Getting Down to FACTS

Curriculum Adoption and Implementation in California

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Introduction

Researchers and experts increasingly agree about the role of curriculum materials in improving teaching and learning. With evidence that implementation of content standards in the classroom is less than desired (e.g., Kaufman et al., 2018b; Opfer et al., 2018, Polikoff, 2021), and given the complexity of the newest generation of college- and career-ready standards, there has been growing attention to curriculum materials in both policy and research. For instance, organizations like EdReports have sprung up to rate the quality and alignment of curriculum materials, and states have conducted their own curriculum materials reviews and have incentivized the adoption of better-rated materials. Perhaps the most prominent example of this trend is in the so-called "Science of Reading" movement—40 states have enacted laws that attempt to bring about improved reading instruction, and these policies generally emphasize the adoption of science-of-reading-aligned materials (Schwartz, 2025).

California has its own history with curriculum materials. The state has periodically evaluated curriculum materials in the core subjects and has put out lists of approved materials. The California Department of Education currently lists adopted materials in seven subjects. These lists are currently advisory, unlike some states that either mandate or heavily incentivize the adoption of approved materials. The state's curriculum history also includes a prominent court case—*Williams v. California*, in which students sued the state for inadequate resources in their public schools (among them, curriculum materials). As a result of the *Williams* settlement, California established reporting requirements and audit processes that are intended to ensure that all children have access to sufficient curriculum materials (see Hutt & Polikoff, 2020, for more on the history and implementation of the *Williams* settlement).

Of course, it is not enough for schools and districts to adopt high-quality materials; if these materials are not used by teachers, they will not meaningfully drive instruction. There is some evidence from other states about strategies that states and districts can pursue to improve curriculum implementation—for instance, through state-provided or state-certified curriculum-aligned professional learning; improved alignment of pre-service teacher education with high-quality curriculum materials; and district adoption processes that cultivate teacher buy-in and authority (e.g., Kaufman et al., 2018a).

Given this context, and with new curriculum policies being implemented on the horizon (for instance, with the state's recent passage of AB 1454 to bring "Science of Reading" reforms to the Golden State, as well as the 2025 state adoption of new mathematics materials), it is important to understand the current state of curriculum materials adoption and implementation in California. This analysis can offer potentially useful insights to state leaders and policymakers to guide better implementation in California schools and districts. To that end, this study examines the current state of curriculum adoption and implementation in California schools, drawing on three distinct data sources (described below). We address three primary research questions:

1) What curriculum materials are currently adopted in math and ELA in California schools, and to what extent are these materials rated as "high quality" by EdReports?
2) What do California district leaders report are the expectations for teacher curriculum use and differentiation of adopted curriculum materials?
3) How do California teachers describe their curriculum implementation, supplementation, and differentiation?

To address the first question, we rely on publicly available textbook adoption data from California's School Accountability Report Cards (SARCs), which have been collected and cleaned by the Center for Education Market Dynamics (CEMD). As a result of the *Williams* settlement and legislation, all California public schools are required to document textbook sufficiency on their SARCs each year (though not all districts actually fulfill this obligation, see Hutt & Polikoff, 2020, for a discussion of these issues). Typically they report the current textbook in use in each of their core subjects by grade span, as well as the adoption year. The CEMD collects and cleans these data, and they provided us with the most recent data available, representing the textbooks in use in the 2024-25 school year.

To address the second question, we rely on data from Getting Down to Facts interviews with 94 California school district leaders. Districts were chosen to vary on size (21 small districts, 52 medium districts (an oversample), and 21 large districts) and region (15-23 from each of five different regions around the state). The interviews covered a range of topics, but we extract only those data related to curriculum materials adoption and implementation. For more details on the sampling approach and the sample representativeness to California districts, see Gallagher et al. (2026); their paper provides compelling evidence that the sample is broadly representative of the state on observable district characteristics.

To address the third question, we rely on descriptive analysis of survey data from RAND's 2024 American Instructional Resources Survey. More detail on that survey and its sampling and representativeness can be found in Doan et al. (2024). To conclude, the paper makes recommendations for policies that could get better materials adopted and more widely used in California's schools.

Results

Research Question 1: What curriculum materials are currently adopted in math and ELA in California schools, and to what extent are these materials rated as "high quality" by EdReports?

Finding 1: Relatively few core curriculum materials dominate the textbook market in California, despite a lack of strong state incentives to adopt particular materials. Fewer curriculum materials dominate the market for ELA compared to math.

We used data from the Center for Education Market Dynamics (CEMD), derived from the 2024-25 School Accountability Report Cards (SARCs), to tabulate core and supplemental curriculum materials adoptions in mathematics and ELA. In total, we analyzed data from 534 districts representing 4,266,913 students. This is approximately 53% of districts and 64% of students in the state.

Table 1 shows the most commonly adopted core materials in ELA and mathematics. To be listed in the table, a material must have been adopted by 20 or more districts out of the 1,015 districts in the state—there are many other materials listed in the SARCs that are adopted by fewer than 20 districts

(more on this below). Importantly, we combined different versions of the same material for this analysis (e.g., a national version and a California version of the same title). Thus, the market is actually more diffuse than what is presented below, though it is impossible to judge the extent to which different versions of the same series actually differ in their content without analyzing the books.

Table 1

Most Commonly Adopted Math and ELA Core Curricula in California

ELA curricula	Percent of districts	Math Curricula	Percent of districts
Wonders	38.0%	Go Math	24.9%
StudySync	36.1%	Eureka/EngageNY	20.6%
Benchmarks	29.2%	Core Connections	18.2%
Collections	19.1%	Big Ideas	15.0%
Journeys	14.2%	My Math	13.7%
Amplify	9.7%	Envision	13.1%
Lucy Calkins	9.4%	Glencoe	11.6%
Read 180	6.7%	Math Expressions	10.5%
English 3D	6.0%	iReady	9.6%
Perspectives	5.4%	Illustrative Math	8.4%
Core Knowledge	4.7%	Bridges	6.7%
Springboard	4.7%	Math in Focus	4.1%
HMH ELA	4.3%	Everyday Math	3.9%
Reach for Reading	3.9%		
Inside	3.6%		

In ELA, the two most widely adopted curriculum materials are Wonders and StudySync (both McGraw Hill products; StudySync is for middle grades and Wonders for elementary). In total, 400 districts (75%) adopt the three most common elementary curricula: Wonders, Benchmarks, or Journeys, and 333 (62%) adopt the three most common middle grades curricula: StudySync, Collections, or Amplify. There are five curricula that have 10% or more market share, and 15 curricula that are in 20 or more districts. There are 171 distinct core ELA series reported across the sample.

The market is somewhat more diffuse in mathematics, with eight curricula having 10% or more market share, and thirteen appearing in 20 or more districts, but none having more than a quarter. The most commonly adopted core elementary curricula are Go Math (25%), Eureka Math/EngageNY (21%),

and My Math (14%), totaling approximately 60% of districts (though Big Ideas also is used in some elementary grades it is mostly used in middle schools). The most commonly adopted middle grades curricula are Eureka (21%, though some of these districts only use the material in K-5), Core Connections (18%) and Big Ideas (15%). There are 129 distinct core math series reported across the sample.

Finding 2: Data on supplemental material adoption is sparse, but evidence from the SARCs indicates supplemental materials are even more diffuse than core materials.

The SARCs do not include data on supplemental materials as consistently as core materials. This is likely because districts are not required to report *all* of their adopted materials as part of the *Williams* settlement, and therefore many districts choose not to report supplemental materials. That said, the most widely reported supplemental math materials are IXL Math and Khan Academy, each adopted in approximately 50 districts (about 10% of the total). In ELA, the most widely reported supplemental materials are Starfall and Lexia, each adopted in approximately 40 districts (about 8% of the total). In total, most districts in the SARC sample do not report adopting any supplemental. Overall, there are 168 unique mathematics supplemental series and 227 unique ELA supplemental series across the districts in the sample.

