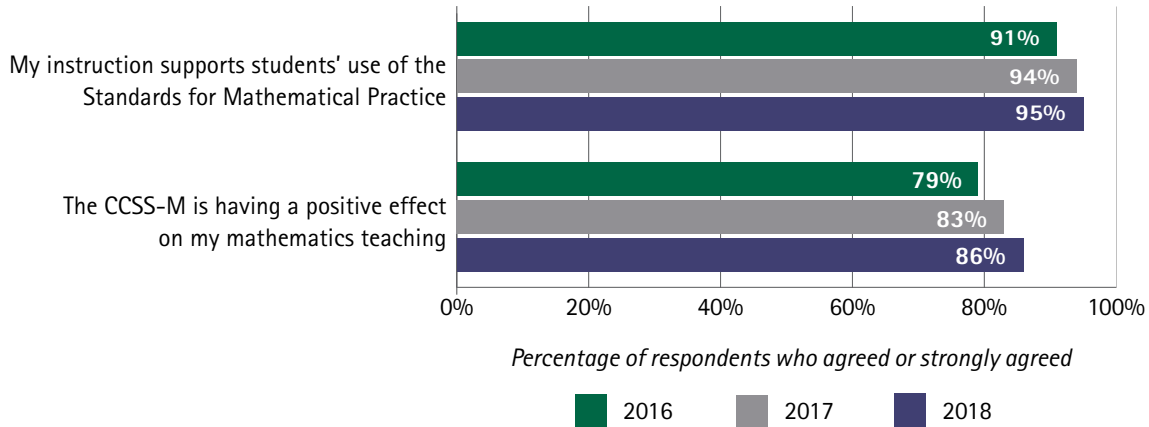
**Figure 1. Teachers' perceptions of their content knowledge and preparation for CCSS-M**



Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2016–2018).

Note: Teachers were asked, "To what extent do you disagree or agree with each of the following statements?"

**Figure 2. Teachers' perceptions of their instruction in relation to CCSS-M**



Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2016–2018).

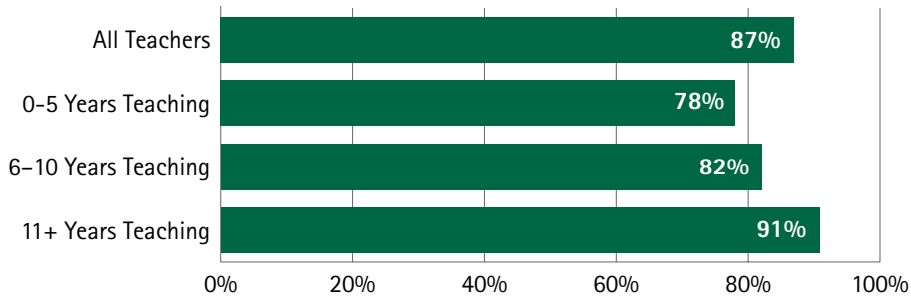
Note: Teachers were asked, "To what extent do you disagree or agree with each of the following statements?"

almost no differences between more and less experienced teachers on three of the statements shown in Figures 1 and 2: "I have adequate mathematics content knowledge to teach the CCSS-M," "The CCSS-M is having a positive effect on my mathematics teaching," and "My instruction supports students' use of the Standards for Mathematical Practice."

However, when we looked at agreement with the statement "I feel well-prepared to support my students to achieve proficiency in the CCSS-M" by teachers' experience level, we saw that feelings of preparation increased with years of teaching experience (see Figure 3 on page 6). Specifically, 78 percent of teachers with 0–5 years of experience agreed that they felt



**Figure 3. Teachers' perceptions of preparation to support students to achieve proficiency in the CCSS-M, by years of experience**

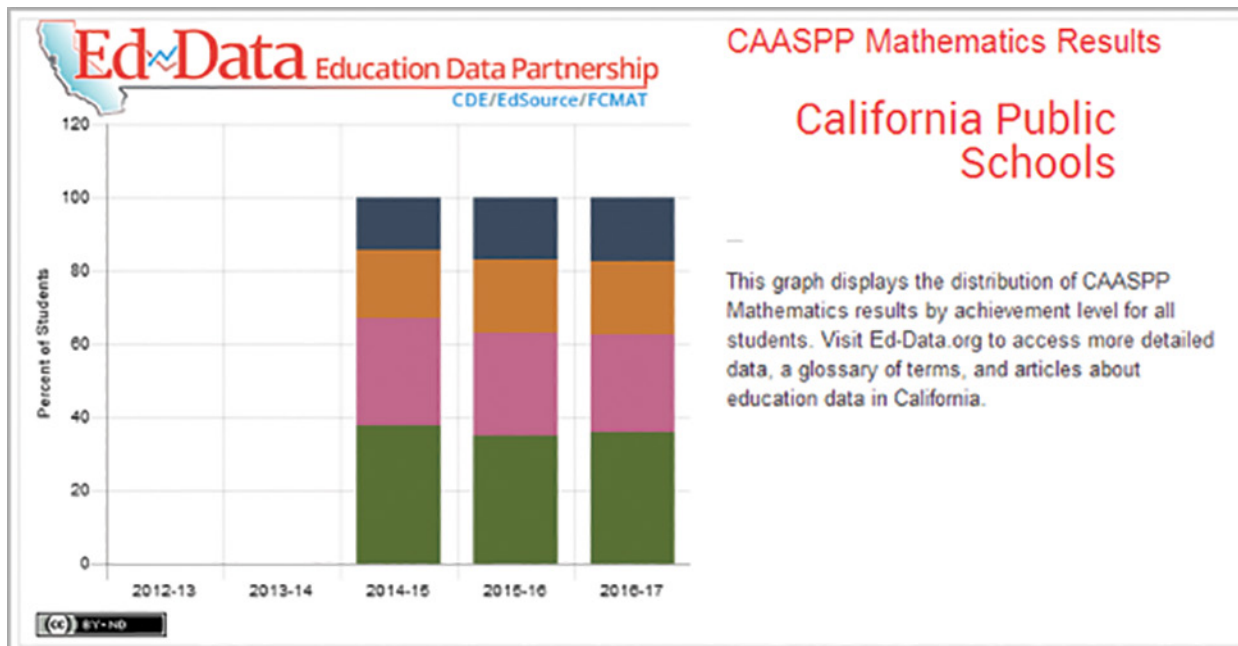


Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2018).

Note: Teachers were asked the extent to which they disagree or agree with the statement "I feel well-prepared to support my students to achieve proficiency in the CCSS-M."


Note: A chi square test showed statistically significant differences between experience groups at the  $p < 0.001$  level.

**Figure 4. California Public Schools, CAASPP Mathematics Results**



Source: California Department of Education (2017).

Note: Dark blue is "student exceeded level 4"; orange is "student met level 3"; pink is "student nearly met level 2"; and green is "student not met level 1."



well-prepared, compared to 91 percent of teachers with 11 or more years of experience. It may be that the more experienced teachers' prior expertise and comfort with math pedagogy, and with pedagogical approaches more broadly, bolster their positive sentiments about being able to support their students with the CCSS-M.

Teachers' growing confidence about the influence of the CCSS-M on their practice and on their feelings of preparation is a positive development, suggesting both that

districts' messaging about the CCSS-M may be reaching the teaching staff and that teachers are primed to continue learning and deepening their practice in a way that, over time, can lead to improvements in students' math outcomes. While CAASPP scores in mathematics remain relatively flat across the state (see Figure 4) and continue to fall short of expectations, the pattern of positive shifts in these survey responses is directionally important as an indicator of implementation progress.

## Administrators' Capacity to Lead CCSS-M Implementation

As described earlier, in order to shift the locus of teacher professional learning to school sites, MiC districts have had to support site administrators to prioritize and support instructional change in mathematics. In order to support principals to become instructional leaders at school sites, districts have made serious investments in principal professional learning in math. Some districts have invested in training principal supervisors as well, so that they are able to provide a more extended system of support for site administrators.

In Figure 5, we display three years of teachers' responses to a series of statements about their confidence in their administrators' ability to lead mathematics implementation at their sites.

The results show that teachers' feelings about their principals' leadership have remained relatively stable and positive over the three years of the survey: teachers generally reported a high regard for their principals' ability to lead CCSS-M implementation. Of the four statements about teachers' perceptions of their administrators, teachers believed most strongly that they share similar ideas with their administrators about what CCSS-M-aligned instruction should look like (across the last three years of the survey, about 80 percent of teachers agreed or strongly agreed with that statement).

