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Social Studies Instruction and Reading Comprehension

Evidence from the Early Childhood Longitudinal Study

By Adam Tyner and Sarah Kabourek

Foreword by Amber M. Northern and Michael J Petrilli

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Foreword and Executive Summary

Amber M. Northern and Michael J. Petrilli

Tell 'em what you're going to tell 'em; then tell 'em; then tell 'em what you told 'em. That's [good advice](#) from a lay preacher in 1908. Here goes.

We're going to tell you what America needs to do if it is serious about wanting kids to become better readers. That's this: Instead of devoting more class time to English language arts (ELA), we should be teaching elementary school children more social studies—as in, rich content about history, geography, and civics. That may seem counterintuitive, but that's the key takeaway of this groundbreaking study.

Mind you, we're not the first to find that loads of time devoted to language arts instruction does not improve student reading. But we *are* the first to find that literacy gains are more likely to materialize when students spend more time learning social studies.

This novel result underscores the crucial insight that E.D. Hirsch set forth in 1987 in his path-breaking book *Cultural Literacy*. Hirsch believed, as aptly summarized by journalist [Eric Liu](#), that “literacy is not just a matter of decoding the strings of letters that make up words or the meaning of each word in sequence. It is a matter of decoding context: the surrounding matrix of things referred to in the text and things implied by it.”

In other words, writers and speakers often make assumptions about what their readers and listeners know. They don't take time to explain historical references and literary allusions or to resolve ambiguities. When those assumptions are correct—when readers and writers share a common body of knowledge—language comprehension comes much easier.

Think of it this way: Virtually all middle schoolers can “read” the words “Berlin Wall.” They surely can sound out the letters. But only some middle schoolers will instantly recognize the phrase and what it implies. They will know that Berlin was the capital of Germany during World War II, after which it was divided between the Western Allies and the Soviet Union. They will know that the wall was built to keep East Germans from escaping to the West. And they will know that those East Germans wanted to escape because of the lack of

freedom and economic opportunity under Communist rule. So those students will be able to comprehend a passage that alludes to the Berlin Wall, while their less-knowledgeable peers will not.

Over the years, there's been a small but growing body of literature showing that a focus on academic content in the early grades—not generalized reading skills and strategies—equips students with the background knowledge (*à la* the Berlin Wall) that they need to comprehend all sorts of texts and make them truly literate.¹ Moreover, this focus on knowledge has the potential to lessen socioeconomic and racial/ethnic gaps in literacy.

In fact, Hirsch made this case forcefully in his 1987 book:

To be culturally literate is to possess the basic information needed to thrive in the modern world. The breadth of that information is great, extending over the major domains of human activity from sports to science. It is by no means confined to “culture” narrowly understood as an acquaintance with the arts. Nor is it confined to one social class. Quite the contrary. Cultural literacy constitutes the only sure avenue of opportunity for disadvantaged children, the only reliable way of combating the social determinism that now condemns them to remain in the same social and educational condition as their parents.²

In other words, if we acknowledge that more affluent and white students often have greater access to knowledge-building opportunities and resources in the home (including, on average, better-educated parents), we can make education more equitable by teaching knowledge-rich content to those without these same advantages.

Yet rather than spending the intervening three decades making sure that all students—but especially poor students and students of color—got a strong dose of social studies, science, and geography instruction in order to build this content knowledge and advance equity, our schools mostly doubled down on the “skill” of reading. Instead of learning about the world, students learn to “identify the main idea.” And as any serious analysis of reading achievement can tell you, it hasn't worked. It can't. As Hirsch has tirelessly pointed out, language comprehension is not a “skill” at all: content is comprehension.

Thankfully, there's recently been renewed interest in ELA curricula that are serious about building knowledge, especially in the early years. And evidence is finally starting to appear that teaching “content-rich” instructional materials—which are organized coherently around a topic to build student understanding—can improve students' ability to read and comprehend complex texts.³

We would love to see every elementary school in the country adopt one of the handful of such curricula that are committed to building content knowledge. But convincing districts and schools to adopt particular instructional materials is a tricky thing, rife with questions

about who has the right to select it and how much autonomy teachers have to implement it. Local politics often prevent administrators from even trying.

