Implementation of K–12 State Standards for Mathematics and English Language Arts and Literacy

Findings from the American Teacher Panel

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Preface

New K–12 standards for mathematics and English language arts and literacy adopted recently in most states are more rigorous and far-reaching than most previous state standards. Some evidence suggests that teachers are not prepared to help students meet those standards. However, we have very little concrete information about how state standards are connected to what teachers think and do in their classrooms. The purpose of this RAND Education report is to shed further light on teachers' implementation of state standards, including the instructional materials teachers are using to address state standards and how they are using them, their perceptions about the content and approaches most aligned with their standards, and the extent to which they are asking their students to engage in practices aligned with their standards. Our data are drawn from nationally representative surveys of U.S. teachers administered in the summer and fall of 2015. This report was updated in January 2017. The current version provides estimates based on updated weights for a small percentage of respondents. Weights were updated to account for infrequent misclassification of the assignment of school-level characteristics. Our findings particularly focus on teachers in states that have adopted "Standards Adapted from the Common Core." Results are intended to help states and school districts reflect upon areas where teachers may benefit from additional guidance about how to address their state standards in ways that best support student learning. Our findings also point to subgroups of teachers who may be more likely to require additional resources or professional development to help them effectively implement these new changes. Future reports for this study will examine teachers' reports

longitudinally in order to explore changes in teachers' perceptions and practices over time.

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New K–12 standards for mathematics and English language arts and literacy (ELA) adopted recently in most states are more rigorous and far-reaching than most previous state standards. Some evidence suggests that teachers are not prepared to help students meet those standards. However, we have very little concrete information about how state standards are connected to what teachers think and do in their classrooms. The purpose of this report is to present findings on teachers' implementation of state standards, including their use of instructional materials to address state standards in ELA and mathematics, their perceptions about the content and instructional approaches most aligned with their standards, and the standards-aligned practices in which they engage their students. We particularly focus on results among teachers in states that have adopted "Standards Adapted from the Common Core State Standards," which we call "SACC" states. Our data are drawn from the American Teacher Panel, a randomly selected and nationally representative panel of U.S. K–12 public school teachers periodically surveyed about major education policies that could have an impact on teaching and learning.

Our findings focus on teachers' perceptions and practices as they relate to key instructional approaches that differentiate prior state standards from those newly adopted in most states, with a particular emphasis on approaches aligned with Common Core State Standards (CCSS). While CCSS does not dictate how teachers should teach or the instructional materials they should use, it does provide at least some suggestions about the materials and practices in which teachers will need to engage to support students to learn in new and complex ways.

Resources like the "Publishers Criteria for Common Core State Standards" and information on the "necessary shifts" in classroom practice required by standards are available on the Common Core State Standards website (Common Core State Standards Initiative [CCSSI], 2016f). Furthermore, many states, districts, and independent organizations intending to support teaching and learning in schools have taken a stance regarding the instructional approaches required by standards.

Instructional Resources to Support Standards Implementation

Survey responses provide some evidence that state standards may be playing a role in the selection of mathematics instructional materials. These findings do not establish a causal relationship between adoption of standards and the main instructional materials that teachers use. That said, higher percentages of mathematics teachers in SACC states reported using instructional materials with some evidence of alignment with CCSS. In addition, teachers in SACC states appeared to be using some of these standards-aligned mathematics materials more often than teachers in non-SACC states.

There is less evidence of the role that state standards may be playing in ELA instructional materials use. For example, leveled readers, where students are provided texts at their reading level rather than at their grade level, are the dominant materials used by elementary ELA teachers, particularly teachers with higher populations of English learners. If these teachers are to embrace grade-level texts more, as suggested by CCSS, they will likely need to be provided with considerable guidance, resources, and instructional strategies to do so.

We noted several differences between groups of teachers. First, compared with elementary teachers, secondary teachers were more likely to report developing or selecting instructional materials on their own for a range of purposes. Secondary teachers also reported being required to use particular materials less often by their district than elementary teachers. These findings may suggest that secondary teachers do not receive the same supports and guidance from their state

and district as elementary teachers, although they may also suggest that secondary teachers are not seeking out such resources as often as elementary teachers. In addition, teachers in schools with greater than 75 percent of students receiving free or reduced-price lunches (FRL) were more likely to draw on online instructional materials, suggesting that teachers in high-FRL schools may not have as many in-school/district resources on which to draw.

Use of district-developed and teacher-developed materials was widespread, and some evidence suggests that this is related to new standards and assessments in SACC states. For example, high percentages of teachers reported that their state standards were a major source on which they drew for development of their own materials. And teachers in SACC states were more likely to report that their materials have been developed in the last three years compared with teachers in non-SACC states.

Interestingly, ELA teachers reported very different factors influencing their use of instructional materials compared with mathematics teachers. Mathematics teachers—particularly at the elementary level—appeared to rely more on district or state resources and guidance compared with ELA teachers. In contrast, ELA teachers more often named factors like quality of materials and students' needs as factors influencing their use of instructional materials. It is possible that state standards for mathematics are having a greater impact on what teachers do than state standards for ELA/literacy.

Teachers' Perceptions and Practices Related to ELA Standards

For English language arts and literacy, key instructional approaches aligned with CCSS include an emphasis on text complexity and providing texts that challenge students, as well as engaging students in close reading of complex texts through text-focused classroom discussions and assignments. Although most ELA teachers identified their state standards as CCSS or adapted from CCSS, many ELA teachers in SACC states indicated that the approaches aligned with their state

standards for ELA/literacy included selecting texts for students based on their reading level and providing reading instruction that was not always text-centered.

While these approaches chosen by teachers—selecting texts based on individual student reading level and not centering reading instruction on texts—are not necessarily approaches advocated by CCSS, neither are they explicitly discouraged. This is true for a number of practices, such as the use of leveled readers and prereading strategies. Furthermore, even "close reading," which appears numerous times in CCSS, could be addressed in multiple ways within a classroom. These less explicit areas of standards are ones that provide space for clearer interpretation and support by states and districts.

While teachers did not necessarily identify the instructional approaches most aligned with CCSS, a majority reported their students regularly engaging in many standards-aligned practices, such as using texts and analyzing the structure of texts. Some practices that teachers reported their students not engaging in quite as regularly—including adapting speech to a variety of contexts and engaging students in some writing tasks—might be areas where states and districts could do more to provide support and lesson exemplars to teachers.

While the most frequent standards-aligned ELA practice cited by teachers was "use evidence from a text to make inferences or support conclusions," it may be addressed in various ways. More research is needed to understand the extent to which teachers are engaging students in practices aligned with standards and how teachers' work to support these student practices can lead to improvements in student learning.

Teachers' Perceptions and Practices Related to Mathematics Standards

For mathematics, key shifts brought about by CCSS include different and more rigorous content at earlier grade levels and coherence among mathematics topics across grades, balance among aspects of rigor in

instruction, and students' engagement in complex problem-solving practices.

In contrast to ELA teachers, mathematics teachers were more in agreement about their standards and, specifically, the major topics addressed by their state mathematics standards at their grade level. On the other hand, mathematics teachers also indicated that their state standards addressed many topics at their grade level not aligned with CCSS. In addition, there were differences in perceptions among teachers of different types of students (e.g., low-income students) regarding the "aspects of rigor" targeted by particular standards, suggesting that classroom instruction could vary among teachers covering the same standards content. Teachers, and particularly those at the same grade level, may benefit from opportunities to collectively talk through the standards being addressed by a given unit and come to consensus on aspects of rigor to target in order to ensure that all students come away from that unit with similar skills and knowledge.

Teachers also reported different perceptions about what it means to address particular standards for mathematical practice. For example, when asked to identify what "modeling with mathematics" means, secondary teachers were significantly more likely to choose the definition aligned with CCSS than were elementary teachers. It is possible that this difference is due to the standards at the secondary level articulating a specific set of modeling standards, which the elementary standards do not, leaving elementary teachers more room for interpretation.

With respect to mathematical practices, many teachers reported engaging their students in standards-aligned practices regularly, although variations did arise between elementary and secondary teachers, and teachers in schools with higher and lower percentages of FRL students.

Considerations for Policymakers and Educators

For this study, we considered three key requirements for teachers' standards implementation: the instructional materials they report using, their understanding of content and approaches aligned with their state

standards, and the practices in which they are engaging their students. Teacher responses to questions on these topics show important emerging patterns in the implementation of K–12 standards aligned with the Common Core. Such patterns touch on issues such as teachers' mixed understandings about the approaches most aligned with their state standards and areas where they may not be engaging regularly in standards-aligned practices.

Through our analysis, we have identified key areas particularly ripe for district and state work to provide clear messages and to support teachers to engage in instruction that will most help students meet state standards. For ELA teachers, these areas include

- selection and development of high-quality instructional materials aligned with standards across grade levels, with particular guidance on use of leveled readers for instruction
- additional guidance on practices that consider repertoires of close reading and skills-based reading instruction for different texts, purposes, and contexts.

For mathematics, these areas include

- selection and development of high-quality instructional materials aligned with standards at the secondary level
- further clarity on key content at each grade level
- guidance about how to address aspects of rigor with equal time and intensity.

Areas for Future Research

Future research could provide guidance on which instructional materials are well aligned with state standards. As we have pointed out throughout this report, some approaches related to CCSS implementation are far from settled, including what it means to do "close reading," the extent to which teachers should use leveled readers, effects of addressing more mathematical topics at a particular grade level versus

digging more deeply into fewer topics, and which aspects of rigor to emphasize in relation to particular content. Additional research on these issues could identify which approaches might be most helpful to students. Researchers might also specifically consider supports needed by teachers of student populations that are more difficult to teach, including struggling readers. Our findings suggest that these teachers may especially need clear guidance, support, and strategies for engaging their students in grade-level texts. We also note the need to develop better measures to capture the accuracy of teachers' knowledge of the standards and also the depth of knowledge specific to the grade levels or subjects being taught. Finally, more research is needed to better understand the extent to which teachers are engaging students in practices that align with the intent of their state standards.

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Abbreviations

ATP	American Teacher Panel
CCSS	Common Core State Standards
CCSSI	Common Core State Standards Initiative
CCSS-M	Common Core State Standards for Mathematics
ELA	English language arts
ELL	English language learner
ESSA	Every Student Succeeds Act
FRL	free or reduced priced lunch
PARCC	Partnership for Assessment of Readiness for College and Careers
SACC	Standards Adapted from the Common Core
SAP	Student Achievement Partners

CHAPTER ONE

Introduction

We have arrived at an uncertain and unstable time for education policy and practice. Forty-two states have adopted standards adapted from the Common Core State Standards (CCSS) with full implementation of these standards by 2014–2015, and many of those states had joined one or both of the multistate consortia awarded federal funds to develop assessments aligned with the new standards (U.S. Department of Education [USDoE], 2015; Common Core State Standards Initiative [CCSSI], 2016d). States have always had the flexibility and power to make decisions about the standards and assessments they use, and they are free to move away from CCSS. That has not changed with the passing of the Every Student Succeeds Act (ESSA). Yet, political backlash against the standards in the past few years has led a small number of states to reverse their decisions to adopt CCSS. Many states have also withdrawn from the multistate consortia that had been awarded federal funds to develop assessments aligned to the new standards: the Partnership for Assessment of Readiness for College and Careers (PARCC) and the Smarter Balanced Assessment Consortium (Smarter Balanced).[1] In the place of PARCC and Smarter Balanced, many U.S. states have been making plans to contract with other test developers to administer their assessments. Additionally, some states have suspended use of student scores on statewide tests for the purpose of teacher evaluation for at least the next few years (Connally, 2016). Of the 42 states that have kept standards adapted from CCSS, some are calling their

[1] See, for example, "Delaware Chooses SAT over Smarter Balanced for High School Tests" (Gewertz, 2016) and "Tough Choices for PARCC as States Drop Out" (Ujifusa, 2015).

standards by another name rather than CCSS, and some have made additional adjustments to their standards to be responsive to state contexts and political pressures.

Despite the turbulent education policy environment, teachers are still tasked with helping students meet their current state standards, which—by many measures—are more challenging, coherent, and far-reaching than most previous state standards (Porter et al., 2011; Brown and Kappes, 2012; Schmidt and Houang, 2012; Shanahan, 2013). To do this difficult work, teachers must know standards content deeply enough to represent that content to a wide range of students and facilitate students' in-depth analysis of concepts embedded in the standards through discussion, reading, writing, and problem solving. While Kane (2015) has suggested that teachers in some states are fully embracing standards and have made considerable changes to their practice, other recent surveys of U.S. education practitioners and policymakers (Rentner and Kober, 2014; Hamilton et al., 2016; Kaufman et al., 2016) suggest that at least some teachers may not yet be fully ready to engage students in the challenging and complex work required by standards focused on college and career preparedness. Recent *Education Week* headlines—such as "The Common Core Raises Questions About Teachers' Questioning Skills" (Sparks, 2015) and "Teachers Feel Ill-Prepared for Common-Core Despite Training" (Gewertz, 2014)—raise similar questions about teachers' readiness to engage in instruction aligned with new standards.

While there may be a general sense that teachers are unprepared to address state standards, we know little about how teachers are working to address state standards in their classrooms, including the instructional resources that they are using on a regular basis, as well as more fine-grained information about the approaches and practices in which teachers are engaging to implement their state standards. Such information could provide critical guidance to state and district administrators about the messages and specific support they could be giving teachers to strengthen implementation of state standards.

In this report, we present findings from two self-report surveys administered to teachers across the United States in June and October 2015 to gather information about teachers' use of instructional

resources to address their state standards; their understanding of content and approaches aligned with their standards; and their instructional practices. Our survey and analysis are intended to support states and districts to reflect upon what content their state standards prescribe, as well as what key messages and supports might provide the most useful guidance to teachers about how to implement standards in the classroom. We focus particularly on those teachers in the 42 states that have formally adopted standards similar to CCSS, and we refer to those states as "SACC" (Standards Adapted from Common Core) states. We also sometimes compare SACC states to those in the eight non-SACC states where CCSS has been repealed or were never introduced, although standards in some of those states are somewhat similar to CCSS.[2]

Factors Influencing Teachers' Implementation of State Standards

Teachers' preparedness to implement standards relies on several key requirements. First, teachers need access to high-quality instructional materials aligned with their standards that will support their work to help students meet standards (Porter et al., 2011; Polikoff, 2015). Second, teachers need to be able to understand the content standards deeply in order to represent that content to students at a wide range of achievement levels (Ball and Forzani, 2011; Bausmith and Barry, 2011; Liben and Liben, 2013). Third, teachers must be willing and able to engage in the sometimes time-consuming and challenging work to change their instructional practice to address new content and concepts introduced by newer standards and instructional resources aligned with those standards (e.g., Opfer and Pedder's work [2011] underscores the importance of teachers' willingness to learn).

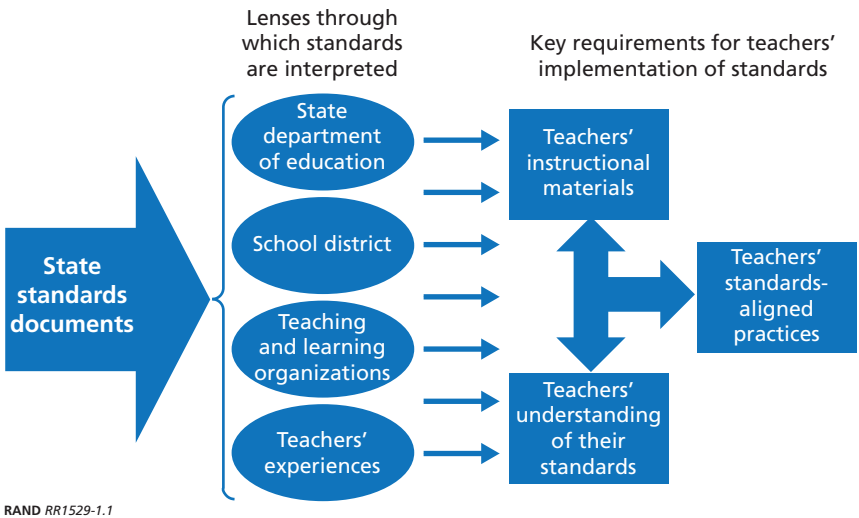
However, the extent to which teachers meet these requirements depends on the interpretative lenses through which teachers view their

[2] Indiana, for example, has incorporated many standards from CCSS into its state standards, as has South Carolina (Achieve, 2014 and 2015b).

state standards and are given messages about how to implement them. The standards themselves exist only as documents that prescribe content while being less explicit about the instructional approaches in which teachers must engage to teach that content. States and school districts, as well as other players like providers of online instructional resources, the media, and advocacy organizations, play a key role in standards implementation as sources through which teachers make sense of standards and translate them into instructional practices.

Figure 1.1 illustrates this relationship among the factors required for teachers' implementation of standards and the lenses through which they understand and engage in standards-aligned practices. All these lenses for standards implementation are unlikely to be aligned and could even provide conflicting messages to teachers about what they should do in the classroom. States, for example, could mandate assessments that are not aligned with state standards and yet count as part of teachers' evaluation scores. Districts could require teachers to use materials and attend professional development that is not aligned with their standards. Organizations intended to support teaching and learning could provide differing messages about what it means to imple-

Figure 1.1
Factors Influencing Teachers' Implementation of State Standards



ment state standards. Teachers' prior educational experiences could be in conflict with ideas and concepts embedded in standards. In fact, much research suggests that teachers could think they are engaged in standards-aligned practices and even be using standards-aligned texts while—in actuality—they are engaged in more traditional instruction that engages only at a surface level with the challenging ideas embedded in standards and some standards-aligned materials (Mayer, 1999; Spillane and Zeuli, 1999; Kaufman, Stein, and Junker, 2016; Santelises and Dabrowski, 2015).

As suggested by Figure 1.1, state standards documents are the basis for interpretations about standards implementation. CCSS documents available online make the statement, "…[S]tandards establish what students need to learn, but do not dictate how teachers should teach. Instead, schools and teachers decide how best to best help students reach standards," as well as that "standards are not curricula and do not mandate the use of any particular curricula" (CCSSI, 2016b). However, CCSS does provide at least some suggestions about the materials and practices in which teachers will need to engage to support students to learn in new and complex ways. Furthermore, many states, districts, and independent organizations intending to support teaching and learning in schools have taken a stance regarding the instructional approaches and teaching practices required by standards. Student Achievement Partners (SAP), for example, has authored documents describing the key instructional shifts required by Common Core State Standards (SAP, undated b). Such interpretations provide crucial guidance to teachers about the strategies and approaches that will help them address state standards in the classroom; simply reading through the standards will not give teachers the tools they need to address standards in the classroom. Yet, we do not know the extent to which teachers' understandings align with their state standards or particular interpretations of standards that may be available to them in their state, district, or through other sources.

Standards-Aligned Content and Instructional Approaches on Which We Focused for This Report

In our surveys, we asked teachers about how their state standards—as well as their instructional materials and practices—align with both standards content and key instructional shifts prescribed in both CCSS and other documents and research related to CCSS. We focused on content *and* practices in our survey, given that standards implementation requires teachers to understand both. However, as discussed, the latter—instructional practices, shifts and approaches aligned with standards—are much less articulated and are subject to interpretation by states, districts, teaching and learning organizations, and teachers themselves.

In our survey questions and analysis related to English language arts and literacy, we focused on two main instructional approaches reflected by newer standards, and specifically Common Core State Standards: (1) the importance of text complexity, and (2) close reading of complex texts. Both are subject to interpretation through the lenses we discussed previously.

The importance of text complexity. CCSS highlights the importance of text complexity, citing research that K–12 students may not be exposed to enough challenging texts and that the complexity of texts used in K–12 classrooms has decreased over the past several decades (e.g., Chall, Conard, and Harris, 1977; Hayes, Wolfer, and Wolfe, 1996). Some researchers have partially countered these claims, providing evidence that text complexity has not decreased (Gamson, Lu, and Eckert, 2013; Hiebert and Mesmer, 2013). Regardless of whether text complexity has decreased over time, it is widely accepted that students need the opportunity to engage with complex texts. Less clear is the extent to which teachers should use leveled readers, or texts written at different reading levels for students with varying reading ability. Use of leveled readers is widespread by teachers across the United States—as also documented in this report—and such readers are often provided within or as the core of many English language arts (ELA) publications series and online teacher resources.

Interestingly, despite the prevalence of leveled readers, most research suggests little to no relationship between growth in reading and use of leveled readers versus use of complex and/or grade-level texts intended to challenge all students. Some of that research emphasizes that many more studies are needed to assess the effects of text difficulty on reading improvement (Kuhn and Stahl, 2003; Compton, Appleton, and Hosp, 2004; O'Connor, Swanson, and Geraghty, 2010). One potential implication of this research is that efficacy of complex texts may depend on teachers' skillful work to help students grapple with those texts and their meaning (Shanahan, 2013; Fisher and Frey, 2015). Based on available evidence, some educators have concluded that the most sensible approach to reading instruction aligned with CCSS includes (1) a focus on complex, grade-level texts during whole-class instructional time and (2) opportunities for students to read engaging texts of their choice and/or at their reading level at other times (e.g., independent reading time) (Liben and Liben, 2013; Walsh, 2014). At the same time, helping students—especially those reading below grade level—to read challenging and advanced texts requires teachers to provide differentiated, close reading support that may deviate from the reading instruction they have provided in the past (Shanahan, 2013; Liben and Liben, 2013). Thus, text level and complexity is potentially an important area in which states and districts may need to clarify expectations for reading instruction, as well as offer high-quality materials and professional learning opportunities to support changes in teachers' instructional practices.

Close reading of complex texts. Common Core State Standards focus more attention on students' close reading of complex texts (Brown and Kappes, 2012; Shanahan, 2013) than previous state standards. For example, the first "College and Career Readiness Anchor Standards for Reading" in the CCSS for English Language Arts and Literacy describes the goals thus: "Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text" (CCSSI, 2016a). Shanahan (2013) further suggests new ELA/literacy standards let the text "take center stage" in classroom discussions. By focusing on close reading, CCSS also requires teachers to

ask "text-specific" questions that give students the opportunity to seek out evidence from the text to make arguments or draw conclusions. However, how teachers should engage students in "close reading" is not explicitly discussed in CCSS and depends upon the context for instruction, including texts being discussed in class and lesson objectives for a particular day. Student Achievement Partners provides model lessons where teachers ask students to read short passages of longer texts and then stop reading periodically to discuss text meaning and vocabulary (SAP, undated a). Others advocate for students to engage in more extended reading time in order to develop the ability to be autonomous, self-monitoring readers (Santelises and Dabrowski, 2015).

In mathematics, our survey questions and analysis focused on three key approaches emphasized by CCSS and other related documents and research: (1) focus on standards content and importance of coherence among mathematical topics across grades; (2) balance among aspects of rigor; and (3) work by teachers to help students engage in Standards for Mathematical Practice.

Focus on standards content and importance of coherence among mathematical topics within and across grades. According to Student Achievement Partners, two key instructional shifts required by mathematics standards include a strong focus on particular content and coherence among topics introduced within and across grades (SAP, undated b). The CCSS for Mathematics (CCSS-M) places stronger emphasis on some mathematical topics compared with previous state standards, including basic algebra and some geometric concepts, and greater focus on developing students' understanding of certain mathematical concepts—like adding fractions—over time (Porter et al., 2011; Wu, 2011). Some have recognized similarities between CCSS-M and content recommended by the National Council of Teachers of Mathematics (NCTM), which had been integrated into some state standards for mathematics prior to CCSS (Porter et al., 2011; Larson, 2012). Thus, CCSS-M may introduce fewer ideas that are new to many mathematics teachers as compared to CCSS for ELA/literacy. Nonetheless, changes to state standards at each grade level will likely require that teachers learn some new content as well as engage in instruction that helps students build their conceptual understanding over time and

across grade levels. In addition, some researchers have suggested that teachers will need to pay special attention to supporting students with learning disabilities or lower mathematics achievement so that they have an opportunity to meet new and more rigorous standards represented by CCSS-M (e.g., Powell, Fuchs, and Fuchs, 2013), which will likely require targeted professional learning support.

Balance among aspects of rigor. In addition, CCSS-M follows recommendations from the National Research Council's report, *Adding It Up* (2001), which stresses a need to balance "strands of mathematical proficiency," including conceptual understanding and procedural fluency, rather than focusing too much on either of these goals (e.g., focusing too much on basic skills without teaching for conceptual understanding). Drawing on these ideas, CCSS suggests that educators pursue, with equal intensity, "three aspects of rigor in the major work of each grade: conceptual understanding, procedural skill and fluency, and application" (CCSSI, 2016e). Accordingly, CCSS includes standards that address these aspects of rigor at varying levels.

Work by teachers to support students' engagement in Standards for Mathematical Practice. The Standards for Mathematical Practice that are part of CCSS-M raise expectations for the complex problem-solving and reasoning practices in which students should engage in the mathematics classroom, including construction of viable arguments about mathematics, modeling real-life problems or situations using mathematics, and looking for and making use of patterns or structures in mathematical expressions and processes. These practices are drawn from previous research and documents, including those released by the National Council of Teachers of Mathematics and specified in the National Research Council report (2001) cited earlier. However, such practices have not been included in most previous state standards, and they make considerable demands upon teachers to help students engage in fairly complex reasoning and problem-solving processes. Some research suggests that these practices may not be described with the appropriate nuance for teachers at different grade levels (Heck, Weiss, and Pasley, 2011).

The key approaches to addressing standards that we described above are not meant to be exhaustive of the instructional approaches

typically aligned with state standards. Instead, these are some key approaches connected with CCSS in the research and teaching literature. We have also discussed some of the debates connected with these approaches to make clear that best instructional practices related to CCSS and other college and career ready standards are far from settled. In our findings, we share the extent to which these approaches are addressed in teachers' use of instructional materials, their understanding of their state standards, and their instructional practice.

We hope our findings will provide useful information to states and districts about the ways in which U.S. teachers currently understand their standards and are addressing them in the classroom. Based on our findings, we provide recommendations to states and districts about the standards-related issues and productive spaces where more specific messaging and guidance may be needed so that teachers can implement standards in ways that align with state and district visions.

Survey Design

The data presented in this report come from two web-based surveys administered by RAND Education to the American Teacher Panel (ATP) in June and October 2015. The ATP is a randomly selected, nationally representative panel of American teachers (specifically, the panel comprises full-time public school teachers in grades K–12 in all subjects, including teachers of special education students and English language learners). In addition to the nationally representative sample of teachers, the ATP includes four state-level representative samples for California, Louisiana, New Mexico, and New York. These are states that have received some investment from the Helmsley Charitable Trust to support implementation of standards.

As indicated previously, the design of our June and October surveys assumes that teachers' standards implementation is guided by three main requirements: their use of instructional materials; their understanding of the content and approaches aligned with their state standards; and teachers' instructional practice. Given that our surveys were administered during the first few years of standards implementa-

tion in many states, we surmise that many teachers are likely still learning about standards at the same time that they are using them in their classroom and striving to change their practice. In addition, they likely do not have all the standards-aligned resources that they need to make changes to their practice.

In the June 2015 survey, teachers were asked for their perceptions about the content and approaches aligned with their state standards, as well as their students' engagement in classroom practices aligned with CCSS. The October survey included questions about teachers' main instructional materials, including factors influencing their use of particular materials, their district- and self-developed materials, and the extent to which their materials address standards-aligned practices. Subsequent surveys in 2016 and 2017 will repeat many of these questions so that we can investigate how teachers' use of instructional resources, as well as their practices and knowledge about their state standards, changes over time. As these questions are asked over multiple years and surveys, they will lend insight to understanding changes in various populations over time.

Sample and Data

In June 2015, we surveyed the entire ATP, which included approximately 2,745 teachers. Of those teachers, 1,705 (62 percent) responded. In October 2015, we asked only mathematics and English language arts teachers to complete our survey, since we were focused on use of instructional materials in mathematics and ELA classrooms. Of the approximately 2,018 mathematics and ELA teachers in our sample for the October survey, 1,168 (57.9 percent) responded. In addition, as mentioned previously, we oversampled teachers to be part of the ATP in four target states, and response rates for those states are included below.

While we acknowledge that these response rates introduce potential bias, they are consistent with or better than response rates typically

achieved in most surveys of this size.[3] At the same time, our weighted estimates are based on a model for nonresponse that gives more weight to teachers in subgroups that may have been less likely to respond to our survey, taking into account characteristics including teacher subject and school level, region, size, and rate of free/reduced price lunch eligibility. Table 1.1 details response rates by state and overall sample. Background characteristics of the respondents are summarized in Table 1.2.

Table 1.1
June and October 2015 Response Rates

	June 2015 Survey			October 2015 Survey		
Variable	Total Sample	Number of Respondents	Response Rate (%)	Total Sample	Number of Respondents	Response Rate (%)
Overall	2,745	1,705	62.1	2,018	1,168	57.9
California	347	238	68.6	283	172	60.8
Louisiana	381	249	65.4	327	170	52.0
New Mexico	374	245	65.5	307	181	59.0
New York	272	196	72.1	231	131	56.7

[3] Response rates for large, national surveys have been in decline, and this tendency accelerated after the emergence of web questionnaires. A meta-study of 68 surveys in 49 studies by Cook, Heath, and Thompson (2000) found an average 39.6-percent response rate among national survey studies. Similarly, Schonlau, Fricker, and Elliott (2002) reviewed studies and found that response rate ranged from 7 to 44 percent. Sauermann and Roach (2013) classify response rates of 40–70 percent as "relatively high" given the current trend, with responses in the 10–25-percent range considered low. Even surveys conducted by the U.S. Department of Education have recently suffered from lower response rates, with the 2013 Teaching and Learning International Survey (TALIS) achieving only an initial 37-percent response rate, with 61 percent achieved after a replacement sample was included (Organisation for Economic Cooperation and Development [OECD], 2014). Despite these issues, low response rates may not always suggest bias in the result, and researchers can apply a variety of techniques to deal with nonresponse, as we do with ATP results (Groves et al., 2001).