Most MiC districts have invested carefully in helping principals get on the same page as teachers about ways to change the dynamics of classroom instruction in mathematics — the survey results presented in Figure 5 are confirmatory that districts are moving in the right direction with principals. Strategies that MiC districts have used to prepare their principals to share similar visions of CCSS-M instruction with teachers and to serve as instructional leaders at their sites have included:

- » Sending district math staff to regular principal meetings to make presentations about instructional shifts

- » Training and calibrating principals on classroom observation tools tied to important district instructional practices like student discourse
- » Having principals attend mathematics professional development alongside teachers
- » Having principals attend Math in Common Summer Principal Institutes alongside MiC leadership teams

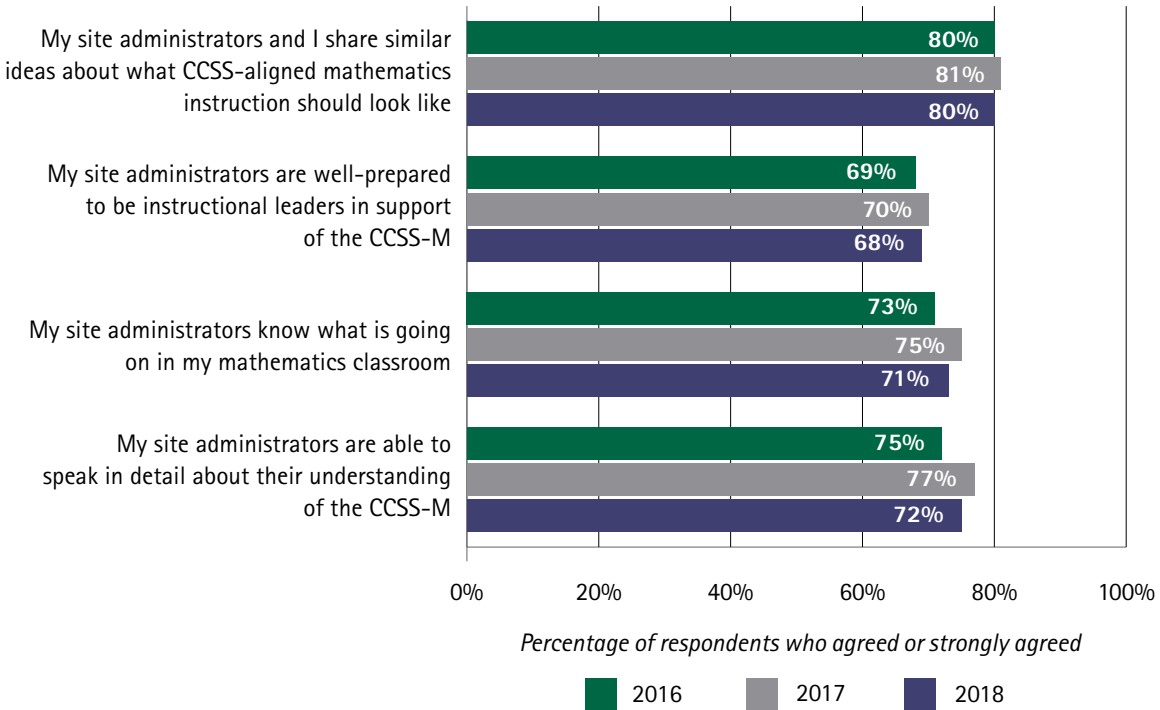
In our administrator survey (see Appendix B), we asked a range of questions about all aspects of their work as leaders, including confidence in their ability to support various aspects of mathematics instructional change. Figure 6 shows that unlike teachers' relatively stable opinions over time, principals' confidence in their own preparation for leadership has grown markedly over the three years of the survey. The largest gains (about 20 percentage points or more from 2016 to 2018) in principals' positive perceptions of their preparation for instructional leadership were for the following statements:

- » Allocating resources to support effective CCSS-M implementation (+19 percent)
- » Ensuring that instructional coaches can provide effective guidance on CCSS-M implementation (+19 percent)
- » Accessing practical "how-to" guidance to support the necessary changes in instruction (+20 percent)
- » Making high-quality professional development available to teachers (+19 percent)

These results suggest that principals are slightly more confident about the administrative and managerial aspects of their work to support teacher change in relation to CCSS-M (i.e., allocating resources, making professional learning available) than about their ability to serve as instructional leaders (i.e., providing effective instructional models, planning effective professional learning) supporting changes in the dynamics of classroom instruction.



**Figure 5. Teachers' perceptions of site administrators' capacity to lead CCSS-M**



Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2016–2018).

Note: Teachers were asked, "To what extent do you disagree or agree with each of the following statements?"

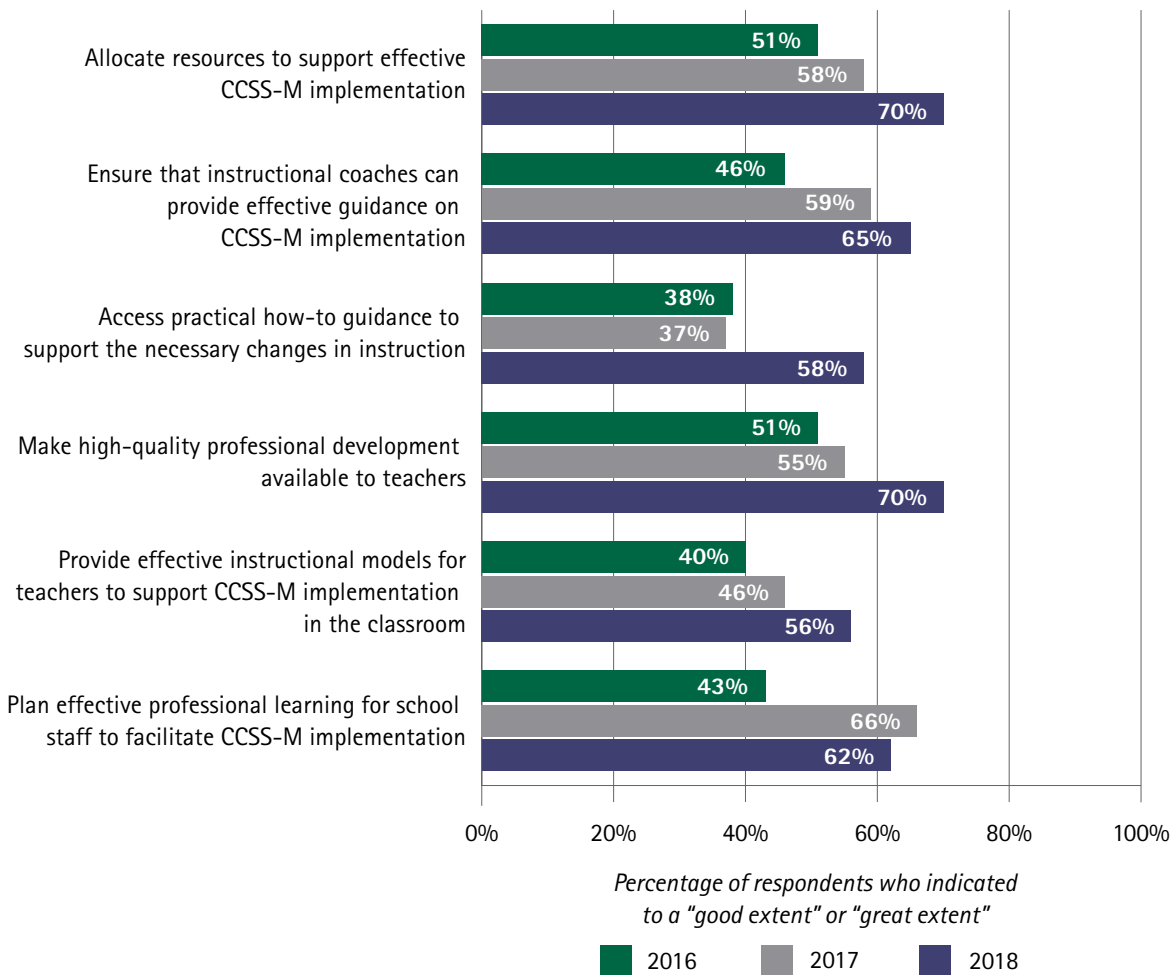
Based on our experience with the MiC districts and the supports they are making available to their staff, we hypothesized that we might see differences across the districts in how principals responded to the survey statements about instructional leadership. About 30 percent of the 2018 principal respondents are from two districts (Garden Grove and Long Beach), and these leaders tended to respond more positively about their feelings of preparation than those from other districts. We think this may be related to the long-running (pre-dating MiC) and robust systems of support these districts have

in place to align principals' leadership with the districts' math visions. Features of these two districts' systems that we have described in other evaluation cycle reports include:

- » District math staff have routine access to principals through monthly meetings or other structures.
- » Principals attend teacher professional development.
- » Principals receive support for regular teacher observation and feedback (Perry & Reade, 2018; Perry, Reade, Heredia, & Finkelstein, 2017).



**Figure 6. Site administrators' perception of preparation to support elements of CCSS-M implementation at their schools**



Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2016–2018).

Note: Site administrators were asked, "Please rate the extent to which you are prepared to support implementation of the CCSS-M at your school on each of the following factors."

# Professional Learning and the Dynamics of Classroom Instruction

In order to shift the dynamics of classroom instruction, districts can emphasize and provide support for their teachers in many different aspects of instruction. Our surveys asked teachers to indicate how well their professional learning has helped them succeed in various areas of classroom instruction, including differentiation, assessment, fostering a growth mindset, and mastering content knowledge themselves. As shown in Figure 7 on page 12, over time teachers increasingly reported that their professional learning activities supported various elements of their standards-aligned mathematics instruction. The data shown in Figure 7 show improvements over three years in teachers' reported feelings of support from professional learning. As an example, in 2018, 52 percent of respondents felt supported to use instructional practices that nurture students' understanding of the Standards for Mathematical Practice, an increase of 16 percentage points from the 2016 survey results. However, the finding that only about 50 percent of teachers in 2018 reported feeling support from their professional learning across all of the instructional elements shown in Figure 7 suggests that there may still be significant work for the districts to do in supporting teachers in their standards-aligned mathematics instruction.