We wondered whether there was another way—an alternate path to ensure that young students are exposed to a healthy diet of thought-provoking content. What if they simply spent more time in classrooms that devoted substantial attention to a wide array of subject matter and knowledge-rich material? Is it possible that elementary school students whose teachers spend more time on social studies, science, and the like end up becoming better readers? That’s the question that birthed this study.

To investigate, Fordham’s associate director of research Adam Tyner and early childhood researcher Sarah Kabourek teamed up to better understand how classroom time is currently spent in U.S. elementary schools and how it might be better utilized to promote literacy. Tyner has authored high-profile reports on a variety of topics ranging from the impact of [end-of-course tests](#) on student achievement, how participation in [credit recovery](#) courses varies across states, and enrollment in [gifted education](#) in high-poverty schools. Kabourek’s research focuses on preschool access, school finance, and equality of educational opportunity. She provided methodological and technical assistance for the project.

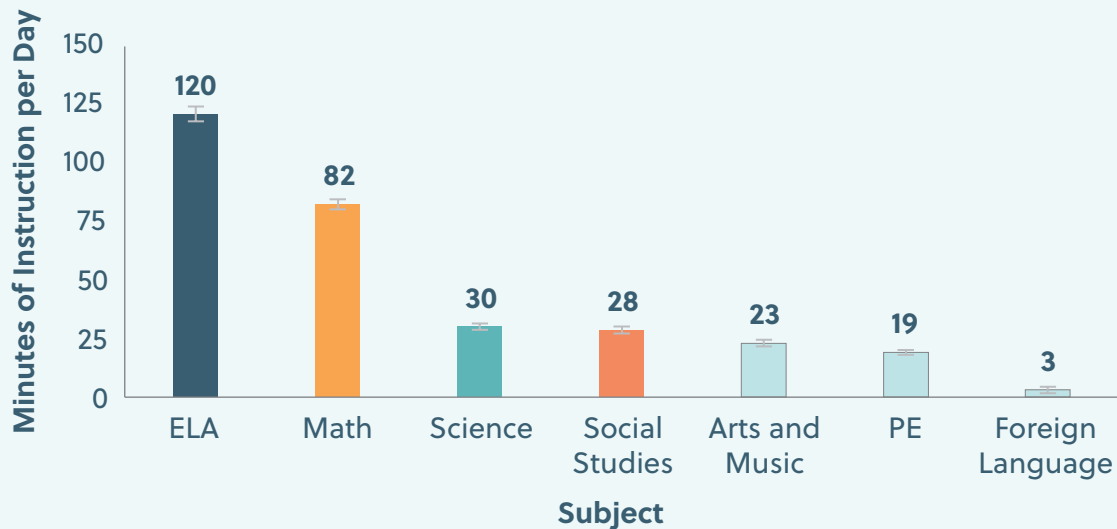
Tyner and Kabourek plumbed nationally representative data from the federal Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K: 2011), which samples over 18,000 students in their kindergarten year and follows them through fifth grade.⁴ This long view is important because knowledge and vocabulary accrue slowly. Their primary analysis examines how much classroom time is spent on different subjects, whether students who spend more time on certain subjects make greater progress in reading, and how these effects differ by student characteristics. Their analytic models control for a host of student-, teacher-, and school-level factors to further isolate the relationship between time-use and reading growth.

Your own time will be well spent by reading the full report. But here’s a summary of a few of its findings.

1) Elementary school students in the U.S. spend much more time on ELA than on any other subject.

Figure ES-1 presents average time usage for grades 1 through 5. Elementary teachers report that students spend more time on ELA than on any other subject, at two hours daily. Other subjects receive far less instructional time: excluding math (at nearly an hour and a half per day), students on average spend more time on literacy per day than on all other subjects combined, including science (30 minutes), social studies (28 minutes), arts and music (23 minutes), physical education (PE; 19 minutes), and foreign language (3 minutes).

Figure ES-1. Students spend an average of two hours per day on ELA instruction.



Note: The figure contains pooled averages of grades 1 through 5. The mean total instructional time is 302 minutes per day. Analytic sample includes 6,829 students. "Arts and music" includes art, music, dance, and theater. Error bars represent 95 percent confidence intervals.

2) Students from less-affluent backgrounds, Hispanic students, and those attending public schools (traditional and charter) spend more classroom time on ELA than do other students.