Table 1.2
June and October 2015 Teacher Demographics for All Teachers and Respondents in SACC States

	June 2015 Survey		October 2015 Survey	
All Teachers	**Mean (%) (N = 1,705)**	**Average—Teachers in SACC States (%) (N = 1,520)**	**Average—Teachers in All States (%) (N = 1,168)**	**Average—Teachers in SACC States (%) (N = 1,057)**
Teachers by state				
SACC states	78.8	N/A	80.9	N/A
Non-SACC states	20.0	N/A	19.1	N/A
Teachers by grade				
Elementary grades (K–5)	50.8	51.6	58.0	59.1
Secondary grades (6–12)	45.7	45.8	39.7	39.0
Teacher by subject				
Mathematics	55.1	55.3	69.8	69.1
English language arts	61.6	62.4	81.4	83.2
Natural sciences	46.9	47.2	N/A	N/A
Social sciences	48.7	49.8	N/A	N/A

Table 1.2—Continued

All Teachers	June 2015 Survey		October 2015 Survey	
	Mean (%) (N = 1,705)	Average—Teachers in SACC States (%) (N = 1,520)	Average—Teachers in All States (%) (N = 1,168)	Average—Teachers in SACC States (%) (N = 1,057)
School composition				
Up to 75% FRL	72.4	72.5	71.3	69.2
Greater than 75% FRL	25.8	26.8	25.3	26.8

NOTE: While these percentages reflect all teachers who participated in each survey, they do not always reflect the percentage of respondents who responded to individual survey items because teachers of both mathematics and ELA were randomly assigned to complete all the mathematics-specific items in the survey or all the ELA-specific items, but not both. Complete information regarding the respondents for each survey, as well as standard error for each subgroup, is included in Appendix A at the end of this report. For June 2015 survey percentages in this table, we consider teachers in SACC states to be any teachers in states except for Virginia, Indiana, Texas, Alaska, Minnesota, Nebraska, and Oklahoma. For the October 2015 survey percentages, we consider teachers in SACC states to be any teachers excluding teachers in those same states, as well as South Carolina. Given that Minnesota has adopted CCSS for English language arts but not mathematics, we include Minnesota as a SACC state in any analysis throughout this report referencing English language arts or English language arts standards. These states were excluded based on documented state adoption of Common Core State Standards (CCSSI, 2016e).

FRL = free or reduced price lunch.

Analyses were conducted in SAS and standard errors of estimates were adjusted for weighting using the SAS "proc survey." We examined survey responses of teachers in several subgroups, including

- **teachers in SACC states versus non-SACC states.** Most states have adopted new standards over the past several years. However, we focus upon teachers from SACC states in most of our analysis—and sometimes compare them with teachers in non-SACC states—given that teachers in SACC states have adopted standards acknowledged by those states to be similar to or adapted from the Common Core. At the end of this first chapter, we present some introductory findings on which standards teachers in

SACC and non-SACC states report that their state has adopted, as well as the time lines for adoption.

- **teachers of mathematics versus ELA.** For some comparisons that are the same across subjects—for example, the extent to which teachers indicate that their state standards influence their use of instructional materials—we consider the extent to which responses of mathematics teachers differ from those of ELA teachers. In some cases (particularly at the elementary level), teachers who responded about their mathematics materials could also teach ELA.
- **teachers at elementary versus secondary grade levels.** Given some evidence suggesting differences in knowledge and other characteristics of elementary teachers compared with their secondary counterparts (e.g., Book and Freeman, 1986; Pomeroy, 1993), we thought it important to compare responses of teachers in elementary grades (K–5) to those in secondary grades (6–12). In some analysis, we also compare teachers in different grades or grade spans (e.g., K–2, 3–5, 6–8, and 9–12).
- **teachers serving students with different backgrounds and income levels.** Given the close relationships between students' background and their educational attainment (Teachman, 1987; Cheung and Andersen, 2003; Gottfried et al., 2003), we accounted for differences in responses among teachers serving students at different income levels, based on available school-level free and reduced priced lunch data, as well as teachers of lower versus higher percentages of minority (nonwhite) students. We also compared differences in responses among teachers serving higher versus lower percentages of English language learners (ELLs) and students with special needs, which we felt particularly important given concerns about the challenges that the CCSS presents to ELL students (Bunch, Kibler, and Pimentel, 2012; Santos, Darling-Hammond, and Cheuk, 2012) and those with disabilities (Powell, Fuchs, and Fuchs, 2013). However, we did not have school-level data on percentages of ELL students within teachers' schools. We did ask teachers about the percentages of

ELL students in their classrooms in the October survey, and we thus included some ELL comparisons in Chapter Two.

- **teachers with fewer versus more years of experience.** Some evidence suggests that teachers with more experience are better able to raise students' test scores (Hanushek, 1971; Rockoff, 2004), although less evidence indicates that teacher experience has a large impact on teacher knowledge or practice (e.g., Hill, Rowan, and Ball, 2005). Nonetheless, teachers with different levels of experience may have received different exposure to the standards via preparation, induction, and professional development. If differences exist between teachers with more or less experience, it would provide information to districts and schools to better target these opportunities. For these reasons, we sometimes compare teachers with less than three years of teaching experience to those with more than three years of experience.
- **teachers in our four target states: California, Louisiana, New Mexico, and New York.** As mentioned previously, we oversampled teachers to participate in the ATP from four target states. We highlight findings from teachers in each of those four states and compare them to teachers in other SACC states in some sections of our analysis. The estimates provided for particular states are state-level estimates based on available demographic information within each state. However, estimates for all teachers or SACC teachers are always national estimates that take into account the larger proportion of teachers, overall, from our target states and decrease the weight of their responses accordingly.

We sometimes make comparisons within other subgroups, including—for example—elementary versus secondary mathematics teachers in SACC states or ELA teachers of lower versus higher percentages of free and reduced price lunch students in SACC states. Throughout the report, we highlight significant differences among these subgroups (i.e., those at $p < 0.05$). That said, we observed many statistically significance differences that we do not consider *practically* significant, given that they occurred among only a very small percentage of teachers or did not necessarily represent a large actual difference. We do not high-

light significant differences that we do not consider to be practically significant.[4]

Standards Adoption in SACC and Non-SACC States

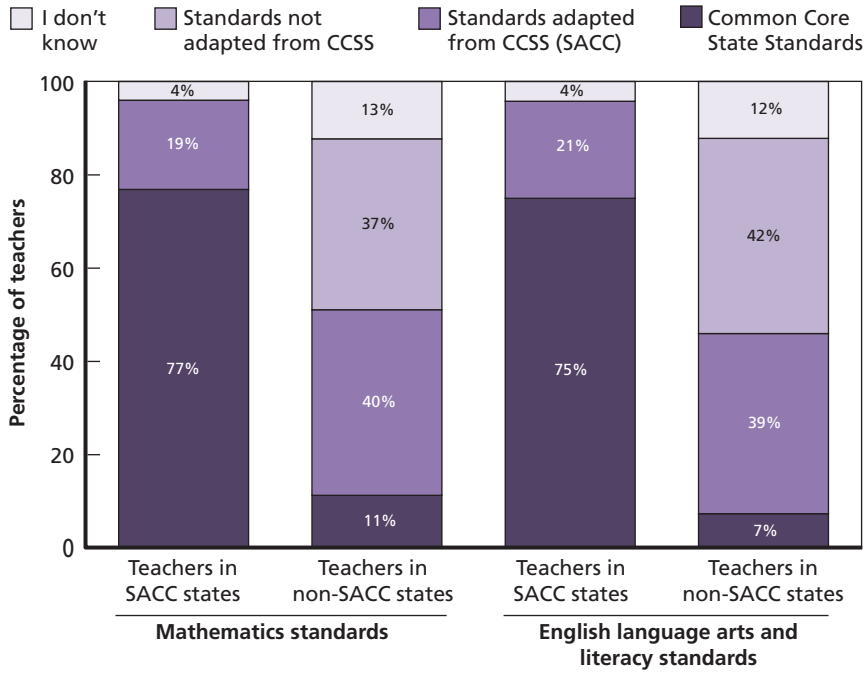
We particularly focused on SACC states in this report, or those 42 states on record as adopting CCSS. Yet, as discussed earlier, we expect SACC states are likely different from one another in terms of both how similar their standards are to CCSS and the messages and supports they provide to teachers. Thus, in this introductory chapter, we share some findings on the standards that teachers in both SACC and non-SACC states perceive their state has adopted, as well as when teachers reported that they are expected to start addressing those standards. These findings are drawn from questions asked in our June 2015 survey.

Almost all teachers in SACC states reported that their state has adopted CCSS or standards adapted from CCSS, although responses from non-SACC states were more mixed.

In the June 2015 survey, teachers were asked, "Which academic standards has your state adopted for English language arts and literacy?" or "Which academic standards has your state adopted for mathematics?" In response to this question, a majority of teachers in SACC states indicated that their state has adopted "Common Core State Standards" or "state standards adapted from CCSS" (see Figure 1.2). In contrast, in non-SACC states, teachers' perceptions about which standards were adopted varied a great deal. About 40 percent of those in non-SACC states indicated that their standards were adapted from CCSS, and about 10 percent indicated that their state had adopted "Common

[4] Specifically, when we observed significant differences among subgroups with 15 or fewer teachers, we typically did not consider findings to necessarily be practically significant. In addition, when a difference between groups of teachers was significant, but the percentage point difference was 3–5 percentage points (as most often occurs at the upper or lower end of the distribution of responses), we typically did not consider that difference to be practically significant.

Figure 1.2
Teachers' Reports of the Standards Adopted in Their State



NOTE: The distribution of responses for SACC versus non-SACC states is statistically significant for both math and ELA teachers ($p<0.05$). Percentages for each group of teachers may not add up to 100% due to rounding.

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Core State Standards." These responses from teachers in non-SACC states are not necessarily "incorrect," given that some of these states have standards somewhat similar to CCSS.[5] About 12 percent of teachers from non-SACC states indicated they did not know which standards their state had adopted, compared to about 4 percent of teachers in SACC states.

In the four SACC states where we have oversamples of respondents—California, Louisiana, New Mexico, and New York—teachers

[5] See, for example, the Achieve (2014) report suggesting that Indiana's current state standards are similar to CCSS.

were all significantly more likely to indicate that their state had adopted "Common Core State Standards" compared with other states. More than 85 percent of teachers in each of these states indicated that their state had adopted CCSS, rather than "state standards that are adapted from CCSS," compared with 57 percent of teachers in the remaining SACC states. Specifically, the following percentages of teachers in each state reported that their state had adopted CCSS: 87 percent of California teachers, 93 percent of Louisiana teachers, 94 percent of New Mexico teachers, and 87 percent of New York teachers. Almost all of the remaining teachers in these four states reported that their state has adopted standards adapted from CCSS.

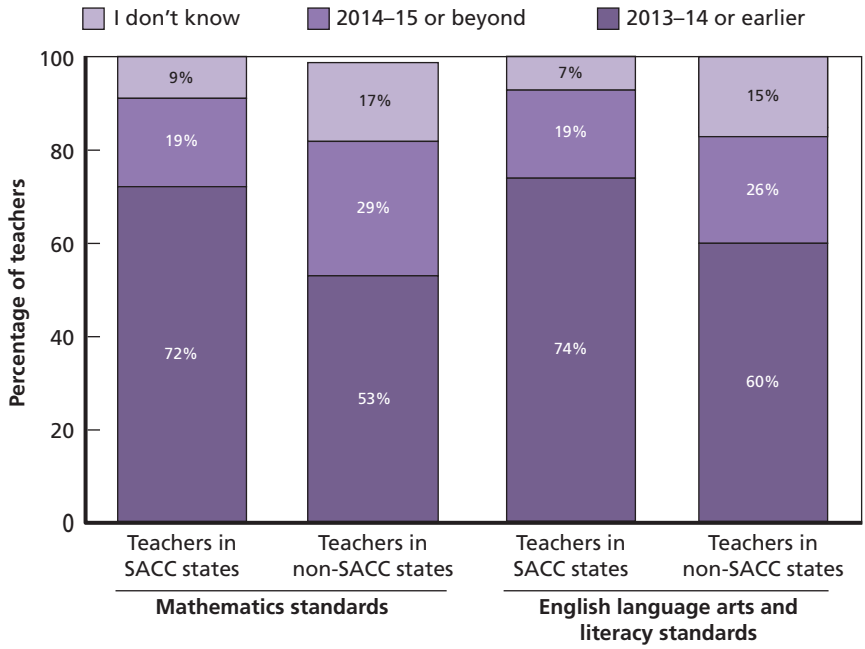
Higher percentages of teachers from non-SACC states did not know when they would be expected to address their state standards compared with their counterparts in SACC states.

Teachers were also asked, "When did your district or charter management organization expect teachers to start addressing [English language arts and literacy/mathematics] standards in their instruction?" Most teachers in both SACC and non-SACC states indicated that they were expected to address standards for mathematics and/or ELA/literacy during the 2013–2014 school year or earlier, and an additional 19 to 29 percent of teachers reported being expected to address the standards in 2014–2015 or beyond (Figure 1.3).

Furthermore, teachers in non-SACC states were significantly more likely to report that they didn't know when they were expected to address standards compared with those in SACC states. This greater uncertainty about standards implementation in non-SACC states is likely related to some political conflict about standards and assessments in some of those states, including states like South Carolina and Indiana, where standards similar to CCSS have been repealed relatively recently.

In three of the four SACC states where we have oversamples of respondents—Louisiana, New Mexico, and New York—most teachers indicated that they had been expected to implement their standards in 2013–2014, with most remaining teachers in those states reporting the expectation that they implement standards in 2014–2015. Specifically,

Figure 1.3
When Teachers Report Being Expected to Start Addressing Standards



NOTE: The difference in the percentage of teachers indicating "I don't know" is significant among teachers in SACC versus non-SACC states for both math and ELA ($p<0.05$). Percentages for each group of teachers may not add up to 100% due to rounding.

RAND *RR1529X1-1.3*

in New Mexico and New York, between 85 and 90 percent of teachers indicated the expectation that they implement standards starting in 2013–2014, whereas about 77 percent of teachers in Louisiana said the same. California was the exception to this rule, where between 60 and 70 percent of teachers reported the expectation that they implement standards in 2013–2014, and another 29 to 35 percent indicated that they were expected to implement standards in 2015–2016. Thus, California's implementation of standards lags significantly behind those in other states, which makes some sense given the intentionally slow roll-out of standards implementation in California (Freedberg, 2016).

Organization of This Report

This remainder of this report is presented in four additional chapters:

- Chapter Two considers instructional resources that teachers in SACC states report drawing upon for their mathematics and ELA instruction, including the prevalence of resources developed or selected by teachers' school districts and by teachers themselves. We also report on teachers' use of leveled readers in their classroom; teachers' reports about the factors influencing their use of instructional materials; the extent to which their materials help them address particular student practices aligned with Common Core State Standards; and professional development that teachers are receiving to support their use of materials. The data for these findings are drawn from the October 2015 survey.
- Chapter Three provides teachers' reports regarding state standards content, standards-aligned instructional approaches, and students' classroom practices related to English language arts and literacy. The data in this chapter are drawn from a survey fielded to all K–12 teachers in June 2015, although our analysis focuses on ELA teachers and particularly those in SACC states.
- Chapter Four provides teachers' reports regarding state standards content, standards-aligned instructional approaches, and students' classroom practices related to mathematics. As with the previous chapter, the data in this chapter are drawn from a survey fielded to all K–12 teachers in June 2015, although our analysis focuses on mathematics teachers and particularly those in SACC states. The findings in Chapters Three and Four are meant to reflect broad trends in the information that teachers have about their state standards, as well as their students' practices.
- Chapter Five presents the conclusions and implications of all these findings, with particular consideration about the kinds of messages, resources, and supports that teachers may need most to fill the unspecified space between what standards documents indicate that students should learn and the instructional strategies

and classroom practices in which teachers should engage students in the classroom.

Appendix A includes some additional methodological information and tables related to our analysis. Appendix B includes all the survey items for which we present findings in this report.

CHAPTER TWO

Instructional Resources to Support Standards Implementation

Teachers cannot help students meet their state standards if they do not have access to high-quality, standards-aligned instructional materials. Despite many publishers and sources of online materials rushing to claim the alignment of instructional resources with newer state standards and the Common Core, recent studies refute those claims to some extent (Herold and Molnar, 2014; Heitin, 2015; Polikoff, 2015). Some evidence suggests that policymakers at the state and local level recognize the misalignment of instructional materials with newer state standards and are trying to address it. For example, in a survey of state education agencies, 26 state agencies reported a challenge in identifying or developing instructional materials for CCSS (Rentner, 2013). In addition, a national survey of school district administrators suggests that many school districts and teachers are working on their own to develop materials aligned with CCSS (Rentner and Kober, 2014). However, research has not provided clear ideas about the instructional materials on which most teachers in SACC states are relying for their instruction and how well those materials are supporting teachers' work to address their state standards.

This chapter provides a comprehensive picture of the materials that teachers are using for their instruction, with the assumption that instructional materials provide a foundation for the instruction that teachers provide. This chapter is organized into four main sections:

- **Most commonly used instructional materials.** We present findings on the instructional materials that mathematics and ELA teachers report using most for their instruction, including mathematics and ELA materials, as well as online materials. We also delve into teachers' use of particular materials, including district- and self-developed materials. As we saw in the previous chapter, use of complex texts is emphasized with the Common Core State Standards for ELA/literacy, and use of leveled texts at students' individual reading levels—while not discouraged—is not emphasized. Thus, we look at teachers' responses to questions about leveled-reader use to better understand whether and how teachers are using leveled readers in their classrooms.
- **Factors influencing teachers' use of instructional materials.** To better understand how standards, teachers' preservice training, and other inputs affect instructional materials use, we present teachers' responses to a set of questions adapted from the Surveys of Enacted Curriculum (Blank, Porter, and Smithson, 2001) about the factors influencing teachers' use of their main instructional materials.
- **Opportunities instructional materials provide to address standards.** We asked teachers the extent to which each of their main instructional materials addressed various aspects of standards. These questions don't necessarily get at the quality of materials themselves, but they do provide some clues on the extent to which teachers are using—or are able to use—their main instructional materials to address standards-aligned practices.
- **Curriculum-specific professional development.** Lastly, we share findings on both how much professional development teachers reported receiving for use of their main instructional materials and how much additional curriculum-specific professional development they would like to receive.

The survey items used to gather these results were fielded as part of the October 2015 ATP survey. We adapted items from the Surveys of Enacted Curriculum (Blank, Porter, and Smithson, 2001) about the factors that influence teachers' instruction. We also adapted items

from a SAP survey regarding the extent to which teachers used particular mathematics, ELA, and online instructional materials. All of our survey items are included in the appendix at the end of this report.

Commonly Used Instructional Resources for Mathematics and English Language Arts Across the United States

We first asked teachers to report how much they were drawing upon a long list of published instructional materials for their mathematics and English language arts classroom lessons thus far in the 2015–2016 school year, as well as how often they drew upon district-developed/selected or self-selected/developed instructional materials. We included published resources based on market share information, as well as instructional resources identified from preliminary SAP surveys sent out to over 2,000 teachers in May and June of 2014, which included questions about instructional materials use. We also asked teachers to report on their use of online instructional resources, also drawing upon online instructional resources identified in SAP surveys. We asked about use of EngageNY.org in our questions about both published materials and online resources, given that EngageNY.org includes free online published materials developed in partnership between New York State Education Department and the following instructional materials vendors: Great Minds (for Eureka Math), Core Knowledge Language Arts (CKLA), Expeditionary Learning (now EL Education), and Developing Core Proficiencies for English Language Arts. These same instructional materials are also available apart from EngageNY, sometimes in slightly adapted or more digital versions, so we also asked separately about use of each of these materials available through EngageNY. We asked additional questions about the nature of district-developed/selected resources, self-developed/selected resources, and practices for use of leveled readers.

Some have reviewed the extent to which instructional materials are aligned with CCSS, mostly focusing on elementary and middle school mathematics materials. For example, EdReports released a review of 20 K–8 mathematics textbooks last year and found many not aligned

with the grade-level content addressed by the CCSS (EdReports, 2015). The exceptions were Eureka Math, Go Math, Math Expressions, and My Math. Eureka Math, which contributed materials to EngageNY, was found to be particularly well aligned in terms of content, rigor/mathematics practices, and usability. Polikoff (2015) reviewed the alignment of fourth-grade mathematics textbooks with CCSS, including Math Connects, Envision Common Core, Go Math!, and Saxon Intermediate. His findings suggested that 28 percent to 40 percent of the content of those textbooks is in "perfect proportional agreement" with CCSS (i.e., the proportion of specific content addressed by Grade 4 CCSS matches the proportion of that content addressed within a textbook), with somewhat higher proportional agreement for Envision Common Core and Go Math! (36 percent and 40 percent, respectively) compared to Math Connects and Saxon Intermediate (29 percent and 28 percent, respectively). On the other hand, 65 percent to 80 percent of content within those textbooks at least matched the content of Grade 4 CCSS, while not being in proportional agreement with that content. We did not find systematic reviews of the standards alignment of mathematics textbooks for grades 9–12.

ELA published instructional materials have undergone much less systematic review. Fordham Foundation has analyzed the extent to which the EngageNY ELA materials are aligned with CCSS (Haydel and Carmichael, 2015). It found the texts within the EngageNY materials to be appropriately complex and the content to be generally aligned, although it also noted a lack of literary content at the high school level. EdReports has announced its intention to post ELA reviews in spring 2016, as well as to expand its mathematics textbook reviews.

Mathematics teachers in SACC states typically used materials developed or selected by their districts or themselves, with high percentages using published materials that have demonstrated alignment with CCSS.

Mathematics teachers were asked, "Please indicate the frequency with which you draw upon the following instructional materials for your mathematics classroom lessons this year (2015–2016)." Response choices included *Never use and/or never heard of/Rarely* (1x per month

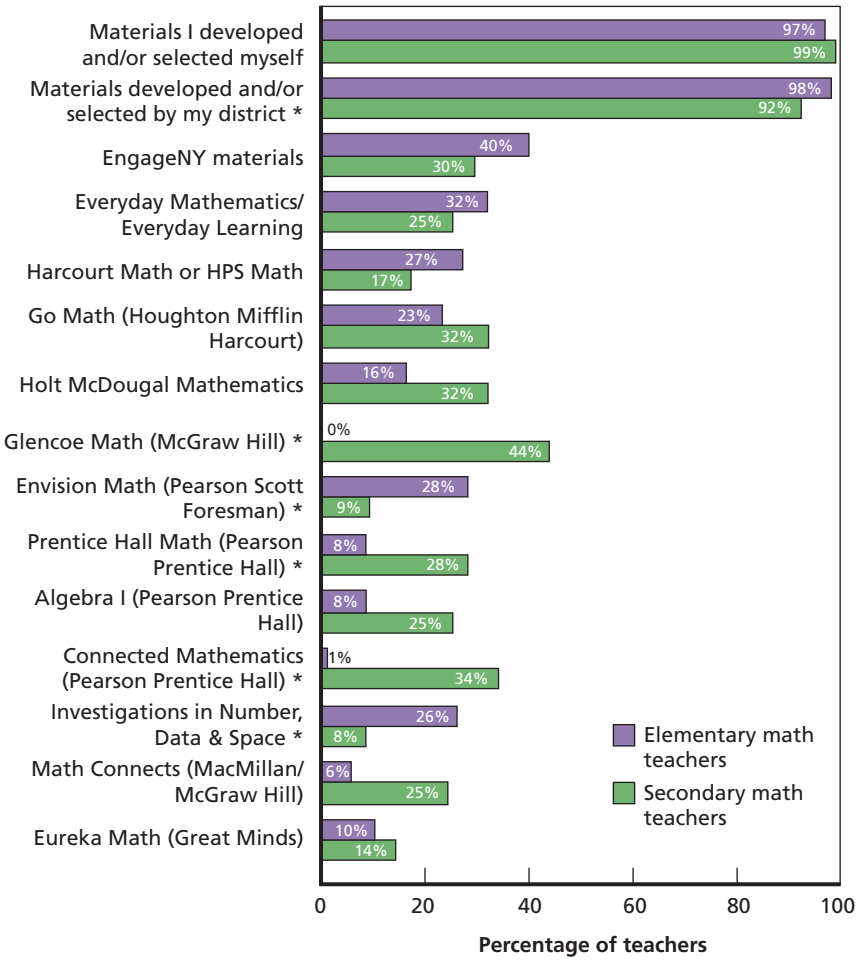
or less)/*Occasionally* (2–3x per month)/*Often* (1–2x per week)/*Daily or almost daily* (3–5x per week). ELA teachers were asked the same question about the materials they use in their ELA classroom lessons. Figure 2.1 provides an overview of the top 15 materials reported as used (more than "never") by mathematics teachers in SACC states at the elementary and secondary levels. We list the materials in order from highest to lowest overall use across all K–12 teachers. This figure includes reports of teachers in SACC states only. While we note significant differences in use of certain materials between reports of elementary versus secondary mathematics teachers, we should emphasize that certain materials are currently intended more for use in the elementary, or K–5, grades (e.g., Envision Math), and others are intended more for use in secondary, or 6–12, grades (e.g., Glencoe Math, Prentice Hall Math, Algebra I, Connected Math).

Nearly all mathematics teachers reported drawing upon materials developed or selected by their district or themselves in their mathematics classroom lessons. Some of the most commonly used published materials included those that EdReports judged to be aligned with CCSS in terms of content, including EngageNY/Eureka Math and—to some extent—Go Math! Most teachers reported using published instructional materials alongside or as part of their district- or self-developed materials.

While Figure 2.1 captures teachers' reports of using certain instructional materials "at all," teachers also reported the frequency with which they drew on these materials. Most of the teachers who reported using self-developed or -selected materials in Figure 2.1 used those materials frequently; 83 percent of elementary mathematics teachers and 87 percent of secondary mathematics teachers reported using materials they developed or selected themselves at least once a week. Sixty-six percent of elementary teachers and 52 percent of secondary teachers reported using materials developed by their district at least once a week.

In addition, 15 percent or less of elementary and secondary mathematics teachers reported using almost any of the published materials on this list at least once a week, with the exception of

Figure 2.1
Top Instructional Materials Used for Mathematics Classroom Lessons Among Teachers in SACC States



NOTE: For reports about mathematics instructional materials in this figure (and throughout this chapter), teachers in SACC states are considered those in states except Alaska, Indiana, Minnesota, Nebraska, Oklahoma, South Carolina, Virginia, and Texas. Asterisk (*) indicates differences in displayed values between SACC elementary and secondary teachers were statistically significant ($p<0.05$).

RAND *RR1529X1-2.1*

- EngageNY (used by 19 percent of elementary mathematics teachers at least once a week)
- Envision Math (used by 18 percent of elementary mathematics teachers at least once a week)

We did find a few differences between teachers in SACC and in non-SACC states. Specifically, SACC mathematics teachers reported significantly more use of some instructional materials that have demonstrated alignment with CCSS, including EngageNY. There were few significant differences in use of instructional materials between teachers with higher and lower percentages of ELLs or those in schools with higher versus lower percentages of students receiving free or reduced priced lunch. Specifically, Glencoe Math was used more by teachers serving lower percentages of ELL and FRL students compared to teachers serving more ELL and FRL students, and Holt Math was used more by teachers serving lower percentages of FRL students. We did observe significantly higher use of EngageNY in New York and Louisiana compared with other SACC states. Specifically, 39 percent of Louisiana mathematics teachers and 44 percent of New York mathematics teachers reported using EngageNY at least once a week, compared with 13 percent of mathematics teachers in other SACC states. In both states, the department of education recommends EngageNY materials. The high percentage of New York teachers who report using EngageNY is also unsurprising given that EngageNY was developed in a partnership between publishers and the New York State Education Department (NYSED) to be specifically aligned to New York state standards. NYSED has an "EngageNY help center" website apart from the EngageNY website (EngageNY, undated), and the NYSED website describes EngageNY as the "go-to site for teaching and learning resources for New York's teachers, principals, administrators, and Network Teams" (NYSED, 2016).

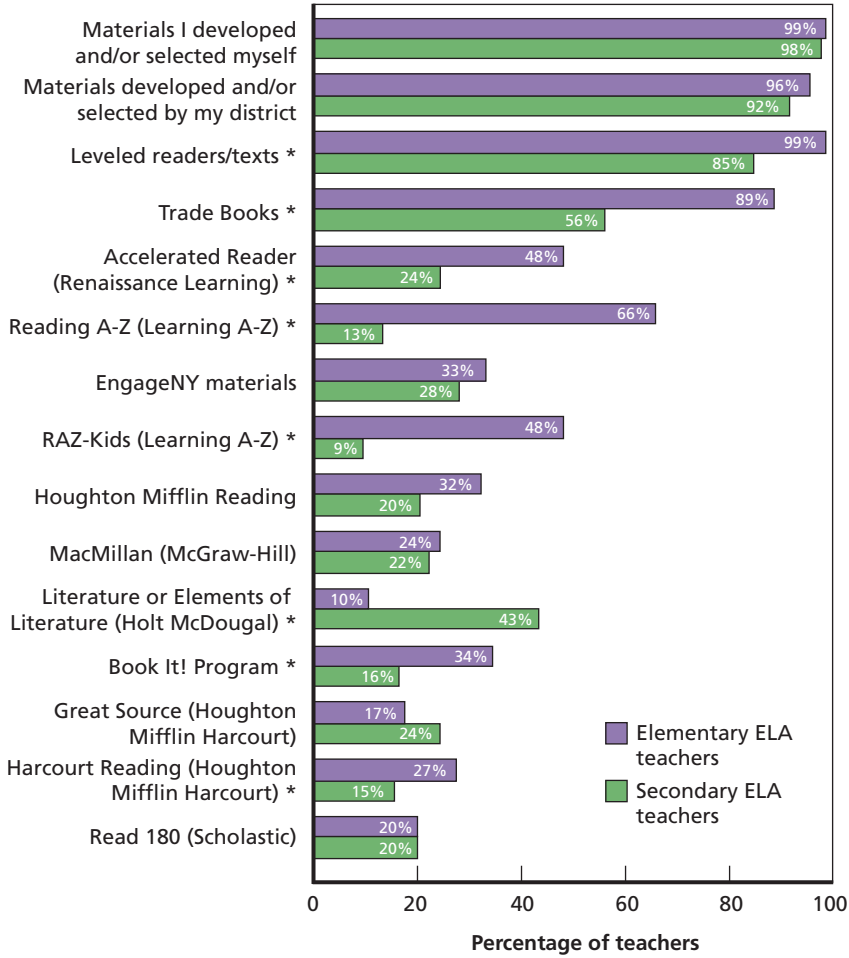
Most ELA teachers in SACC states also drew upon materials developed by themselves or their districts, although leveled readers were the most commonly used texts in ELA classrooms, especially at the elementary level.