Although our surveys inquired about a range of instructional elements, in our work with MiC district leaders and our observations of district activities over these past several years we have found that in order to shift the dynamics of classroom instruction, districts frequently choose a specific element of instruction to work on systematically. District foci related to the dynamics of classroom instruction include a number of practices touched on in the survey results shown in Figure 7, including formatively assessing students, engaging students with conceptual learning, fostering a growth mindset, and attending to instructional progressions. Rather than overwhelming their educators with too many ideas to think about at once, districts' systematic

treatment of instructional elements can go a long way toward supporting teachers to make incremental and hopefully more lasting instructional change.

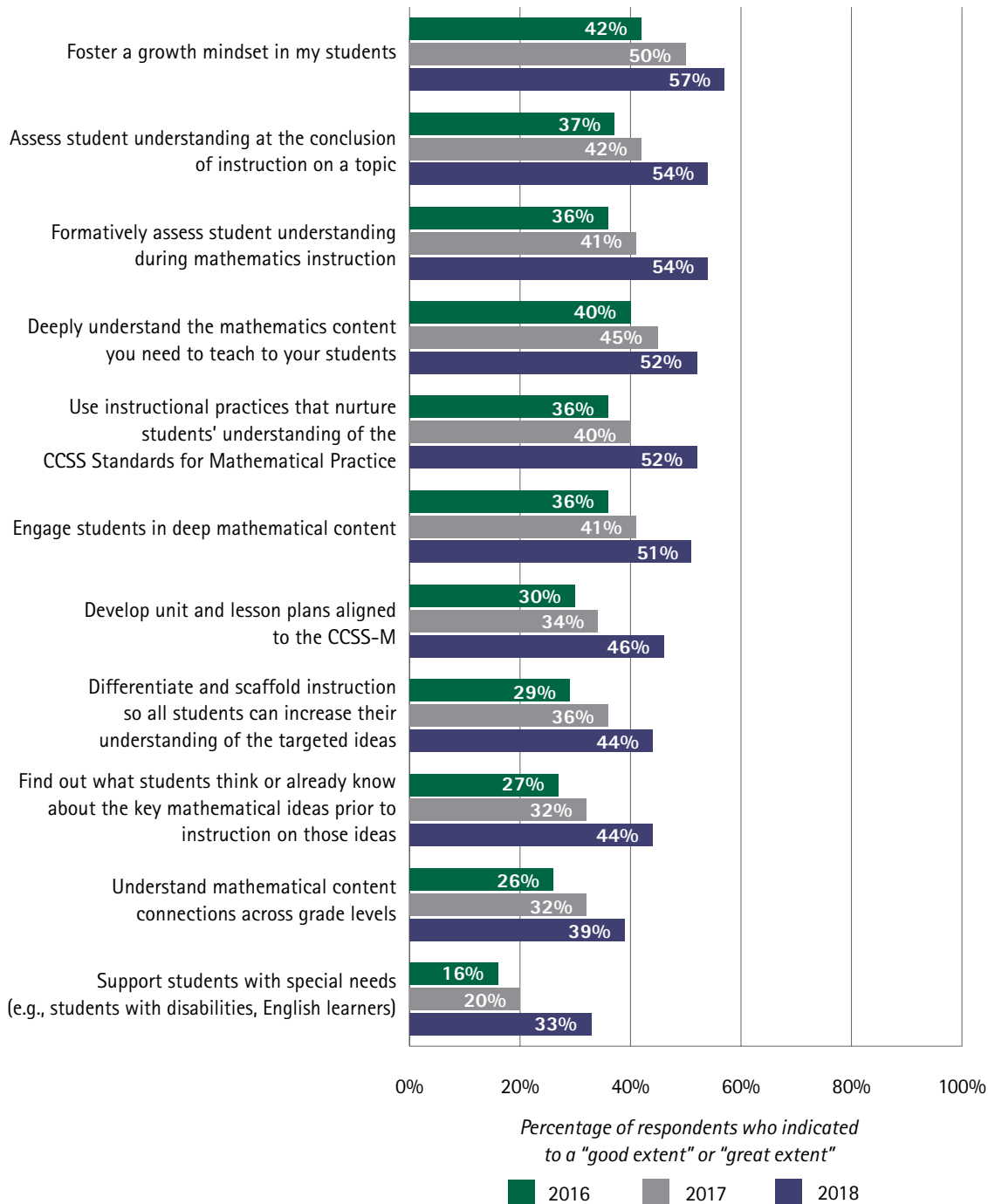
## Differences in results by teachers' years of experience

### Experienced and novice teachers' perceptions of how well professional learning supports their instruction

We described earlier that experienced teachers reported feeling more prepared to respond to the demands of the CCSS-M, which may be the result of pedagogical experience and pedagogical content knowledge developed over their careers (see Darling-Hammond, 2000). We wondered if experienced teachers diverged from more novice teachers in their perceptions of support, given the aggregated findings in Figure 7 that only about half of teachers in 2018 reported feeling supported by their professional learning to a good or great extent. Accordingly, we analyzed the survey results by years of experience to understand the specific needs of experienced versus more novice teachers, and the possible implications for districts organizing differentiated professional development for their staff.

We were particularly interested in three elements of instruction included in the series in Figure 7 that have occupied an important place in Math in Common: formative assessment, CCSS-M-aligned instructional practices, and the move away from procedural learning toward deeper conceptual learning. As we looked closer at teachers' responses on these topics, we found differences in the levels of support that experienced and novice teachers reported with regard to professional learning to make these instructional changes. Specifically, the

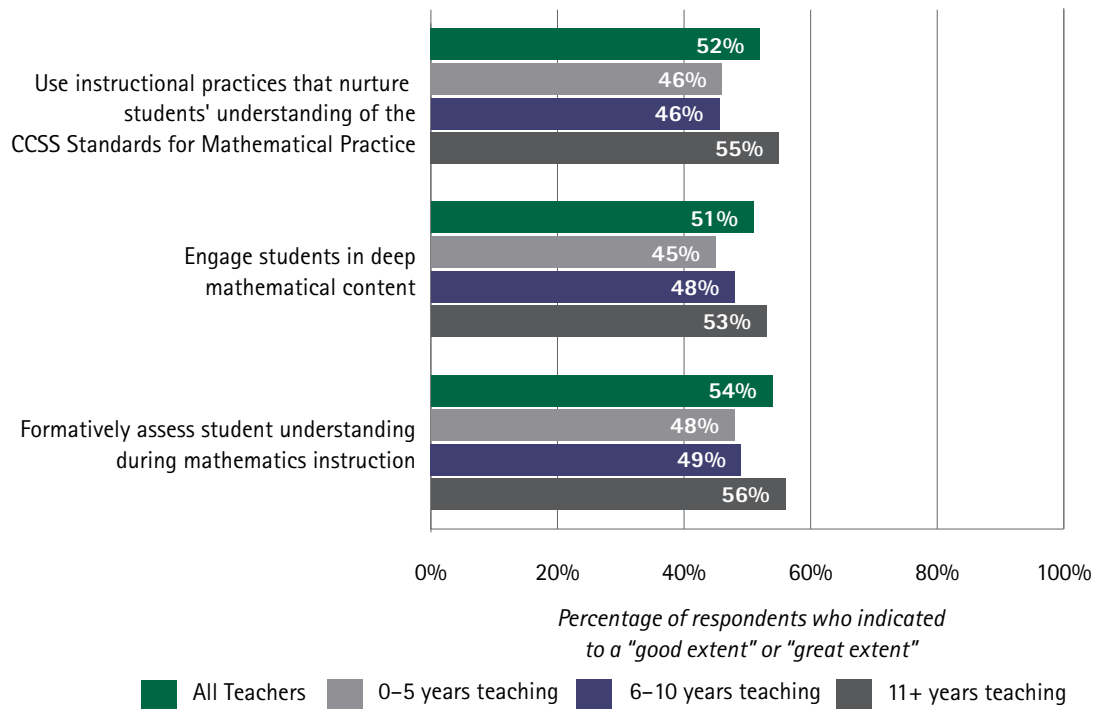
**Figure 7. Teachers' perceptions of support provided by professional learning activities for elements of instruction**



Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2016–2018).

Note: Teachers were asked, "To what extent have your professional learning activities during the past 12 months provided you with the support needed to...?"

**Figure 8. Teachers' perceptions of support provided by professional learning activities for elements of instruction, by years of experience**




Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2018).

Note: Teachers were asked, "To what extent have your professional learning activities during the past 12 months provided you with the support needed to...?"