Children from more affluent families spend slightly less time on ELA and math than their less-affluent counterparts—which may be freeing up time for them to spend on non-core subjects (such as art, music, and foreign language).⁵ Students spend about the same amount of time on social studies and science regardless of socioeconomic status (see Finding 4 below for how the effect of that time varies across SES). Differences in class time use for students of different racial/ethnic backgrounds are negligible.

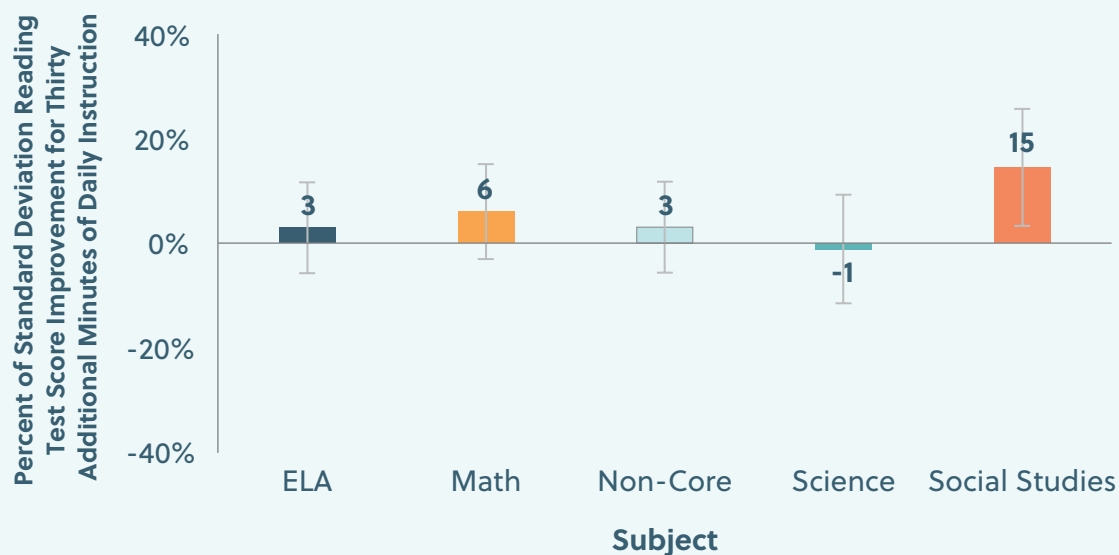
Private schools tend to spend less time on reading and math instruction and more on other non-core subjects than do schools in other sectors, although few of these differences are statistically significant, likely due to the smaller sample sizes.

3) Increased instructional time in social studies—but not in ELA—is associated with improved reading ability.

Social studies is the only subject with a clear, positive, and statistically significant effect on reading improvement.⁶ On average, students who receive an additional thirty minutes of social studies instruction per day (roughly equivalent to moving from the tenth to the ninetieth percentile of social studies instructional time) in grades 1–5 outperform students with less social studies time by 15 percent of a standard deviation on the fifth-grade reading assessment, even after controlling for multiple measures of kindergarten reading ability and a host of student, school, and teacher factors.

Figure ES-2 shows the effects of additional instructional time spent on each subject. Though many elementary schools have lengthy reading blocks, often every day, time spent on ELA is not associated with reading improvement. Likewise, neither math instructional time nor time spent on non-core subjects (including art, music, PE, and foreign languages) corresponds to gains or losses in reading. Although also a content-rich subject, instructional time for science has no relationship with reading development, either.

Figure ES-2. More instructional time devoted to social studies is correlated with greater reading growth from first through fifth grade.