Figure 2.2 lists the top 15 instructional materials used at all by elementary ELA teachers and secondary teachers in SACC states. As with mathematics teachers, most ELA teachers also reported using materials developed or selected by themselves or their district. Leveled readers were the dominant reading instructional materials reported by teachers, especially at the elementary level, where 79 percent of ELA teachers reported using leveled readers at least once per week and 60 percent reported using them daily or almost daily. Secondary ELA teachers in SACC states were significantly less likely to use leveled readers compared with elementary ELA teachers, with only 14 percent of secondary ELA teachers reporting their daily or almost daily use, although a high percentage of secondary teachers reported using them at least occasionally. While we note differences between reports of instructional materials among elementary versus secondary teachers, some materials in Figure 2.1 are generally intended for use in K–5 grades (e.g., Reading A–Z and RAZ-Kids), or in 6–12 grades (e.g., Elements of Literature).

Beyond leveled readers, other commonly used texts reported by ELA teachers in SACC states included trade books, Accelerated Reader, Reading A–Z, EngageNY materials, RAZ-Kids, and Houghton Mifflin Reading, among others. Notably, leveled readers play a key role or are the main materials within Reading A–Z, RAZ-Kids, and Accelerated Reader materials. Most teachers reported using published materials alongside or as part of their district- or self-developed materials.

As with our previous figure on use of mathematics materials, Figure 2.2 captures teachers' reports about using these materials at all for their instruction, but teachers also reported the frequency with which they drew on these materials. As with mathematics teachers, high percentages of elementary (90 percent) and secondary (85 percent) ELA teachers also reported using materials they developed or selected themselves at least once a week. Also as with mathematics teachers, secondary ELA teachers were significantly less likely

Figure 2.2
Top Instructional Materials Used for ELA Classroom Lessons Among Teachers in SACC States



NOTE: For reports about English language arts materials in this figure (and throughout this chapter), teachers in SACC states are considered those in states except Alaska, Indiana, Nebraska, Oklahoma, South Carolina, Texas, and Virginia. Asterisk (*) indicates differences in displayed values between SACC elementary and secondary teachers were statistically significant ($p<0.05$).

RAND *RR1529X1-2.2*

to report using materials developed or selected by their district at least once a week compared with elementary ELA teachers (51 percent versus 74 percent). Beyond leveled readers, only 15 percent or less of secondary ELA teachers reported using most of the published materials on this list at least once a week. At the elementary level, however, somewhat higher percentages of ELA teachers reported using some materials at least once a week, including Reading A–Z (28 percent), RAZ-Kids (24 percent), Accelerated Reader (29 percent), and Journeys (18 percent).

We identified some significant differences in reports on ELA instructional materials use by teachers with lower versus higher percentages of ELL students in their classrooms. Specifically, ELA teachers serving higher percentages of ELL students were significantly more likely to report frequent use of leveled readers and materials that featured leveled readers, including Reading A–Z, compared with ELA teachers with lower percentages of ELL students. For example, 61 percent of teachers with more than 25 percent ELL students in their classrooms reported daily or almost daily use of leveled readers versus 33 percent of those serving lower-ELL percentages.

We observed relatively few significant differences between use of instructional materials among SACC versus non-SACC teachers. The most notable is that SACC teachers were more likely to report using EngageNY and related materials (CKLA and Expeditionary Learning) compared with non-SACC teachers. For example, 30 percent of SACC teachers use EngageNY compared with only 9 percent of non-SACC teachers. We also saw a number of significant differences among reports of teachers in the four states for which we have state-level estimates. Significant state-level differences in use of the top ELA instructional materials included

- higher Accelerated Reader use in Louisiana: 43 percent of Louisiana ELA teachers reported using Accelerated Reader daily or almost daily compared with only 13 percent of ELA teachers in other SACC states
- higher use of EngageNY in New York: 15 percent of New York ELA teachers reported using EngageNY daily or almost daily for

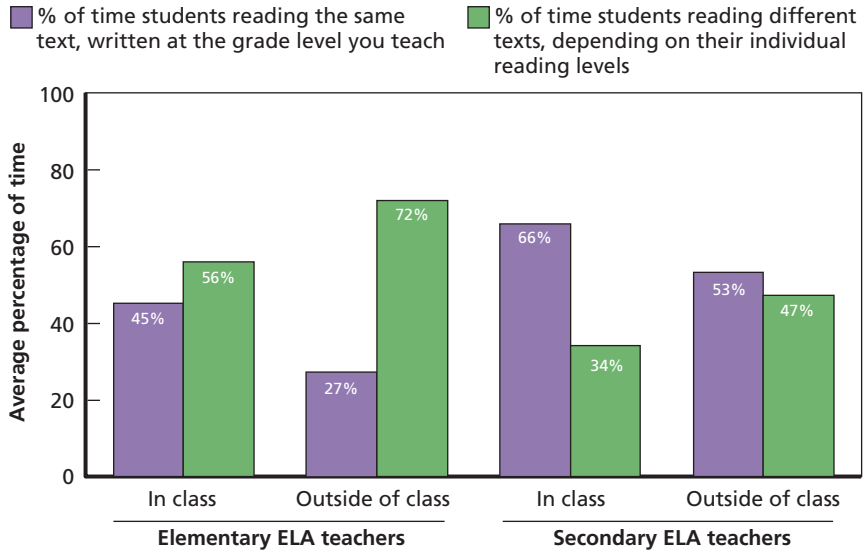
English language arts instruction compared with only 3 percent of ELA teachers in other SACC states
- higher use of Reading Street in New Mexico: 10 percent of New Mexico ELA teachers reported using Reading Street daily or almost daily compared with just 5 percent of ELA teachers in other SACC states.

For ELA teachers who reported use of leveled readers—most teachers, as shown in Figure 2.2—we also asked a set of questions to better understand how often teachers used leveled readers and how teachers selected and used them in the classroom. We were particularly interested in understanding the extent to which teachers used leveled texts written at students' individual reading levels versus texts written at the same grade level for all students. Given the difficulty in assessing whether texts are complex, as defined by CCSS, we use grade-level texts as the referent for teachers while acknowledging that "grade-level" texts may not necessarily be considered "complex" and challenging for all students at a particular grade level.

Elementary ELA teachers reported spending the majority of in-class and out-of-class reading time on leveled texts, written at students' individual reading levels, whereas secondary teachers reported more time spent on the same grade-level text.

We asked teachers to take into account all the reading their students do in class and then estimate the percentage of that time that students spend reading the same grade-level text versus texts at students' individual reading levels. We also asked teachers to provide the same percentage estimates for students' assigned reading time outside of class. As indicated in Figure 2.3, elementary teachers in SACC states reported students spending more time reading texts at their individual reading level compared with texts at the same grade level, particularly outside of class. In contrast, secondary teachers reported students spending more time reading the same grade-level text than reading texts at their individual reading level, particularly inside of class. We should make the point here that students at the secondary level are commonly "tracked" into classes based on their achievement level (e.g.,

Figure 2.3
Average Percentage of In-Class and Out-of-Class Time ELA Teachers in SACC States Estimated Their Students Are Reading the Same Text and Different Text at Their Individual Reading Level



NOTE: The differences in displayed values was significantly different for SACC elementary ELA teachers' outside of class reading ($p<0.001$), as well as for SACC elementary versus secondary ELA teachers.

RAND *RR1529X1-2.3*

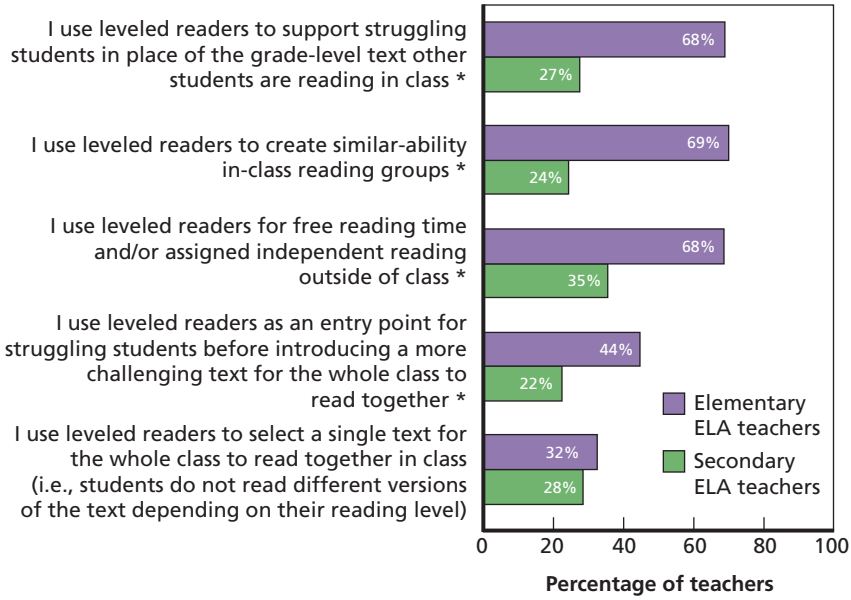
remedial, regular, and AP English). Thus, although secondary teachers may report spending more time reading the same text within class, students may be reading texts at different levels depending on their class, even if they are in the same grade.

While we did not see a significant difference in use of leveled readers within individual states, Louisiana elementary ELA teachers provided a significantly higher estimate on the percentage of their students reading the same grade-level text for out-of-class reading (54 percent of out-of-class reading) compared with ELA teachers in other SACC states (27 percent of out-of-class reading).

We also asked teachers, "How frequently do you use leveled readers (or different/adapted materials for students at different reading levels) in your classroom for the following purposes?" Teachers responded to a

list of purposes on a scale from *Never* to *Daily or almost daily* use. More than two-thirds of elementary ELA teachers in SACC states reported using leveled readers in a variety of ways: with struggling students as a replacement for grade-level texts, to create similar-ability in-class reading groups, and for free reading times outside of class. Secondary ELA teachers were much less likely to report weekly or daily engagement in those same leveled-readers practices (see Figure 2.4). Fewer elementary teachers reported using leveled readers to select a single text for the whole class to read together. Taken together, these findings suggest that elementary teachers ask students to spend a substantial portion of their time on leveled readers written at students' individual reading level, particularly if students are below their grade level in reading.

Figure 2.4
Reports of Weekly or Daily Engagement in Particular Leveled Reader Practices Among Elementary and Secondary ELA Teachers in SACC States

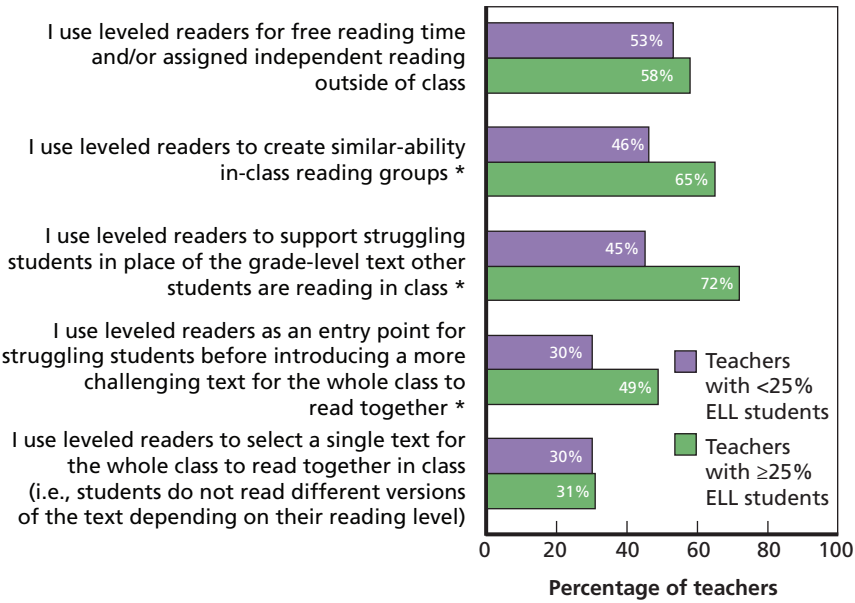


NOTE: Asterisk (*) indicates differences in displayed values between SACC elementary and secondary teachers were statistically significant ($p<0.05$).

RAND *RR1529X1-2.4*

We did not observe state-level differences in reports of leveled reading practices, except that teachers in New Mexico were significantly more likely than teachers in other SACC states to use leveled readers to create similar-ability in-class reading groups. As shown in Figure 2.5, Teachers with more ELLs in their classes reported more-frequent use of leveled readers to support struggling students in place of the grade-level text other students are reading, to create similar-ability in-class reading groups, and as an entry point for struggling students before introducing a more challenging text compared with teachers with fewer ELLs in class. The same was true for teachers in schools with higher populations of students receiving FRL. However, teachers in high FRL schools were

Figure 2.5
Reports of Weekly or Daily Engagement in Particular Leveled Reader Practices Among SACC Teachers with Lower Versus Higher Percentages of ELL Students in Their Classrooms



NOTE: Asterisk (*) indicates differences in displayed values between SACC teachers with fewer than 25 percent ELL students and those with 25 percent or more ELL students were statistically significant ($p<0.05$).

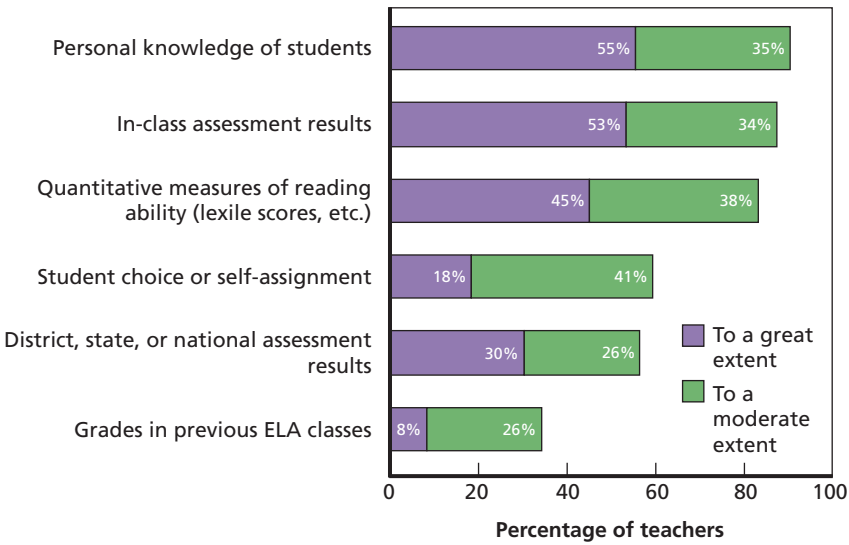
RAND *RR1529X1-2.5*

also more likely to indicate using leveled readers for free reading time or assigned independent reading outside of class.

Most ELA teachers reported using personal knowledge of students to determine their reading level, although high percentages also reported using in-class assessment results and quantitative measures of reading ability.

More than 80 percent of ELA teachers indicated using three main sources of information to a great or moderate extent to determine students' reading level: personal knowledge of students, in-class assessment results, and quantitative reading measures. We did not observe significant differences in reports of elementary versus secondary ELA teachers. Responses of all ELA teachers in SACC states are reported in Figure 2.6.

Figure 2.6
Influences on Determination of Students' Reading Level According to ELA Teachers in SACC States



RAND *RR1529X1-2.6*

Teachers reported consulting a range of online resources for their instruction, with elementary teachers and those in higher-FRL schools more often reporting use of some online resources compared with secondary teachers and those in lower-FRL schools.

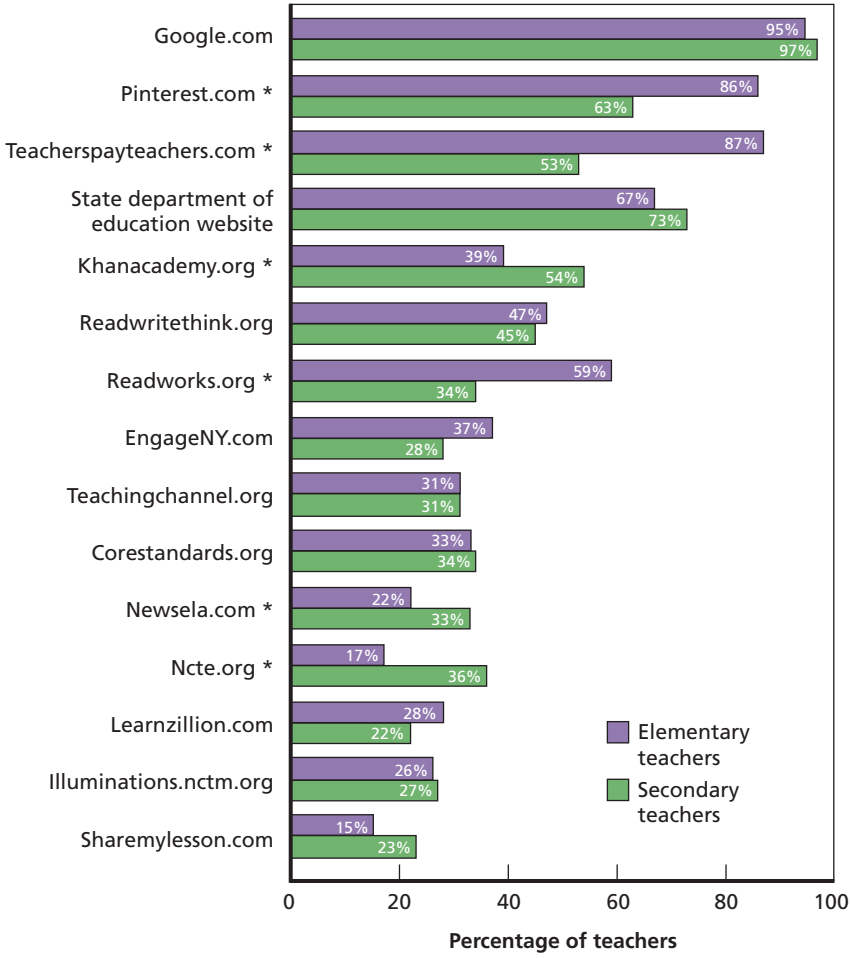
Teachers were also asked, "In a typical month, how frequently do you consult the following online resources for ideas and/or materials to integrate into your instruction?" using the following response scale: *Never heard of this source/Never use this source/Less than once a month/1–2 times a month/1–2 times a week/Daily or almost daily*. The top 15 resources teachers reported using most commonly are included in Figure 2.7. Perhaps unsurprisingly, almost all teachers reported using Google. Beyond that, more than half of both elementary and secondary teachers also consulted Teacherspayteachers, Pinterest, and their state department of education website. Among the top 15 resources are those that are explicitly related to CCSS and standards in SACC states, including EngageNY, Corestandards.org, LearnZillion, and Illuminations. Newsela.com is a site that levels texts by reducing the difficulty of some words and sentences.

Elementary teachers were significantly more likely to use multiple online resources compared with their secondary counterparts. However, some of these online resources are either aimed mainly at elementary teachers or have more resources for elementary teachers, including Teacherspayteachers.com and Readworks.org. Khan Academy, on the other hand, appears to provide somewhat more resources to middle and high school teachers compared with elementary teachers.

As noted in Figure 2.8, compared with teachers in schools with lower percentages of FRL students, teachers in schools with more than 75 percent of their students receiving FRL were also more likely to use many online resources, including two explicitly focused or aligned with CCSS: Corestandards.org and LearnZillion. These findings suggest that teachers in low-income schools may either lack standards-aligned resources or feel the need to seek out more standards-aligned supports, regardless of the supports that they already have in place.

We observed some state-level differences in use of online resources, including similar differences regarding use of EngageNY as those we noted for our questions about instructional materials use. Specifically,

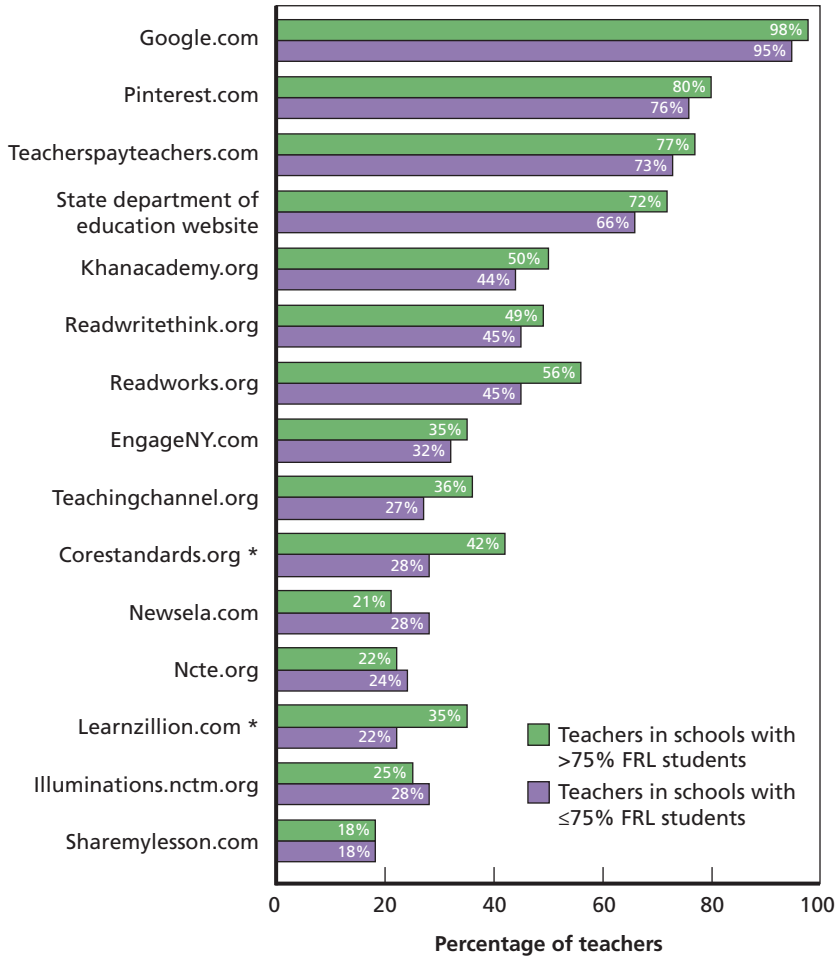
Figure 2.7
Top Online Resources Consulted for Instruction Among Mathematics and ELA Teachers in SACC States



NOTE: For reports about both English language arts and mathematics instructional materials in this figure (and throughout this chapter), teachers in SACC states are considered those in states except Alaska, Indiana, Minnesota, Nebraska, Oklahoma, South Carolina, Texas, and Virginia. Asterisk (*) indicates differences in displayed values between SACC elementary and secondary teachers were statistically significant ($p<0.05$).

RAND *RR1529X1-2.7*

Figure 2.8
Top Online Resources Consulted for Instruction Among Mathematics and ELA Teachers in SACC States by Teachers in Lower- Versus Higher-Income Schools



NOTE: Asterisk (*) indicates differences in displayed values between teachers in schools with higher and lower percentages of FRL students were statistically significant ($p<0.05$).

RAND *RR1529X1-2.8*

Louisiana teachers were much more likely to report use of EngageNY, as were New York teachers, compared with their counterparts in other SACC states. In addition, while 14 percent of mathematics and ELA teachers in other SACC states reported consulting their state department of education website at least once a week, 27 percent of Louisiana teachers reported doing so.

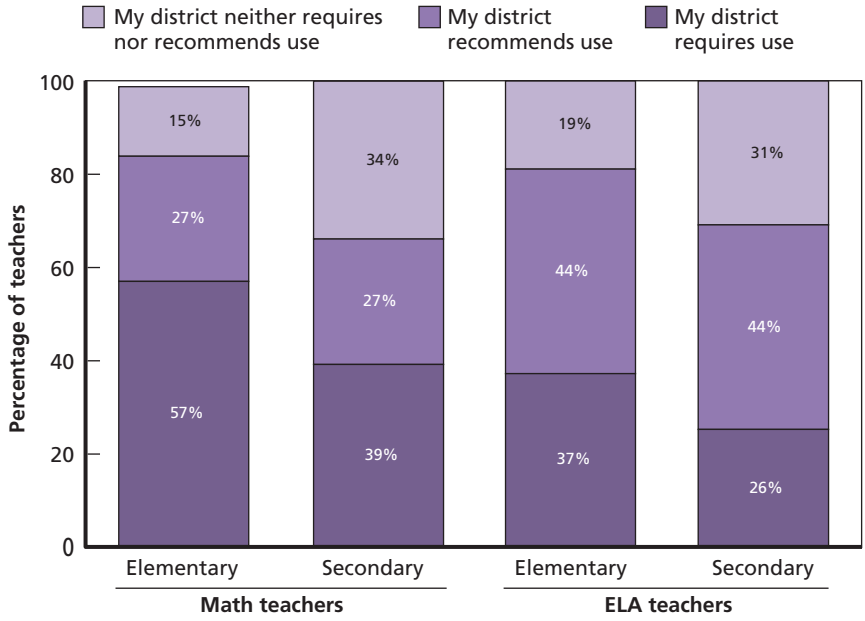
In addition, we observed some differences in use of mathematics, ELA, and online materials by teachers in SACC versus non-SACC states. Beyond EngageNY, mathematics and ELA teachers in SACC states reported more often using—and more often knowing about—Corestandards.org, Nextgenscience.org, Achieve the Core, Curriki.org, and LearnZillion. We observed no substantive differences in use of ELA instructional materials in SACC versus non-SACC states.

Elementary mathematics teachers were more likely to report use of district-required instructional materials, whereas secondary teachers were more likely to report developing or selecting their own materials in some areas.

For each of the mathematics or ELA main instructional materials that teachers reported using, teachers indicated whether their district required or recommended use of those materials. As indicated in Figure 2.9, elementary mathematics teachers were significantly more likely to report that their materials were required by their district compared with secondary mathematics teachers and elementary and secondary ELA teachers.

District-provided materials were more current in SACC states compared with non-SACC states. Sixty-nine percent of teachers in SACC states reported that their district-provided materials had been developed or selected three years ago or more recently as compared with only 45 percent of teachers in non-SACC states. Thirty-eight percent of teachers in non-SACC states did not know when their materials had been developed, as compared with only 15 percent of teachers in SACC states. The majority of teachers across states reported that their district-provided materials had been developed by a curriculum specialist in their district and/or by teachers in the district.

Figure 2.9
District Requirements for Use of Mathematics and ELA Instructional Materials in SACC States



NOTE: The difference in responses about "required use" for SACC elementary and secondary mathematics teachers is statistically significant ($p<0.05$). Also, the difference in the distribution of responses between SACC math and ELA teachers is statistically significant ($p<0.001$).

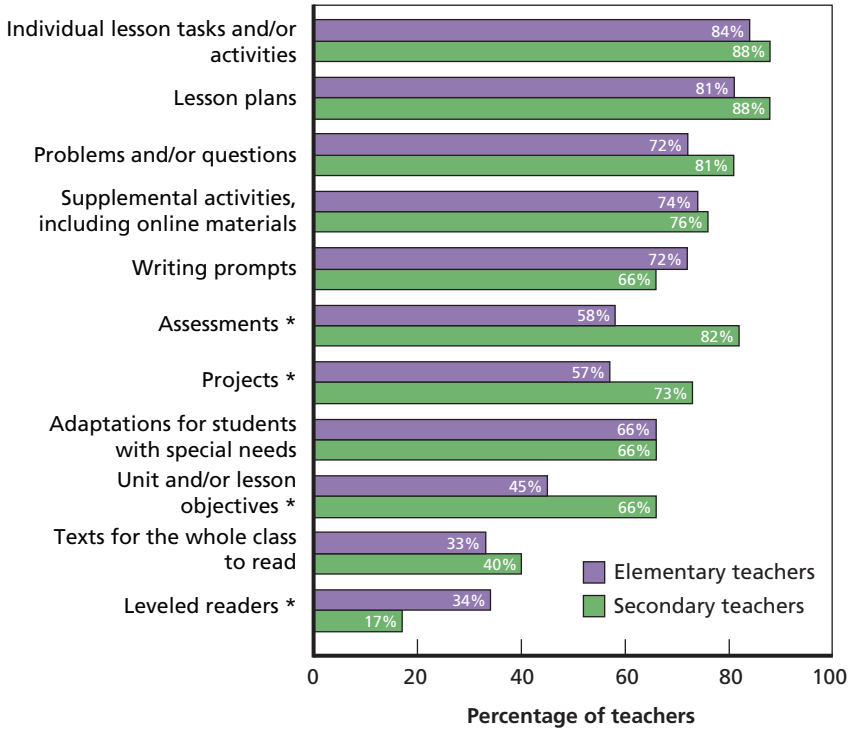
RAND *RR1529X1-2.9*

While elementary mathematics teachers, in particular, were more likely to cite use of district-required materials, secondary teachers were more likely to report developing or selecting some instructional resources, compared with their elementary counterparts (see Figure 2.10). For example, 66 percent of secondary teachers reported developing their own unit or lesson objectives, compared with just 45 percent of elementary teachers. The only difference we saw between SACC and non-SACC teachers was that SACC teachers were less likely to develop their own lesson tasks or activities. Between teachers in high and low FRL schools we only saw a difference in the percentage of teachers reporting that they developed their own projects, with teach-

ers in higher FRL schools developing projects significantly more often (47 percent compared with 33 percent).

Almost half of all teachers in SACC states—46 percent—reported spending more than four hours a week developing or selecting their own instructional materials, which is significantly more than the 39 percent of non-SACC teachers who do the same. Within SACC states, 43 percent of elementary teachers reported spending more than four hours a week on their own materials versus 51 percent of secondary teachers, but the difference was not significant.

Figure 2.10
Self-Developed/Selected Instructional Materials Reported by Elementary and Secondary Teachers in SACC States



NOTE: Asterisk (*) indicates differences in displayed values between SACC elementary and secondary teachers were statistically significant ($p<0.05$).