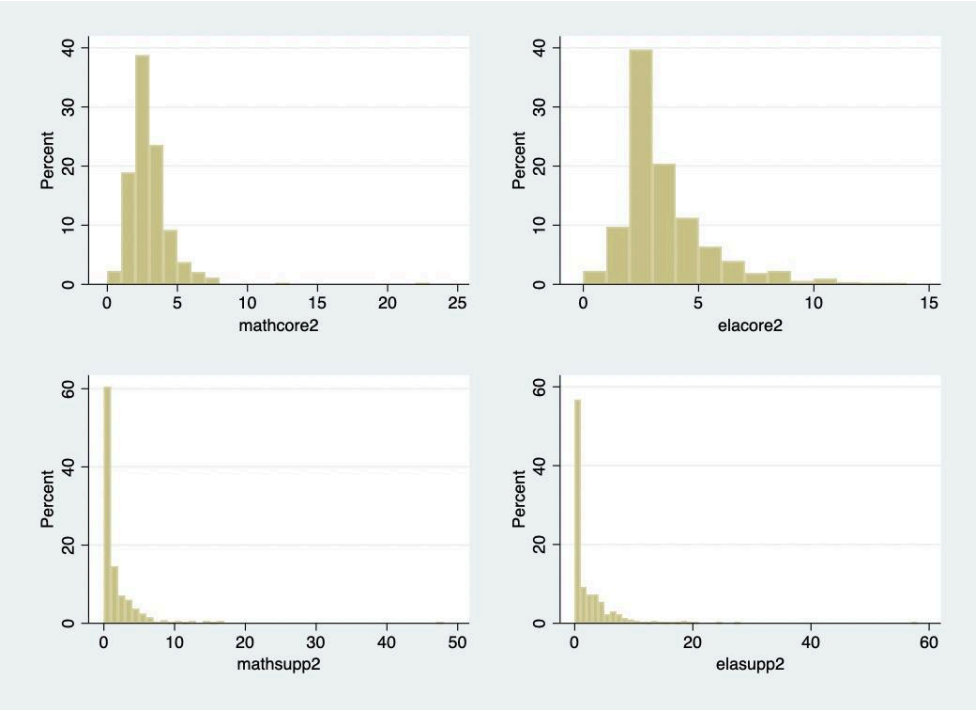

Figure 1. Histograms of Core and Supplemental Curriculum Materials Adopted by California School Districts. Source: School Accountability Report Cards collected by Center on Education Market Dynamics.

Districts vary considerably in the number of supplemental materials they report; most districts report zero or just a few materials, while a few districts report many materials. These data are shown in Figure 1. The top two histograms show the number of core materials adopted, and the bottom two show the number of supplementary materials. As is clear from the figure, the modal number of ELA and mathematics core materials adopted is two, and the modal number of ELA and mathematics supplemental materials adopted is zero. In terms of core materials, 40% of all districts report adopting three or more materials in mathematics (implying that for either elementary or middle grades there are two or more materials in use), and 48% in ELA. In terms of supplemental materials, approximately three-fifths of districts in both subjects report adopting none, and 75-82% reporting adopting two or fewer. Still, about 3-4% of districts report adopting ten or more supplemental materials in each subject.

Finding 3: It is not possible to do a comprehensive analysis of EdReports ratings of available materials given data quality issues, but it is reasonable to infer from available data that many districts—and very likely a majority—are using materials EdReports rates as not meeting quality standards.

We had hoped also to examine the extent to which adopted materials were rated as high quality, based on EdReports ratings. However, our analysis was limited by the poor quality of the textbook data. In particular, adoption year data are only sporadically reported on SARCs, and year of publication similarly has substantial missing data. Based on the data we can analyze, and making certain assumptions about the meaning of listed publication years, it appears the majority of materials are rather old, however. For instance, in mathematics 29% of core materials have missing publication years, another 51% have publication years of 2015 or before, and the remaining 20% are newer. In ELA 27% of core materials have missing publication years, another 22% have publication years of 2015 or before, and the remaining 51% are newer. This implies that many CA districts indeed have materials that do not meet EdReports standards for quality, as the very large majority of materials with publication dates of 2015 or before do not meet all EdReports expectations. However, given the unreliability of the data, we have not attempted a comprehensive analysis, so this conclusion should be interpreted with caution.

Research Question 2. What do California district leaders report are the expectations for teacher curriculum use and differentiation of adopted curriculum materials?

Finding 1: Districts are approximately evenly split in terms of their expectations for teacher curriculum use, but larger districts are more likely to expect teachers to use the core curriculum. In most districts, expectations are similar between elementary and middle grades.

Interviews with 94 district leaders were conducted by the GDTF team, with the sample stratified as described above. Leaders were asked several questions relevant to curriculum. One question was "What are the district expectations about the extent to which teachers follow the adopted curriculum versus supplement in mathematics?" Eighty-eight of the district leaders provided a relevant response to this question. Of these 88, responses were approximately evenly split: 24 gave answers that indicated teachers predominantly have autonomy in implementing and supplementing; 34 gave answers that indicated teachers predominantly are expected to follow the curriculum and/or district-created pacing guides based on the curriculum; and 30 gave answers that indicated a mixed

approach, with teachers expected to use the curriculum but also free to supplement and adapt. These results are shown in Table 2.

Table 2

Proportion of Districts Reporting Various Expectations for Teacher Curriculum Use, By District Size

District size	Teacher Autonomy	Curriculum Use Expected	Both Autonomy and Expectations	n
Small	36.8%	31.6%	31.6%	19
Medium	23.5%	37.3%	39.2%	51
Large	27.8%	50.0%	22.2%	18
Total	27.3%	38.6%	34.1%	88

Twenty-four of 88 district leaders (a bit over one-quarter) gave answers indicating that teachers have broad autonomy with regard to curriculum implementation. We heard things like "just meet me at the end … how are we going to get there together?" and "my expectation is that children are making progress and growth … however they're doing, that is fine." Often in these districts principles of teacher professionalism were mentioned, for instance: "I think a good teacher knows where they need to take kids" and "we have to trust our teachers." Leaders also often mentioned that as long as teachers were teaching the standards, that was fine. In some of these districts it was noted that there were plans in the future to tighten curriculum use, especially after the adoption of a new curriculum.

Thirty-four of the district leaders (approximately 40%) gave answers indicating that teachers were mostly expected to follow the adopted curriculum. In some of these districts, there was a high degree of monitoring of this implementation, for instance "They're expected to follow the adopted curriculum. They send us their lesson plans in advance on Fridays for the following week, and we are in classrooms once a week." Some leaders acknowledged that tight implementation was more aspirational than it was enforced: "the goal is that everybody's teaching our adopted programs, and that we have fidelity to it … in practice it varies." And many acknowledged that while implementation was the norm, that there were of course exceptions "If a teacher sees [students] struggling and they thought maybe they had another way of presenting it, they want to augment something … I don't take issue with that, so long as it's not a substitute." Interestingly, a number of districts noted that they were

intending to move toward stronger expectations for teacher implementation either in the current year or very soon, especially in light of new adoptions (more on this below).

Thirty of the district leaders, approximately one third, reported a more mixed approach, indicating that teachers were both expected to implement the core curriculum and free to supplement as they saw fit. Four leaders mentioned an 80/20 approach (80% core curriculum, 20% supplements), and a few others mentioned that teachers were supplementing one or a few times a week. Leaders who emphasized this combined approach almost always indicated that teachers should use the core curriculum because that's what the district adopted, and some degree of consistency was important. But they also typically stated that they wanted teachers to have "flexibility" or "autonomy" to shore up areas of weakness or meet additional student needs. Some leaders specifically noted that this combined approach emerged over time because of weak core materials: "Our expectation initially in 2013 was to use the adopted curriculum with fidelity with no supplementing. As some teachers learned the curriculum was lacking … we gave them options and purchased supplementary materials."