Note: A chi square test showed statistically significant differences between experience groups at the  $p < 0.0t$  level for the first two statements in the figure.

most experienced teachers (those with 11 or more years' experience) appeared to feel more professional learning support regarding each of these three areas as compared to less experienced teachers. For example, 53 percent of experienced teachers felt that their professional learning activities provided the support needed to engage students in deep mathematical content, as compared to 45 percent of teachers with fewer than 5 years' experience (see Figure 8). And 55 percent of experienced teachers reported their professional learning prepared them to a good or great extent to use instructional practices that nurture students' understanding of the Standards for Mathematical Practice, as compared to 46 percent of less experienced teachers.

We see a number of possible explanations for these findings. They may suggest that experienced teachers are better equipped to act on ideas provided in their professional learning experiences and thus may feel more support. It may also be that these teachers are actually experiencing different kinds of learning supports – because they may either be "opting out" of professional learning or may not be invited to professional learning that is geared toward newer teachers – that have differential impacts on teachers' opportunities to learn and deepen their practice. Other interpretations are possible as well, including that some of these ideas have only recently been introduced to teachers who then see them as new and beneficial learning.



## Embedded and peer-to-peer professional learning for teachers with different experience levels

In order to focus on the dynamics of classroom instruction, many MiC districts offer professional development opportunities that are offered at teachers' school sites (some districts already had such structures in place before MiC, others have moved toward them partially as a result of their work in MiC). These include programs such as lesson study that supports teachers to observe their peers' classes and offer feedback on instructional improvement, and professional learning communities (PLCs) that give teachers a structure through which to work and learn together at their sites.

To investigate site-based professional development more carefully, we examined the results of the most recent (2018) survey where we asked teachers to report on 11 types of professional learning activities and their benefit for implementing the CCSS-M. On the majority of these survey items, we saw no differences between teachers with more and fewer years of experience. The items about professional learning activities where there were no apparent differences included:

- » Meeting with other teachers to discuss standards, instruction, and/or student learning
- » Working with other teachers to develop materials and/or activities for particular classes
- » Participating in coaching/mentoring other teachers
- » Reviewing student assessment data with other teachers to make instructional decisions
- » Observing classroom lesson(s) on video and reflecting with colleagues afterwards
- » Observing live classroom lesson(s) and reflecting with colleagues afterwards
- » Using online professional development resources (e.g., webinars, trainings, sample lesson plans) offered by or through the district

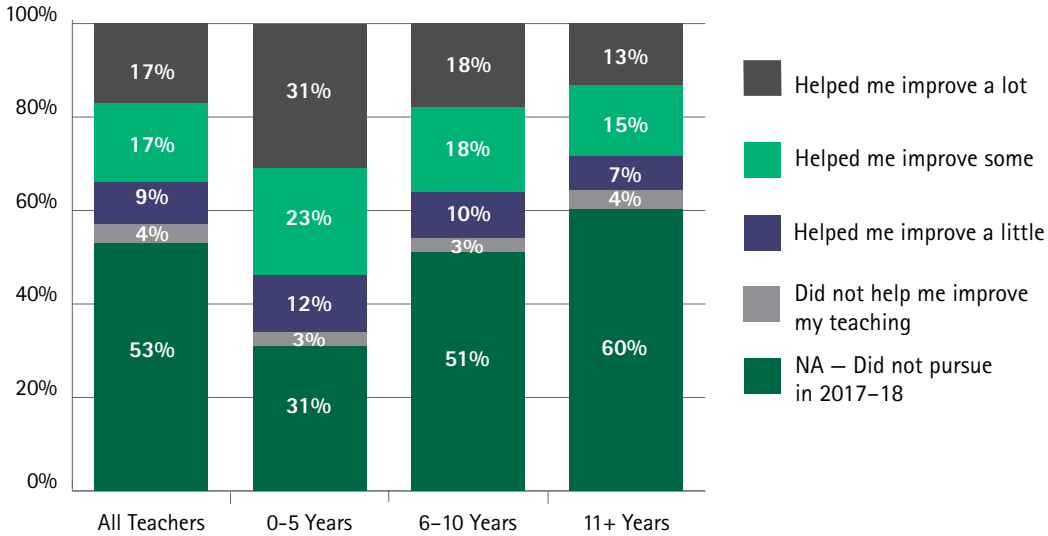
However, survey results showed that experienced teachers and less experienced teachers diverged in

their reporting on several other items (as shown in Figures 9–12), related to participation in one-on-one coaching or mentoring; observing another teacher's classroom; being observed and receiving feedback from other teachers; and participating in professional learning communities (PLCs) or other discussion groups.

On each of these four items, a higher percentage of experienced teachers (those with 11 or more years of experience) reported not pursuing the respective embedded professional development compared to their less experienced colleagues. For example, about half of the experienced teachers reported not pursuing professional learning related to observing other teachers' classrooms (49 percent) or having other teachers observe and provide feedback on their instruction (57 percent), and 60 percent of experienced teachers reported not pursuing professional learning that involved receiving one-on-one coaching or mentoring. It is unclear from these data whether experienced teachers are not pursuing these types of professional learning experiences with colleagues because they are opting out, or because their participation is considered "less necessary" because of their greater experience level.

There was also variation in the extent to which teachers at different experience levels reported that these professional learning experiences helped them improve their instruction. For example, when asked whether "observing another teacher's classroom to get ideas for my own instruction or to offer feedback" (Figure 10) lead to improvement, 48 percent of novice teachers (those with 0–5 years of experience) reported that this helped them improve "some" or "a lot" compared to 38 percent of teachers with 11 or more years of experience. Similarly, when asked whether receiving feedback from peer observers led to improvement, the newest teachers responded more positively again – 49 percent said it helped them improve "some" or "a lot," compared to 30 percent of the most experienced teachers (Figure 11).

**Figure 9. Teachers' perceptions of receiving one-on-one coaching or mentoring, by years of experience**

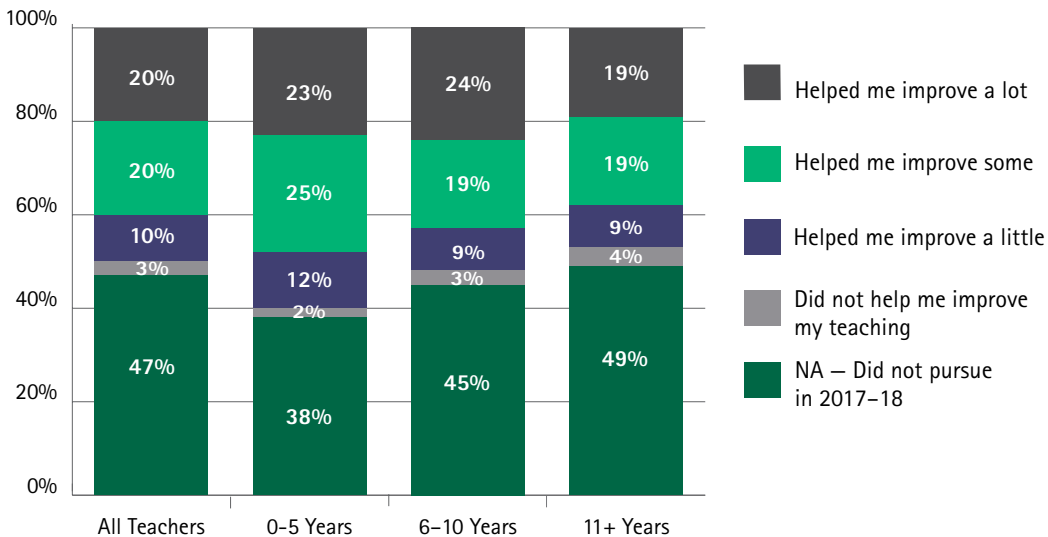


Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2018).

Note: Teachers were asked, "How helpful were the following types of professional learning activities for your growth as a teacher of Common Core mathematics this school year (2017-18)?" [Receiving one-on-one coaching or mentoring]

Note: A chi square test showed statistically significant differences between experience groups at the  $p < 0.001$  level.

**Figure 10. Teachers' perceptions of observing another teacher's classroom, by years of experience**



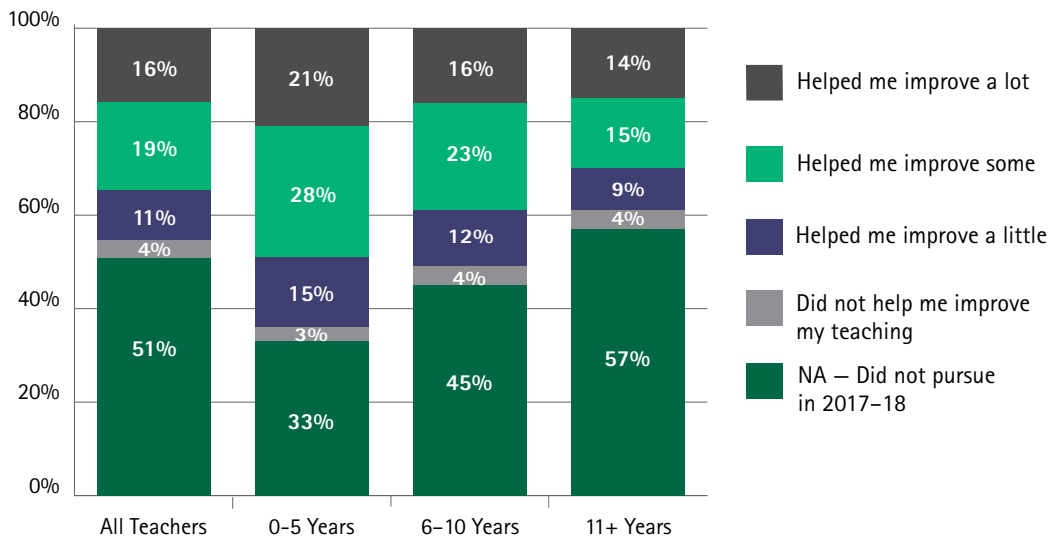
Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2018).