RAND *RR1529X1-2.10*

Factors Influencing Teachers' Use of Instructional Materials

To understand why teachers use the instructional materials they do, we asked teachers what factors influenced the use of their main materials. Teachers could list up to four main materials they relied on most often and the extent to which a set of factors influenced their use of each of their main materials (on a four-point scale from "not at all" to "a great deal").

For mathematics teachers, district curriculum frameworks and state standards influenced their instructional materials use most; for ELA teachers, quality of materials, classroom assessment results, and students' special needs did.

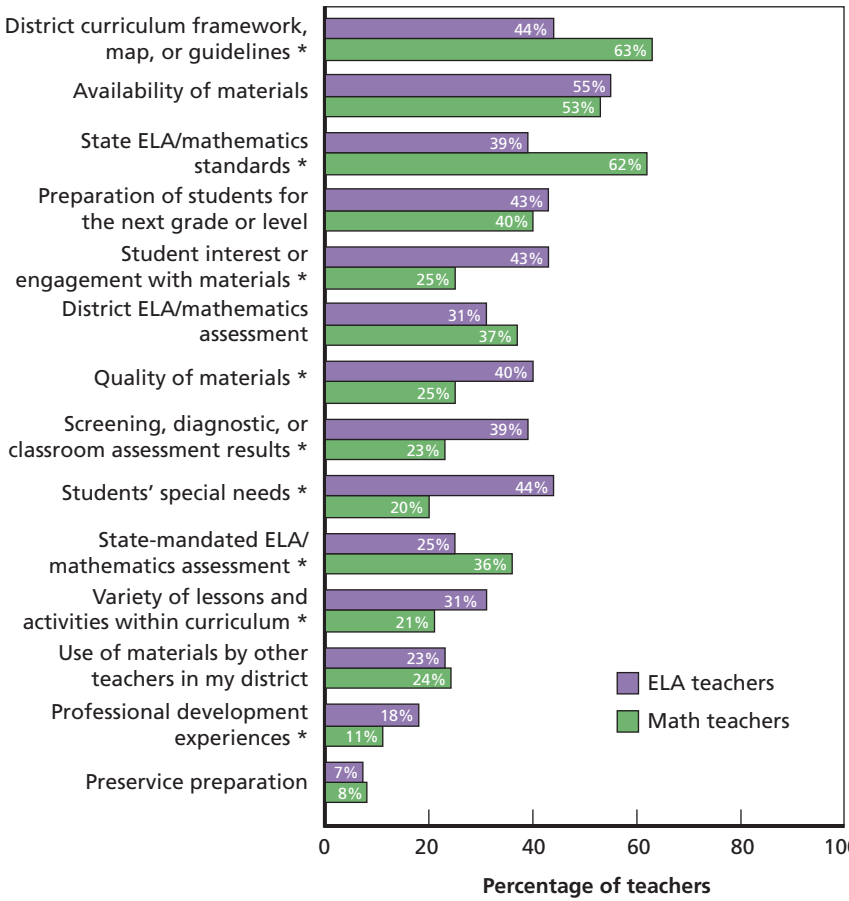
As shown in Figure 2.11, reports of mathematics teachers versus ELA teachers were quite different in terms of the factors influencing their instructional materials use. Mathematics teachers identified state and district guidelines as playing a greater role in their instructional materials use, whereas ELA teachers appeared to rely more on student-specific factors in determining their curricula, including classroom assessment results and students' special needs. Taken together with results about greater district instructional materials requirements for mathematics teachers compared with ELA teachers, these results suggest that ELA teachers may have more freedom in choosing their instructional materials and/or less available district and state resources on which to draw for their instruction.

The availability of materials was chosen by over half of all teachers as an important influence on instructional material use. However, some factors had little influence on teachers' instructional materials use. Only about 8 percent of mathematics and ELA teachers said that preservice preparation had a great deal of influence, although the low influence of preservice could certainly be related to teacher experience. Similarly, low percentages of teachers said that professional development had a great deal of influence on the instructional materials they use in their classrooms. Perhaps surprisingly, assessments were somewhat low on the list of sources influencing instructional materials use

across all teachers compared with factors like standards and district curriculum frameworks.

We did observe some differences between elementary and secondary teachers' reports of their instructional materials' influences. For example, 46 percent of elementary mathematics teachers indi-

Figure 2.11
Factors Influencing Mathematics and ELA Teachers' Use of Instructional Materials "A Great Deal" in SACC States



NOTE: Asterisk (*) indicates differences in displayed values between SACC ELA and mathematics teachers were statistically significant ($p<0.05$).

RAND *RR1529X1-2.11*

cated that preparation of students for the next grade influenced their instructional use a great deal, and 30 percent said the same of student interest or engagement with materials. In comparison, lower percentages of secondary mathematics teachers indicated that preparation for the next grade (30 percent) or student interest (13 percent) influenced their instructional materials a great deal. However, secondary mathematics teachers were more likely to indicate that state-mandated mathematics assessments influenced their instructional materials choices compared with elementary mathematics teachers (47 percent versus 31 percent). Elementary ELA teachers also reported some factors as influencing their instructional materials use "a great deal" more than did secondary ELA teachers, although those factors were not as tied to state and district resources: student interest or engagement with materials (47 percent of elementary ELA teachers versus 35 percent of secondary ELA teachers); preparation of students for the next grade level (46 percent versus 30 percent); and students' special needs (48 percent versus 35 percent).

Opportunity Provided by Instructional Materials for Teachers to Address Standards-Aligned Practices

Teachers responding to the survey were asked about the extent to which their main instructional materials provided opportunities for their students to engage in particular practices aligned with CCSS. We drew the language for some of these practices directly from CCSS. Specifically, we asked about the extent to which teachers' mathematics instructional materials helped students engage in many of the Standards for Mathematical Practice in CCSS, and we also asked about the extent to which teachers' ELA instructional materials helped students engage in many standards articulated in the Anchor Standards for ELA. We report on the practices in which teachers reported that each of their main instructional materials gave students the opportunity to engage "to a great extent." Percentages are averages across all main materials that teachers reported using most, including district-developed materials. We excluded teachers' reports about the extent to which their self-

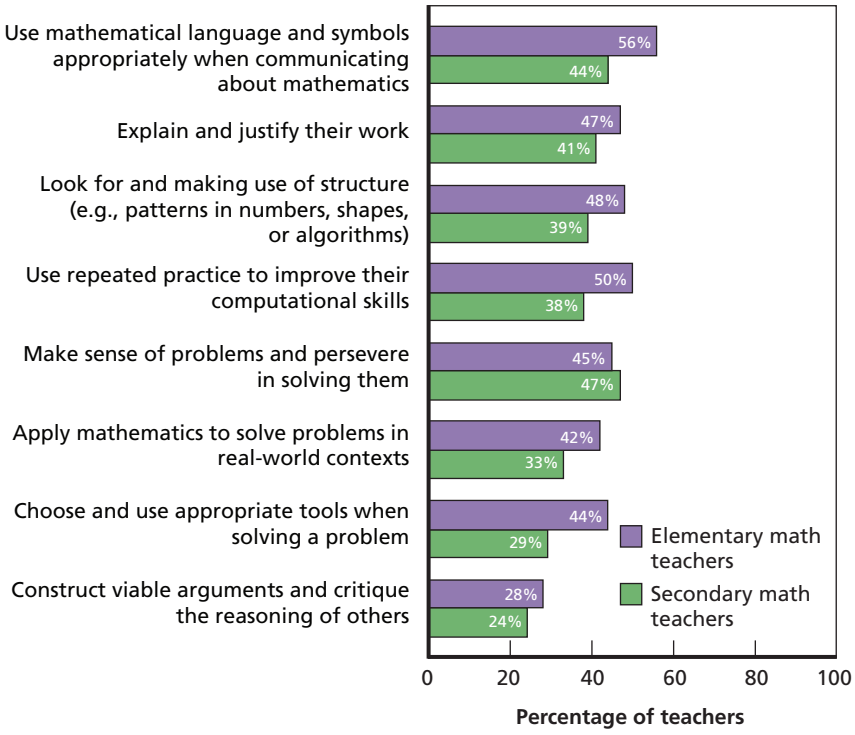
developed materials provide opportunities to address standards because we wanted to capture responses across materials teachers are provided (not the ones they seek out for themselves).

Most mathematics teachers indicated that their instructional materials gave students opportunity to use mathematical language and symbols appropriately; much lower percentages indicated their materials gave students the opportunity to construct viable arguments and critique the reasoning of others.

Teachers' reports on mathematics instructional materials are shown in Figures 2.12 and 2.13. Many of the student practices in Figure 2.12 are drawn from the Standards for Mathematical Practice, although some (e.g., "look for and make use of structure") are drawn word-for-word from the practice standards, while others ("use mathematical language and symbols appropriately") are derived from those standards. We also included "use repeated practice to improve computational skills," given its prevalence in many texts, although it is not highlighted in the Standards for Mathematical Practice.

More than 40 percent of teachers or more indicated their instructional materials gave students the opportunity to engage in a range of practices "to a great extent," including using mathematical language and symbols appropriately, explaining and justifying their work, and looking for and making use of structure, among others. Lower percentages of mathematics teachers felt that their materials offered them the opportunity to have their students "construct viable arguments and critique the reasoning of others." Compared with teachers in schools with higher percentages of FRL students, those in schools with lower percentages of FRL students were significantly more likely to report that their main materials gave their students opportunities for repeated practice to improve their computational skills. We observed no other FRL differences. We also observed no significant differences between elementary and secondary teachers or among subgroups of mathematics teachers in SACC versus non-SACC states.

Figure 2.12
Responses Among Mathematics Teachers in SACC States About Whether Their Instructional Materials Provide Opportunities to Engage in SACC-Aligned Practices "To a Great Extent"

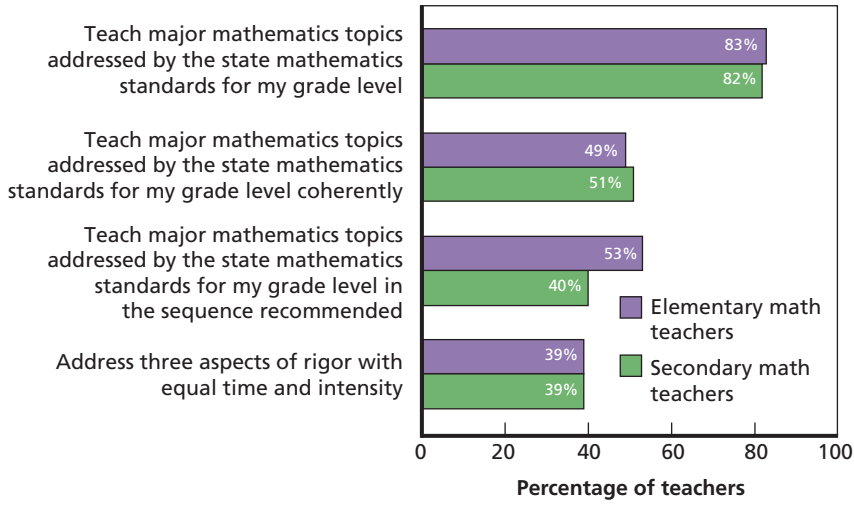


RAND *RR1529X1-2.12*

Majorities of mathematics teachers reported that main instructional materials provided opportunities to teach major topics addressed by state standards, although lower percentages indicated that their materials addressed various aspects of rigor with equal time and intensity.

Mathematics teachers were also asked a set of questions about the extent to which their instructional materials provided them the opportunity to teach major topics addressed by the state mathematics standards for their grade, teach them coherently, and teach them in the sequence recommended. These approaches align with the "shifts" prescribed by Student Achievement Partners as those tied to high-quality stan-

Figure 2.13
Responses Among Mathematics Teachers in SACC States About Whether Their Instructional Materials Provide Opportunities to Teach Major Topics of Mathematics Standards Coherently and in Sequence "To a Great Extent"



RAND *RR1529X1-2.13*

dards implementation (SAP, undated b). As illustrated in Figure 2.13, the vast majority of teachers felt that the main instructional materials allowed them to teach the major mathematics topics addressed by the state standards at their grade level to "a great extent." Just about half of teachers also felt that their materials allowed them to teach the major topics of the state mathematics standards coherently "to a great extent." Given that relatively high percentages of elementary (67 percent) and secondary (53 percent) mathematics teachers identified the state mathematics standards as having a great deal of influence on their use of instructional materials, it is not surprising that they would indicate that these materials would allow them to address the standards at such high rates.

Compared to the high percentages indicating their materials allow them to teach major topics addressed by state standards at their grade level, only 40 percent of secondary teachers indicated their materials help them teach mathematical topics for their grade level in the

recommended sequence. Additionally, only a little more than one-third of all teachers indicated that their main instructional materials helped them address the three aspects of rigor with equal time and intensity. As noted in our introduction, these three aspects of rigor are conceptual understanding, procedural skill and fluency, and real-world applications. These responses suggest at least some aspects of rigor are being shortchanged in comparison with others in teachers' instructional materials.

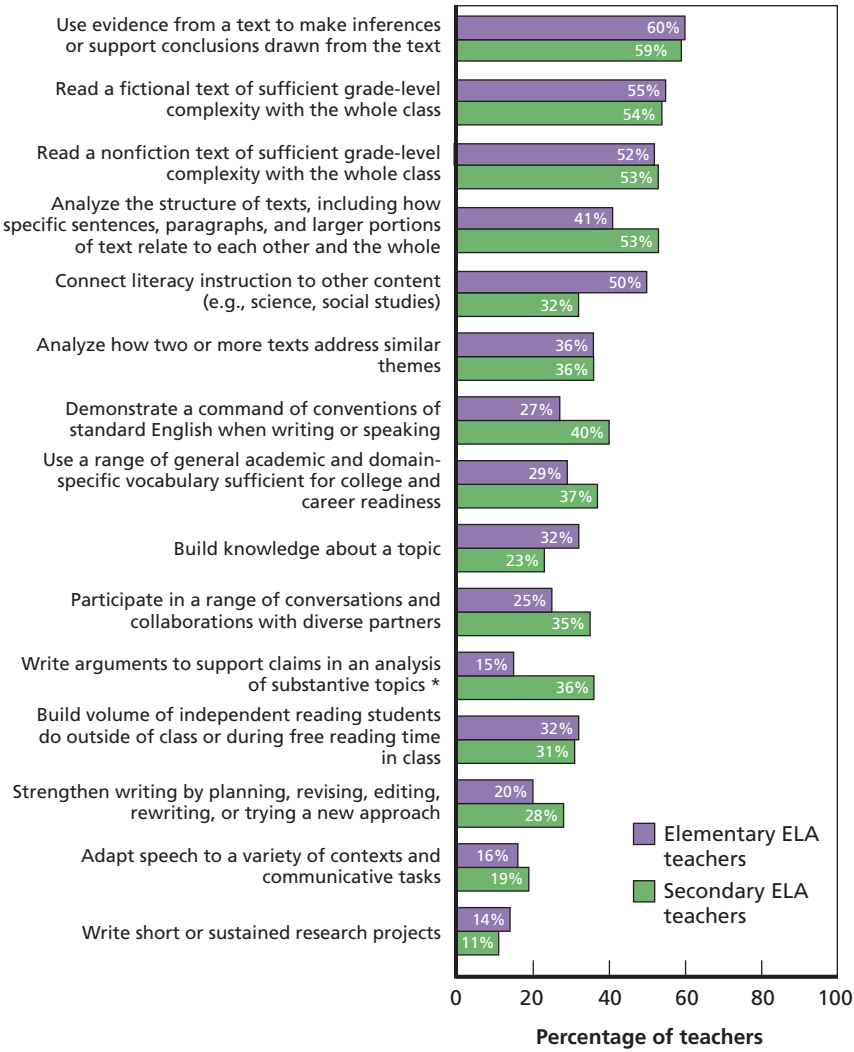
Majorities of ELA teachers indicated that their instructional materials gave students opportunity to use evidence from a text and engage in complex fiction and nonfiction texts at their grade level.

As shown in Figure 2.14, the highest percentages of elementary ELA teachers (60 percent) and secondary ELA teachers (59 percent) indicated that their instructional materials gave students the opportunity to "use evidence from a text to make inferences or support conclusions drawn." Lower percentages of teachers indicated that their ELA materials gave students the opportunity to adapt speech to a variety of contexts or write research projects. Secondary ELA teachers were significantly more likely than elementary ELA teachers to believe that their materials provided them the opportunity to have students write arguments to support claims in analysis of substantive topics, but we observed no other differences between secondary and elementary ELA teachers.

Teachers' Curriculum-Specific Professional Development

As one indication of the support that teachers have received to implement curriculum and instructional materials aligned with SACC, we asked teachers to report the number of hours of professional development they had been given on the use of their main materials. Teachers were asked about the professional development they received for each of their main instructional materials. We provide average responses

Figure 2.14
Responses Among ELA Teachers in SACC States About Whether Their Instructional Materials Provide Opportunities to Engage in SACC-Aligned Practices "To a Great Extent"



NOTE: Asterisk (*) indicates differences in displayed values between SACC ELA elementary and secondary teachers were statistically significant ($p<0.05$).

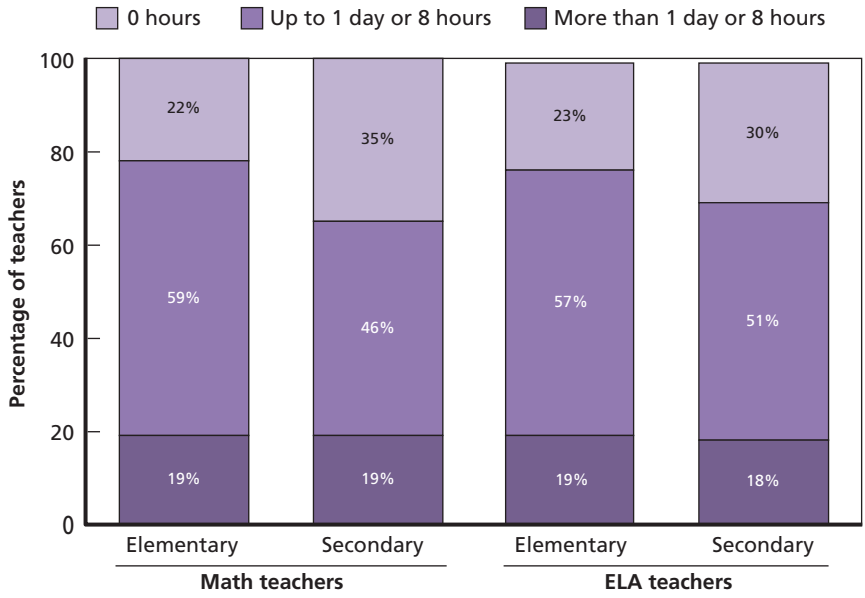
RAND *RR1529X1-2.14*

across all the main materials that teachers responded about, including district-developed/selected materials and published materials.

The vast majorities of both ELA and mathematics teachers reported receiving fewer than eight hours of professional development on their main instructional materials, with about one-quarter of all teachers receiving no professional development on their main curricula at all.

As shown in Figure 2.15, elementary mathematics teachers reported receiving a little more professional development on their main instructional materials than secondary mathematics teachers, but the difference was not significant. However, there is little difference in reports of curriculum-specific professional development between secondary

Figure 2.15
Hours of Curriculum-Focused Professional Development Among Teachers in SACC States



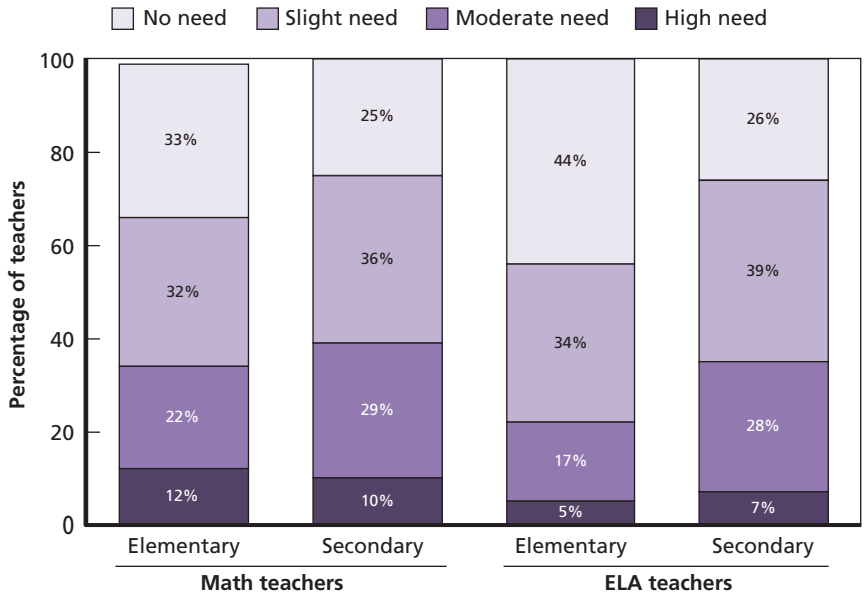
NOTE: Percentages for each group of teachers may not add up to 100% due to rounding.

RAND *RR1529X1-2.15*

mathematics and ELA teachers. Given recent estimates that teachers receive, on average, 19 days of professional development a year (TNTP, 2015), teachers in this survey indicate spending little of that time on learning how to use the instructional materials provided to them.

Teachers were also asked about their need for additional professional development on their main instructional materials (Figure 2.16). Although most teachers received less than one day of professional development on their main materials, about 31 percent of all mathematics teachers and 41 percent of all ELA/literacy teachers indicated that they had "no need" for additional professional development (PD) on their instructional materials. Twelve percent of mathematics teachers and 5 percent of ELA teachers reported having a high need for additional curriculum-specific PD.

Figure 2.16
Additional Need for Curriculum-Focused Professional Development



RAND *RR1529X1-2.16*

Summary and Conclusions

Most Commonly Used Instructional Materials

State standards may be playing some role in the materials that mathematics teachers report using for their instruction, although our survey cannot provide clear evidence of a causal relationship between adoption of standards and choice of instructional materials. Specifically, higher percentages of mathematics teachers in SACC states reported using materials with some evidence of alignment with CCSS, including EngageNY/Eureka Mathematics, Envision Math, and Go Math! We observed particularly high uptake of EngageNY in two states where we have state-level estimates of instructional materials use: New York and Louisiana. Teachers in non-SACC states did not appear to be using some of these standards-aligned mathematics materials as often as teachers in SACC states.

We have less evidence of the role that state standards may be playing in ELA instructional materials use. Leveled readers, where students are provided texts at their reading level rather than at their grade level, are the dominant materials used by elementary ELA teachers. As noted in our introduction, use of leveled readers, in itself, is not necessarily unaligned with CCSS. CCSS is silent on use of leveled readers in instruction, although use of grade-level texts of appropriate complexity is regularly emphasized within CCSS.

We do not know the extent to which the CCSS's focus on complex texts is limiting use of leveled readers. However, teachers with higher populations of ELLs use leveled readers more frequently to create similar-ability reading groups and replace grade-level texts. These findings imply that teachers serving higher populations of students who may struggle with their reading feel a greater need to rely on leveled readers for their instruction. If those teachers are to embrace grade-level texts more, as suggested by CCSS, they will likely need to be provided with considerable guidance, resources, and instructional strategies to do so.

The differences between elementary and secondary teachers in the instructional materials they reported using were considerable. Secondary teachers reported drawing less on district curriculum and online

resources than elementary teachers. Secondary teachers reported also being required to use particular instructional materials less often by their district than elementary teachers. These findings imply that secondary teachers may not be given the same supports and guidance from their states and districts that are provided to elementary teachers, although it may also imply that they are not seeking out these sources.

Teachers in schools with greater than 75 percent of students receiving FRL were significantly more likely to draw on a variety of online materials compared with teachers in low-FRL schools, which could suggest that those in high-FRL schools may not have as many school/district resources on which to draw. Importantly, we do not know the extent to which most online resources support teachers' instruction. Most online resources are not necessarily curated or overseen by reviewers, and they can include lesson plans and ideas that are not necessarily high quality. High use of online resources may contribute to more unevenness and variability in instruction, particularly among teachers in low-income schools who may most need support for their instruction. Thus, states and districts could consider recommending and providing access to additional free online resources that they have reviewed for quality and alignment with CCSS.

Use of district-developed and teacher-developed materials was widespread, and some evidence suggests that standards and assessments in SACC states have played a role in encouraging more district and self-developed resources. For example, teachers in SACC states were more likely to report that their materials have been developed in the last three years compared with teachers in non-SACC states. High percentages of teachers also reported that their state standards were a major source on which they drew for development of their own materials.

Factors Influencing Teachers' Use of Instructional Materials

Teachers' reports of the factors that influence their instructional materials use suggest major differences between ELA versus mathematics teachers. Mathematics teachers appear to be drawing more from district or state resources and guidance for instructional materials use compared with ELA teachers. Specifically, higher percentages of mathematics teachers reported that district curriculum frameworks and

state standards were highly influential compared with ELA teachers. In contrast, ELA teachers more often named factors like quality of materials and students' needs as factors influencing their instructional materials use. These data suggest that state standards for mathematics may be having a greater impact on what teachers do than state standards for ELA/literacy.

Opportunities Instructional Materials Provide to Address Standards and Curriculum-Specific Professional Development

The extent to which teachers think that their materials give students opportunities to engage in standards-aligned practices varied by practice, although only one-third to one-half of teachers typically indicated that their materials supported any given standards-aligned practice "to a great extent." Mathematics instructional materials that support construction of viable mathematical arguments and ELA materials that support writing, especially at the elementary level, appear to be particularly lacking. This suggests that the instructional materials being adopted by states and developed by districts are better aligned for some areas of standards-related practice than for others. Teachers also reported receiving little professional development to support their use of specific materials, although, by the same token, many reported little need for additional professional development.

CHAPTER THREE

Teachers' Perceptions and Practices Related to English Language Arts and Literacy State Standards

Instructional resources are an important first step in supporting teachers to address state standards in their instruction. However, teachers could be using resources that are highly aligned with standards and yet not be teaching in standards-aligned ways. Students will not be given the opportunity to meet state standards if teachers do not grasp standards-aligned content and instructional approaches and are not engaging students in standards-aligned practices. This chapter provides survey results regarding teachers' perceptions about the content and approaches that are most aligned with their state standards for English language arts and literacy (ELA/literacy), as well as what they report their students doing in the classroom. The chapter following this one presents survey results about teachers' perceptions and practices in relation to their state standards for mathematics.

Many of the questions used to gauge teachers' understanding about their state standards in both this chapter and the next were adapted from survey items developed by SAP to support teachers' learning about CCSS, and these items were all fielded as part of the June 2015 survey. As in the previous chapter, the findings mainly focus on results among teachers in SACC states or teachers in states with standards adapted from the CCSS, given that those teachers might be expected to be most familiar with CCSS content and approaches. For this chapter, SACC states include all but Virginia, Indiana, Texas,

Alaska, Minnesota (for mathematics results but not ELA results), Nebraska, and Oklahoma.[1]

These results are not meant to summarize everything that teachers should know about CCSS and other college and career readiness standards for ELA/literacy. Instead, they are meant to reflect broad trends regarding teachers' views about their state ELA/literacy standards and whether their views align with CCSS. We expect some variation in what teachers know about CCSS, given the differences in the implementation and content of state standards and differences in state-mandated assessments even among SACC states (e.g., Achieve, 2014, 2015a, 2015b; Salazar and Christie, 2014). These differences suggest that states and school districts across the United States are likely providing different messages to teachers about how they should address standards in the classroom and the elements of the standards on which they should focus. The findings are intended to provide states and districts with information about teachers' perceptions of the content and approaches aligned with their standards, which in turn can inform the messages provided to teachers to support and strengthen their implementation of state standards.

Teachers' Perceptions About English Language Arts and Literacy State Standards

In the following section, we present teachers' responses to survey items focused on the two main instructional approaches reflected by newer standards and CCSS (also highlighted in Chapter One of this report):

- **The importance of text complexity.** Given the CCSS emphasis on the importance of using complex and challenging texts with students, we included survey items addressing text complexity.

[1] These states were excluded based on documented state adoption of Common Core State Standards (CCSSI, 2016e). Given that South Carolina replaced CCSS with new standards that teachers were expected to address starting in 2015–2016, we considered South Carolina a SACC state for our June 2015 survey analysis in this chapter and the next, but we did not consider them a SACC state for our October 2015 survey analysis in Chapter Two.

Specifically, we asked teachers whether their standards align with selection of texts based on students' grade level or their individual reading levels.

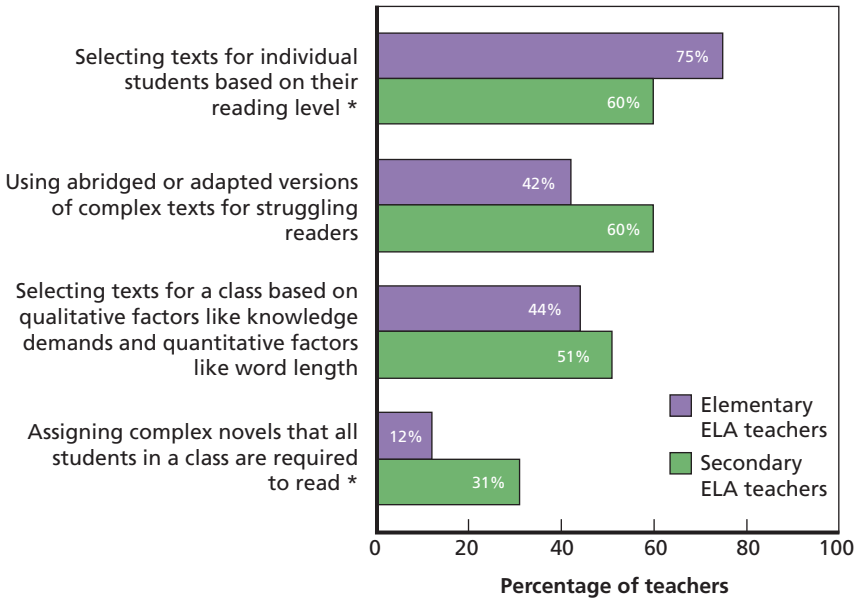
- **Close reading of complex texts.** Given the CCSS focus on text-centered approaches to reading instruction, we present findings on teachers' perceptions about the reading instructional approaches aligned with their state standards and whether those approaches make the text central to instruction. For example, we present data on whether teachers think their standards recommend that they integrate reading skills instruction with close reading of texts or teach reading skills independently of students' experiences with specific texts. We also present teachers' perceptions on whether more or less text-centered adaptations for students at varying reading levels align with their standards. Lastly, we summarize teachers' beliefs about the types of questions—which are more or less text-dependent—that align with their state standards.