We also examined whether there were any differences in terms of expectations for teacher curriculum use based on district characteristics. We found that larger districts were more likely to have expectations that teachers follow the curriculum, and smaller districts were more likely to allow teachers greater autonomy, as shown in Table 2. Fifty percent of the large district leaders reported that teachers were mostly expected to use their materials, as compared to 37% of medium district leaders and 32% of small district leaders. On the other side, 37% of small district leaders indicated that teachers had broad curricular autonomy, as compared to 24% of medium district leaders and 28% of large district leaders. Districts serving more disadvantaged students (a higher percentage receiving free or reduced-price lunch) were also slightly less likely to offer teachers curricular autonomy (the correlation between the district percent FRPL and the indicator for being a high autonomy district was r = -.16). Given the small sample sizes these findings should be taken as suggestive, but they do align with prior work about curriculum processes and policies in diverse school districts (e.g., Polikoff et al., 2020, 2021)

District leaders were also asked about whether their expectations differed across grade levels, and just 13 of 88 district leaders indicated they did. In eight of these cases, middle school teachers were said to have more autonomy than elementary school teachers. But the reasons for grade level

differences in implementation were varied as well. In many cases the perception was that implementation was better in some grades than others because the curriculum was better (defined in various ways) in some grades than others. For instance, one leader said teachers "supplement because they don't feel like it's truly aligned with the standards. I would say that was really, that's really evident at our junior high school." Others noted that their adopted elementary curriculum was more poorly aligned with the district's cognitively guided instruction (CGI) approach and therefore was used less, or that their adopted middle grades curriculum was not as well aligned with their combined math-science approach and so was used less.

Few other leaders stated explicit reasons for grade-level differences. One we heard was the perception that teachers of higher grades simply preferred, demanded, or merited more curriculum autonomy. The clearest case of this was the respondent who said "Secondary people don't follow any directions ever, and so our secondary people do not follow the curriculum. They do whatever they want." But another respondent noted that elementary curricula built on each other more across grades to justify the higher expectations of fidelity, with the unstated implication that middle grades are often subjects of increased tracking. Overall, patterns of grade-level differences in expectations for curriculum use seemed to be relatively rare and mostly about perceptions of the adopted curricula.

Finding 2: Districts that allowed more supplementation did so for a variety of reasons, including district cultural/historical reasons, contractual reasons, beliefs of district leaders, to meet student needs, and because they believed their core materials were too old/inadequate to rely on.

Of the 54 district leaders who indicated some degree of supplementation was the norm, there were a range of reasons offered. The two most common such reasons were beliefs about the nature of the teaching profession, and perceived inadequacies of the core curriculum. We also heard about the importance of supplementation to meet student needs, and several other reasons were mentioned.

It was common to note the belief that curriculum autonomy was an accepted and standard part of the teaching profession or, even more strongly, a key signifier of teacher professionalism. For instance, we heard things like "When I was a teacher, I did not use my curriculum … I supplemented as I knew best. And so I'm not somebody who asks my teachers for lesson plans unless they're having problems." Another respondent noted "I truly believe that teaching is a profession, and we have to trust our teachers … so I have no problem walking into a classroom and not seeing the textbook out

and having the teacher doing something else in order to meet those standards." This view of teacher curricular autonomy as being central to their professional identity is widespread in the field (Polikoff, 2020).

It was also common to hear that teachers supplemented because of the inadequacies of core curriculum materials, especially because those materials were old. Leaders critiqued core materials for a range of reasons that they said contributed to supplementation: "teachers supplement because they don't feel like it's truly aligned with the standards;" "we recognize that the math program that we have just does not meet the rigor;" "the best curriculum is only 30% aligned with the standards." Many respondents specifically mentioned the age of the adopted math curriculum as a contributing factor, for instance saying "since our adopted curriculum is quite old, the expectation is more on the approach that we've trained our teachers on CGI, then using the supplemental more updated material," or "we have severely outdated curriculum with regards to ELA and Math and that teachers have had to supplement." Some of these respondents also blamed the state, saying "we've all been waiting for the state. They need to do something. We need to adopt a new textbook series." And others acknowledged that their expectations for implementation with the current curriculum were low but "once we adopt a Common Core, aligned, effective math curriculum, it will be my expectation for teachers to implement it with integrity."

We also heard some student-related reasons for supplementation, often things like "in order to meet the individualized needs of our students, that sometimes … we might need to pull in an extra supplemental material." One leader formalized this a bit, saying "there's no perfect curriculum out there, and so it may be based on the class you have. You may have an accelerated group that needs something different, or you have differentiation for five kids … so the idea is that it's meeting the needs of our kids 80% of the time, and then 20% you can decide on." A few leaders directly or indirectly mentioned student engagement as a factor that often motivates supplementation, and a few others mentioned the need for additional student fluency practice. Leaders sometimes said that expectations for adaptation to student needs were more appropriate for more experienced or more expert teachers, and that novices were more often expected to follow the curriculum more closely.

There were other, less common reasons also offered by some district leaders. For instance, at least a couple district leaders specifically noted labor contracts: "There's a line in the teachers' contract

that gives autonomy to teaching" or "we have a union that has a clause around academic freedom in their collective bargaining agreement." One leader noted capacity constraints, such as "We do not have time to micromanage everything."

Finding 3: While most districts report teachers supplement, very few report that there are formally adopted supplemental materials for teachers to use.

The majority—54 of the 88 district leaders—reported that math teachers are regularly supplementing. But very few district leaders, just 12, noted that the district adopted or expected teachers to use any particular supplemental material. This aligns with the findings from the SARCs that many districts did not indicate any adopted supplemental materials. This finding suggests that districts may be missing an opportunity to create more consistency through district-wide supplementation practices.

District leaders who did report specific, district-approved supplemental materials typically noted that they were adopted to fill specific perceived gaps in the core curriculum. One district leader described how supplemental materials were used to differentiate: "in the upper grades, with the ALEKS implementation … it allows the kids that were really like beyond their grade level. … So for the upper grades, the supplemental became more of an integrated question for us." This same leader noted different rationales for adopted elementary supplemental materials: "There were a couple of add ons that teachers had approached us about using… Kahoot activities, which it's like a gamified math … couple teachers want to use that with some IXL." Several leaders described that the adopted core curricula were seen as poorly aligned, so teachers were using "site-based created units," pacing guides that included multiple curricula, or district-created cognitively guided instruction (CGI) activities. (CGI is an approach to teaching mathematics that emphasizes student thinking and that is apparently quite influential among districts in the sample.) Supplemental materials are also used to "branch off, dive in, or give kids practice" according to some leaders.

Often, leaders who reported formally adopted supplemental materials also reported that there was professional development or other instructional supports provided to teachers regarding the supplemental materials. This was the case in a few districts that reported CGI as being part of their supplementation—they also report teachers were trained in and expected to use CGI. This suggests that formal supplemental material adoption is often part of a coherent curriculum strategy.

Research Question 3. How do California teachers describe their curriculum implementation, supplementation, and differentiation?

Finding 1: California teachers have considerable curricular control, more than the national average and more in some subjects and grades. Many of them create materials themselves, or teachers in their school do.