Note: Teachers were asked, "How helpful were the following types of professional learning activities for your growth as a teacher of Common Core mathematics this school year (2017-18)?" [Observing another teacher's classroom to get ideas for my own instruction or to offer feedback]

Note: A chi square test showed statistically significant differences between experience groups at the  $p < 0.05$  level.



**Figure 11. Teachers' perceptions of receiving classroom observation and feedback from other teachers, by years of experience**

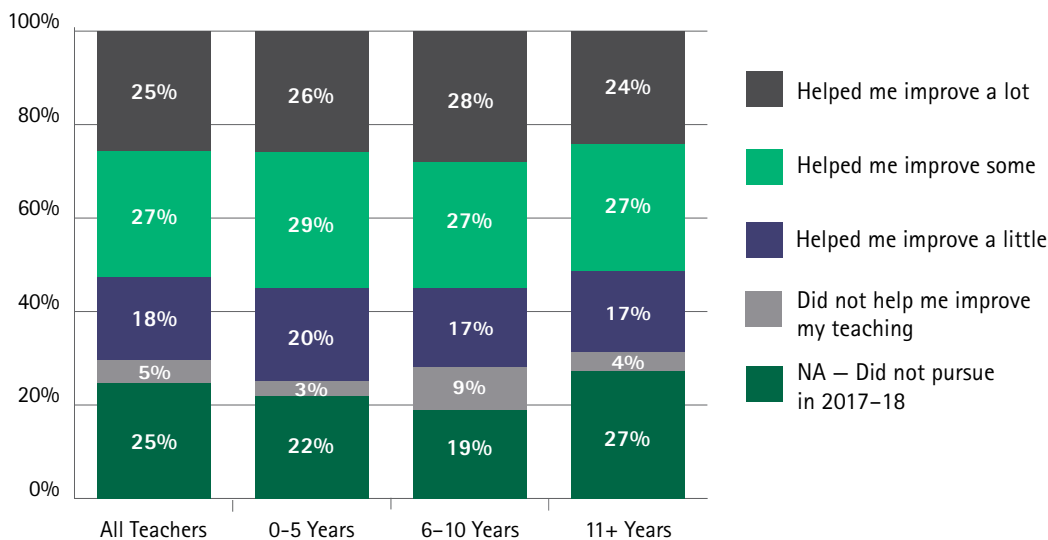


Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2018).

Note: Teachers were asked, "How helpful were the following types of professional learning activities for your growth as a teacher of Common Core mathematics this school year (2017–18)?" [Receiving classroom observation and feedback from other teachers]

Note: A chi square test showed statistically significant differences between experience groups at the  $p < 0.001$  level.

**Figure 12. Teachers' perceptions of participating in professional learning communities (PLCs) or other discussion groups, by years of experience**



Source: WestEd's annual survey of teachers and administrators in the 10 Math in Common districts (2018).

Note: Teachers were asked, "How helpful were the following types of professional learning activities for your growth as a teacher of Common Core mathematics this school year (2017–18)?" [participating in professional learning communities (PLCs) or other discussion groups]

Note: A chi square test showed statistically significant differences between experience groups at the  $p < 0.05$  level.



Pursuing and finding improvement from professional learning communities (PLCs) was an area of professional development where less and more experienced teachers reported improvement at similar rates (Figure 12). About half of each experience group reported that PLCs led to “some” or “a lot” of improvement in their teaching, although the most experienced teachers were still least likely to pursue this form of professional learning.

### Implications for professional learning communities

Districts should consider these experience group differences in light of the earlier results we presented on confidence in implementing the state mathematics standards (see Figure 3). The majority of teachers report feeling adequately prepared to teach CCSS-M and that the new standards were having a positive effect on their teaching. As districts increasingly devote attention to the dynamics of classroom instruction, site-based PLC structures can be one of the places where teachers of different experience levels can collaborate as peers to consider improvements to their instruction. We wonder if more could be done within PLC structures to build on the existing enthusiasm and to enable more and less experienced teachers to work together to share

knowledge about CCSS-M implementation efforts, deepen their practice, and take on new challenges.

In District A and Elk Grove, two of the MiC districts that have invested in building PLCs for instructional improvement in math, teachers reported that PLCs contributed to the growth of their teaching practice at much higher rates than the MiC average. In District A, 68 percent of respondents said PLCs led to “some” or “a lot” of improvement in their teaching, and in Elk Grove, 73 percent said the same, compared to 52 percent of all MiC teachers.

Features of the PLCs in District A and Elk Grove include:

- » Grade-level PLCs led or supported by coaches, focused on lesson planning and observation
- » Release days for PLCs
- » Focus on instructional strategies like Number Talks
- » Thoughtful partnership with an outside provider, Solution Tree, to shape and monitor PLCs

In both of these districts, district staff have devoted time and attention to building PLCs into structures that have a clear and coherent purpose for teachers — improving mathematics instruction across a site.



## Conclusion

The results of the 2018 survey should be heartening for the teachers, administrators, and district leaders who have been doing the hard work of implementing the CCSS-M over the last several years. We see bright indications that districts are on the right path and that educators are growing in their confidence and capacity to bring CCSS-M-aligned learning to students.

With CAASPP (California Assessment of Student Performance and Progress) scores flat across the state, there is still significant work to be done before investments in teacher learning are visible in student results. No one expected the instructional shifts of the CCSS-M would happen overnight; rather, incremental positive progress of the kind shown in the MiC survey results is exactly what we would hope to be seeing.

At the same time, a closer look at our survey results reveals an area that we hope district leaders will examine more closely — the mismatches between the ways novice and veteran teachers are attending and experiencing professional learning, especially site-based structures like peer observations and PLCs. We encourage districts to first gather more systematic data to understand invitation and participation patterns for these groups, and to consider organizing professional learning that leverages the knowledge (e.g., of formative assessment, as discussed earlier) of more experienced teachers to support the professional learning of their less experienced colleagues.

Our results show that veteran teachers were less likely to have engaged in any classroom observation activity at all, and those who did found it less valuable than their peers who are newer to teaching. Because peer

observation and feedback can be a powerful venue for improvement, districts may want to ask experienced teachers what sort of peer feedback is helpful, and from whom. More closely tailoring peer observation cycles to teachers' needs could help experienced teachers benefit more from this professional development opportunity. These teachers may feel that they already have the mathematics pedagogical content knowledge, but they may still benefit from observation that allows them to unpack new pedagogical ideas or learn relevant mathematics content more deeply. These teachers may also benefit from support that allows them to think critically about the sources they draw on as they make instructional choices — are they relying primarily on their own experience and would they benefit from looking to CCSS-M experts and other rich sources of guidance?

Additionally, because more experienced teachers reported feeling better prepared to use CCSS-M-aligned practices as discussed above and appear to be finding their professional learning more useful to their teaching practice, they may have valuable thoughts and suggestions to offer their newer colleagues, which districts should consider leveraging through observation and feedback.

We hope district and site administrators will take the growth in teacher confidence and enthusiasm for teaching the CCSS-M as an indication that now is a great time to go deeper with teacher professional learning, offer new challenges, support learning new instructional practices and routines, think more about supporting diverse learners, and continue building teachers' math content knowledge.

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# Appendix A. Research Methodology and Survey Sample

## Research methodology

As with prior surveys, a goal of the 2018 surveys was to capture both unique and shared perspectives on implementation from stakeholders in different job roles. We were interested in teachers' thoughts about supports they were offered for instruction (e.g., how useful do teachers find PLCs) and principals' thoughts about supports they were offered for instructional leadership (e.g., how well they had been prepared to understand the standards). We were also interested in the coherence of ideas across groups, such as whether principals and teachers agree on which instructional practices are most important to support CCSS-M. To get at these ideas of coherence, as in previous years, we included verbatim or parallel questions across the two groups being surveyed, to the extent possible.

## Survey items

To develop the 2018 surveys, we reviewed the 2017 survey drafts and conducted a review of the most recent survey-based literature on Common Core implementation. Recent results from RAND's American Teacher Panel (Opfer, Kaufman, & Thompson, 2016) offered an opportunity to compare responses from teachers in MiC districts to a national sample; we added several questions from RAND's survey to this year's MiC surveys (although we did not ultimately report those results herein). Additionally, to reduce respondent burden and overall survey length, we carefully examined the results of prior surveys to identify items that could be removed from the 2018 administration without negatively influencing our understanding of CCSS-M implementation over time.