The first two survey questions for which we summarize results are adapted from a recent Fordham survey (Shanahan and Duffett, 2013), while the remaining questions are adapted from a Student Achievement Partners survey.

ELA teachers in SACC states often reported that selecting texts for individual students based on their reading level—instead of selecting complex texts for whole-class reading—was the approach aligned with their state standards for ELA/literacy.

We provided ELA teachers with a short list of approaches for selecting texts, as shown in Figure 3.1, and asked them, "Which of the following approaches for selecting texts for reading aligns with your state's English language arts & literacy standards?" Teachers could choose as many approaches as they wished. Among teachers in SACC states, the majority of elementary ELA teachers, and more than half at the secondary level, indicated that "selecting texts for individual students based on their reading level" was an approach aligned with their state standards. Between 40 and 60 percent of those teachers also indicated

Figure 3.1
Responses of SACC ELA Teachers Regarding Which Approach for Selecting Texts Aligns with Their State Standards



NOTE: Asterisk (*) indicates differences in displayed values between SACC ELA elementary and secondary teachers were statistically significant ($p<0.05$).

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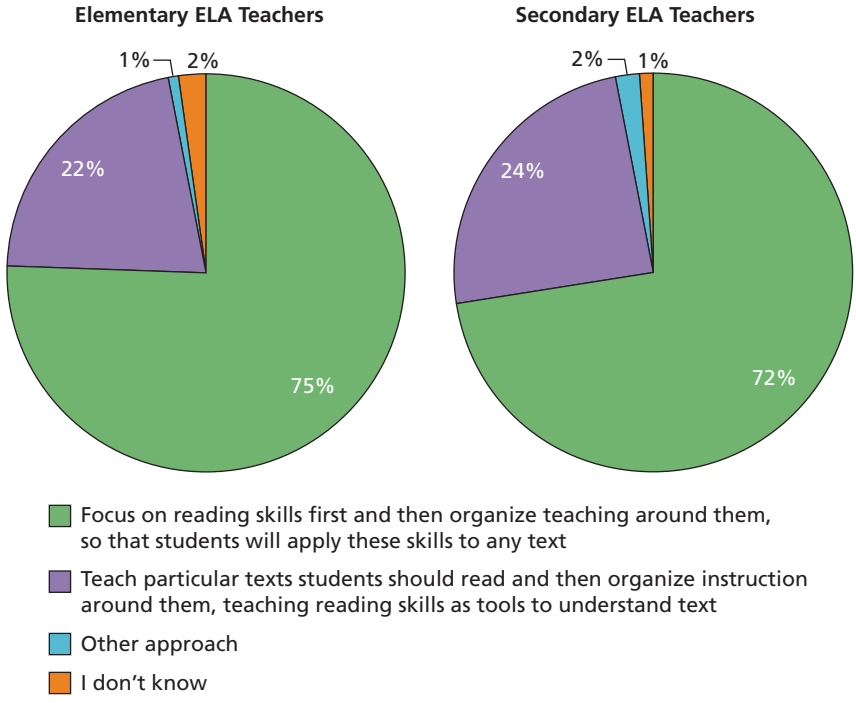
that use of abridged or adapted texts for struggling readers was also an approach aligned with their standards.

Of all the approaches, the lowest percentages of SACC teachers indicated that "assigning complex novels that all students in a class are required to read" was aligned with their standards. This approach may be less relevant to elementary teachers, because elementary students are more likely to read shorter complex texts compared to novels. Nonetheless, only 31 percent of secondary teachers also indicated that this approach was aligned with their standards. We did not observe differences in responses of teachers in schools with higher versus lower percentages of free or reduced priced lunch (FRL) students.

When asked a series of questions about reading instructional approaches most aligned with their standards, most SACC teachers did not choose text-centered approaches.

We also asked teachers, "Which best describes the approach of your state's English language arts & literacy standards for teaching English language arts?" As indicated in Figure 3.2, about three-quarters of elementary and secondary teachers in SACC states selected the approach to "focus on reading skills first and then organize teaching around them" compared with 22 to 24 percent who chose "teach particular texts students should read and organize instruction around them." Teaching particular texts students should read and organizing instruction around them is certainly the more text-centered of the two

Figure 3.2
Responses of SACC ELA Teachers Regarding Which Reading Instruction Approach Aligns Best with Their Standards



RAND *RR1529X1-3.2*

approaches from which teachers could choose for this item. Whether it is the approach more aligned with CCSS may be up for debate. Some standards within CCSS do focus primarily on skill instruction, including—for example—a whole set of K–5 standards related to teaching "foundational" reading skills like, "know the spelling-sound correspondences for common consonant digraphs" and "read grade-appropriate irregularly spelled words." In addition, while some standards in CCSS ask students to "determine the central idea" in a text, identification of a central idea can sometimes be addressed as a "skill" prior to beginning to read a text.[2] Despite the potential for confusion that this raises, it is still interesting to note that less than one-quarter of teachers indicated that their standards align best with "teach particular texts students should read and then organize instruction around them," given the text-centered focus of many standards in CCSS.

Surveyed teachers were also asked to imagine a hypothetical teacher developing a lesson plan around a short text—which survey respondents were able to read beforehand—with the objective that, "Students will use evidence to explain and support their understanding of a non-fiction text's central idea." Teachers were then asked, "How could Mr. Jones [the hypothetical teacher] provide the appropriate scaffolds so that all students—including those who read below grade-level—have opportunities to engage in the work of the lesson in a way that best aligns with your state's English language arts & literacy standards?" Teachers could choose one response from a set of four (see Figure 3.3). The most common answer choice for this question was "build background knowledge by providing a summary of the text to students," with elementary teachers significantly more likely to choose this option than secondary teachers (45 percent compared with 32 percent). Fewer teachers chose the only approach that did not simplify the text or provide information apart from the text itself: creating a podcast or audio recording of the passage for students, but secondary teachers were more likely to select this option (30 percent compared with 18 percent).

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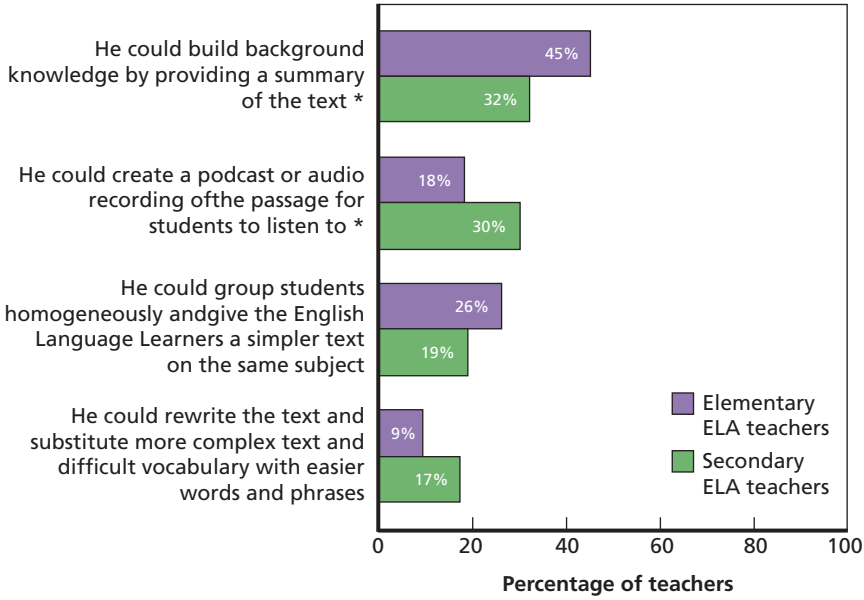
[2] For example, see some online lesson plan ideas for teaching the main idea by BrainPOP Educators (undated).

Figure 3.3
Responses of SACC ELA Teachers Regarding the Approach Aligned with Their ELA/Literacy Standards for Students Reading Below Grade Level



NOTE: Asterisk (*) indicates differences in displayed values between SACC ELA elementary and secondary teachers were statistically significant ($p<0.05$).

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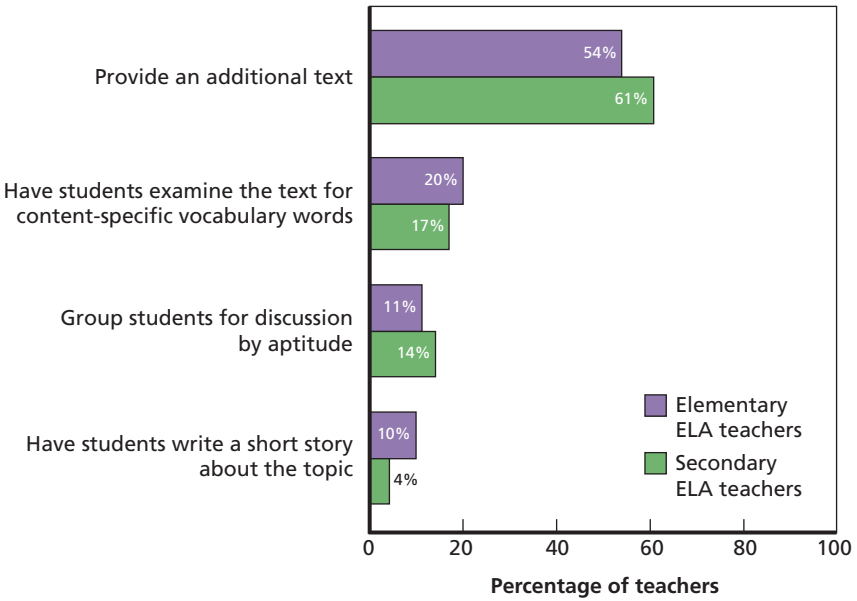
Teachers were also asked how "Mr. Jones" [the hypothetical teacher] could "meet the needs of students who read well above the grade level text band in a way that best aligns with your state's English language arts & literacy standards." Again, teachers could choose only one option. The most commonly chosen approach in response to this question about above–grade level students was on providing students with an additional, more complex text (see Figure 3.4). Teachers in SACC states were thus apt to assume that a text-centered approach was aligned with their state standards for students reading above grade level. Yet, for students reading below grade level, teachers were more mixed in regard to the most standards-aligned approach, sometimes

Figure 3.4
Responses of SACC ELA Teachers Regarding the Approach Aligned with Their ELA/Literacy Standards for Students Reading Above Grade Level



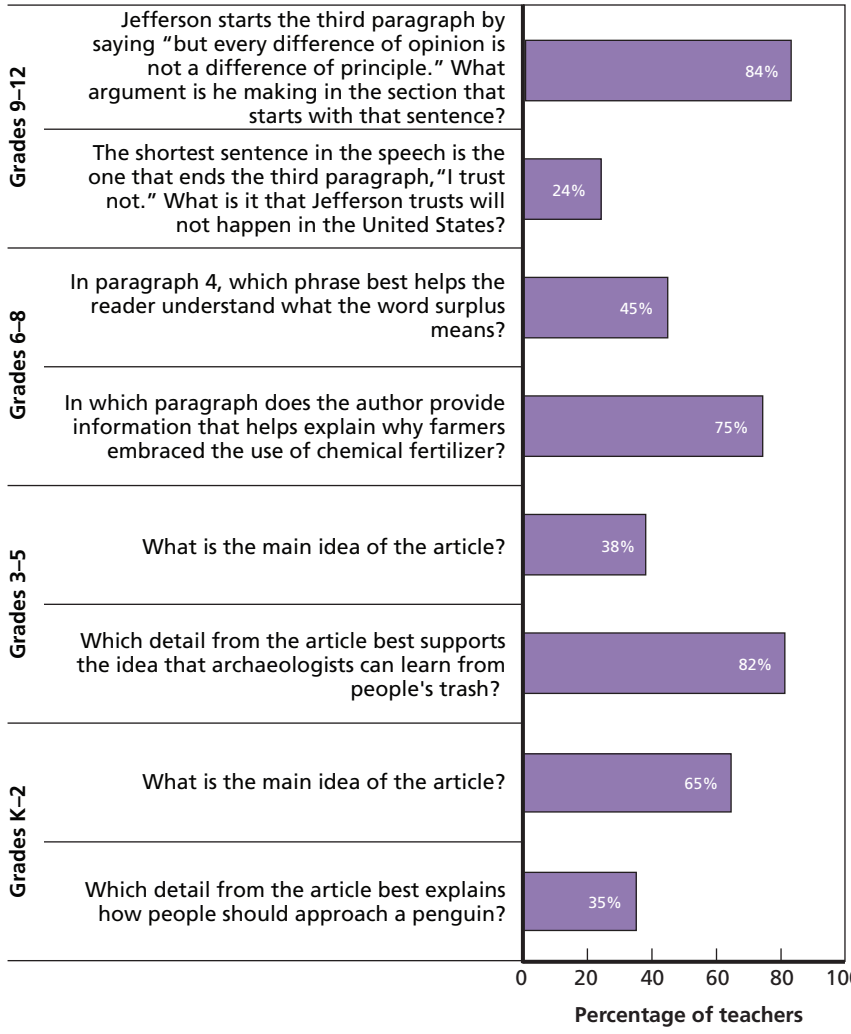
RAND *RR1529X1-3.4*

choosing an approach that simplified the text and often even choosing an approach that diverted students' attention from the text.

Teachers were also asked, "According to your state's English language arts & literacy standards, which of these [teacher] questions are most important to include in a classroom discussion about the text excerpt?" Teachers could select as many questions as they wanted from a list of four. Two of the four teacher questions were text dependent or related to the text. For example, at the K–2 level, the two "text-dependent" teacher questions asked about the main idea of the text and a detail from the text (about penguins) that best explained how people should approach a penguin. The two questions that were non text-dependent were, "What would you do if you discovered a lost animal?" and "Can you think of any stories where other animals have gotten lost?"

Figure 3.5 shows the percentage of teachers who chose each of the more "text dependent" options, which would require students to consult the text to respond. The figure shows that the majority

Figure 3.5
Percentages of SACC ELA Teachers Choosing Text-Dependent Teacher Questions



RAND *RR1529X1-3.5*

of ELA teachers in SACC states chose at least one of the two text-dependent questions. However, only one-third or fewer teachers chose both text-dependent questions. There were no elementary versus secondary differences in terms of the percentages of teachers who chose text-dependent questions.

For these questions, we also compared responses of teachers in schools with 75 percent or more free and reduced priced lunch students to those in schools with less than 75 percent free and reduced priced lunch students. We did not observe any differences between these two groups of teachers in response to questions about the approaches aligned with their English language arts and literacy state standards. Nor did we observe substantive differences in responses among teachers with fewer versus more years of teaching experience.

Standards-Aligned English Language Arts Practices

We provided ELA teachers with a list of standards-aligned practices and asked them how often they asked their students to engage in those practices. These practices were drawn directly from the language used for many CCSS Anchor Standards, including those that focused on text complexity, drawing inferences, and using evidence in speaking and writing. Teachers could rate the extent of student engagement as occurring 1 = never, 2 = sometimes (1–3 times per month), 3 = often (1–3 times per week), and 4 = daily or almost daily. While all teachers reported asking their students to engage in SACC-aligned practices, the extent to which they did so varied by practice, school level, and years of experience.

Majorities of both elementary and secondary ELA teachers indicated that they asked their students to engage in some standards-aligned practices, including using evidence from a text to support claims and demonstrating a command of the conventions of standard English.

While the top practices in which teachers reported their students engaging were the same at the elementary and secondary level, we did

see some differences between those two groups of teachers. Most ELA teachers—regardless of their grade level—reported regularly asking their students to use evidence from a text to make inferences or draw conclusions, demonstrate a command of conventions of standard English, and participate in a range of conversations and collaborations, among other practices. However, lower percentages of teachers reported engaging students in a variety of writing tasks (see Figure 3.6).

Secondary teachers were less likely to report asking their students to engage in some practices every day compared with their counterparts at the elementary level. Specifically, secondary teachers were less likely than elementary teachers to ask students daily to read a nonfiction text or connect literacy instruction to other content (see Figure 3.7).

We observed no significant differences in reports of daily practice among teachers from schools with higher versus lower percentages of free or reduced priced lunch students.

We found differences among teachers with varying levels of experience. Teachers with three or fewer years of experience were significantly more likely than teachers with four or more years of experience to report asking their students to engage in some ELA practices related to speaking daily or almost daily:

- Sixty-two percent of teachers with three or fewer years of experience reported encouraging their students' daily or almost daily participation "in a range of conversations and collaborations with diverse partners" compared with 40 percent of more-experienced teachers.
- Thirty-nine percent of teachers with three or fewer years of experience reported asking their students to "adapt speech to a variety of contexts and communicative tasks" compared with 20 percent of more-experienced teachers.

Summary and Conclusions

As noted in our introduction, most ELA teachers across SACC states perceived their standards as CCSS or adapted from CCSS. However,

Figure 3.6
Elementary ELA Teachers' Reports on the Extent to Which They Engaged Students in SACC-Aligned Practices

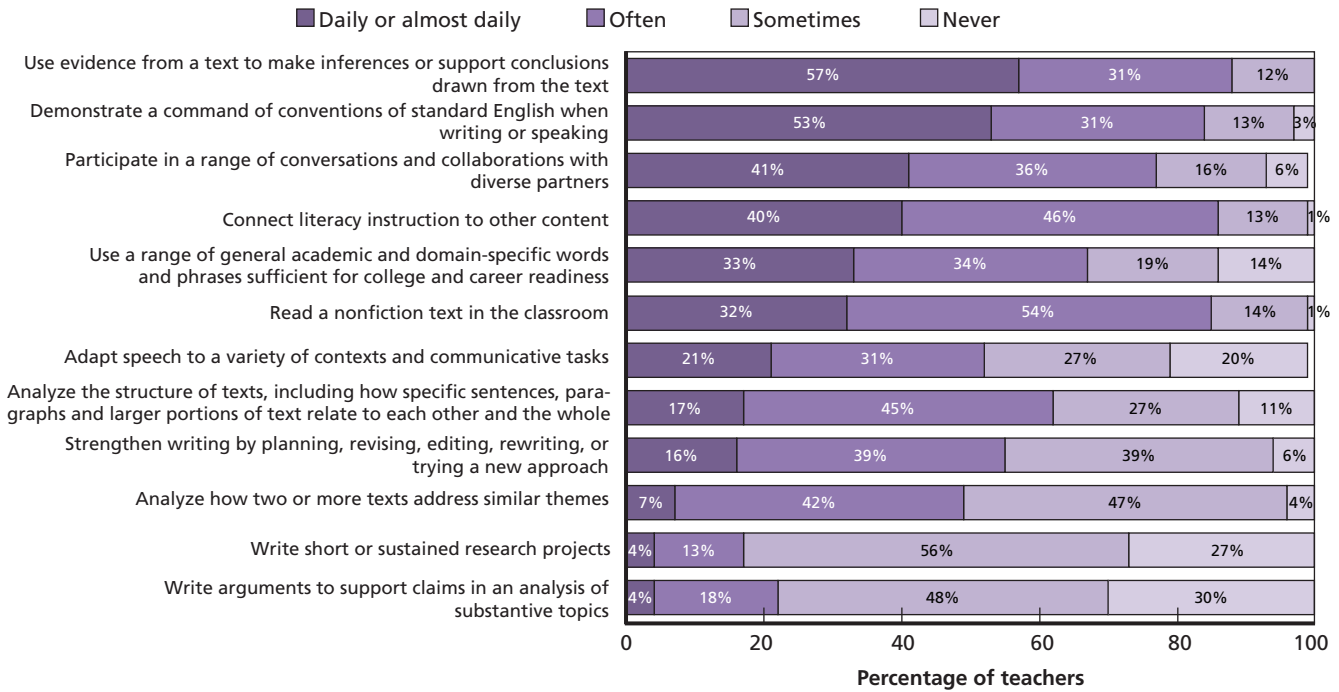


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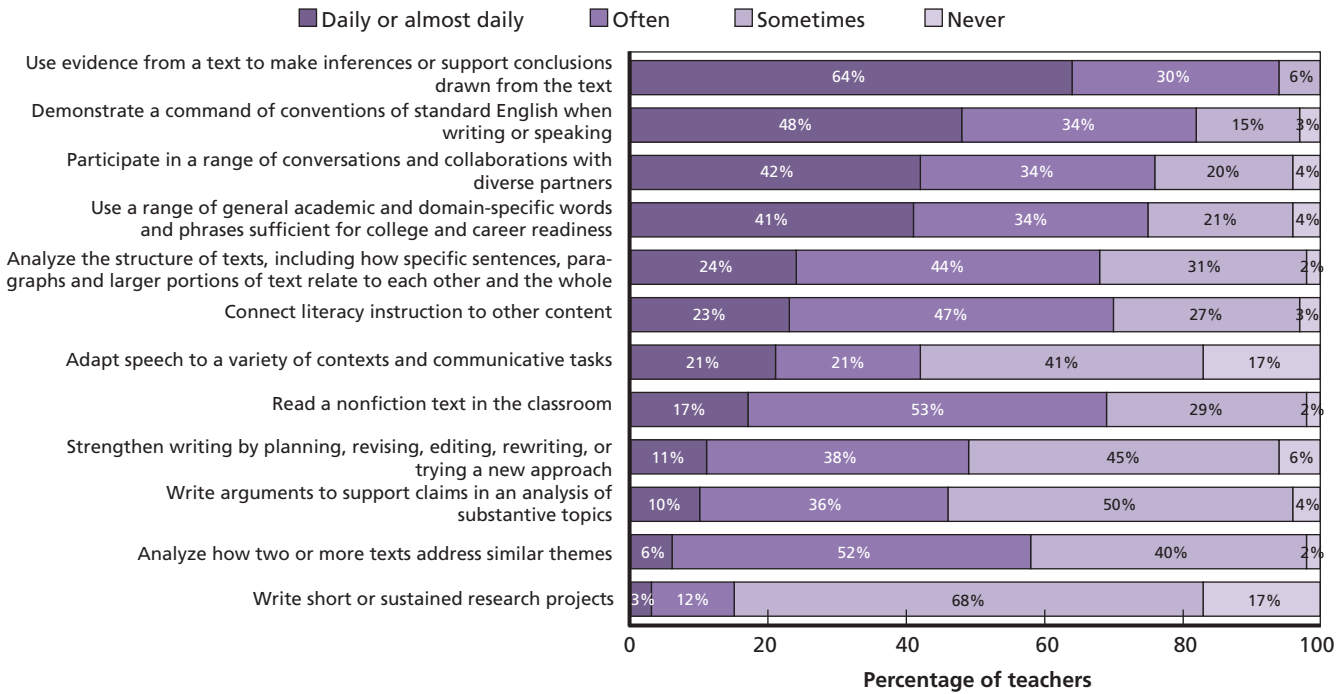
Figure 3.7
Secondary ELA Teachers' Reports on the Extent to Which They Engaged Students in SACC-Aligned Practices



RAND *RR1529X1-3.7*

teachers in SACC states had varying perceptions about the instructional approaches and content aligned with their state standards. Specifically, many ELA teachers in SACC states indicated that the approaches aligned with their state standards for ELA/literacy included

- selecting texts for students based on their reading level, as opposed to providing complex texts for students
- providing reading instruction that was not always text-centered.

While CCSS encourage or imply that teachers should engage in some practices or use particular materials, they are not always clear about practices that should be discouraged. So, for example, CCSS does not explicitly encourage or discourage leveled readers. Nor does it encourage or discourage prereading strategies. Furthermore, even the idea of "close reading" that appears numerous times in CCSS is up for interpretation and could be addressed in multiple ways within a classroom, depending on the context and lesson objectives for a particular day. These less explicit areas of standards are ones that provide space for more clear interpretation and support by states and districts, drawing on best practices highlighted in the reading instruction research literature.

To be sure, some SACC states and districts could be providing focused messages and intensive guidance that address the need for interpretation between standards and instruction. Another possibility is that some SACC states and districts are not communicating to teachers about the reading approaches most aligned with their state standards. If this is the case, then teachers' responses may depend on the extent to which teachers seek out or are provided with information about their state standards through the Internet or other outlets.

Interestingly, while teachers did not necessarily identify the instructional approaches most aligned with CCSS, a majority of teachers reported their students engaging in many standards-aligned practices daily or often, including practices that involved students using texts and analyzing the structure of texts. Some practices that teachers reported their students not engaging in quite as regularly included adapting speech to a variety of contexts and some writing tasks. These

might be areas within the standards where there is opportunity for states and districts to provide more support and lesson exemplars to teachers. The most frequent practice cited by teachers was "use evidence from a text to make inferences or support conclusions." However, this practice in itself may be addressed in various ways, as how to help students do the "close reading" recommended by CCSS is not a settled matter. Thus, much more work to capture the extent of instruction within the classroom is necessary to gauge the full extent to which teachers are engaging students in practices aligned with standards.

One additional finding of note is a difference we did not observe: We rarely if ever observed differences in reports of teachers from schools with higher versus lower percentages of free and reduced priced lunch students, with the exception of higher reports of leveled reader use among teachers in low-income schools. At the least, this finding suggests that teachers from low-income schools in SACC states do not have drastically different perceptions about instructional approaches aligned with their ELA/literacy state standards and the standards-aligned practices in which they ask their students to engage compared with teachers in high-income schools.

CHAPTER FOUR

Teachers' Perceptions and Practices Related to Mathematics State Standards

This chapter provides survey results regarding teachers' perceptions about content and approaches that they think are most aligned with their state standards for mathematics and the practices in which they engage their students. As suggested in the previous chapters, this identification of what teachers know and believe about their state standards, as well as the practices in which they engage, is fundamental to understanding the extent to which teachers are implementing their state standards.

As in the previous chapter focused on ELA/literacy standards, many of the questions used to gauge teachers' understanding about their mathematics state standards were adapted from survey items developed by SAP to support teachers' learning about CCSS, and these items were fielded as part of the June 2015 survey. The findings mainly focus on results among teachers in SACC states or teachers in states with standards adapted from the Common Core. For this chapter, SACC states include all but Virginia, Indiana, Texas, Alaska, Minnesota, Nebraska, and Oklahoma.

Also as with the previous chapter, these results are not meant to summarize everything that teachers should know about CCSS and other college and career readiness standards for mathematics. Instead, they are meant to reflect broad trends regarding teachers' views about their state mathematics standards and whether their views align with CCSS. We expect some variation in what teachers know about CCSS-M, given the differences in the implementation and content

of state standards and differences in state-mandated assessments even among SACC states (e.g., Salazar and Christie, 2014; Achieve, 2014, 2015a, 2015b). These findings are intended to provide states and districts with information about teachers' understandings, which in turn can inform the messages provided to teachers to support and strengthen their implementation of state mathematics standards.

Teachers' Perceptions of Mathematics State Standards

In this section, we summarize findings from the ATP regarding teachers' responses about the major mathematics topics and practices aligned with their state standards for their grade level. Most of these survey questions were adapted from the survey developed by Student Achievement Partners, and as with our questions about ELA/literacy standards, they focus on approaches emphasized by CCSS and other related documents and research for mathematics (highlighted in Chapter One of this report). We consider responses of teachers only in SACC states. These findings look at

- **focus on standards content and importance of coherence among mathematics topics within and across grades.** According to Student Achievement Partners, two key instructional shifts required by mathematics standards include a strong focus on particular content and coherence among topics introduced within and across grades (SAP, undated b). Given that the CCSS-M introduces some mathematical topics at a different grade level than some previous standards and emphasizes somewhat different content, we present survey findings regarding the major topics that teachers regard as aligned with their standards for their grade level. We also asked teachers to consider which standards at a lower grade level would prepare students to meet subsequent standards and, likewise, which standards students would be prepared to address in future grade levels if they were exposed to particular topics at a lower grade level.

- **aspects of rigor represented by standards.** The CCSS-M follows recommendations from the National Research Council's report *Adding It Up* (2001), which stresses a need to balance "strands of mathematical proficiency," including conceptual understanding and procedural fluency, rather than focusing too much on either of these goals (e.g., focusing too much on basic skills without teaching for conceptual understanding). Drawing on these ideas, CCSS suggests that educators pursue, with equal intensity, "three aspects of rigor in the major work of each grade: conceptual understanding, procedural skill and fluency, and application" (CCSSI, 2016d). We present teachers' responses about which aspect of rigor aligns with particular standards at their grade level to explore how teachers are thinking about these aspects of rigor—conceptual, procedural, and application—emphasized as part of CCSS.
- **teachers' work to support students' engagement in Standards for Mathematical Practice.** The CCSS Standards for Mathematical Practice are drawn from previous research and documents, including those released by the National Council of Teachers of Mathematics and specified in the aforementioned National Research Council report (2001). However, such practices have not been included in most previous state standards, and they make considerable demands upon teachers to help students engage in fairly complex reasoning and problem-solving processes. We asked teachers to define one of the Standards for Mathematical Practice to understand whether teachers recognize the CCSS-M definition for that practice. We also asked teachers to report the extent of their students' engagement in many of those practices.

High percentages of mathematics teachers in SACC states successfully identified major mathematics topics at their grade level aligned with CCSS, although many also identified additional topics either not aligned with CCSS at their grade level or not appearing in CCSS at all.

The survey presented teachers with a list of four mathematics topics per grade level for each grade level they teach and asked them to choose the topics emphasized by their state standards for their grade level. The choices included two topics that are part of the CCSS for their grade level and two that either do not appear in the standards at all or are taken from CCSS but are one to two grade levels above or below their grade level. Exceptions were Grade 2, which included only one standard aligned with CCSS for that grade, and Grade 6, which included only one standard not aligned with CCSS for that grade.