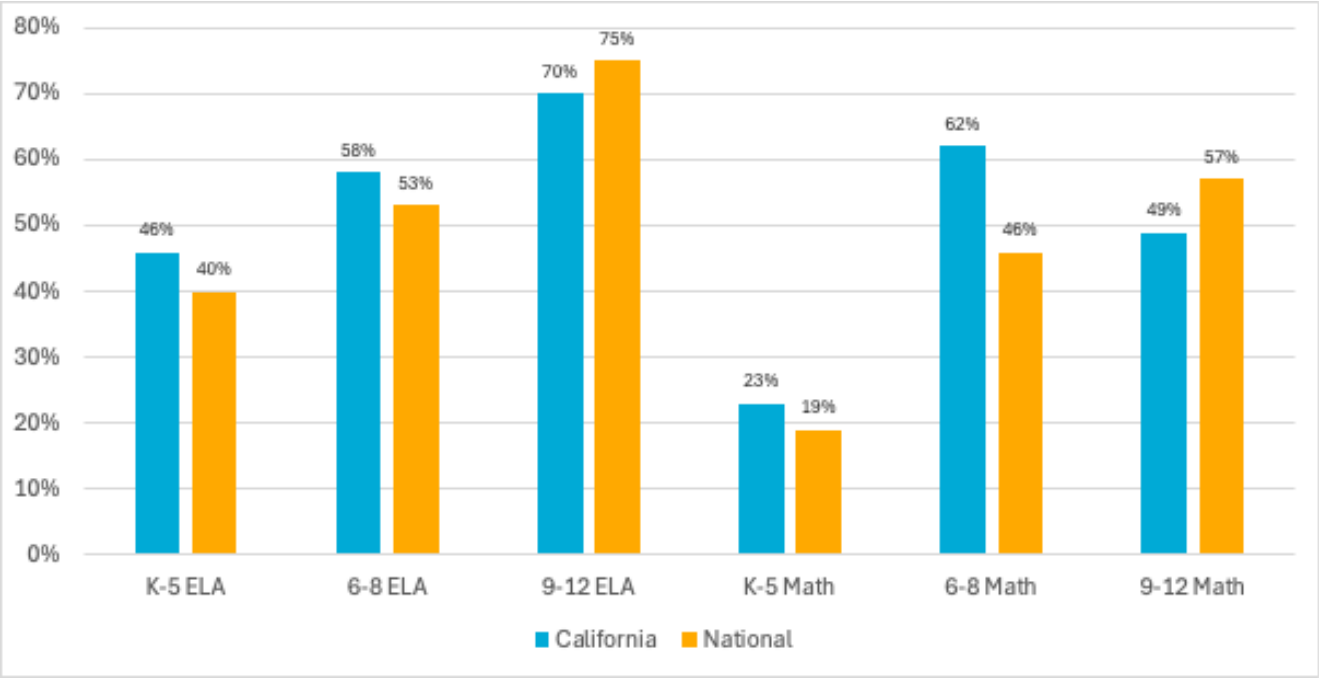

Figure 2. Percent of Teachers in California and Nationally Who Report Using "Curriculum Materials I Create Myself" at Least Weekly

Representative survey data from California teachers in the 2024 American Instructional Resources Survey reveals that they generally have considerable curricular control. There are multiple pieces of data that indicate this. First, many California teachers say they use curriculum they create themselves at least weekly, as shown in Figure 2. These numbers are highest in middle and high school grades and are higher in ELA than in mathematics. Second, as shown in Figure 3, 50% of California ELA teachers and 56% of mathematics teachers report that the primary decision makers regarding curriculum materials use are either teachers themselves or teachers in their school system. One third or more of teachers in both subjects indicate that they are the primary deciders. And third, teachers report using a wide range of supplementary curriculum materials, and with great frequency. In ELA,

more than half of California teachers report using materials from Teachers Pay Teachers and resources they create themselves at least weekly; in mathematics, it is more than 40%. Teachers would not be able to supplement as much as they do if they did not have substantial curriculum control.

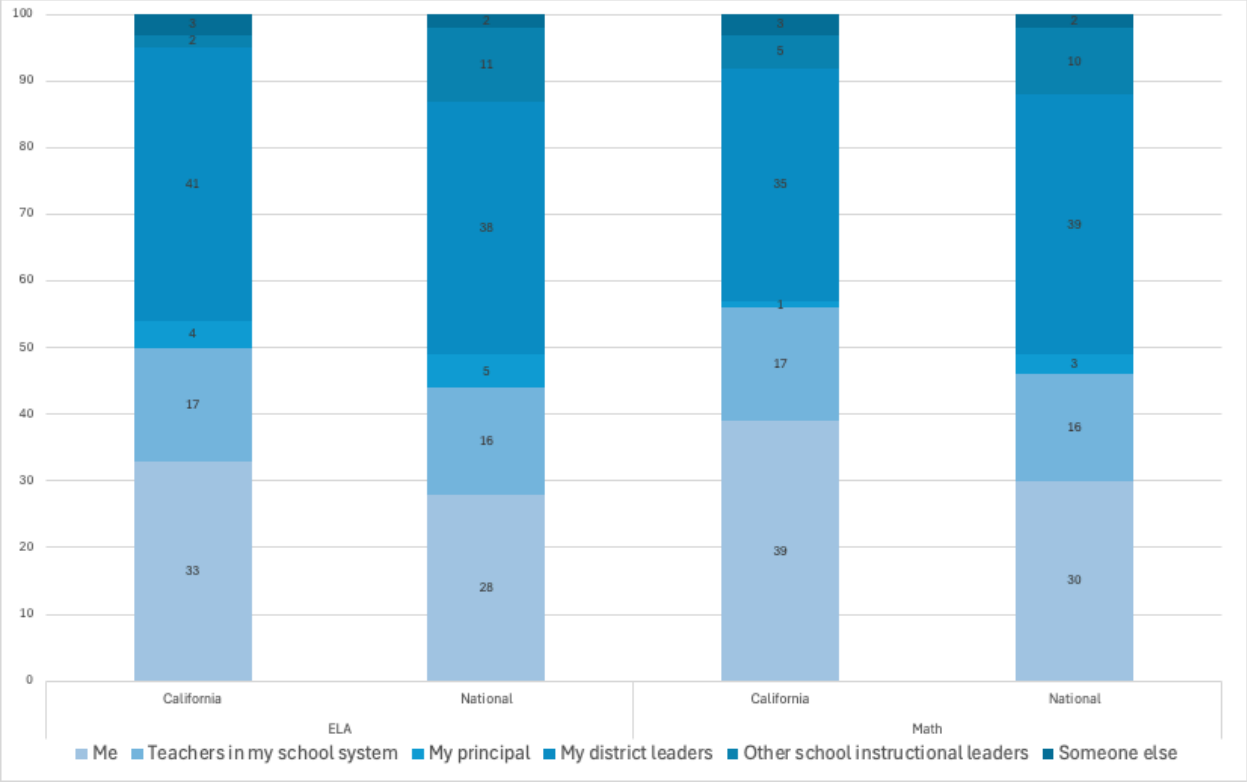

Figure 3. Teacher Reports of the Primary Decision Makers Regarding Curriculum Material Use

The data also suggest that the level of teacher curriculum control is not just high in an absolute sense, but also relative to teachers nationally. For instance, in Figure 2 we can see that in four six grade/subject combinations, California teachers are more likely than teachers nationally to report they use curriculum materials they create themselves at least weekly. The difference is especially large in middle school math, where 62% of California teachers say they use curriculum materials they create themselves at least weekly versus just 46% nationally. Similarly in Figure 3 we can see that California teachers are more likely than national averages to indicate that they are the primary decisionmakers regarding curriculum. The gap is especially large in mathematics, where 39% of CA teachers say they are the primary decision makers versus just 30% nationally.

Finding 2: California teachers have some negative views of their adopted ELA and math materials, especially regarding interest/engagement/relevance. Their views are generally more negative than other US teachers' views.

California teachers express considerable ambivalence about their recommended or required curriculum materials. As shown in Figure 4, about half of teachers (52% in ELA, 48% in mathematics) say their curriculum material is about at the right level for the majority of their students. Over a third of teachers (35% in ELA, 37% in mathematics) say their material is too challenging for the majority of their students, and a small fraction (7% in ELA, 10% in mathematics) say their material is too easy.

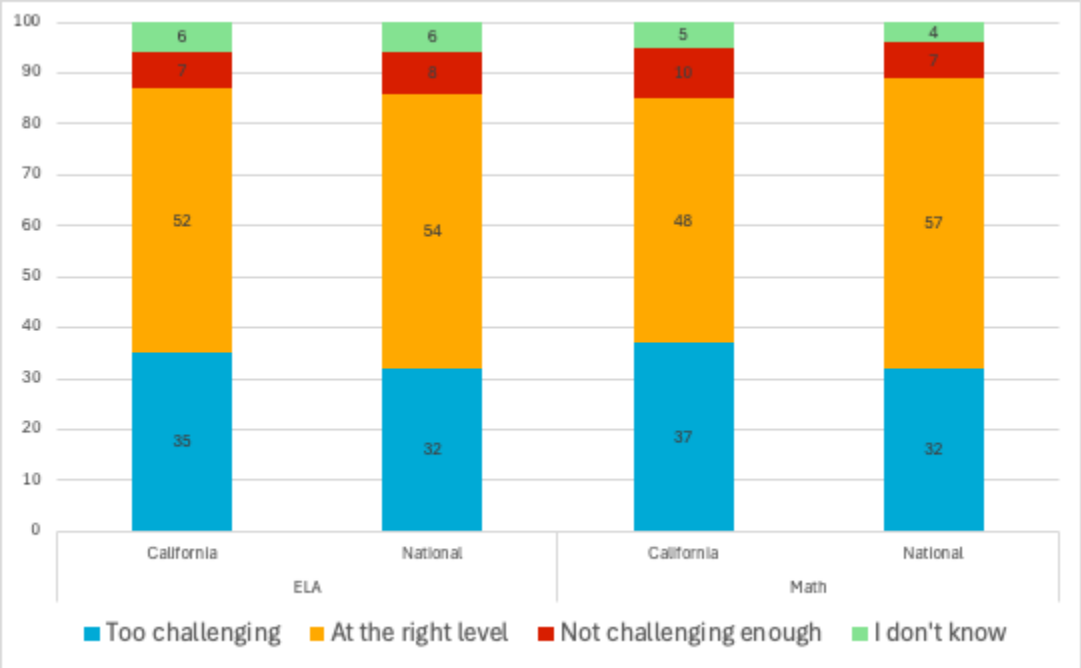

Figure 4. Teacher Reports of the Difficulty Level of Their Recommended or Required Curriculum Material