The overall length of both surveys was reduced in 2018. Teachers were asked 22 questions (totaling 81 items, with sub-items and including all possible skip patterns and open-ended questions); site administrators were asked 18 questions (totaling 67 items, again with sub-items

and including all possible skip patterns and open-ended questions).

The surveys emphasized the same topics as in prior years (i.e., professional learning opportunities, curriculum and instruction, preparedness to enact and implement the CCSS-M, and respondent background), with the addition of items from the RAND teacher panel that asked about specific types of professional development (such as observing other teachers' lessons on video). We adapted several RAND teacher panel items for administrators to understand response patterns on these items for teachers and administrators from the same districts. The surveys included Likert-scale items asking respondents to rate the extent to which they agreed or disagreed with statements about CCSS-M; forced-choice items (e.g., on instructional materials use); and an open-response item asking respondents who have been teaching longer than five years to describe how the CCSS-M has changed their teaching this year.

## Survey administration

Surveys were administered in all 10 MiC districts. Over the three-week administration period, non-respondents were sent three follow-up email reminders requesting their participation. Each respondent was eligible to receive a \$10 Amazon gift card as a token of appreciation for their participation. Response rates varied significantly by group and district, ranging from 10 to 24 percent across the districts for teachers and 5 to 42 percent for principals.

## Respondent sample

In 2018, we received responses from 1,661 teachers and 161 site administrators across the 10 districts. The majority of our sample were elementary teachers (83%) and administrators (66%), as shown in Table A2.

**Table A1. Survey sample size, 2016–2018**

ROLE	NUMBER OF RESPONSES IN 2016	NUMBER OF RESPONSES IN 2017	NUMBER OF RESPONSES IN 2018
Teachers	1,860	2,148	1,661
Site administrators	156	119	161

**Table A2. Characteristics of the Math in Common 2018 survey respondents**

SCHOOL LEVEL	TEACHERS	ADMINISTRATORS
Elementary	83%	66%
Middle	13%	26%
Multi-grade (e.g., K–8 or K–12)	4%	8%

## Appendix B. Results from the 2018 Math in Common Teacher Survey

1. I consent to participate in this survey.

Yes [N=1661]

No [N=0]

### Background

2. In which school district are you currently employed? [N=1661]

Dinuba – 2%

Oceanside – 7%

Elk Grove – 21%

Sacramento City – 10%

Garden Grove – 7%

San Francisco – 19%

Long Beach – 13%

Sanger – 4%

Oakland – 11%

Santa Ana – 7%

3. Select the type of school in which you teach: [N=1639]

Elementary (K–5/K–6): 83%

Multi-grade (e.g., K–8/K–12): 4%

Middle (6–8/7–8): 13%

4. What grade levels do you teach? (Check all that apply.) [N=1661]

TK: 2%

4th: 17%

K: 16%

5th: 15%

1st: 16%

6th: 12%

2nd: 19%

7th: 9%

3rd: 19%

8th: 8%

5. Are you currently teaching mathematics to students in any of grades K–8? [N=1661]

Yes 100%

No [N=0]

**6. Which best describes your *main* teaching assignment? [N=1616]**

Do not have a teaching assignment (i.e., full-time mathematics specialist or instructional coach): 1%

Teach multiple subjects in a self-contained class: 87%

Teach a single subject(s) to different classes (i.e., specialist teacher): 12% (*Answer question number 6.1.*)

**6.1 Mark below your primary subject area(s) assignment this year. (*Check all that apply.*) [N=1616]**

Mathematics: 11%

Special Education: 1%

English as a Second Language: 0%

Other (please specify): 1%

Science: 2%

**7. How long have you...**

PLACEMENT	0 (THIS IS MY FIRST YEAR)	1-2 YEARS	3-5 YEARS	6-10 YEARS	11-15 YEARS	16-20 YEARS	OVER 20 YEARS
a. ...been teaching? [N=1647]	5%	5%	11%	10%	12%	21%	37%
b. ...taught in this district? [N=1611]	8%	8%	13%	8%	13%	22%	28%
c. ...taught at this school? [N=1596]	13%	12%	20%	14%	13%	13%	15%
d. ...taught at your current grade level? [N=1620]	10%	13%	23%	20%	14%	11%	8%

## Professional Learning Opportunities

8. How helpful were the following types of professional learning activities for your growth as a teacher of Common Core mathematics this school year (2017–18)?

TYPE OF PROFESSIONAL LEARNING ACTIVITY	NA-DID NOT PURSUE IN 2017-18	DID NOT HELP ME IMPROVE MY TEACHING	HELPED ME IMPROVE A LITTLE	HELPED ME IMPROVE SOME	HELPED ME IMPROVE A LOT
a. Meeting with other teachers to discuss standards, instruction, and/or student learning [N=1615]	4%	3%	16%	36%	41%
b. Working with other teachers to develop materials and/or activities for particular classes [N=1614]	13%	2%	14%	31%	40%
c. Receiving one-on-one coaching or mentoring [N=1594]	53%	4%	9%	17%	17%
d. Participating in coaching/mentoring other teachers [N=1611]	58%	3%	10%	18%	12%
e. Reviewing student assessment data with other teachers to make instructional decisions [N=1605]	12%	5%	18%	34%	31%
f. Observing another teacher's classroom to get ideas for my own instruction or to offer feedback [N=1607]	47%	3%	10%	20%	20%
g. Receiving classroom observation and feedback from other teachers [N=1610]	51%	4%	11%	19%	16%
h. Observing classroom lesson(s) on video and reflecting with colleagues afterwards [N=1611]	56%	5%	13%	17%	10%
i. Observing live classroom lesson(s) and reflecting with colleagues afterwards [N=1601]	55%	3%	10%	15%	17%
j. Participating in professional learning communities (PLCs) or other discussion groups [N=1614]	26%	5%	18%	27%	25%
k. Using online professional development resources (e.g., webinars, trainings, sample lesson plans) offered by or through my district [N=1614]	42%	6%	17%	22%	13%



9. Thinking about all of your mathematics-related professional learning during the past 12 months, to what extent does each of the following describe your experiences?

PROFESSIONAL LEARNING OPPORTUNITY	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
a. You had opportunities to examine classroom artifacts (for example, student work samples) [N=1598]	9%	17%	25%	30%	19%
b. You worked closely with other mathematics teachers [N=1593]	11%	20%	25%	26%	19%
c. You had opportunities to do math tasks [N=1599]	9%	17%	25%	30%	19%

10. To what extent do you disagree or agree with each of the following statements?

STATEMENT	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Our schoolwide mathematics-related professional learning activities are differentiated to address the various learning needs of our teachers [N=1589]	11%	29%	49%	11%
b. Our schoolwide mathematics-related professional learning activities are delivered using the expertise of our teachers [N=1589]	9%	22%	54%	15%



11. To what extent have your *professional learning activities* during the past 12 months provided you with the support needed to...

ACTION TAKEN	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
a. ...engage students in deep mathematical content [N=1536]	6%	16%	27%	35%	16%
b. ...use instructional practices that nurture students' understanding of the CCSS Standards for Mathematical Practice [N=1533]	6%	15%	27%	36%	16%
c. ...find out what students think or already know about the key mathematical ideas prior to instruction on those ideas [N=1545]	8%	19%	30%	32%	12%
d. ...formatively assess student understanding during mathematics instruction [N=1539]	6%	13%	27%	37%	17%
e. ...assess student understanding at the conclusion of instruction on a topic [N=1537]	6%	14%	26%	36%	18%
f. ...develop unit and lesson plans aligned to the CCSS-M [N=1529]	13%	16%	25%	30%	16%
g. ...differentiate and scaffold instruction so all students can increase their understanding of the targeted ideas [N=1536]	8%	19%	29%	30%	14%
h. ...deeply understand the mathematics content you need to teach to your students [N=1537]	8%	14%	25%	32%	20%
i. ...foster a growth mindset (i.e., the belief that our most basic abilities can be developed through dedication and hard work) in my students [N=1540]	7%	13%	24%	34%	23%
j. ...understand mathematical content connections across grade levels [N=1539]	11%	21%	29%	27%	12%
k. ...support students with special needs (e.g., students with disabilities, English learners) [N=1540]	13%	25%	28%	23%	11%

12. At your school is there a dedicated block of time for professional learning communities (PLCs)? A professional learning community, or PLC, is a group of educators that meets regularly, shares expertise, and works collaboratively to improve teaching and the academic performance of students. Your district may call PLCs by a different name. [N=1536]

Yes: 78% (Go to question number 13.)

No: 22% (Go to question number 14.)

13. Regarding CCSS-M implementation, *how engaged is your professional learning community* in each of the following activities during this school year?