As can be seen in Table 4.1, most mathematics teachers in grades K–8 within SACC states identified each topic aligned with CCSS at their grade level, although those teachers may have chosen other topics not aligned with their grade level.[1] In general, when asked to choose topics aligned with state standards for their grade level, lower percentages of teachers chose unaligned topics, but there were some exceptions to this rule. For example, over 80 percent of first-grade mathematics teachers in SACC states indicated that "create and extend patterns and sequences" was a topic aligned with their state standards for their grade level, although this topic doesn't explicitly appear in CCSS for first grade (but is somewhat addressed in third grade). Moreover, a moderate percentage of teachers chose some topics not aligned with CCSS, including topics addressed by CCSS far above or below their grade level. At the least, this suggests some differences in what teachers think their standards are asking them to address in their instruction and could point to differences in what districts and/or states are asking teachers to address.

[1] We do not include grade 9–12 mathematics teachers' responses, given that teachers in those grades may teach specific courses that are not addressed in CCSS.

Table 4.1
Responses of SACC Mathematics Teachers Regarding the Major Mathematics Topics Aligned with Their State Standards at Their Grade Level

Grade Level	Topic	Aligned with CCSS	Percentage of Teachers
K	Understand meaning of addition and subtraction	Yes	93
	Compare numbers	Yes	97
	Use tally marks [not in CCSS]	No	47
	Develop understanding of fractions as numbers [CCSS Grade 3 topic]	No	29
	I don't know		0
	Teachers who chose both aligned topics and NOT I don't know		91
1	Measure lengths indirectly and by iterating length units	Yes	80
	Add and subtract within 20	Yes	100
	Extend understanding of fraction equivalence and ordering [CCSS Grade 4 topic]	No	27
	Create and extend patterns and sequences [not in CCSS but somewhat addressed in Grade 3]	No	81
	I don't know		0
	Teachers who chose both aligned topics and NOT I don't know		80
2	Understand the place value	Yes	93
	Identify line of symmetry in two-dimensional figures [CCSS Grade 4 topic]	No	47
	Apply and extend previous understandings of multiplication and division to multiply and divide fractions [CCSS Grade 5 topic]	No	21
	I don't know		6
	Teachers who chose both aligned topics and NOT I don't know		92

Table 4.1—Continued

Grade Level	Topic	Aligned with CCSS	Percentage of Teachers
3	Develop understanding of fractions as numbers	Yes	84
	Multiply and divide within 100	Yes	82
	Identify the measures of central tendency and distribution [not in CCSS but somewhat addressed in Grade 6]	No	8
	Understand meaning of addition and subtraction [CCSS Grade 1 topic]	No	57
	I don't know		8
	Teachers who chose both aligned topics and NOT I don't know		72
4	Extend understanding of fraction equivalence and ordering	Yes	91
	Generalize place value understanding for multi-digit whole numbers	Yes	82
	Examine transformations on the coordinate plane [not in CCSS]	No	28
	Understand ratio concepts and use ratio reasoning to solve problems [CCSS Grade 6 topic]	No	17
	I don't know		8
	Teachers who chose both aligned topics and NOT I don't know		79
5	Understand the place value system	Yes	69
	Apply and extend previous understandings of multiplication and division to multiply and divide fractions	Yes	83
	Understand and calculate probability of single events [not in CCSS]	No	23
	Identify line of symmetry in two-dimensional figures [CCSS Grade 4 topic]	No	36
	I don't know		12
	Teachers who chose both aligned topics and NOT I don't know		68

Table 4.1—Continued

Grade Level	Topic	Aligned with CCSS	Percentage of Teachers
6	Apply and extend previous understandings of arithmetic to algebraic expressions	Yes	97
	Understand ratio concepts and use ratio reasoning to solve problems	Yes	100
	Identify and utilize rules of divisibility [not in CCSS]	No	68
	I don't know		0
	Teachers who chose both aligned topics and NOT I don't know		97
7	Use properties of operations to generate equivalent expressions	Yes	98
	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers	Yes	91
	Examine transformations on the coordinate plane [not in CCSS]	No	32
	Generate the prime factorization of numbers to solve [not in CCSS but somewhat addressed in Grade 4]	No	47
	I don't know		0
	Teachers who chose both aligned topics and NOT I don't know		91
8	Understand and apply the Pythagorean Theorem	Yes	93
	Define, evaluate, and compare functions	Yes	91
	Represent and analyze quantitative relationships between dependent and independent variables [CCSS Grade 6 topic]	No	83
	Understand and calculate probability of single events [not in CCSS]	No	22
	I don't know		2

Teachers at lower grade levels more readily identified standards related to one another across grade levels.

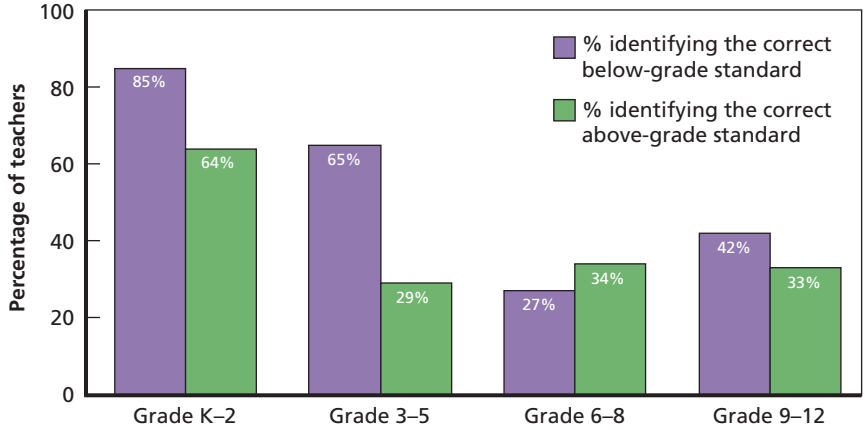
We provided teachers at each grade span (K–2, 3–5, 6–8 and 9–12) with a referent standard drawn from CCSS at that grade span. Then, we asked teachers to choose one standard at an earlier grade level—from a list of four—that best prepares students to meet that referent standard. Lastly, we asked teachers to choose one standard at a later grade level—from another list of four—for which the referent standard would prepare students. Thus, for example, we asked teachers in grades K–2 to identify the kindergarten standard that would precede the following first-grade standard within CCSS (CCSSI, 2016c):

> Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
> – 10 can be thought of as a bundle of ten ones—called a "ten."
> – The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
> – The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

Then, we asked the same teachers to identify the second-grade standard that would follow from and require knowledge of the foregoing first-grade standard. The lists of standards from which a teacher could choose for the best below-grade and above-grade standard related to the referent standard included one intended "correct" standard, as well as other standards either written at an inappropriate grade level or not closely related to the referent standard. These survey items were meant to capture information about teachers' knowledge of connections among standards across grade levels. Figure 4.1 includes the percentages of mathematics teachers in SACC states at each grade span who provided the "correct" responses for the below-grade standard and above-grade standard. The complete questions at each grade span are included in the appendix.

Teachers at lower grade levels, and—particularly—at the K–2 level, were better able to identify the "correct" below-grade standard

Figure 4.1
Percentages of SACC Mathematics Teachers Correctly Identifying the Above-Grade and Below-Grade Standard Related to the Referent Standard



NOTE: Differences in the percentage identifying the intended below-grade standard versus the intended above-grade standards were statistically significant for SACC K–2 and 3–5 grade teachers ($p<0.05$).

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that prepared students for the referent standard, as well as the "correct" above-grade standard for which the referent standard prepared students. However, the sequence of standards at the elementary level is clearer than at the secondary level. For example, when the standards were written, they were not done in a way that corresponded to existing mathematics courses; only recently have the standards been "mapped" onto high school mathematics courses (see, for example, McCallum, 2012). Further, question difficulty and the difficulty of a particular standard could also play a role in teachers' responses. Thus, drawing comparisons among differences in teacher understanding between grade spans is challenging.

We compared responses about the content and approaches of mathematics state standards for teachers with lower versus higher percentages of free and reduced priced lunch students. There were no substantive significant differences in the distribution of responses across

grade levels that suggest a major trend in responses of teachers in lower- versus higher-income schools.[2]

Teachers may have different perceptions about aspects of rigor targeted by particular standards, especially at the secondary level. Following the CCSS focus on "aspects of rigor"—emphasis on conceptual understanding, procedural fluency, and application (see Chapter One of this report)—we asked mathematics teachers in SACC states to read through a set of standards taken directly from CCSS-M and indicate which aspect of rigor was being targeted by that standard. Most of the standards included for this set of questions were taken from a similar set of questions developed by Student Achievement Partners, and SAP experts designated one "aspect of rigor" as the most important for each standard. Teachers received different sets of standards depending on the grade span they taught—K–2, 3–5, 6–8 or 9–12.

Table 4.2 lists the standards to which teachers responded at each grade span, as well as the percentage of teachers who chose the intended aspect of rigor for each standard as designated by SAP. Because teachers at different grade spans responded about different standards, responses of teachers by grade span are not necessarily comparable. However, these responses do suggest that teachers did not always choose the same aspect of rigor that SAP and its experts identified as targeted by a standard. For example, only 19 percent of mathematics teachers in grades K–2 chose the intended aspect of rigor—procedural skills and fluency—addressed by the standard, "Measure the length of objects by selecting and using appropriate tools . . ." Instead, three-quarters of those teachers chose "application" as the aspect of rigor targeted by that standard. In another example, only 42 percent of mathematics teachers in grades 6–8 identified the intended response regarding the aspect of rigor ("application") targeted by a standard asking students to describe situations in which opposite quantities combine to make zero.

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[2] In response to questions about the mathematical topics aligned with their grade level, teachers in schools with more free and reduced priced lunch students identified in somewhat lower percentages the topics aligned with CCSS at their grade level. However, given that some of these differences were based on very small numbers, we are not sure they represent clear and important significant differences.

In contrast, 35 percent indicated that the standard targeted "conceptual understanding."

Teachers' choices about the aspect of rigor targeted by particular standards are not necessarily wrong and may make sense in some contexts. Yet, we also observed some differences in the aspects of rigor that teachers chose depending on the students they serve. Specifically:

- Compared with teachers in schools with less than 75 percent FRL students, some teachers in lower-income schools were less likely to choose "conceptual understanding" when it was the intended aspect of rigor for some standards, including "understand that the two digits of a two-digit number represent amounts of tens and ones" and "recognize that in a multi-digit number, a digit in one place represents ten times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left."
- Some teachers in low-income schools were also more likely than their counterparts in higher-income schools to choose "procedural skill and fluency" when it was the intended aspect of rigor for some standards, including "multiply and divide within 100," "rewrite expressions involving radicals and rational exponents using the properties of exponents," and "solve linear equations and inequalities in one variable, including equations with coefficients represented by letters."
- Teachers with more than four years' experience were more likely than their counterparts with fewer years' experience to choose "conceptual understanding" when it was the intended aspect of rigor for some standards, including "understand that the two digits of a two-digit number represent amounts of tens and ones" and "recognize that in a multi-digit number, a digit in one place represents ten times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left."

These differences are not conclusive but suggest that teachers in lower-income schools and those who have spent more years in the classroom could be focusing more attention on procedural skill and fluency compared to conceptual understanding when teaching standards. Fur-

thermore, the lack of common understanding among teachers about which aspects of rigor apply to which standards—in general—could result in students receiving differential access to certain aspects of rigor, leading to different outcomes for those students.

Table 4.2
Percentages of SACC Mathematics Teachers Choosing the Aspect of Rigor Targeted by a Standard Aligned with SAP Choices

	Standard Drawn from CCSS	Intended Aspect of Rigor (IAR)	Percentage of SACC Teachers Identifying IAR
Grades K–2	Understand that the two digits of a two-digit number represent amounts of tens and ones.	Conceptual	71
	Explain why addition and subtraction strategies work, using place value and the properties of operations.	Conceptual	77
	Add and subtract within 20.	Procedural skill/fluency	84
	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	Procedural skill/fluency	19
	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.	Application	61
Grades 3–5	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	Conceptual	72
	Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts.	Conceptual	70
	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form.	Procedural skill/fluency	60
	Multiply and divide within 100.	Procedural skill/fluency	80
	Solve real-world problems involving multiplication of fractions and mixed numbers.	Application	76

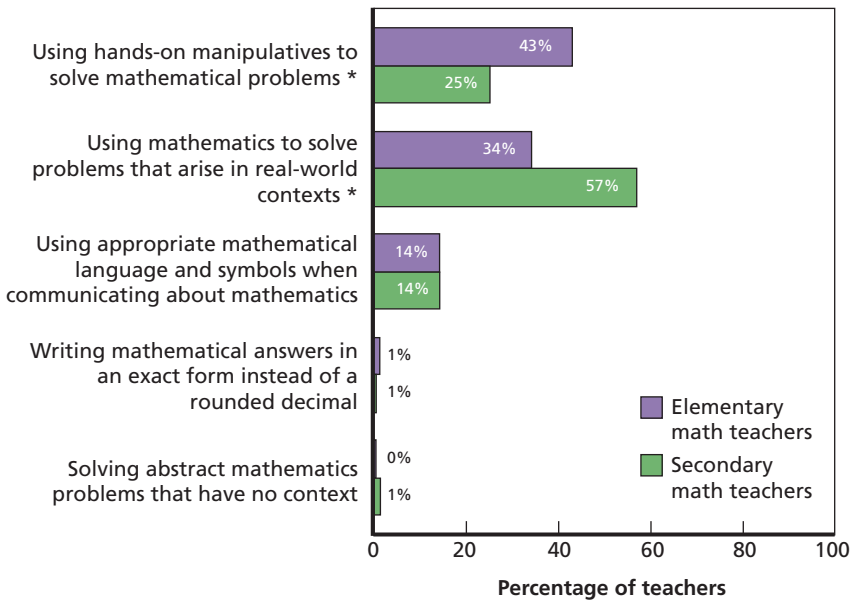
Table 4.2—Continued

	Standard Drawn from CCSS	Intended Aspect of Rigor (IAR)	Percentage of SACC Teachers Identifying IAR
Grades 6–8	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	Conceptual	70
	Solve linear equations in one variable.	Procedural skill/fluency	85
	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.	Procedural skill/fluency	55
	Describe situations in which opposite quantities combine to make 0.	Application	42
	Use proportional relationships to solve multistep ratio and percent problems.	Application	41
Grades 9–12	Understand that a function from one set to another set assigns to each element of the domain exactly one element of the range.	Conceptual	64
	Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Procedural skill/fluency	65
	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	Procedural skill/fluency	68
	Create equations and inequalities in one variable and use them to solve problems.	Application	58
	Use proportional relationships to solve multistep ratio and percent problems.	Application	64

Teachers at different grade levels may have different perceptions about what it means to address particular Standards for Mathematical Practice.

"Modeling with mathematics" is one of the eight CCSS-M Standards for Mathematical Practice. CCSS-M defines modeling with mathematics as knowing how "to solve problems arising in everyday life, society and the workplace." On average, 41 percent of mathematics teachers in SACC states chose the definition aligned with the Standards for Mathematical Practice. Mathematics teachers in grades 9–12 were significantly more likely to choose the definition aligned with CCSS-M compared with K–2 teachers and 3–5 teachers (see Figure 4.2). The differences between secondary and elementary teachers in their understanding of modeling with mathematics could be the result of the way

Figure 4.2
Responses of SACC Mathematics Teachers About What "Modeling with Mathematics" Means



NOTE: Asterisk (*) indicates differences in displayed values between SACC mathematics elementary and secondary teachers were statistically significant ($p<0.05$).

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it is presented in CCSS-M. At the secondary level, CCSS articulates a specific set of modeling standards, whereas the K–8 standards do not. Elementary teachers thus may have more room for interpretation of the meaning of modeling with mathematics in relation to the other Standards for Mathematical Practice. These limited findings also suggest that teachers at different grade levels may approach Standards for Mathematical Practice in different ways and with different understandings.

Standards-Aligned Mathematics Practices

For mathematics teachers, our questions about practices focused on many of the student practices drawn from the Standards for Mathematical Practice, with some (e.g., "look for and make use of structure") being drawn word-for-word from the practice standards, and with others ("use mathematical language and symbols appropriately") being derived from those standards. We also included "use repeated practice to improve computational skills," given its prevalence in many texts, although it is not highlighted in the Standards for Mathematical Practice.

Many teachers indicated engaging their students in most standards-aligned mathematics practices "daily or almost daily" or "often," with low percentages of teachers indicating they "never" or "sometimes" ask students to engage in the mathematics practices included in our survey. However, there were variations in responses between elementary and secondary teachers, teachers in schools with higher and lower numbers of free and reduced price lunch students, and those with less and more teaching experience.

Over half of elementary and secondary mathematics teachers reported encouraging their students' daily or almost daily engagement in many CCSS-aligned mathematics practices (see Figures 4.3 and 4.4), including:

- use mathematical language and symbols appropriately
- explain and justify work
- make sense of and persevere in solving problems.

However, considerably lower percentages of teachers reported engaging students in other practices, including "look for and make use of structure" and "construct viable arguments and critique the reasoning of others."

Secondary mathematics teachers were somewhat less likely to report asking for their students' daily engagement in some standards-aligned practices compared with elementary teachers, including "choose and use tools when solving problems" and "look for and make use of structure." We observed no differences in reports of students' daily practices among teachers from higher- versus lower-income schools.

Summary and Conclusions

In contrast to ELA teachers, mathematics teachers were more in agreement about their standards and, specifically, the content addressed by their state mathematics standards. At the same time, teachers identified some topics as aligned with standards when they were not explicitly part of CCSS or were addressed in CCSS several grades above or below their grade level.

Our results also suggest that teachers may be understanding and addressing standards in differing ways. For example, teachers had varying interpretations of what it means to "model with mathematics." Furthermore, teachers serving lower-income students—as well as teachers with more years of experience—reported some differences in perceptions about the "aspects of rigor" targeted by particular standards, which suggests that the focus of teachers' classroom instruction could potentially vary, even if they are teaching the same standards content.

Lastly, while majorities of teachers reported asking their students to engage in many standards-aligned practices on a daily basis, teachers reported somewhat lower student engagement in other practices, including—for example—"construct viable arguments and critique the reasoning of others." Teachers may be less likely to ask for students' engagement in some practices because they themselves may not fully understand how to do so. However, importantly, they may also not have instructional materials that support students' engagement in these

Figure 4.3
Elementary Mathematics Teachers' Reports on the Extent to Which They Engaged Students in SACC-Aligned Practices

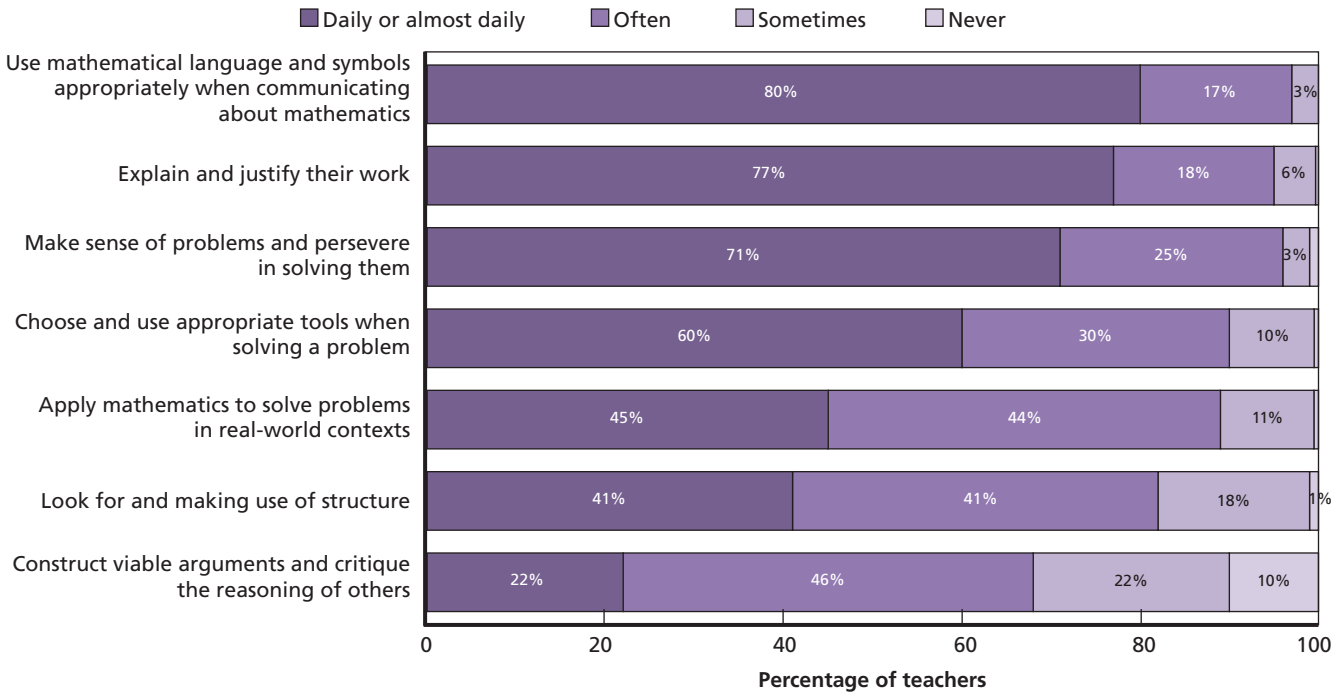

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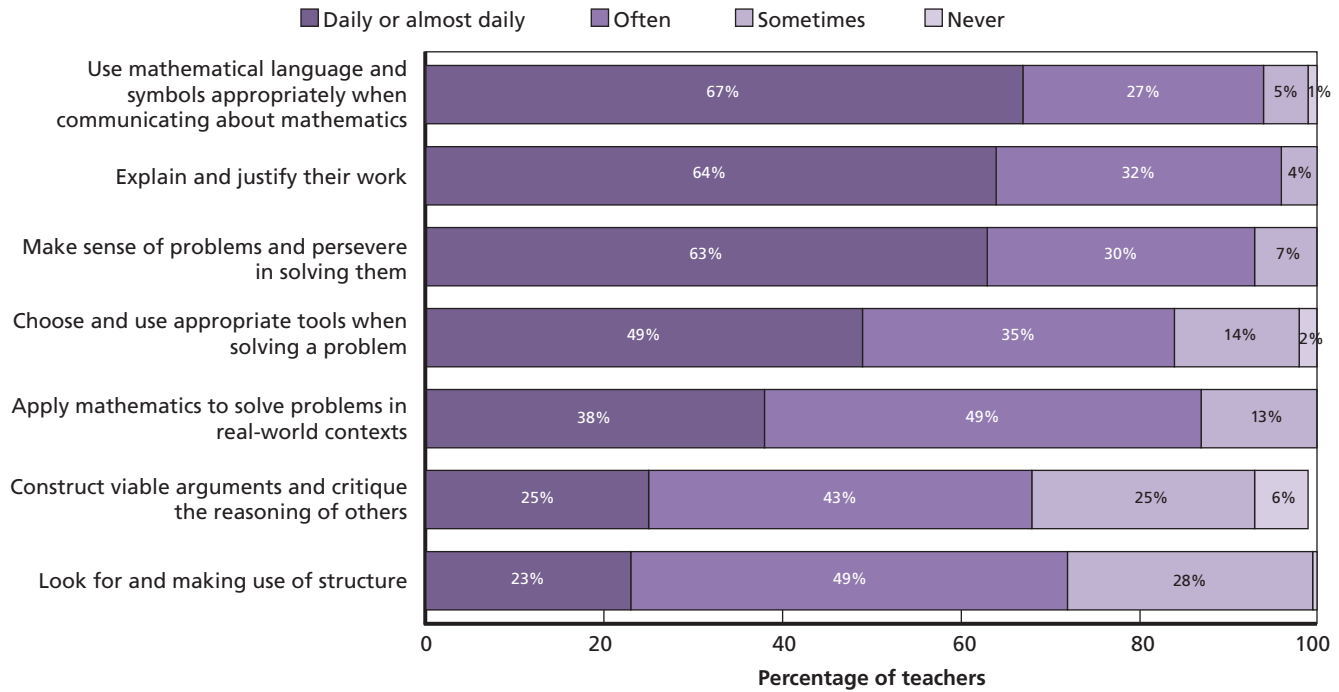
Figure 4.4
Secondary Mathematics Teachers' Reports on the Extent to Which They Engaged Students in SACC-Aligned Practices



RAND *RR1529X1-4.4*

practices. As we noted in the previous chapter, teachers reported that their instructional materials did not necessarily give students frequent opportunities to "construct viable arguments."

Schools, districts, and states may want to consider how they can provide learning opportunities that help teachers, particularly those at the same grade level, talk through the standards that will be addressed for a given unit and come to consensus on which aspects of rigor to target so that students are coming away from that unit with similar skills and knowledge. Policymakers and practitioners may also want to consider how to support teachers' work through recommendations for high-quality instructional materials that are well aligned with standards in terms of topic areas but also support teachers engaging students in practices aligned with CCSS.

Our results highlight content and approaches most aligned with CCSS, based on research literature, conversations with SAP and other experts on CCSS, and our analysis of CCSS. Yet, when teachers choose a survey response not necessarily aligned to CCSS, they might do so for a variety of reasons that are valid and provide support for student learning. For example, their state, district, or the professional development they receive may focus on approaches different from those emphasized by CCSS, but that nonetheless could still be valuable elements of classroom instruction. This chapter and the previous one thus provide information about content and approaches U.S. teachers in SACC states regard as aligned or connected with their practice standards, not the content and approaches that *should* be the focus of teachers' instruction. We intend for our findings to provide a point of reflection for practitioners and policymakers about potential areas for further professional development, especially if the overall responses of U.S. teachers diverge from what administrators at the state and district level believe to be important areas of emphasis for their state standards.

CHAPTER FIVE

Conclusions and Implications

The goal of this study was to paint a preliminary picture of teachers' implementation of state standards for mathematics and English language arts and literacy, with a focus on teachers in SACC states, or those states that have adopted standards adapted from CCSS. According to our findings, most teachers in those states view their standards either as CCSS or standards adapted from CCSS, and almost all teachers report that they were expected to implement their standards by 2014–2015.

We considered three key requirements for teachers' standards implementation: the instructional materials they report using, their understanding of content and approaches aligned with their state standards, and the practices in which they are engaging their students. However, at the same time, all these factors are influenced by the lenses through which teachers view their state standards, including interpretations of those standards at the state and district level, as well as through many teaching and learning organizations. While the standards do encourage students' engagement in particular practices, they say much less about the materials and instructional strategies through which teachers must address standards. Thus, the interpretative lenses through which teachers view and receive support for their standards are critical for helping all teachers within a school, district, or state to be on the same page about the goals for their instruction and even for helping teachers collaborate better with one another to plan and implement standards-aligned instruction.

Our results draw on teachers' responses to two surveys administered in June and October 2015 to the American Teacher Panel, a randomly selected, nationally representative sample of teachers who have agreed to be surveyed regularly about their perceptions on education policies and practices. As with all self-report data, caution should be used when interpreting the results and inferring meaning from them. Teachers may have over- or underreported their knowledge, practices, and influences due to differences in interpretation of the questions or because they felt there was an appropriate answer they should give. Even with this caution in mind, the teacher responses show important emerging patterns concerning implementation of K–12 standards adapted from the Common Core (SACC). Throughout this report, we identified areas in which teachers may have mixed understandings about the approaches most aligned with their state standards and may not be engaging as often in standards-aligned practices. These are areas ripe for district and state work both to provide clear messages and to support teachers to engage in the instruction that they believe will be most effective in helping students meet state standards. We thus recommend that states and districts reflect upon and develop clear goals, messages, and resources in these areas.

For ELA, the areas where clearer messages and supports for teachers to implement standards seem warranted include (1) selection and development of high-quality instructional materials aligned with standards and (2) additional guidance on the meaning of close reading and skills-based reading instruction:

Selection and development of high-quality instructional materials aligned with ELA/literacy state standards. ELA teachers—and secondary ELA teachers in particular—were less likely to indicate district curriculum frameworks, state standards, and state assessments as factors that influence their use of instructional materials compared with mathematics teachers. This could imply that ELA teachers, and particularly those at the secondary level, feel more freedom to select their own materials. However, these findings also suggest that districts and states may not be providing ELA teachers in SACC states with the same information or supports to help them with their instruction compared with mathematics teachers.

Our survey findings clearly indicate that leveled readers are dominant instructional materials within ELA classrooms. Surveyed teachers reported using both texts and online resources that place an emphasis on leveled readers. Teachers with higher populations of ELL and FRL students particularly reported using leveled readers often to create similar-ability reading groups, support struggling students, and replace complex texts. While CCSS advocates use of complex, grade-level texts, they are silent on when and how teachers should use leveled readers. This is an area where districts and states could provide clearer information, support, and ideas for teachers, as well as help teachers find instructional materials that facilitate students' work with complex texts and especially work with below-grade-level students to engage with grade-level texts.

At both the elementary and secondary level, teachers reported that their main instructional materials did not give students as much opportunity to engage in writing instruction, and they reported that they asked their students to engage in writing relatively infrequently compared with other ELA-related practices. Given these findings, districts and states should make sure to seek out, review, and recommend ELA instructional materials that integrate a good amount of writing activities. Particularly, districts might consider further review and recommendations to teachers regarding free online resources, which could further support those in lower-income schools who are seeking high-quality, standards-aligned resources but may not be able to afford them. In addition, given that the standards place considerable emphasis on reading, writing, speaking, and listening, the integration of those skills should be a goal that administrators keep in mind when seeking high-quality materials and providing supports to teachers.

Additional guidance on practices that consider repertoires of close reading and skills-based reading instruction for different texts, purposes, and contexts. Teachers commonly identified the most "standards-aligned" approaches to reading instruction as those that were less text-centered. Similarly, they were likely to indicate that teaching skills first, then applying those skills to texts, was most aligned with their standards, compared to teaching reading skills through texts. These understandings are less aligned with the consid-

erable emphasis on the text within CCSS, compared with some other answer choices on our survey, although they are not necessarily discouraged by CCSS. Thus, states and districts should consider what messages and supports they could offer to teachers to help them better understand the role of skills-based instruction within their standards. In addition, given the varied potential approaches to "close reading," states and districts could consider what stance they wish to take on close reading—drawing upon the best practices for close reading in various contexts—and provide guidance and materials to teachers that adhere with that stance.

For mathematics, the areas where states and districts could reflect upon and develop clearer goals, messages, and supports for teachers to implement standards include selection and development of high-quality instructional materials aligned with standards at the secondary level; further clarity on key content at each grade level; and guidance about how to address aspects of rigor with equal time and intensity.