Teachers were also asked about the adequacy of their recommended or required curriculum materials. The response scale was from 1 to 7; for simplicity we report the percent responding 5, 6, or 7 (that is, more adequate than inadequate). As shown in Figure 5, for all of the selected items (teachers were also asked about several other items; we selected the most instructionally relevant), fewer than half of California teachers rated their ELA materials as adequate. Among the chosen items, materials were rated as most adequate at helping students master standards and providing lessons that are easy

to implement, each with 40% or more indicating adequacy. In contrast, fewer than one quarter of teachers said their ELA materials were adequate for meeting the needs of students with disabilities, helping multilingual learners master standards, accelerating the learning of students below grade level, or supporting students' social/emotional learning. And only about a third of teachers reported adequacy at helping provide culturally relevant instruction, making learning engaging, reflecting student interests/experiences, providing real world applications, and reflecting the diversity of identities.

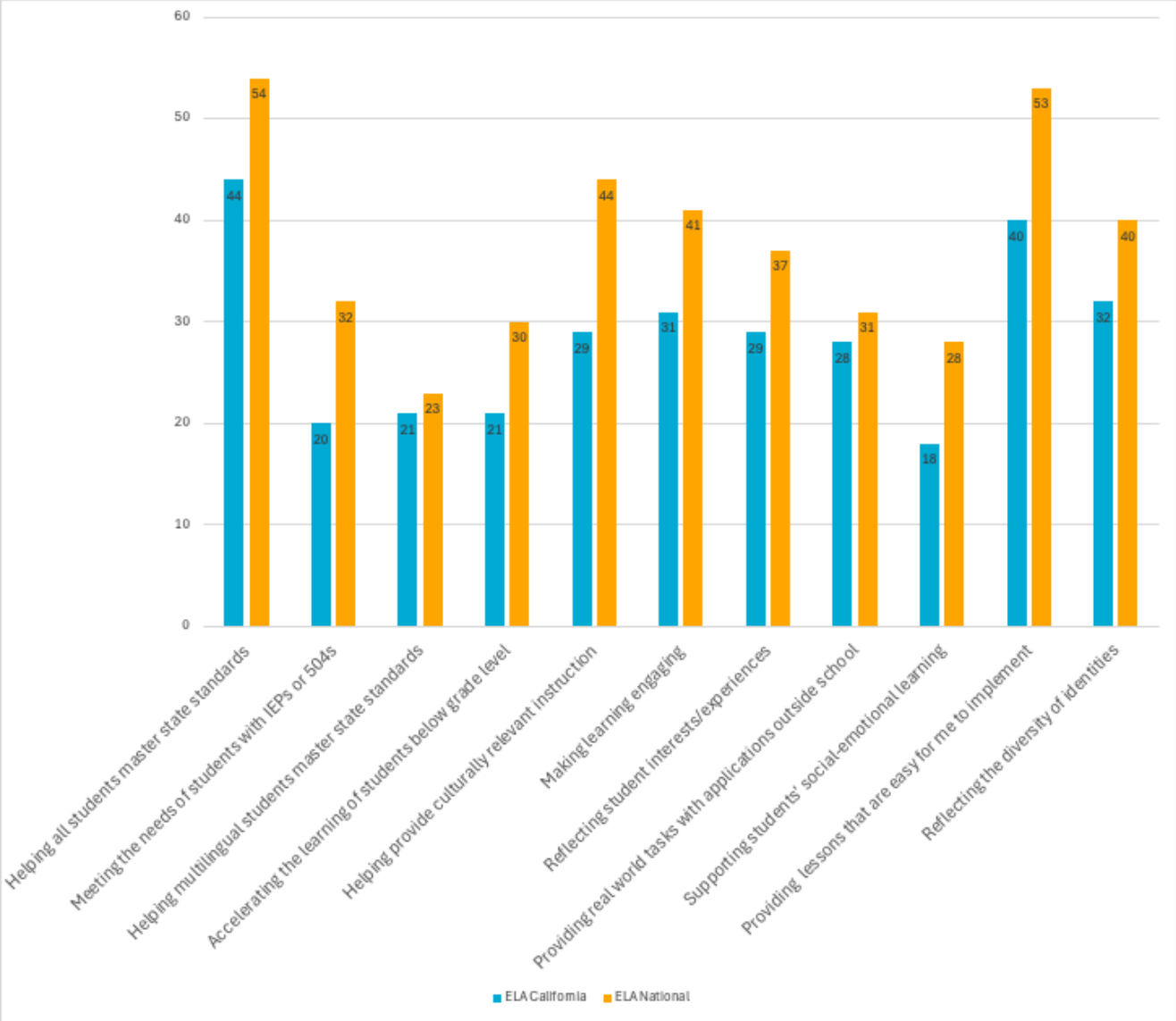

Figure 5. Teacher Reports of the Adequacy of Their Recommended or Required Instructional Materials in ELA