ACTIVITY	NOT YET BEGUN TO ADDRESS THIS ISSUE	TALKING - NO SIGNIFICANT ACTION TAKEN	BEGUN IMPLEMENTATION - INITIAL	BEYOND INITIAL IMPLEMENTATION WITH SUPPORT & ENTHUSIASM GROWING	DEEPLY EMBEDDED IN OUR CULTURE (MOST STAFF COMMITTED)
a. Building collective knowledge regarding the CCSS-M to clarify what all students must know and be able to do at the end of each unit of instruction [N=1181]	7%	14%	24%	35%	21%
b. Working together to identify the most powerful teaching strategies and best practices that ensure student learning of the CCSS-M (e.g., deeper content, Standards for Mathematical Practice) [N=1182]	7%	12%	24%	35%	22%
c. Analyzing data from common assessments and student work to support teachers' instructional decisions [N=1181]	7%	13%	24%	33%	23%
d. Using a continuous improvement model (such as "Plan, Do, Study, Act [PDSA]") to act on student data and increase teacher/team effectiveness [N=1180]	18%	17%	24%	26%	15%

14. We are particularly interested in the amount of support teachers in your school had for collaborating with other teachers to implement the Common Core State Standards in mathematics *during this school year (2017–18)*. Collaboration includes all structured or planned activities when teachers meet with each other to discuss curriculum, assessments, students, and/or any other aspect of their jobs. This school year, how often did your school provide the following supports for encouraging collaboration with other teachers?

TYPE OF SUPPORT	NEVER	RARELY (APPROX. 1X PER MONTH OR LESS)	OCCASIONALLY (APPROX. 2–3X PER MONTH)	OFTEN (APPROX. 1–2X PER WEEK)	DAILY OR ALMOST DAILY (APPROX. 3–5X PER WEEK)
a. Common planning time [N=1503]	8%	23%	30%	35%	4%
b. Paid time for collaboration among teachers outside of the school day [N=1508]	44%	36%	11%	8%	1%
c. Resources and materials provided to teachers for collaboration [N=1492]	27%	35%	21%	12%	4%
d. Expertise available to teachers for collaboration (e.g., instructional coaches or other staff support) [N=1514]	20%	37%	22%	17%	5%
e. Administrative support provided to teachers for collaboration [N=1511]	19%	34%	25%	16%	6%

15. How often do you typically use the following instructional practices to teach the Common Core State Standards during your mathematics lessons?

INSTRUCTIONAL PRACTICE	NEVER	RARELY (E.G., A FEW TIMES A YEAR)	SOMETIMES (E.G., ONCE OR TWICE A MONTH)	OFTEN (E.G., ONCE OR TWICE A WEEK)	ALL OR ALMOST ALL MATHEMATICS LESSONS
a. Having students consider multiple representations in solving a problem (e.g., numbers, tables, graphs, pictures) [N=1504]	1%	2%	9%	38%	51%
b. Having students explain and justify their method for solving a problem [N=1504]	1%	1%	7%	33%	58%
c. Using rigorous problems to prompt students' engagement and thinking about the math content of a lesson [N=1501]	1%	2%	15%	45%	37%
d. Encouraging students to build on and explain each other's ideas [N=1501]	1%	4%	19%	38%	38%
e. Having students present their solution strategies to the rest of the class [N=1494]	1%	5%	19%	38%	38%
f. Summarizing mathematics lessons by referencing student work and student discussions [N=1503]	2%	8%	23%	42%	25%
g. Helping students use math language appropriately when communicating about math [N=1499]	1%	1%	8%	31%	59%

To what extent do you disagree or agree with each of the following?

16. I have spent more time this year than in prior years collaborating with teachers on...

ACTIVITY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. ...selecting content, topics, and skills to be taught [N=1435]	13%	33%	40%	14%
b. ...selecting instructional materials [N=1432]	13%	35%	38%	14%
c. ...selecting teaching techniques [N=1429]	11%	28%	45%	16%
d. ...selecting assessment techniques to inform my instruction [N=1431]	11%	29%	44%	16%
e. ...my own professional growth and development [N=1433]	12%	29%	43%	16%

17. To what extent do you disagree or agree with each of the following statements?

STATEMENT	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. My site administrators are able to speak in detail about their understanding of the CCSS-M [N=1484]	8%	19%	53%	19%
b. My site administrators know what is going on in my mathematics classroom [N=1486]	8%	21%	54%	17%
c. My site administrators are well-prepared to be instructional leaders in support of the CCSS-M [N=1475]	9%	23%	51%	17%
d. My site administrators and I share similar ideas about what CCSS-aligned mathematics instruction should look like [N=1472]	6%	14%	61%	19%
e. My site administrators promote leadership development for CCSS-M implementation among teachers at our school [N=1476]	7%	20%	53%	19%
f. My site administrators encourage teachers and staff at our school to try new practices in their classrooms [N=1481]	4%	8%	55%	33%
g. My site administrators give teachers at our school responsibility and resources for shaping the instructional practices of their colleagues [N=1479]	6%	19%	53%	22%
h. My site administrators encourage expert teachers at our school to mentor their colleagues [N=1477]	7%	21%	52%	20%
i. My site administrators give the expert teachers at our school time and resources to mentor their colleagues [N=1474]	13%	34%	41%	12%

18. How often in this school year have your site administrators given you specific ideas for how to improve your instruction of Common Core mathematics? [N=1485]

Never: 28%

6–9 times: 7%

1–2 times: 40%

10 or more times: 3%

3–5 times: 22%

## Curriculum, Instruction, and Teacher Decision-Making

19. To what extent do you disagree or agree with each of the following statements?

STATEMENT	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. I have a solid understanding of the scope and sequence for my school's mathematics curriculum at my grade level [N=1485]	0%	8%	52%	39%
b. I have a solid understanding of the scope and sequence for my school's mathematics curriculum across grade levels [N=1486]	4%	36%	48%	12%
c. My school provides me with the resources I need to align my instruction with the CCSS-M [N=1479]	4%	15%	60%	21%
d. Teachers at my school are trained to provide students with disabilities access to the CCSS-M [N=1479]	10%	35%	47%	8%
e. Teachers at my school are trained to provide English learners access to the CCSS-M [N=1482]	5%	23%	56%	15%

20. To what extent do you disagree or agree with each of the following statements?

STATEMENT	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. I feel well-prepared to support my students to achieve proficiency in the CCSS-M [N=1479]	1%	11%	60%	27%
b. I have adequate mathematics content knowledge to teach the CCSS-M [N=1480]	0%	3%	55%	41%
c. The CCSS-M is having a positive effect on my mathematics teaching [N=1468]	2%	12%	56%	30%
d. My instruction supports students' use of the Standards for Mathematical Practice [N=1474]	0%	4%	63%	32%



**21. To effectively implement the CCSS in mathematics, I need support mostly in: (Check all that apply.)**

**[N=1661]**

Gaining a firm understanding of the CCSS-M content standards: 12%

Gaining a firm understanding of the Standards for Mathematical Practice outlined in the CCSS-M: 14%

Gaining a firm understanding of how students' thinking of mathematics develops over time/grade level: 33%

Aligning curriculum to the CCSS-M standards (both content and practice standards): 19%

Meeting the needs of all students: 54%

Access to quality textbooks and instructional materials to teach the CCSS-M standards: 29%

Allotting time to discuss and plan lessons with my colleagues: 48%

Creating lesson plans that embody the CCSS-M content standards: 18%

Creating lesson plans that embody the CCSS-M Standards for Mathematical Practice: 21%

Monitoring student progress on mastering the CCSS-M standards: 25%

Adapting my instruction to integrate the CCSS-M standards effectively: 21%

Preparing students for the Smarter Balanced assessments (including interim assessments): 34%

Using Smarter Balanced assessment results to support my teaching and student learning: 27%

Other (please specify): 6%

**22. Please describe the way the CCSS has changed how you teach mathematics to your students this year.**

*[The open-ended responses to this question are not displayed here.]*



# Appendix C. Results from the 2018 Math in Common Site Administrator Survey

1. I consent to participate in this survey.

Yes [N=161]

No [N=0]

## Background

2. In which school district are you currently employed? [N=161]

Dinuba: 1%

Oceanside: 7%

Elk Grove: 22%

Sacramento City: 5%

Garden Grove: 21%

San Francisco: 12%

Long Beach: 11%

Sanger: 5%

Oakland: 3%

Santa Ana: 12%

3. Select the type of school in which you work: [N=160]

Elementary (K-5/K-6): 66%

Multi-grade (e.g., K-8/K-12): 8%

Middle (6-8/7-8): 26%

4. Are you a site administrator in a school that serves students in any of grades K-8? [N=161]

Yes: 100%

No

5. Which best describes your main assignment at your school? [N=159]

Principal: 62%

Other (please specify): 4%

Assistant principal: 33%

6. How long have you...

PLACEMENT	0 (THIS IS MY FIRST YEAR)	1-2 YEARS	3-5 YEARS	6-10 YEARS	11-15 YEARS	16-20 YEARS	OVER 20 YEARS
a. ...been in this district? [N=160]	6%	5%	8%	11%	21%	18%	32%
b. ...been at this school? [N=157]	24%	20%	38%	13%	1%	3%	1%
c. ...been in your current job role? [N=156]	14%	11%	37%	18%	12%	4%	4%

## Professional Learning Opportunities

7. How helpful were the following types of professional learning activities for your growth as a leader of CCSS-M implementation this school year (2017–18)?