Selection and development of high-quality instructional materials aligned with mathematics state standards for secondary teachers. Secondary mathematics teachers reported developing or selecting their own instructional materials more often than elementary mathematics teachers. Our survey findings also suggest more instructional resources, both traditional and online, geared toward the elementary level than to the secondary level. The lack of instructional resources along with the only-recent mapping of the standards onto secondary mathematics courses place a larger burden on secondary teachers to both interpret the meaning of the standards for their instruction and develop materials to support those standards. These findings suggest that secondary mathematics teachers may need additional instructional materials and also more guidance from their district or state in the use of their instructional materials compared with elementary mathematics teachers.

Further clarity on key content at each grade level. When asked which major mathematics topics were aligned with their standards, most teachers in SACC states identified major mathematics topics at their grade level aligned with CCSS, and—yet—many also selected topics at their grade level that do not appear in CCSS or appear at a dif-

ferent grade level. There is a small chance that some topics not aligned with CCSS at their grade level are actually aligned with their own state standards, although it is beyond the bounds of this study to investigate how teachers' state standards connected with the topics they chose. Regardless, our findings raise the question, "Does it matter if teachers think certain topics are aligned with their state standards when they are not?" While it is not necessarily problematic for teachers to address topics at their grade level that do not appear in CCSS, so long as they focus deeply on the topics that do, teachers could conceivably be addressing many more topics than those that their standards intend to be addressed at their grade level. Teaching too many topics is akin to the "inch deep mile wide" approach that CCSS was striving to avoid by focusing more deeply on a smaller set of topics. Thus, at the least, these findings suggest that there could be an opportunity for states and districts to emphasize the key mathematics topics that they expect teachers to drill down on deeply in their grade and which they are not expected to address, as well as the reasons for these determinations.

Guidance about how to address aspects of rigor. CCSS was developed with the intent that some would focus more on particular aspects of rigor compared with others and, thus, teachers would then spend equal time and intensity on each of three main aspects of rigor: conceptual understanding, procedural skill/fluency, and real-world applications. Our findings suggest that teachers serving more low-income students and teachers with differing levels of experience have different perceptions about the aspects of rigor targeted by particular standards. These differences between teachers suggest that some aspects of rigor may be shortchanged in comparison to others, depending on the teacher or the students they serve. The lack of common understanding among teachers about which aspects of rigor apply to which standards could result in students receiving differential access to certain aspects of rigor, which could lead to different outcomes for particular students. Furthermore, in Chapter Two, only a little more than one-third of teachers indicated that their main instructional materials address the three aspects of rigor with equal time and intensity. Taken together, these results suggest that states and districts should work with teachers at all the grade levels, but especially secondary teachers, to

clarify which aspects of rigor should be emphasized when teaching specific standards. As mentioned previously, they also need to select and develop instructional materials that then support those emphases.

Implications for Further Research

Teachers' responses to questions about their implementation of standards adapted from the Common Core presented in this report provide numerous windows into further areas for research. First, researchers could provide guidance on the instructional materials that are well aligned with state standards. Our study suggests that CCSS alignment studies for mathematics curricula may be having an impact on use of instructional materials in SACC states at the elementary level, in particular. However, little work has been done to review the alignment of high school mathematics materials. Almost no work has been done to examine the alignment of ELA materials with CCSS, although EdReports is currently conducting reviews of ELA materials. Without guidance on high-quality standards-aligned materials, ELA teachers cannot be expected to begin using different materials to help them address standards.

As we have pointed out throughout this report, some approaches related to CCSS implementation are far from settled, including what it means to do "close reading," the extent to which teachers should use leveled readers, effects of addressing more mathematical topics at a particular grade level versus digging more deeply into fewer topics, and which aspects of rigor to emphasize in relation to particular content. Researchers could provide important information on these issues that has implications for which approaches might be most helpful to students. Researchers might specifically consider supports needed by teachers of student populations that are more difficult to teach, including struggling readers. Our findings suggest that these teachers may especially need clear guidance, support, and strategies for engaging their students in grade-level texts. Understanding the contributions of both leveled readers and complex texts to student reading growth will

be important to helping teachers determine how much emphasis each should have in their instruction.

Another potential area for further research is the need to develop better measures to assess teachers' knowledge of their standards and instructional practices. These measures need to capture both the accuracy of teachers' knowledge of the standards and also the depth of knowledge specific to the grade levels or subjects being taught. Lastly, we need to do more research to understand the extent to which teachers are engaging in classroom instruction that closely aligns with the intent of their state standards. Our surveys just scratched the surface in terms of understanding the work teachers are doing with students to help them meet state standards. To truly understand the extent to which students are engaging in standards-aligned practices, we need to collect data from teachers' daily work in the classroom through classroom artifacts, lesson observations, and tools like instructional logs.

In future waves of surveys, we will be collecting longitudinal data on teachers' knowledge, instructional materials, and practices and will attempt to refine some of the measures used in this report. We also plan to carry out case studies in particular states, to include interviews with state- and district-level administrators and teachers' instructional logs. We hope to better understand what teachers are doing inside their classrooms to implement state standards and the kinds of supports they receive to do so. These data will be used in conjunction with future survey findings to provide a more robust picture of teacher implementation of K–12 state standards.

APPENDIX A

Additional Demographics Information for Survey Respondents

Table A.1
June and October 2015 Teacher Demographics for All Teachers and Respondents in SACC States, Including Standard Error Estimates

	June 2015 Survey		October 2015 Survey	
All Teachers	**Mean (%) (N = 1,705)**	**SACC Mean (%) (N = 1,520)**	**Mean (%) (N = 1,168)**	**SACC Mean (%) (N = 1,057)**
Teachers by state				
SACC states	78.8 (1.7)	N/A	80.9 (1.9)	N/A
Non-SACC states	20.0 (1.7)	N/A	19.1 (1.9)	N/A
Teachers by grade				
Elementary grades (K–5)	50.8 (1.9)	51.6 (2.0)	58.0 (2.3)	59.1 (2.4)
Secondary grades (6–12)	45.7 (1.9)	45.8 (2.0)	39.7 (2.2)	39.0 (2.4)
Teacher by subject				
Mathematics	55.1 (1.9)	55.3 (2.0)	69.8 (2.1)	69.1 (2.3)
English language arts	61.6 (1.8)	62.4 (2.0)	81.4 (1.7)	83.2 (1.7)
Natural sciences	46.9 (1.9)	47.2 (2.1)	N/A	N/A
Social sciences	48.7 (1.9)	49.8 (2.1)	N/A	N/A
School composition				
Up to 75% FRL	72.4 (1.7)	72.5 (1.9)	71.3 (2.1)	69.2 (2.4)
Greater than 75% FRL	25.8 (1.7)	26.8 (1.9)	25.3 (2.1)	26.8 (2.3)

Table A.2
June and October 2015 Demographics for Teachers Who Answered the Mathematics-Specific and ELA-Specific Survey Items in Each Survey, Including Standard Error Estimates

	June 2015 Survey		October 2015 Survey	
Teachers who answered mathematics questions	**Mean (%) (N = 585)**	**SACC Mean (%) (N = 527)**	**Mean (%) (N = 494)**	**SACC Mean (%) (N =448)**
Teachers by state				
SACC states	80.5 (2.8)	N/A	81.6 (2.9)	N/A
Non-SACC states	18.4 (2.7)	N/A	18.4 (2.9)	N/A
Teachers by grade				
Elementary grades (K–5)	63.3 (3.3)	65.9 (3.5)	59.7 (3.4)	63.0 (3.6)
Secondary grades (6–12)	34.7 (3.2)	32.5 (3.4)	38.3 (3.3)	36.2 (3.6)
School composition				
Up to 75% FRL	71.7 (3.1)	70.7 (3.6)	72.2 (3.2)	70.4 (3.5)
Greater than 75% FRL	27.2 (3.1)	29.3 (3.6)	25.6 (3.1)	26.9 (3.5)
Teachers who answered ELA questions	**Mean (%) (N = 662)**	**SACC Mean (%) (N = 603)**	**Mean (%) (N = 674)**	**SACC Mean (%) (N = 609)**
Teachers by state				
SACC states	80.2 (2.9)	N/A	80.4 (2.6)	N/A
Non-SACC states	19.8 (2.9)	N/A	19.6 (2.6)	N/A
Teachers by grade				
Elementary grades (K–5)	61.9 (2.9)	62.8 (3.0)	56.6 (3.0)	56.2 (3.3)
Secondary grades (6–12)	32.9 (2.7)	34.3 (2.9)	40.8 (3.0)	41.2 (3.3)
School composition				
Up to 75% FRL	71.3 (2.8)	72.1 (2.8)	70.7 (2.8)	68.3 (3.2)
Greater than 75% FRL	26.3 (2.7)	27.2 (2.8)	25.0 (2.7)	26.7 (3.0)

NOTE: Teachers of both mathematics and ELA were randomly assigned to complete all the mathematics-specific items in the survey or all the ELA-specific items but not both.

Table A.3
June and October 2015 Demographics for All Mathematics and ELA Teachers and Those in SACC States, Including Standard Error Estimates

Mathematics Teachers	Mean (%) (N = 935)	SACC Mean (%) (N = 838)	Mean (%) (N = 798)	SACC Mean (%) (N = 717)
Teachers by state				
SACC states	79.1 (2.3)	N/A	80.1 (2.3)	N/A
Non-SACC states	19.4 (2.2)	N/A	20.0 (2.3)	N/A
Teachers by grade				
Elementary grades (K–5)	70.2 (2.4)	72.1 (2.6)	69.3 (2.5)	71.9 (2.6)
Secondary grades (6–12)	26.1 (2.3)	25.4 (2.5)	28.3 (2.4)	26.6 (2.6)
School composition				
Up to 75% FRL	70.6 (2.4)	69.8 (2.7)	68.8 (2.6)	65.1 (3.0)
Greater than 75% FRL	27.5 (2.4)	29.8 (2.7)	28.6 (2.6)	31.6 (2.9)
ELA Teachers	**Mean (%) (N = 1,046)**	**SACC Mean (%) (N = 954)**	**Mean (%) (N =928)**	**SACC Mean (%) (N = 845)**
Teachers by state				
SACC states	82.6 (2.0)	N/A	82.7 (2.1)	N/A
Non-SACC states	17.4 (2.0)	N/A	17.3 (2.1)	N/A
Teachers by grade				
Elementary grades (K–5)	70.1 (2.2)	71.4 (2.3)	65.0 (2.5)	65.9 (2.6)
Secondary grades (6–12)	25.8 (2.0)	26.2 (2.2)	32.4 (2.4)	31.9 (2.6)
School composition				
Up to 75% FRL	70.4 (2.2)	70.7 (2.4)	70.1 (2.4)	68.3 (2.6)
Greater than 75% FRL	28.1 (2.2)	28.9 (2.4)	25.9 (2.3)	27.1 (2.5)

APPENDIX B

Survey Questions

Demographics

Table B.1
Questions Asked on Both the June and October 2015 ATP Surveys

#	Question
1.	Which grades are you teaching? Check all that apply. • Kindergarten • 1st • 2nd • 3rd • 4th • 5th • 6th • 7th • 8th • 9th • 10th • 11th • 12th • Ungraded
2.	Please indicate the main subject(s) you teach. If you teach more than one main subject (e.g., you are an elementary teacher of multiple subjects), check "Yes, I teach this subject" for all subjects you teach. • Mathematics (including general mathematics, algebra, geometry, calculus, etc.) • English language arts (including English, language arts, reading, literature, writing, speech, etc.) • Natural science (including general science, biology, chemistry, physics, etc.) • Social science (including social studies, geography, history, etc.) • Arts and/or music • Health education • Computer science • Foreign languages • Career or technical education • Other
3.	(October 2015 survey only) Please estimate the approximate number of students you teach, as well as how many are English-language learners (ELLs) and how many have an Individualized Education Program (IEP) because they have disabilities or are special education students. If you have a dually identified student who is both ELL and has an IEP, please include that student in both your ELL and IEP count. Approximate number of students you teach. Approximate number of students you teach who are ELL. Approximate number of students you teach who have an IEP.

Instructional Resources to Support Standards Implementation

Table B.2
Questions Asked on the October 2015 ATP Survey

#	Question	Subgroup
1.a	Please indicate the frequency with which you draw upon the following instructional materials for **your mathematics classroom lessons** this year (2015–2016). [Options: Never use and/or never heard of; Rarely (1x per month or less); Occasionally (2–3x per month); Often (1–2x per week); Daily or almost daily (3–5x per week)] • Materials developed and/or selected by my district (including any materials formally circulated to teachers across the district for use in classroom lessons) • Materials I developed and/or selected myself (including materials developed in collaboration with other teachers but not formally circulated to teachers across the district for use in classroom lessons) • EngageNY materials *The following are items for K–8 teachers only.* • Bridges in Mathematics (The Math Learning Center) • Envision Math (Pearson Scott Foresman) • Eureka Math (Great Minds) • Everyday Mathematics/Everyday Learning (McGraw Hill) • Go Math (Houghton Mifflin Harcourt) • Harcourt Math or HPS Math (Houghton Mifflin Harcourt) • Investigations in Number, Data & Space (Pearson Scott Foresman) • Math Connects (MacMillan/McGraw Hill) • Math Expressions (Houghton Mifflin Harcourt) • Math in Focus or Singapore Math (Great Source–Houghton Mifflin Harcourt) • Saxon Math (Houghton Mifflin Harcourt) *The following are items for 6–12 teachers only.* • Bridge to Algebra or Carnegie Learning (Carnegie Learning) • College Preparatory Math (CPM) • Connected Mathematics (Pearson Prentice Hall) • Glencoe Math (McGraw Hill) • Holt McDougal Mathematics (Holt McDougal–Houghton Mifflin Harcourt) • Prentice Hall Math (Pearson Prentice Hall) • Algebra I (Pearson Prentice Hall) • Algebra II (Pearson Prentice Hall) • Algebra I (McDougal Littell) • Algebra II (McDougal Littell) Other instructional materials (please describe)	Math teachers

Table B.2—Continued

#	Question	Subgroup
1.b	Please indicate the frequency with which you draw upon the following instructional materials for **your English language arts (ELA) classroom lessons** this year (2015–2016). [Options: Never use and/or never heard of; Rarely (1x per month or less); Occasionally (2–3x per month); Often (1–2x per week); Daily or almost daily (3–5x per week)] • Materials developed and/or selected by my district (including any materials formally circulated to teachers across the district for use in classroom lessons) • Materials I developed and/or selected myself (including materials developed in collaboration with other teachers but not formally circulated to teachers across the district for use in classroom lessons) • Leveled readers/texts (different/adapted reading materials for students at different reading levels) • Trade Books • EngageNY materials • Accelerated Reader (Renaissance Learning) • Book It! Program • Core Knowledge Language Arts/CKLA (Amplify) • Developing Core Proficiencies (Odell Education) • Expeditionary Learning • Great Source (Houghton Mifflin Harcourt) • Houghton Mifflin Reading (Houghton Mifflin Harcourt) • Harcourt Reading (Houghton Mifflin Harcourt) • Journeys (Houghton Mifflin Harcourt) • Literacy by Design (Houghton Mifflin Harcourt) • Literature or Elements of Literature (Holt McDougal) • MacMillan (McGraw-Hill) • Making Meaning (Developmental Studies Center) • McDougal Littell Language of Literature (Houghton Mifflin Harcourt) • RAZ-Kids (Learning A–Z) • Read 180 (Scholastic) • Reading A–Z (Learning A–Z) • Reading Street (Pearson Scott Foresman) • Reading Wonders (McGraw-Hill) • SpringBoard English Language Arts (College Board) • SRA Reading or Open Court Reading (McGraw-Hill) • Storytown (Harcourt) • Prentice Hall Literature (Pearson Prentice Hall) • Text Talk/Direct Instruction (Scholastic) • Treasures (Macmillan McGraw-Hill) • Trophies (Harcourt) • Other (describe)	ELA teachers

Table B.2—Continued

#	Question	Subgroup
2.	Taking into account all the reading students do **in class** (excluding free reading time), what percent of the time are students typically reading: • The same text, written at the grade level you teach? • Different texts, depending on their individual reading levels? Taking into account all the reading students do **outside of class**, what percent of the time are students typically reading: • The same text, written at the grade level you teach? • Different texts, depending on their individual reading levels?	ELA teachers who use leveled readers
3.	How frequently do you use leveled readers (or different/adapted reading materials for students at different reading levels) in your classroom for the following purposes? [Options: Never; Rarely (1x per month or less); Occasionally (2–3x per month); Often (1–2x per week); Daily or almost daily (3–5x per week)] • I use leveled readers to support struggling students in place of the grade-level text other students are reading in class. • I use leveled readers for free reading time and/or assigned independent reading outside of class. • I use leveled readers to create similar-ability in-class reading groups. • I use leveled readers to select a single text for the whole class to read together in class (i.e., students do not read different versions of the text depending on their reading level). • I use leveled readers as an entry point for struggling students before introducing a more challenging text for the whole class to read together. • Other (please describe)	ELA teachers who use leveled readers
4.	Please indicate the degree to which each of the following influences how you determine a student's reading level when assigning a text. [Options: Not at all; To a slight extent; To a moderate extent; To a great extent] • Quantitative measures of reading ability (lexile scores, etc.) • Student choice or self-assignment • In-class assessment results • District, state, or national assessment results • Personal knowledge of students • Grades in previous ELA classes	ELA teachers who use leveled readers

Table B.2—Continued

#	Question	Subgroup
5.	In a typical month, how frequently do you consult the following online resources for ideas and/or materials to integrate into your instruction? [Options: Never heard of this source; Never use this source; Less than once a month; 1–2 times a month; 1–2 times a week; Daily or almost daily] • Achievethecore.org • Betterlesson.com • Ck12.org • Corestandards.org • Curriki.org • EngageNY.com • Google.com • Illuminations.nctm.org • Illustrativemathematics.org • Ilovemath.org • K-5mathteachingresources.com • Khanacademy.org • Learnzillion.com • Ncte.org • Newsela.com • Nextgenscience.org • Oercommons.org • Pinterest.com • Readworks.org • Readwritethink.org • Sharemylesson.com • Teacherspayteachers.com • Teachingchannel.org • State department of education website • Other online resource (describe)	All teachers
6.	Below, we have listed the main instructional resources you chose for the previous question (excluding self-developed and district-developed resources; we will ask about them later). **Please indicate whether your district requires or recommends use of your main [mathematics/ELA] instructional materials.** • My district requires use. • My district recommends but does not require use. • My district does NOT recommend or require use.	All teachers

Table B.2—Continued

#	Question	Subgroup
7.	Please indicate which of the following instructional materials you develop and/or select yourself. Check all that apply. • Unit and/or lesson objectives • Lesson plans • Lesson tasks and/or activities • Texts for the whole class to read • Leveled readers (i.e., adapted texts for students at different reading levels) • Problems and/or questions • Writing prompts • Assessments • Projects • Supplemental activities • Adaptations for students with special needs or those below/above grade level • Other (please describe)	Teachers who use self-developed curricula
8.	Roughly how many hours do you spend developing and/or selecting instructional resources in a typical week? • Less than 1 • 1–2 • 3–4 • 5–6 • 7–8 • 9–10 • More than 10	Teachers who use self-developed curricula
9.	With whom do you collaborate or consult in your development or selection of your instructional materials? Check all that apply. • District and/or school curriculum specialists • My instructional coach • ELL and/or special education specialists • Subject or grade level teachers from my district (not my school) • Subject or grade level teachers from my school • Teachers in my professional network outside of my district or school • Other (please describe) • No one	Teachers who use self-developed curricula

Table B.2—Continued

#	Question	Subgroup
10.	To what extent do you draw on the following sources to develop and/or select your instructional resources? If a factor is not applicable, please choose "not at all." [Options: Not at all; To a slight extent; Somewhat; A great deal] • State standards for mathematics and/or ELA/literacy • District curriculum framework, map or guidelines • State-mandated mathematics and/or ELA/literacy assessment • District mathematics and/or ELA/literacy assessment • Screening, diagnostic or classroom assessment results • Textbooks and/or other materials available at my school • Other teachers' materials • Materials I have purchased for reference • Online materials I pay to use • Open (free) online educational resources • National Council of Teachers of English Language Arts and Reading Education Standards • National Council of Teachers of Mathematics Standards • Preservice preparation • Professional development experiences • Other (please describe)	Teachers who use self-developed curricula
11.	Please indicate the extent to which each of the following factors influences your use of [fill in with the materials they indicated using most often, excluding district- or self-developed materials] [mathematics/ELA] instructional materials (excluding district- or self-developed materials). If a factor is not applicable, please choose "not at all." [Options: Not at all; To a slight extent; Somewhat; A great deal] • State [mathematics / ELA/literacy] standards • District curriculum framework, map or guidelines • State-mandated [mathematics / ELA/literacy] assessment • District [mathematics / ELA/literacy] assessment • Screening, diagnostic or classroom assessment results • Availability of materials • National Council of Teachers of [Mathematics / English Language Arts and Reading Education] Standards • Preservice preparation • Students' special needs • Preparation of students for the next grade or level • Professional development experiences • Use of materials by other teachers in my district • Online teacher networks, blogs, or forums • Quality of materials • Variety of lessons and activities within curriculum • Student interest or engagement with materials • Other (please describe)	All teachers

Table B.2—Continued

#	Question	Subgroup
12.	To what extent does [fill in with the materials they indicated using most often, including district- or self-developed materials] give students the opportunity to engage in the following mathematics practices? [Options: Not at all; To a slight extent; To a moderate extent; To a great extent] • Explain and justify their work • Make sense of problems and persevere in solving them • Use repeated practice to improve their computational skills • Use mathematical language and symbols appropriately when communicating about mathematics • Construct viable arguments and critique the reasoning of others • Apply mathematics to solve problems in real-world contexts • Look for and make use of structure (e.g., patterns in numbers, shapes or algorithms) • Choose and use appropriate tools when solving a problem	Math teachers
13.	To what extent does [fill in with the materials they indicated using most often, including district- or self-developed materials] support you to do the following in your classroom instruction? [Options: Not at all; To a slight extent; To a moderate extent; To a great extent] • Teach major mathematics topics addressed by the state mathematics standards for my grade level • Teach major mathematics topics addressed by the state mathematics standards for my grade level in the sequence recommended by my district and/or state • Teach major mathematics topics addressed by the state mathematics standards for my grade level coherently (i.e., in a way that allows me to connect major topics within and across grade levels) • Address three aspects of rigor—students' conceptual understanding, procedural skills/fluency and application of skills to real-life contexts—with equal time and intensity	Math teachers

Table B.2—Continued

#	Question	Subgroup
14.	To what extent does [fill in with the materials they indicated using most often, including district- or self-developed materials] give students the opportunity to engage in the following English language arts practices? [Options: Not at all; To a slight extent; To a moderate extent; To a great extent] • Read a fictional text of sufficient grade-level complexity with the whole class • Read a nonfiction text of sufficient grade-level complexity with the whole class • Connect literacy instruction to other content (e.g., science, social studies) • Use evidence from a text to make inferences or support conclusions drawn from the text • Analyze the structure of texts, including how specific sentences, paragraphs and larger portions of text relate to each other and the whole • Analyze how two or more texts address similar themes • Write arguments to support claims in an analysis of substantive topics • Strengthen writing by planning, revising, editing, rewriting, or trying a new approach • Write short or sustained research projects • Participate in a range of conversations and collaborations with diverse partners • Adapt speech to a variety of contexts and communicative tasks • Demonstrate a command of conventions of standard English when writing or speaking • Use a range of general academic and domain-specific vocabulary (i.e., words and phrases) sufficient for college and career readiness • Build volume of independent reading students do outside of class or during free reading time in class • Build knowledge about a topic	ELA teachers
15.	How much professional development have you received to support your use of each of your main [mathematics/ELA] instructional resources? • 0 hours • 1 to 4 hours • 4 to 8 hours • 8 to 16 hours • More than 16 hours	All teachers
16.	How much do you need additional professional development to support your use of each of your main [mathematics/ELA] instructional resources? • No need • Slight need • Moderate need • High need	All teachers

Teachers' Perceptions and Practices Related to State Standards

Table B.3
Questions Asked on the June 2015 ATP Survey

#	Question	Subgroup
1.	Which academic standards has your state adopted for **[mathematics/English language arts & literacy]?** • Common Core State Standards • State standards that are adapted from CCSS but are specific to my state • State standards that are not adapted from CCSS • I don't know	All teachers
2.	When did your district or charter management organization expect teachers to start addressing the state **[mathematics/English language arts & literacy]** standards in their instruction? • Last school year (2013–2014) or earlier • This school year (2014–2015) • Teachers will start addressing them next school year (2015–2016) or beyond • I don't know	All teachers
3.	Which of the following approaches for selecting texts for reading aligns with your state's English language arts & literacy standards? Check all that apply. • Using abridged or adapted versions of complex texts for struggling readers • Assigning complex novels that all students in a class are required to read • Selecting texts for individual students based on their reading level • Selecting texts for a class based on qualitative factors like knowledge demands, as well as quantitative factors like word and sentence length • Other approach (please describe) • I don't know	ELA teachers
4.	Which best describes the approach of your state's English language arts & literacy standards for teaching English language arts? • Teach particular books, short stories, essays and poems students should read and then organize instruction around them, teaching a variety of reading skills and strategies as tools for students to understand text • Focus on reading skills and strategies first, e.g., main idea, summarizing, author's purpose, and then organize teaching around them, so that students will apply these skills and strategies to any book, short story, essay or poem they read • Other approach (please describe) • I don't know	ELA teachers

Table B.3—Continued

#	Question	Subgroup
5.	Mr. Jones is developing a lesson plan to go with the excerpt from [name of text]. His objective is: *"Students will use evidence to explain and support their understanding of a non-fiction text's central idea."* **How could Mr. Jones meet the needs of students who read well above the grade level text band in a way that best aligns with your state's English language arts & literacy standards?** • Provide an additional text, [name of additional text] • Have students examine the text for content-specific vocabulary words • Have students write a short story about [topic] • Group students for discussion by aptitude • I don't know **How could Mr. Jones provide the appropriate scaffolds so that all students—including those who read below grade-level—have opportunities to engage in the work of the lesson in a way that best aligns with your state's English language arts & literacy standards?** • He could rewrite the text and substitute more complex text and difficult vocabulary with easier words and phrases • He could create a podcast or audio recording of the passage for students to listen to • He could build background knowledge by providing a summary of the text • He could group students homogeneously and give the English Language Learners a simpler text on the same subject • I don't know	ELA teachers [with different texts for teachers of grades K–2, 3–5, 6–8, and 9–12]
6.a	Suppose a teacher is deciding which of the following questions to ask his/her class about the excerpt, *"Lost Penguin Back in his Natural Habitat"*: a. What is the main idea of the article? b. Which detail from the article best explains how people should approach a penguin? c. What would you do if you discovered a lost animal? d. Can you think of any stories where other animals have gotten lost? **According to your state's English language arts & literacy standards, which of these questions are most important to include in a classroom discussion about the text excerpt? Check all that apply.** • a • b • c • d • None of the above • I don't know	ELA teachers of grades K–2

Table B.3—Continued

#	Question	Subgroup
6.b	Suppose a teacher is deciding which of the following questions to ask his/her class about the excerpt, *"What is a Midden?"*: a. What is the main idea of the article? b. Which detail from the article best supports the idea that archaeologists can learn from people's trash? c. Why is the study of archaeology important to our lives today? d. What might future archaeologists find in the midden of your life? **According to your state's English language arts & literacy standards, which of these questions are most important to include in a classroom discussion about the text excerpt? Check all that apply.** • a • b • c • d • None of the above • I don't know	ELA teachers of grades 3–5
6.c	Suppose a teacher is deciding which of the following questions to ask his/her class about the excerpt, *"The Omnivore's Dilemma"*: a. In paragraph 4, which phrase best helps the reader understand what the word *surplus* means? b. In which paragraph does the author provide information that helps explain why farmers embraced the use of chemical fertilizer? c. Do you agree with the statement that corn has "taken over our food chain"? d. After reading the article, give some examples of where corn is found in everyday products. **According to your state's English language arts & literacy standards, which of these questions are most important to include in a classroom discussion about the text excerpt? Check all that apply.** • a • b • c • d • None of the above • I don't know	ELA teachers of grades 6–8

Table B.3—Continued

#	Question	Subgroup
6.d	Suppose a teacher is deciding which of the following questions to ask his/her class about *"Excerpt from Thomas Jefferson's Inaugural Speech"*: a. Jefferson starts the third paragraph by saying "but every difference of opinion is not a difference of principle." What argument is he making in the section that starts with that sentence? b. Do you agree with that sentiment: "every difference of opinion is not a difference of principle"? c. The shortest sentence in the speech is the one that ends the third paragraph, "I trust not." What is it that Jefferson trusts will not happen in the United States? d. Jefferson refers to the turmoil in "the ancient world." What is the ancient world? **According to your state's English language arts & literacy standards, which of these questions are most important to include in a classroom discussion about the text excerpt? Check all that apply.** • a • b • c • d • None of the above • I don't know	ELA teachers of grades 9–12
7.	Some versions of content standards emphasize particular topics or work (called "major work" or "standards clusters" in the Common Core State Standards) in each grade. Which of the following major topics are emphasized in each indicated grade, according to your standards for mathematics? Check all that apply for each grade. **K grade** • Compare numbers • Use tally marks • Develop understanding of fractions as numbers • Understand meaning of addition and subtraction • I don't know **1st grade** • Add and subtract within 20 • Measure lengths indirectly and by iterating length units • Extend understanding of fraction equivalence and ordering • Create and extend patterns and sequences • I don't know **2nd grade** • Identify line of symmetry in two-dimensional figures • Understand the place value • Apply and extend previous understandings of multiplication and division to multiply and divide fractions • Represent and solve problems involving addition and identify line of symmetry in two-dimensional figures • I don't know	Math teachers [answering only for grades they teach]