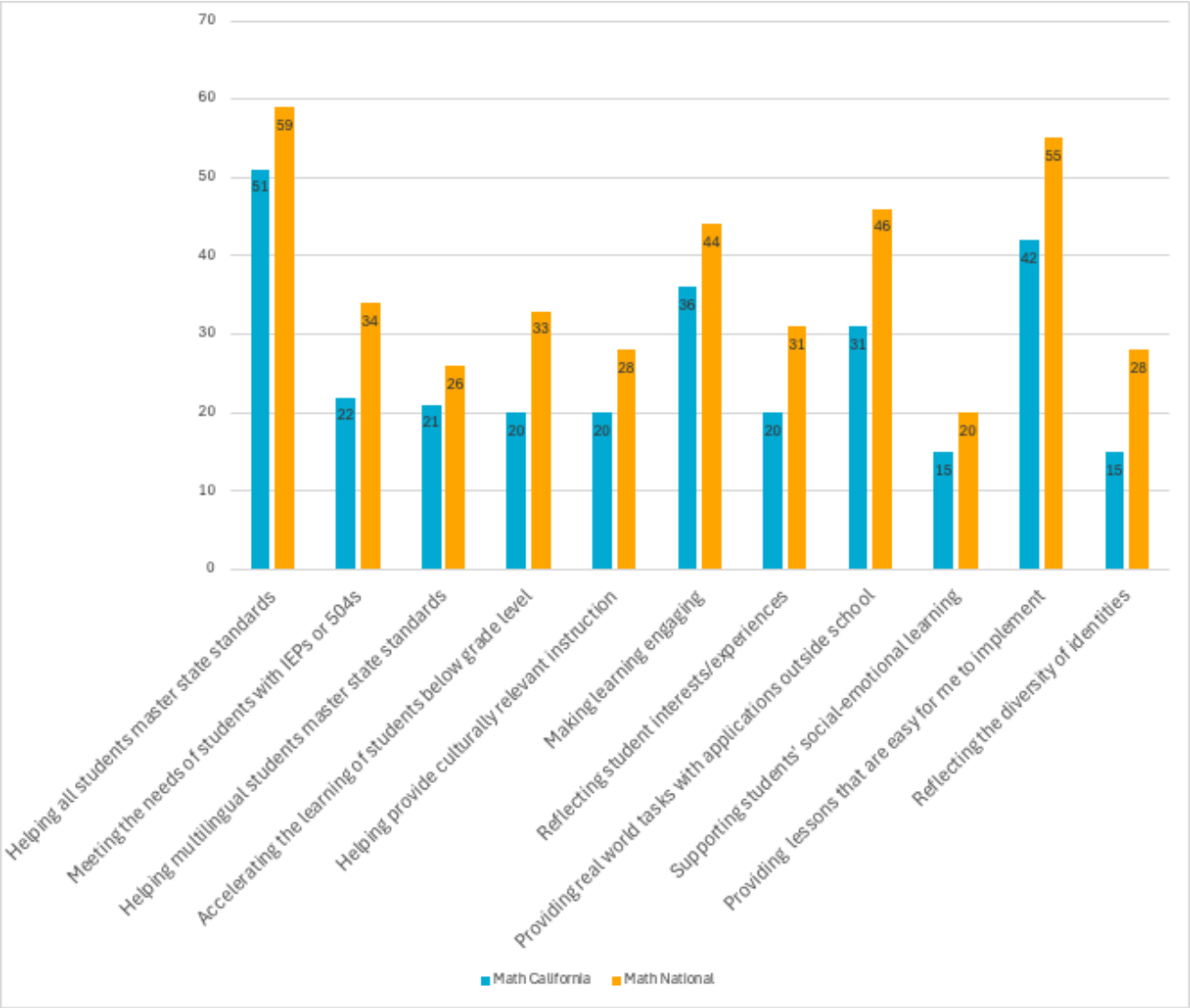

Figure 6. Teacher Reports of the Adequacy of Their Recommended or Required Instructional Materials in Mathematics

California teacher reports of curriculum adequacy are perhaps even lower in mathematics, as shown in Figure 6. A bare majority of CA teachers rated their math materials as adequate for helping students master state standards, and 42% agreed they are adequately easy to implement. But only about one-in-five CA teachers rated their math materials as adequate regarding meeting the needs of students with disabilities, helping multilingual students master state standards, accelerating the learning of students below grade level, helping provide culturally relevant instruction, reflecting student interests/experiences, supporting students' social-emotional learning, or reflecting the diversity of student identities. These ratings of adequacy may be especially low because many

California districts were using quite dated mathematics materials at the time of the survey (the new state-approved list was not released until 2025, and as described above SARC data indicate many adopted textbooks are a decade or more old).

Teachers were also asked to what extent they need more or better curriculum materials for several purposes, and their responses also indicate certain areas of particular need. In ELA, the areas of greatest need for California teachers can be grouped in a few areas. One is regarding differentiation, as a majority of teachers report moderate or major need for materials that help scaffold, that help students advance beyond grade level, and that provide options for students with disabilities and English learners. Also, 63% of ELA teachers report a moderate or major need for materials that better engage students. The results are very similar in mathematics, with engagement being the greatest need and a variety of different differentiation-related needs as well. In short, across both subjects and many dimensions, a majority of California teachers indicate that their curriculum materials are inadequate or that they have specific curricular needs.

As shown in Figures 4-6, California teachers' views of their recommended or required curriculum materials are more negative in most cases than the views of teachers nationally. For instance, California math teachers are nine percentage points less likely to say their materials are at the right level than teachers nationally (48% to 57%). And looking across the adequacy items, California teachers have directionally lower reports of adequacy on every single item in both subjects. The gaps range from two percentage points (helping multilingual students in ELA) to fifteen percentage points (providing culturally relevant instruction in ELA), but most are five to ten percentage points.

These findings are also supported by evidence from the district leader interviews. District leaders were asked to what extent the primary adopted curriculum materials help teachers differentiate. Of those responding, 15% said not at all, 38% said a little, 30% said a moderate amount, and 17% said a lot. Clearly, many district leaders believe their core materials are inadequate in terms of supporting teachers to differentiate instruction, and the AIRS survey data agree.

Finding 3: California teachers report adding content when modifying/supplementing, and interest/relevance is a primary factor. They use similar sources to teachers nationally when modifying.

Virtually all teachers supplement their curriculum to at least some extent. AIRS survey data allow us to gain an understanding of how and why teachers supplement along several dimensions. Broadly, there are three main types of changes teachers can make to their core curriculum (for a fuller framework regarding teacher supplementation, see Silver, 2022). They can subtract material, skipping core curriculum content, perhaps because they feel a particular set of content is not relevant to their students or aligned to grade-level standards. They can revise content, perhaps swapping out a lesson on a given topic for another they feel is more appropriate or better designed. Or they can add content, perhaps seeking additional lessons to add more emphasis to certain skills or align better with student interests and needs. As shown in Figure 7, California teachers, like teachers nationally, are most likely to report that they add content as their primary approach to modify curriculum materials. Over 60% of California teachers in both subjects report that this is their predominant mode of curriculum modification.

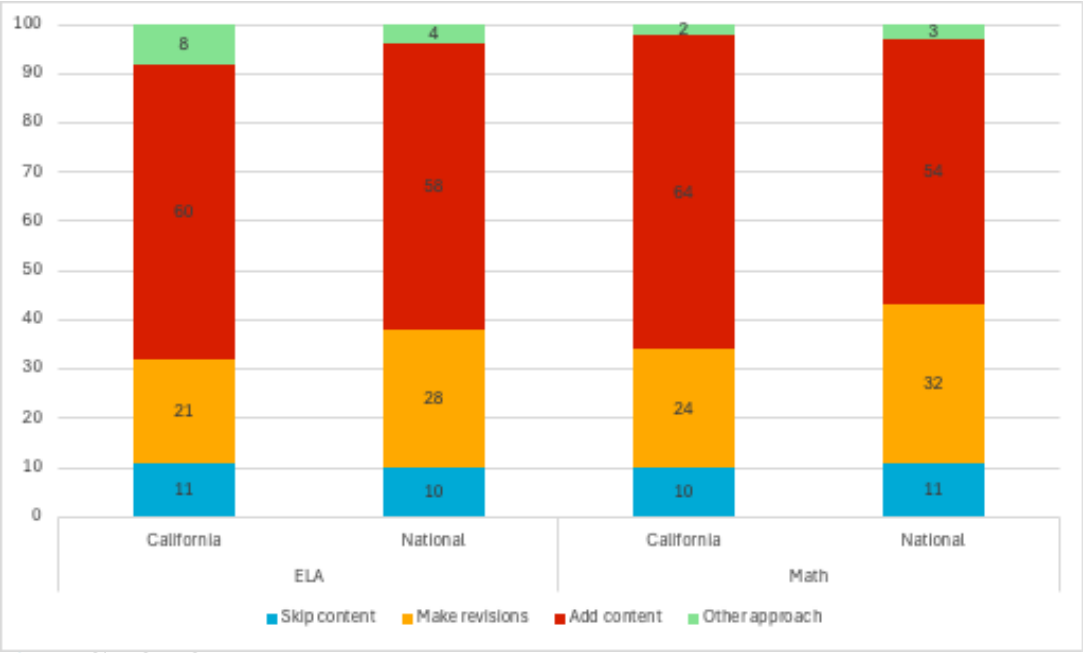

Figure 7. Most Common Approach Teachers Report When Modifying Their Curriculum Materials

But why and how do California teachers modify their curriculum materials? Several other questions on the survey probe on the most common reasons for curriculum modification. Figure 8 shows results from a question that asked teachers their main reasons for adding content. As shown in the figure, California teachers add content for a range of reasons, but the most important are for making the curriculum more engaging, providing review or remediation, and making the content more relevant. These three reasons account for 86% of the top reasons among California ELA teachers and 71% of the top reasons among math teachers. Relevance and engagement seem to be more common as a reason for California teachers than teachers nationally, with gaps of over ten percentage points in both subjects.