TYPE OF PROFESSIONAL LEARNING ACTIVITY	NA-DID NOT PURSUE IN 2017-18	DID NOT HELP ME IMPROVE MY LEADERSHIP	HELPED ME IMPROVE A LITTLE	HELPED ME IMPROVE SOME	HELPED ME IMPROVE A LOT
a. Meeting with other site administrators to discuss standards, instruction, or student learning [N=159]	14%	3%	15%	36%	31%
b. Working with other site administrators to develop materials and/or activities for particular classes [N=158]	46%	6%	11%	23%	14%
c. Consulting independently with external providers in their areas of expertise [N=157]	39%	4%	15%	29%	13%
d. Using online professional development resources (e.g., webinars, trainings, online repositories) offered by or through my district [N=159]	50%	4%	14%	26%	5%
e. Observing at another site administrator's school to get ideas for my own school or to offer feedback [N=159]	42%	6%	8%	20%	26%
f. Being observed by and receiving feedback from other site administrators [N=158]	54%	3%	9%	18%	15%
g. Participating in district-provided PD on the CCSS-M [N=159]	20%	3%	14%	38%	25%
h. Receiving one-on-one coaching or mentoring [N=158]	55%	4%	7%	19%	15%
i. Participating in coaching/mentoring of other site administrators [N=159]	52%	5%	11%	20%	12%
j. Observing classroom lesson(s) on video and reflecting with colleagues afterward [N=159]	42%	2%	12%	27%	18%
k. Observing live classroom lesson(s) and reflecting with colleagues afterwards [N=155]	19%	2%	8%	37%	34%
l. Reviewing student assessment data with other site administrators to make decisions about instruction [N=159]	25%	4%	14%	28%	30%
m. Participating in professional learning communities (PLCs) or other discussion groups [N=159]	16%	4%	13%	30%	37%

## Preparedness to Enact the Common Core State Standards in Mathematics

Please rate the extent to which you are *prepared* to support implementation of the CCSS-M at your school on each of the following factors.

### 8. Communicating the need

	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
a. Convey what the CCSS-M are about to your school staff [N=151]	1%	8%	23%	44%	24%
b. Convey what the CCSS-M are about to parents and the community [N=150]	2%	11%	25%	39%	23%
c. Influence teachers' motivation to implement the CCSS-M [N=150]	1%	8%	19%	47%	25%
d. Clearly communicate to teachers the types of changes required by the CCSS-M (e.g., deeper content, Standards for Mathematical Practice) [N=152]	4%	5%	16%	45%	30%
e. Prioritize CCSS-M implementation [N=151]	3%	4%	21%	46%	26%

### 9. Supporting teacher change

	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
f. Plan effective professional learning for school staff to facilitate CCSS-M implementation [N=150]	3%	12%	23%	43%	19%
g. Provide effective instructional models for teachers to support CCSS-M implementation in the classroom [N=151]	5%	13%	25%	36%	20%
h. Access practical "how-to" guidance to support the necessary changes in instruction [N=151]	5%	13%	24%	37%	21%
i. Make high-quality professional development available to teachers [N=151]	5%	7%	19%	44%	26%
j. Allocate resources to support effective CCSS-M implementation [N=150]	4%	6%	21%	43%	27%
k. Ensure that instructional coaches can provide effective guidance on CCSS-M implementation [N=151]	5%	14%	16%	37%	28%



## 10. Integrating practices into the organization

	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
l. Align the school's curriculum and instructional focus [N=152]	3%	5%	14%	49%	30%
m. Evaluate teachers on CCSS-M implementation [N=150]	3%	7%	17%	49%	25%
n. Ensure that standards-aligned programs are in place to support students who struggle academically [N=152]	1%	8%	24%	45%	23%
o. Integrate the CCSS-M with programs serving English learners, special education students, or students in other subgroups [N=152]	1%	11%	22%	50%	15%

## Steps Taken by Site Administrators to Support Implementation of the CCSS-M

Please rate the extent to which you took the following *key actions* to support implementation of the CCSS-M at your school during the past 12 months.

### 11. Communicating the need

ACTION TAKEN	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
a. Made CCSS-M implementation a priority for school improvement [N=146]	1%	10%	18%	42%	27%
b. Created a leadership plan, objectives, and a timeline for CCSS-M implementation [N=147]	10%	12%	24%	33%	20%
c. Implemented a leadership plan, objectives, and a timeline for CCSS-M implementation [N=146]	10%	14%	23%	34%	20%
d. Helped my parents and local community develop a clear understanding of how the CCSS-M will change teaching and learning [N=147]	11%	21%	33%	31%	4%

## 12. Supporting teacher change

ACTION TAKEN	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
e. Convened teacher grade-level teams, professional learning communities (PLCs), or other teacher teams to support CCSS-M implementation [N=146]	3%	7%	18%	36%	36%
f. Sent school staff to professional development sessions on the CCSS-M [N=147]	7%	11%	20%	31%	31%
g. Modified our mathematics curriculum to align with the CCSS-M [N=145]	10%	10%	14%	35%	30%
h. Created short-term and long-term (3 years or longer) plans for continuous, connected, and job-embedded teacher professional development [N=147]	15%	20%	22%	31%	12%

## 13. Integrating practices into the organization

ACTION TAKEN	NOT AT ALL	TO A MINIMAL EXTENT	TO A MODERATE EXTENT	TO A GOOD EXTENT	TO A GREAT EXTENT
i. Gathered evidence (e.g., through lesson plans, walk-throughs, or classroom observations) to assess how effective teachers are at implementing the CCSS-M [N=147]	1%	8%	29%	40%	22%
j. Cultivated a cadre of teacher leaders to move CCSS-M implementation forward [N=146]	8%	11%	27%	33%	21%



14. We are particularly interested in your assessment of the support teachers in your school received for collaborating with other teachers to implement the Common Core State Standards in mathematics *during this school year (2017–18)*. Collaboration includes all structured or planned activities when teachers meet with each other to discuss curriculum, assessments, students, and/or any other aspect of their jobs. How would you rate the adequacy of each of the following?

COLLABORATIVE ACTIVITY	NOT ENOUGH	MINIMALLY ACCEPTABLE	ADEQUATE	OPTIMAL
a. Common planning time [N=145]	7%	13%	51%	29%
b. Paid time for collaboration among teachers outside of the school day [N=145]	21%	21%	40%	19%
c. Resources and materials provided to teachers for collaboration [N=144]	6%	9%	59%	26%
d. Expertise available to teachers for collaboration (e.g., instructional coaches or other staff support) [N=145]	14%	12%	46%	29%
e. Administrative support provided to teachers for collaboration [N=143]	5%	10%	55%	31%

## Curriculum, Instruction, and Decision-Making

15. To what extent do you disagree or agree with each of the following statements?

STATEMENT	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Our district provides all the resources teachers need to align their mathematics instruction with the CCSS-M [N=143]	4%	10%	53%	34%
b. Our district has an effective system for evaluating the quality of mathematics instruction [N=143]	4%	22%	54%	20%
c. Our district has an effective system for providing feedback to my mathematics teachers about their instruction [N=143]	4%	26%	55%	15%
d. Our school has the data we need to carefully monitor student progress on the CCSS-M [N=142]	6%	15%	54%	26%
e. Teachers at my school are trained to ensure that students with disabilities have access to the CCSS-M [N=141]	3%	25%	59%	13%
f. Teachers at my school are trained to ensure that English learners have access to the CCSS-M [N=142]	1%	22%	61%	17%
g. Teachers at this school and I share similar ideas about what CCSS-aligned mathematics instruction looks like [N=142]	2%	13%	70%	15%
h. I have more responsibility for my teachers' professional growth and development this year than in prior years [N=141]	3%	23%	52%	22%

16. What knowledge of math content and/or instructional practices do your teachers still need to develop in order to implement the CCSS-M? *[The open-ended responses to this question are not displayed here.]*

17. To what extent do you feel able to...?

ACTION	VERY LITTLE	LITTLE	SOME	GREAT	VERY GREAT
a. Motivate teachers [N=140]	0%	1%	30%	56%	13%
b. Generate enthusiasm for a shared vision of the school/site [N=139]	0%	2%	23%	58%	17%
c. Manage change in your school/site [N=139]	0%	1%	27%	55%	16%
d. Create a positive learning environment in your school/site [N=140]	0%		10%	59%	31%
e. Facilitate learning in your school/site [N=140]	0%		15%	64%	21%
f. Raise achievement on standardized tests [N=139]	0%	5%	35%	50%	11%



18. To effectively support implementation of the CCSS-M at my school, the five things I need most are...  
(Check the five areas that apply.) [N=161]

A firmer understanding of the CCSS-M content standards: 17%

A firmer understanding of the CCSS-M Standards for Mathematical Practice: 20%

A firmer understanding of how students' thinking of mathematics develops over time/grade level: 31%

Curriculum that is aligned to the CCSS-M standards (both content and practice standards): 12%

Higher quality textbooks and instructional materials for teaching the CCSS-M standards: 14%

More opportunities for teacher collaboration: 53%

More professional development for teachers: 46%

More time to observe teachers teaching in their classroom: 39%

More training on facilitating school leadership teams: 19%

More time to discuss CCSS-M with other administrators: 24%

More effective strategies for teaching special needs students: 35%

More effective strategies for teaching ELL students: 43%

More information on how to use Smarter Balanced assessment results to support teaching and student learning: 39%

Better data on instructional effectiveness: 35%

Other (please specify):