Table B.3—Continued

#	Question	Subgroup
7.	**3rd grade** • Multiply and divide within 100 • Identify the measures of central tendency and distribution • Develop understanding of fractions as numbers • Understand meaning of addition and subtraction • I don't know **4th grade** • Examine transformations on the coordinate plane • Generalize place value understanding for multi-digit whole numbers • Extend understanding of fraction equivalence and ordering • Understand ratio concepts and use ratio reasoning to solve problems • I don't know **5th grade** • Apply and extend previous understandings of multiplication and division to multiply and divide fractions • Understand the place value system • Understand and calculate probability of single events • Identify line of symmetry in two-dimensional figures • I don't know **6th grade** • Understand ratio concepts and use ratio reasoning to solve problems • Identify the measures of central tendency and distribution • Identify and utilize rules of divisibility • Apply and extend previous understandings of arithmetic to algebraic expressions • I don't know **7th grade** • Examine transformations on the coordinate plane • Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers • Use properties of operations to generate equivalent expressions • Generate the prime factorization of numbers to solve • I don't know **8th grade** • Represent and analyze quantitative relationships between dependent and independent variables • Define, evaluate, and compare functions • Understand and apply the Pythagorean Theorem • Understand and calculate probability of single events • I don't know	Math teachers [answering only for grades they teach]

Table B.3—Continued

#	Question	Subgroup
8.	"Modeling with mathematics" is a student practice that is included in some state standards. Which of the following phrases best describes what "modeling with mathematics" means to you? • Solving abstract mathematics problems that have no context • Using hands-on manipulatives to solve mathematical problems • Using mathematics to solve problems that arise in real-world contexts • Using appropriate mathematical language and symbols when communicating about mathematics • Writing mathematical answers in an exact form instead of a rounded decimal • I don't know	Math teachers
9.a	Content standards are often intended to address three types of student learning (sometimes called "aspects of rigor" in relation to Common Core State Standards): • Conceptual understanding: students know the meaning behind the math • Procedural skill and fluency: students can quickly and accurately perform operations • Application: students apply their skills and knowledge in real-world situations **Examine each standard carefully and check which of the above types of learning—or aspects of rigor—is particularly being targeted [Options: Conceptual Understanding, Procedural Skill and Fluency, Application, I don't know]** 1. Add and subtract within 20. 2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. 3. Explain why addition and subtraction strategies work, using place value and the properties of operations. 4. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones—called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). 5. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	Math teachers of grades K–2

Table B.3—Continued

#	Question	Subgroup
9.b	Content standards are often intended to address three types of student learning (sometimes called "aspects of rigor" in relation to Common Core State Standards): • Conceptual understanding: students know the meaning behind the math • Procedural skill and fluency: students can quickly and accurately perform operations • Application: students apply their skills and knowledge in real-world situations **Examine each standard carefully and check which of the above types of learning—or aspects of rigor—is particularly being targeted. [Options: Conceptual Understanding, Procedural Skill and Fluency, Application, I don't know]** 1. Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. 2. Understand a fraction *1/b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by *a* parts of size *1/b*. 3. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. 4. Multiply and divide within 100. 5. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	Math teachers of grades 3–5

Table B.3—Continued

#	Question	Subgroup
9.c	Content standards are often intended to address three types of student learning (sometimes called "aspects of rigor" in relation to Common Core State Standards): • Conceptual understanding: students know the meaning behind the math • Procedural skill and fluency: students can quickly and accurately perform operations • Application: students apply their skills and knowledge in real-world situations **Examine each standard carefully and check which of the above types of learning—or aspects of rigor—is particularly being targeted. [Options: Conceptual Understanding, Procedural Skill and Fluency, Application, I don't know]** 1. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05." 2. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. 3. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. 4. Solve linear equations in one variable. 5. Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	Math teachers of grades 6–8

Table B.3—Continued

#	Question	Subgroup
9.d	Content standards are often intended to address three types of student learning (sometimes called "aspects of rigor" in relation to Common Core State Standards): • Conceptual understanding: students know the meaning behind the math • Procedural skill and fluency: students can quickly and accurately perform operations • Application: students apply their skills and knowledge in real world situations **Examine each standard carefully and check which of the above types of learning—or aspects of rigor—is particularly being targeted. [Options: Conceptual Understanding, Procedural Skill and Fluency, Application, I don't know]** 1. Rewrite expressions involving radicals and rational exponents using the properties of exponents. 2. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f(x)* denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y* = *f(x)*. 3. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. 4. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 5. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	Math teachers of grades 9–12

Table B.3—Continued

#	Question	Subgroup
10.a	Coherence *across* grades through progressions of topics over multiple grade-levels is emphasized in some mathematics standards. Consider the following first-grade standards: • Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: (i) 10 can be thought of as a bundle of ten ones—called a "ten;" (ii) The numbers from 11 to 19 are composed of a ten and 1, 2, 3, 4, 5, 6, 7, 8, or 9 ones; (iii) The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to 1, 2, 3, 4, 5, 6, 7, 8, or 9 tens (and 0 ones). **Indicate which standard below would provide kindergarten students with the necessary preparation for the above first-grade standard:** 1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of 10 ones and 1, 2, 3, 4, 5, 6, 7, 8, or 9 ones. 2. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: (i) 100 can be thought of as a bundle of ten tens—called a "hundred;" (ii) The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). 3. Use place value understanding to round multi-digit whole numbers to any place. 4. Use place value understanding to round whole numbers to the nearest 10 or 100. 5. I don't know.	Math teachers of grades K–2

Table B.3—Continued

#	Question	Subgroup
10.a	**Consider the same first-grade standard used in the previous question. Indicate which standard below represents second-grade work that the above first-grade standard would prepare students to learn:** 1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of 10 ones and 1, 2, 3, 4, 5, 6, 7, 8, or 9 ones. 2. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: (i) 100 can be thought of as a bundle of ten tens—called a "hundred"; (ii) The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). 3. Use place value understanding to round whole numbers to the nearest 10 or 100. 4. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1). 5. I don't know.	Math teachers of grades K–2

Table B.3—Continued

#	Question	Subgroup
10.b	Coherence *across* grades through progressions of topics over multiple grade-levels is emphasized in some mathematics standards. Consider the following fourth-grade standards: • Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. **Indicate which standard below would provide third-grade students with the necessary preparation for the above fourth-grade standard:** 1. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. (i) Understand a fraction *a*/*b* as a multiple of *1*/*b*. (ii) Understand a multiple of *a*/*b* as a multiple of *1*/*b*, and use this understanding to multiply a fraction by a whole number. (iii) Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. 2. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. (i) Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. (ii) Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. (iii) Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. 3. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. 4. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. 5. None of the above. 6. I don't know.	Math teachers of grades 3–5

Table B.3—Continued

#	Question	Subgroup
10.b	**Consider the same fourth-grade standard used in the previous question. Indicate which standard below represents fifth-grade work that the above fourth-grade standard would prepare students to learn:** 1. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. (i) Understand a fraction *a*/*b* as a multiple of *1*/*b*. (ii) Understand a multiple of *a*/*b* as a multiple of *1*/*b*, and use this understanding to multiply a fraction by a whole number. (iii) Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. 2. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. (i) Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. (ii) Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. (iii) Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. 3. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. 4. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. 5. None of the above. 6. I don't know.	Math teachers of grades 3–5

Table B.3—Continued

#	Question	Subgroup
10.c	Coherence *across* grades through progressions of topics over multiple grade-levels is emphasized in some mathematics standards. Consider the following seventh-grade standards: • Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. (i) Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? (ii) Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions. **Indicate which standard below would provide sixth-grade students with the necessary preparation for the above seventh-grade standard:** 1. Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time. 2. Solve quadratic equations in one variable. (i) Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. (ii) Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	Math teachers of grades 6–8

Table B.3—Continued

#	Question	Subgroup
10.c	3. Solve linear equations in one variable. (i) Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). (ii) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 4. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 5. I don't know. **Consider the same seventh-grade standard used in the previous question. Indicate which standard below represents eighth-grade work that the above seventh-grade standard would prepare students to learn:** 1. Solve linear equations in one variable. (i) Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). (ii) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 2. Solve quadratic equations with real coefficients that have complex solutions. 3. Solve quadratic equations in one variable. (i) Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. (ii) Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b. 4. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 5. I don't know.	Math teachers of grades 6–8

Table B.3—Continued

#	Question	Subgroup
10.d	Coherence *across* grades through progressions of topics over multiple grade-levels is emphasized in some mathematics standards. Consider the following high school standard: • Solve quadratic equations in one variable. (i) Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. (ii) Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula givves complex solutions and write them as $a \pm bi$ for real numbers a and b. **Indicate which standard below would provide eighth-grade students with the necessary preparation for the above high school standard:** 1. Solve quadratic equations with real coefficients that have complex solutions. 2. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions. 3. Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). 4. Solve linear equations in one variable. (i) Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). (ii) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 5. None of the above. 6. I don't know.	Math teachers of grades 9–12

Table B.3—Continued

#	Question	Subgroup
10.d	**Consider the same high school standard used in the previous question. Indicate which standard below represents more advanced work that the above high school standard would prepare students to learn:** 1. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. (i) Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? (ii) Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions. 2. Solve linear equations in one variable. (i) Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). (ii) Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 3. Use complex numbers in polynomial identities and equations. 4. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. 5. I don't know.	Math teachers of grades 9–12

Table B.3—Continued

#	Question	Subgroup
11.	How often do you ask your students to engage in the following practices during class? [Options: Never or hardly ever; Sometimes (1–3 times per month); Often (1–3 times per week); Daily or almost daily] • Read a nonfiction text in the classroom • Connect literacy instruction to other content (e.g., science, social studies) • Use evidence from a text to make inferences or support conclusions drawn from the text • Analyze the structure of texts, including how specific sentences, paragraphs and larger portions of text relate to each other and the whole • Analyze how two or more texts address similar themes • Write arguments to support claims in an analysis of substantive topics • Strengthen writing by planning, revising, editing, rewriting, or trying a new approach • Write short or sustained research projects • Participate in a range of conversations and collaborations with diverse partners • Adapt speech to a variety of contexts and communicative tasks • Demonstrate a command of conventions of standard English when writing or speaking • Use a range of general academic and domain-specific words and phrases sufficient for college and career readiness	ELA teachers
12.	How often do you ask your students to engage in the following practices during class? [Options: Never or hardly ever; Sometimes (1–3 times per month); Often (1–3 times per week); Daily or almost daily] • Predominantly use questions and problems I have developed on my own • Predominantly use questions and problems that are from the textbook • Explain and justify their work • Make sense of problems and persevere in solving them • Use repeated practice to improve their computational skills • Use mathematical language and symbols appropriately when communicating about mathematics • Construct viable arguments and critique the reasoning of others • Apply mathematics to solve problems in real-world contexts • Look for and make use of structure (e.g., patterns in numbers, shapes or algorithms) • Choose and use appropriate tools when solving a problem	Math teachers

References

Achieve, *A Review of the Draft 2014 Indiana K–12 Content Standards for College and Career Readiness in English Language Arts and Mathematics*, Washington, D.C., 2014. As of February 18, 2016: http://www.achieve.org/files/Indiana2014MathematicsandEnglishLanguageArtsStandardsReview-FINA....pdf

———, *Closing the Expectations Gap: 2014 Annual Report*, Washington, D.C., 2015a. As of February 18, 2016: http://www.achieve.org/publications/closing-expectations-gap-2014

———, *A Review of the South Carolina College- and Career-Ready Standards in English Language Arts and Mathematics*, Washington, D.C., 2015b. As of March 14, 2016: http://www.achieve.org/files/SouthCarolinaStandardsReview-08-31-15FINAL.pdf

Ball, Deborah L., and Francesca M. Forzani, "Building a Common Core for Learning to Teach: And Connecting Professional Learning to Practice," *American Educator*, Vol. 35, No. 2, 2011, pp. 17–21.

Bausmith, Jennifer M., and Carol Barry, "Revisiting Professional Learning Communities to Increase College Readiness: The Importance of Pedagogical Content Knowledge," *Educational Researcher*, Vol. 40, No. 4, 2011, pp. 175–178.

Blank, Rolf K., Andrew Porter, and John Smithson, *New Tools for Analyzing Teaching, Curriculum and Standards in Mathematics & Science, Results from Survey of Enacted Curriculum Project, Final Report*, Washington, D.C.: Council of Chief State School Officers, 2001.

Book, Cassandra L., and Donald J. Freeman, "Differences in Entry Characteristics of Elementary and Secondary Teacher Candidates," *Journal of Teacher Education*, Vol. 37, No. 2, 1986, pp. 47–51.

BrainPOP Educators, "Lesson Ideas: Main Idea," web page, undated. As of March 14, 2016: https://educators.brainpop.com/bp-jr-topic/main-idea/

Brown, Sheila, and Lee Kappes, *Implementing the Common Core State Standards: A Primer on "Close Reading of Text,"* Washington, D.C.: The Aspen Institute, 2012. As of February 18, 2016: http://www.aspendrl.org/portal/browse/DocumentDetail?documentId=1396&download

Bunch, George C., Amanda Kibler, and Susan Pimentel, *Realizing Opportunities for English Learners in the Common Core English Language Arts and Disciplinary Literacy Standards*, Stanford, Calif.: Understanding Language Initiative, 2012.

CCSSI—*See* Common Core State Standards Initiative.

Chall, Jeanne S., Sue S. Conard, and Susan H. Harris, *An Analysis of Textbooks in Relation to Declining SAT Scores*, Princeton, N.J.: College Board and Educational Testing Service, 1977.

Cheung, Sin Y., and Robert Andersen, "Time to Read: Family Resources and Educational Outcomes in Britain," *Journal of Comparative Family Studies*, Vol. 34, No. 3, 2003, pp. 413–433.

Common Core State Standards Initiative, "English Language Arts Standards, Anchor Standards, College and Career Readiness Anchor Standards for Reading," web page, 2016a. As of February 22, 2016: http://www.corestandards.org/ELA-Literacy/CCRA/R/

———, "Frequently Asked Questions," web page, 2016b. As of March 14, 2016: http://www.corestandards.org/about-the-standards/frequently-asked-questions/

———, "Grade 1, Number & Operations in Base Ten," web page, 2016c. As of March 14, 2016: http://www.corestandards.org/Math/Content/1/NBT/

———, "Key Shifts in Mathematics," web page, 2016d. As of February 22, 2016: http://www.corestandards.org/other-resources/key-shifts-in-mathematics/

———, "Standards in Your State," web page, 2016e. As of February 22, 2016: http://www.corestandards.org/standards-in-your-state/

———, "Other Resources," web page, 2016f. As of February 22, 2016: http://www.corestandards.org/other-resources/

Compton, Donald L., Amanda C. Appleton, and Michelle K. Hosp, "Exploring the Relationship Between Text-Leveling Systems and Reading Accuracy and Fluency in Second-Grade Students Who Are Average and Poor Decoders," *Learning Disabilities: Research and Practice*, Vol. 19, No. 3, 2004, pp. 176–184.

Connally, Kaylan, "How Will ESSA Influence States' Teacher Quality Efforts?" *EdCentral*, January 11, 2016. As of February 29, 2016: http://www.edcentral.org/essa_teacherquality/

Cook, Colleen, Fred Heath, and Russel L. Thompson, "A Meta-Analysis of Response Rates in Web- or Internet-Based Surveys," *Educational and Psychological Measurement*, Vol. 60, No. 6, 2000, pp. 821–836.

EdReports, *Quality Instructional Materials Tool: Grades K–8 Mathematics*, Durham, N.C., 2015. As of February 18, 2016: http://www.edreports.org/files/EdReports-Quality-Instructional-Materials-Tool-K-8-Math.pdf

EngageNY, "EngageNY Help Center," web page, undated. As of March 14, 2016: https://engagenysupport.nysed.gov/hc/en-us

Fisher, Douglas, and Nancy Frey, "Selecting Texts and Tasks for Content Area Reading and Learning," *The Reading Teacher*, Vol. 68, No. 7, 2015, pp. 524–529.

Freedberg, Louis, "New York Stumbles, California Advances on Common Core Implementation," *EdSource*, January 10, 2016. As of March 1, 2016: http://edsource.org/2016/new-york-stumbles-california-advances-on-common-core-implementation/92986

Gamson, David A., Xiaofei Lu, and Sarah A. Eckert, "Challenging the Research Base of the Common Core State Standards: A Historical Reanalysis of Text Complexity," *Educational Researcher*, Vol. 42, No. 7, 2013, pp. 381–391.

Gewertz, Catherine, "Teachers Feel Ill-Prepared for Common-Core Despite Training," *Education Week*, Vol. 34, No. 1, 2014, p. 9.

———, "Delaware Chooses SAT over Smarter Balanced for High School Tests," *Education Week*, January 6, 2016. As of February 29, 2016: http://blogs.edweek.org/edweek/high_school_and_beyond/2016/01/delaware_chooses_sat_over_smarter_balanced_for_high_school_tests.html?qs=SBAC

Gottfried, Allen W., Adele E. Gottfried, Kay Bathurst, Diana W. Guerin, and Makeba M. Parramore, "Socioeconomic Status in Children's Development and Family Environment: Infancy Through Adolescence," in Marc H. Bornstein and Robert H. Bradley, eds., *Socioeconomic Status, Parenting, and Child Development*, Mahwah, N.J.: Lawrence Erlbaum Associates, 2003, pp. 189–207.

Groves, Robert M., Don A. Dillman, John L. Eltinge, and Roderick J. A. Little, eds., *Survey Nonresponse*, Hoboken, N.J.: John Wiley & Sons, Ltd., 2001.

Hamilton, Laura S., Julia H. Kaufman, Brian M. Stecher, Scott Naftel, Michael Robbins, Lindsey E. Thompson, Chandra Garber, Susannah Faxon-Mills, and V. Darleen Opfer, *What Supports Do Teachers Need to Help Students Meet Common Core State Standards for Mathematics? Findings from the American Teacher and American School Leader Panels*, Santa Monica, Calif.: RAND Corporation, RR-1404, 2016. As of March 14, 2016: http://www.rand.org/pubs/research_reports/RR1404.html

Hanushek, Eric, "Teacher Characteristics and Gains in Student Achievement: Estimation Using Micro-Data," *The American Economic Review,* Vol. 61, No. 2, 1971, pp. 280–288.

Haydel, Elizabeth, and Sheila B. Carmichael, *Uncommonly Engaging? A Review of the EngageNY English Language Arts Common Core Curriculum*, Washington, D.C.: Thomas B. Fordham Institute, 2015. As of February 18, 2016: http://edexcellence.net/publications/uncommonly-engaging-a-review-of-the-engageny-english-language-arts-common-core

Hayes, Donald P., Loreen T. Wolfer, and Michael F. Wolfe, "Schoolbook Simplification and Its Relation to the Decline in SAT-Verbal Scores," *American Educational Research Journal*, Vol. 33, No. 2, 1996, pp. 489–508.

Heck, Daniel J., Iris R. Weiss, and Joan D. Pasley, *A Priority Research Agenda for Understanding the Influence of the Common Core State Standards for Mathematics*, Technical Report, Chapel Hill, N.C.: Horizon Research, Inc., 2011.

Heitin, Liana, "Review of Math Programs Comes Under Fire," Edweek.org, March 17, 2015. As of February 18, 2016: http://www.edweek.org/ew/articles/2015/03/18/review-of-math-programs-comes-under-fire.html

Herold, Benjamin, and Michele Molnar, "Research Questions Common-Core Claims by Publishers," Edweek.org, March 3, 2014. As of February 18, 2016: http://www.edweek.org/ew/articles/2014/03/05/23textbooks_ep.h33.html

Hiebert, Elfrieda H., and Heidi Anne E. Mesmer, "Upping the Ante of Text Complexity in the Common Core State Standards: Examining Its Potential Impact on Young Readers," *Educational Researcher*, Vol. 42, No. 1, 2013, pp. 44–51.

Hill, Heather C., Brian Rowan, and Deborah L. Ball, "Effects of Teachers' Mathematical Knowledge for Teaching on Student Achievement," *American Educational Research Journal*, Vol. 42, No. 2, 2005, pp. 371–406.

Kane, Thomas J., "Teaching Higher: Educators' Perspectives on Common Core Implementation," Cambridge, Mass.: Harvard University, Center for Education Policy Research, 2015. As of March 14, 2016: http://cepr.harvard.edu/teaching-higher

Kaufman, Julia H., Laura S. Hamilton, Brian M. Stecher, Scott Naftel, Michael Robbins, Lindsey E. Thompson, Chandra Garber, Susannah Faxon-Mills, and V. Darleen Opfer, *What Supports Do Teachers Need to Help Students Meet Common Core State Standards for English Language Arts and Literacy? Findings from the American Teacher and American School Leader Panels*, Santa Monica, Calif.: RAND Corporation, RR-1374, 2016. As of March 14, 2016: http://www.rand.org/pubs/research_reports/RR1374.html

Kaufman, Julia H., Mary Kay Stein, and Brian Junker, "Factors Associated with Alignment Between Teacher Survey Reports and Classroom Observation Ratings of Mathematics Instruction," *The Elementary School Journal*, Vol. 116, No. 3, March 2016, pp. 339–364. As of March 14, 2016: http://www.journals.uchicago.edu/doi/abs/10.1086/684942

Kuhn, Melanie R., and Steven Stahl, "Fluency: A Review of Developmental and Remedial Practices," *Journal of Educational Psychology*, Vol. 95, No. 1, 2003, pp. 3–21.

Larson, Matthew R., "Will CCSSM Matter in Ten Years? Reflect and Discuss," *Teaching Children Mathematics*, National Council of Teachers of Mathematics, Vol. 19, No. 2, 2012, pp. 108–115.

Liben, David, and Meredith Liben, *"Both And" Literacy Instruction: A Proposed Paradigm Shift for the Common Core ELA Classroom*, New York: Student Achievement Partners, 2013. As of February 19, 2016: http://achievethecore.org/page/687/both-and-literacy-instruction-detail-pg

Mayer, Daniel P., "Measuring Instructional Practice: Can Policymakers Trust Survey Data?" *Educational Evaluation and Policy Analysis*, Vol. 21, No. 1, 1999, pp. 29–45.

McCallum, Bill, "Arranging the High School Standards into Courses," Tools for the Common Core Standards, web page, 2012. As of March 14, 2016: http://commoncoretools.me/2012/03/16/arranging-the-high-school-standards-into-courses/

National Research Council, *Adding It Up: Helping Children Learn Mathematics*, Jeremy Kilpatrick, Jane Swafford, and Bradford Findell, eds., Washington, D.C.: National Academy Press, 2001. As of February 18, 2016: http://www.nap.edu/read/9822/chapter/1#ii

New York State Education Department, "Welcome to the Office of State Assessment," web page, 2016. As of March 14, 2016: http://www.p12.nysed.gov/assessment/

NYSED—*See* New York State Education Department.

O'Connor, Rollanda E., H. Lee Swanson, and Cathleen Geraghty, "Improvement in Reading Rate Under Independent and Difficult Text Levels: Influences on Word and Comprehension Skills," *Journal of Educational Psychology*, Vol. 102, No. 1, 2010, pp. 1–19.

OECD—*See* Organisation for Economic Co-operation and Development.

Opfer, V. Darleen, and David Pedder, "Conceptualizing Teacher Professional Learning," *Review of Educational Research*, Vol. 81, No. 3, 2011, pp. 376–407.

Organisation for Economic Co-operation and Development, *TALIS 2013 Results: An International Perspective on Teaching and Learning*, OECD Publishing, 2014. As of March 14, 2016:
http://nces.ed.gov/surveys/talis/talis2013/

Polikoff, Morgan S., "How Well Aligned Are Textbooks to the Common Core Standards in Mathematics?" *American Educational Research Journal*, Vol. 52, No. 6, 2015, pp. 1185–1211.

Pomeroy, Deborah, "Implications of Teachers' Beliefs About the Nature of Science: Comparison of the Beliefs of Scientists, Secondary Science Teachers, and Elementary Teachers," *Science Education*, Vol. 77, No. 3, 1993, pp. 261–278.

Porter, Andrew, Jennifer McMaken, Jun Hwang, and Rui Yang, "Common Core Standards: The New U.S. Intended Curriculum," *Educational Researcher*, Vol. 40, No. 3, 2011, pp. 103–116.

Powell, Sarah R., Lynn S. Fuchs, and Doug Fuchs, "Reaching the Mountaintop: Addressing the Common Core Standards in Mathematics for Students with Mathematics Difficulties," *Learning Disabilities Research and Practice*, Vol. 28, No. 1, 2013, pp. 38–48.

Rentner, Diane S., *Year 3 of Implementing the Common Core State Standards: An Overview of States' Progress and Challenges*, Washington, D.C.: Center on Education Policy, 2013.

Rentner, Diane S., and Nancy Kober, *Common Core State Standards in 2014: Curriculum and Professional Development at the District Level*, Washington, D.C.: Center on Education Policy, 2014. As of February 19, 2016:
http://www.cep-dc.org/displayDocument.cfm?DocumentID=441

Rockoff, Jonah E., "The Impact of Individual Teachers on Student Achievement: Evidence from Panel Data," *The American Economic Review*, Vol. 94, No. 2, 2004, pp. 247–252.

Salazar, Tonette, and Kathy Christie, *States and the (Not So) New Standards—Where Are They Now?* Denver, Colo.: Education Commission of the States, 2014. As of February 22, 2016:
http://www.ecs.org/clearinghouse/01/13/12/11312.pdf

Santelises, Sonja Brookins, and Joan Dabrowski, *Checking In: Do Classroom Assignments Reflect Today's Higher Standards?* Washington, D.C.: The Education Trust, 2015. As of March 14, 2016:
http://edtrust.org/wp-content/uploads/2014/09/CheckingIn_TheEducationTrust_Sept20152.pdf

Santos, Maria, Linda Darling-Hammond, and Tina Cheuk, *Teacher Development Appropriate to Support English Language Learners*, Understanding Language Initiative, Stanford, Calif.: Stanford University, 2012. As of February 19, 2016:
http://ell.stanford.edu/publication/teacher-development-appropriate-support-ells

SAP—*See* Student Achievement Partners.

Sauermann, Henry, and Michael Roach, "Increasing Web Survey Response Rates in Innovation Research: An Experimental Study of Static and Dynamic Contact Design Features," *Research Policy*, Vol. 42, No. 1, February 2013, pp. 273–286.

Schmidt, William H., and Richard T. Houang, "Curricular Coherence and the Common Core State Standards for Mathematics," *Educational Researcher*, Vol. 41, No. 8, 2012, pp. 294–308.

Schonlau, Matthias, Ronald D. Fricker, and Marc N. Elliott, *Conducting Research Surveys via E-Mail and the Web*, Santa Monica, Calif.: RAND Corporation, MR-1480-RC, 2002. As of March 14, 2016: http://www.rand.org/publications/MR/MR1480/

Shanahan, Timothy, "Letting the Text Take Center Stage: How the Common Core State Standards Will Transform English Language Arts Instruction," *American Educator*, Vol. 37, No. 3, 2013, pp. 4–11.

Shanahan, Timothy, and Ann Duffett, *Common Core in the Schools: A First Look at Reading Assignments*, Washington, D.C.: Thomas B. Fordham Institute, 2013. As of February 22, 2016: http://edexcellence.net/publications/common-core-in-the-schools

Sparks, Sarah D., "The Common Core Raises Questions About Teachers' Questioning Skills," *Education Week*, Vol. 35, No. 6, 2015, p. s8. As of February 22, 2016: http://www.edweek.org/ew/articles/2015/09/30/the-common-core-raises-questions-about-teachers.html

Spillane, J. P., and J. S. Zeuli, "Reform and Teaching: Exploring Patterns of Practice in the Context of National and State Mathematics Reforms," *Educational Evaluation and Policy Analysis*, Vol. 21, No. 1, 1999, pp. 1–27.

Student Achievement Partners, "ELA/Literacy Lessons," Achievethecore.org, web resource, undated a. As of March 14, 2016: http://achievethecore.org/category/411/ela-literacy-lessons

———, "The Shifts," Achievethecore.org, web page, undated b. As of March 14, 2016: http://achievethecore.org/category/419/the-shifts

Teachman, Jay D., "Family Background, Educational Resources, and Educational Attainment," *American Sociological Review*, Vol. 52, No. 4, 1987, pp. 548–557.

The New Teachers Project, The Mirage: *Confronting the Hard Truth About Our Quest for Teacher Development*, Washington, D.C., 2015. As of March 14, 2016: http://tntp.org/assets/documents/TNTP-Mirage_2015.pdf

TNTP—*See* The New Teachers Project.

Ujifusa, Andrew, "Tough Choices for PARCC as States Drop Out," *Education Week*, August 5, 2015. As of February 29, 2016: http://www.edweek.org/ew/articles/2015/08/05/tough-choices-for-parcc-as-states-drop.html?qs=PARCC

U.S. Department of Education, "Race to the Top Assessment Program," web page, 2015. As of March 14, 2016: http://www2.ed.gov/programs/racetothetop-assessment/awards.html

USDoE—*See* U.S. Department of Education.

Walsh, Russ, "Common Core Calls for Kids to Read Books that 'Frustrate' Them. Is That a Good Idea?" in Valerie Strauss, ed., *Washington Post*, Answer Sheet newsletter, September 22, 2014. As of February 22, 2016: https://www.washingtonpost.com/news/answer-sheet/wp/2014/09/22/common-core-calls-for-kids-to-read-books-that-frustrate-them-is-that-a-good-idea/

Wu, Hung-Hsi, "Phoenix Rising: Bringing the Common Core State Mathematics Standards to Life," *American Educator*, Vol. 35, No. 3, 2011, pp. 3–13.

New K–12 standards for mathematics and English language arts and literacy adopted recently in most states are more rigorous and far-reaching than most previous state standards. Some evidence suggests that teachers are not prepared to help students meet those standards. However, we have very little concrete information about how state standards are connected to what teachers think and do in their classrooms. The purpose of this report is to shed further light on teachers' implementation of state standards, including the instructional materials teachers are using to address state standards and how they are using them, their perceptions about the content and approaches most aligned with their standards, and the extent to which they are asking their students to engage in practices aligned with their standards. Data are drawn from nationally representative surveys of U.S. Teachers administered in the summer and fall of 2015. The findings particularly focus on teachers in states that have adopted "Standards Adapted from the Common Core" (or "SACC" states). Results are intended to help states and school districts reflect upon areas where teachers may benefit from additional guidance about how to address their state standards in ways that best support student learning. The findings also point to subgroups of teachers who may be more likely to require additional resources or professional development to help them effectively implement these new changes.

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