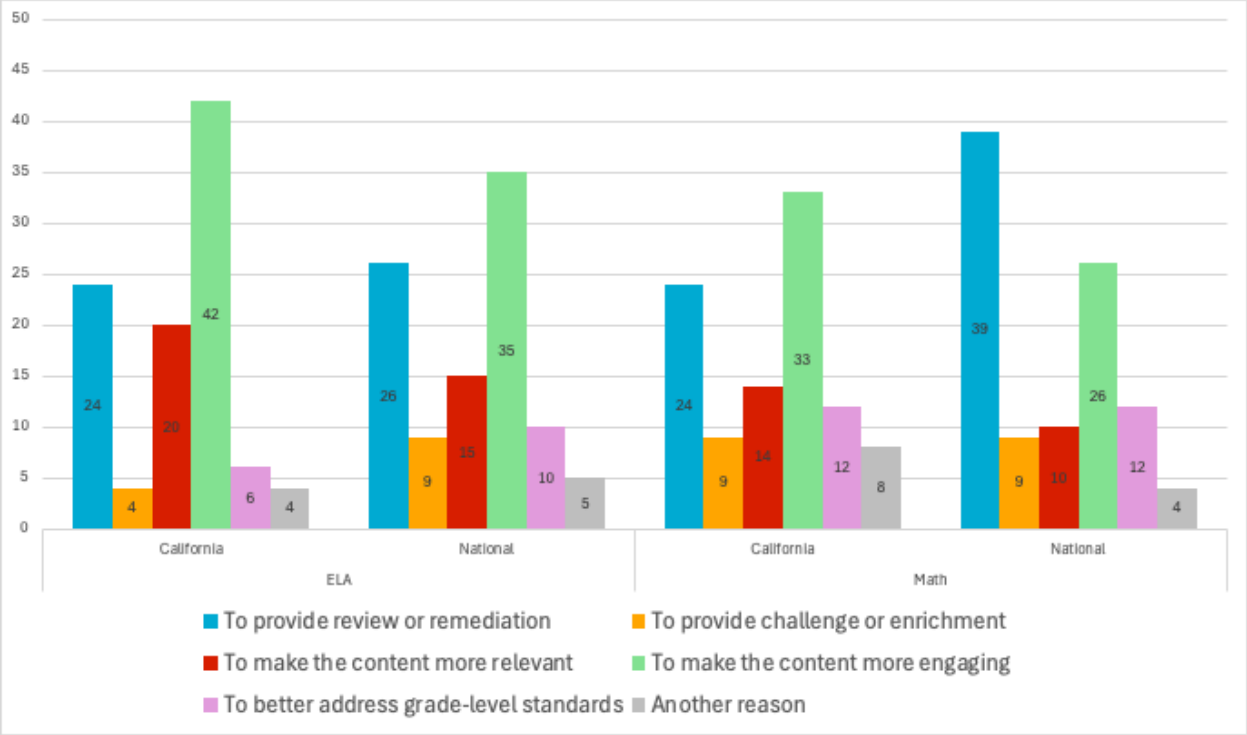

Figure 8. Why Teachers Report Adding Content

The sources for teachers' curriculum additions are varied, as shown in Figure 9. The most common sources of supplemental materials are digital platforms like Kiddom/Google Classroom, search engines like Google, and lesson idea websites like Teachers Pay Teachers. As of the 2024 survey, AI tools like ChatGPT were still relatively uncommon as sources for teachers' curriculum supplementation. Another question on the survey asked about a large number of specific digital tools teachers might

engage with, and there were a large number of tools listed. The most commonly reported tools (those where more than 20% of California teachers report using them) were Teachers Pay Teachers (45% in math, 54% in ELA), YouTube (29% in math, 40% in ELA), Quizizz (24% in math), Kahoot (30% in math, 26% in ELA), IXL (26% in math), i-Ready (24% in math, 36% in ELA), and Epic (22% in ELA). Teachers report using a very large number of tools overall in both subjects.

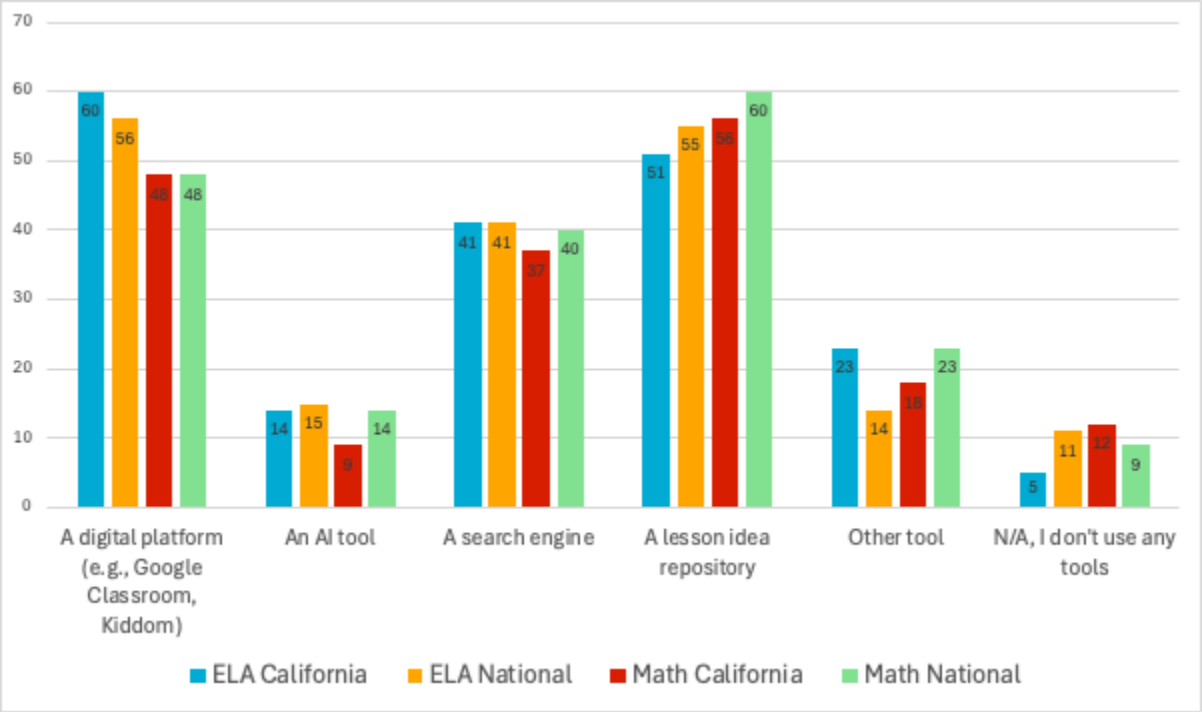

Figure 9. Tools Teachers Report Using to Modify Their Curriculum

Finding 4: California teachers receive limited support from leaders and professional learning for curriculum implementation, and less than national averages.

Teachers need appropriate supports to implement curriculum materials effectively. These include instructional support from leaders and coaches at their school side, as well as professional learning supports. The AIRS survey indicates that California teachers often lack curriculum guidance. Figure 10 shows the percent of respondents disagreeing with a series of statements about their principal's role in curriculum implementation (i.e., higher values indicate greater disagreement and therefore less instructional support). While about one-fifth of teachers don't agree that their principal encourages them to use the curriculum, approximately a third or more of respondents disagree with

the other five items that were asked. Disagreement is highest that principals know how to help teachers adapt their curriculum or provide feedback on how well teachers use the curriculum, at about 40% each. On every single item the percent of California teachers disagreeing is higher than for teachers nationally, though often these differences are just a few percentage points.

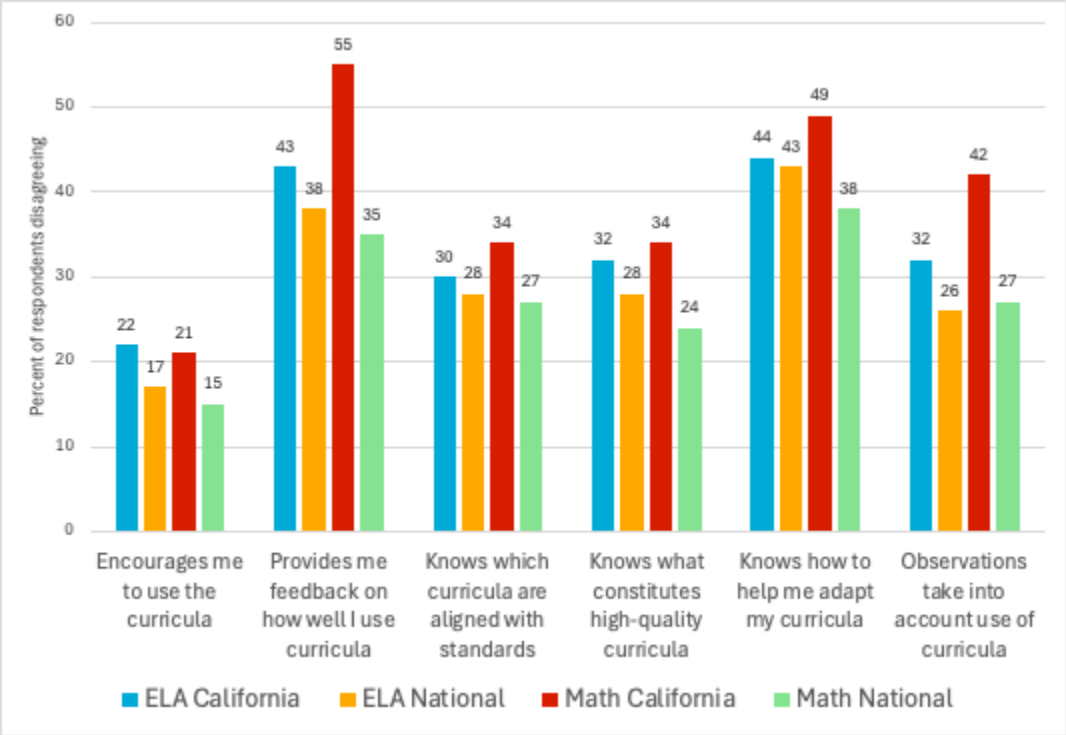

Figure 10. Percent of Teachers Disagreeing With Statements About Their Principals' Role in Curriculum Implementation.

Data from the AIRS survey also reveal that California teachers receive limited instructional support in several other areas, and that they receive less curriculum-aligned instructional support than teachers nationally. These results are shown in Figure 11. For instance, 35% of California teachers report that they never received professional development this year focused on their curriculum, as compared to 25% of teachers nationally. Similarly, 66% of California teachers report that they never received coaching focused on their curriculum this year, as compared to 52% of teachers nationally. Results for "collaborative learning" (like professional learning communities or common planning time) are stronger, with 39% of California teachers reporting they receive this at least monthly, closer to the national average of 45%. These findings may in part be due to the age of adopted curriculum materials

in California schools, as schools and districts may be less likely to offer curriculum-related support on materials that are a decade or more old.

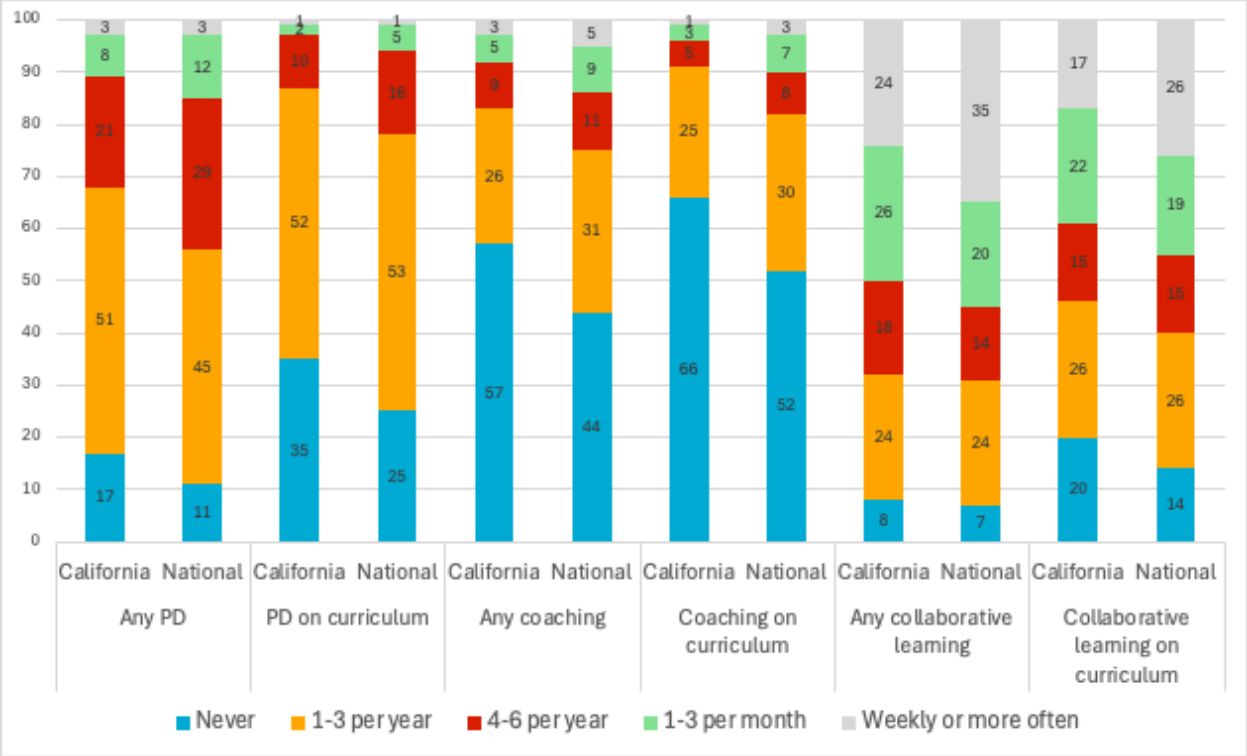

Figure 11. Amount of Various Curriculum-Focused Instructional Supports Received by California Teachers

Additional evidence on the inadequacy of teachers' existing professional learning supports comes from the district leader interviews. Leaders were asked "what portion of the math-related professional development, if any, is aligned to your math curriculum?" and given response options of all, most, about half, little, or none. Of those giving an answer, 45% of district leaders indicated that little (32%) or none (13%) of math-related PD was aligned. Another 15% said about half, leaving just 40% of leaders indicating that most (10%) or all (30%) was aligned.

Discussion

Curriculum materials are a key element of the instructional core, helping teachers bring standards to life in the classroom. They are also important for educational equity, as prior generations of California's low-income students (pre-*Williams*) were much less likely to have adequate instructional materials. Many states are increasingly turning to curriculum-led instructional reform, with California also making moves in this direction.

This paper investigates the current state of California curriculum materials adoption and use, drawing on qualitative and quantitative data from three sources. Overall, the results indicate that the curriculum materials market in California is surprisingly concentrated despite relatively little state pressure. Still, there is no one material dominating in either subject, and many schools report using quite old materials (a decade or older, especially in mathematics). The school districts we interviewed vary considerably in their expectations for teacher use of the adopted materials in mathematics, with about a quarter of districts having very lax expectations for teacher use and the remainder split evenly between relatively tighter expectations and a more mixed model that allows for supplementation. (We cannot say how these interview results would generalize to districts statewide.) Though nearly all teachers supplement, very few California districts seem to adopt any particular supplemental materials. Finally, across a range of survey items, California teachers indicate that they have a good deal of curriculum control, that their materials have a number of notable inadequacies, and that they receive less instructional support than teachers nationally.

Given these findings, there are clear opportunities for curriculum leadership at both the district and state levels, and there are some tentative signs this is already happening. For instance, a number of district leaders in the interviews expressed that they were planning to strengthen their expectations for curriculum use once new materials were adopted, and in both math and ELA that is likely in the next few years. However, the state's recently approved adoption list in mathematics lists dozens of approved materials, hardly a sign of clear curriculum leadership from the California Department of Education. The upcoming ELA adoption will be another opportunity for the state to set clear expectations. A smaller state-approved list would offer the opportunity to ensure quality in both adoption and in instructional supports.

But beyond adoption, there is a clear need for better instructional supports for teachers, including professional learning and coaching, so that materials can be well implemented. These efforts will have to be provided locally but can be supported through better state policies that evaluate offerings and ensure some level of quality. Districts can also play a better role in supporting both core curriculum use (e.g., through ensuring adequate professional learning) and strengthening supplementation. While nearly all teachers supplement, districts rarely support teachers to make good supplementation decisions. Adopting quality supplementals and better integrating them into the core curriculum would help ensure higher quality in supplementation and more consistency across classrooms.

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