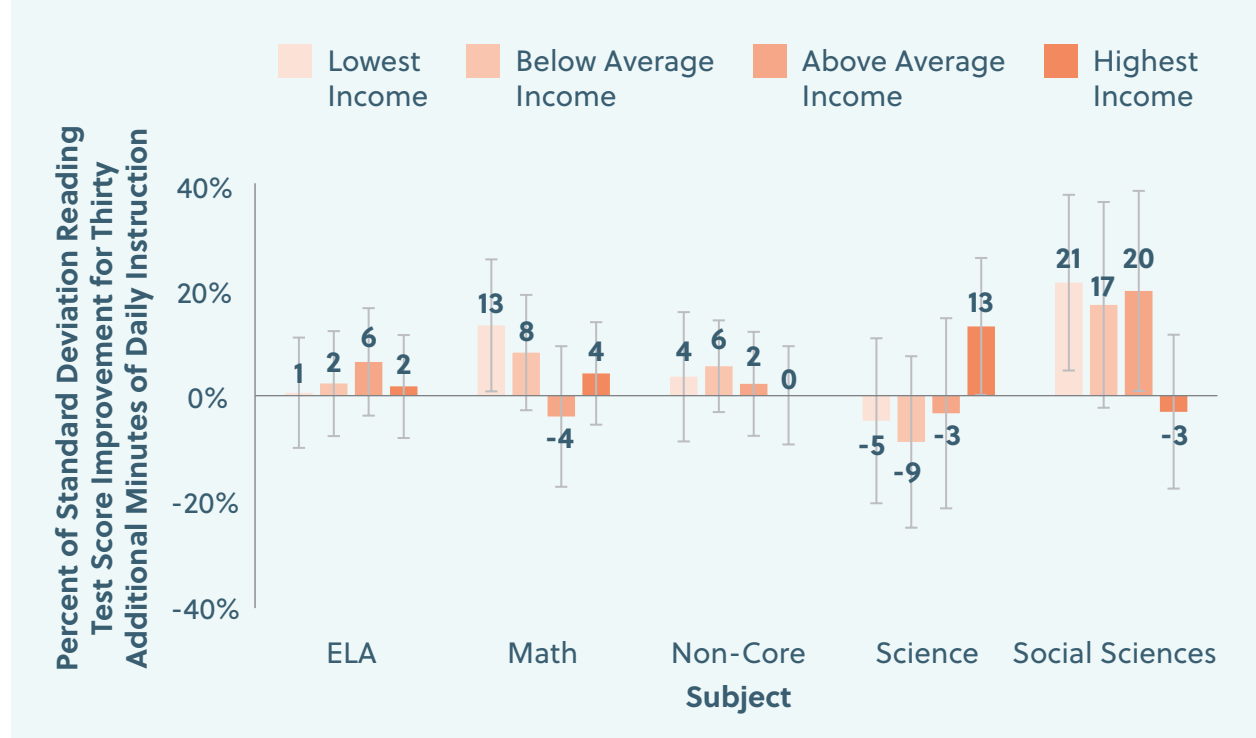


Note: Analytic sample includes 6,731 students. Effects are in standard deviations of fifth-grade assessment scores. For example, the first bar indicates that the effect of thirty minutes of additional ELA instruction is associated with a 3 percent of a standard deviation increase in student reading progress from kindergarten to fifth grade. However, because the error bars overlap with the baseline (0 percent), this effect is not statistically significantly different from zero. Contrast that with the 15 percent effect for social studies, where the error bars do not overlap with the baseline, indicating that the result is statistically significantly different from zero. Error bars represent 95 percent confidence intervals.

4) The students who benefit the most from additional social studies time are girls and those from lower-income and/or non-English-speaking homes.

Next, we examine how the effect of instructional time varies by students from different income quartiles. The only significant difference, once again, is the amount of time spent in social studies—not on ELA, math, science or other non-core subjects.⁷ Effects are consistently positive for students in the bottom three SES quartiles but nearly zero and statistically insignificant for students in the wealthiest quartile. More specifically, students in the bottom three quartiles have similar positive effects from an additional thirty minutes of daily social studies instruction during elementary school, corresponding to greater reading development between 17 and 21 percent of a standard deviation (Figure ES-3).

Figure ES-3. More instructional time in social studies is related to greater reading growth from first through fifth grade for all students except those in the top income quartile.



Note: Analytic sample includes 6,731 students. Indicators of socioeconomic status (for example, “affluent”) reflect quartiles of the family income distribution. Effects are in standard deviations of fifth-grade assessment scores. Note that the 17 percent of a standard deviation effect for students in the “below average income quartile” is only statistically significant at the 90 percent confidence level. Error bars represent 95 percent confidence intervals.

Tyner and Kabourek offer three takeaways for policy and practice—with which we heartily agree and which we summarize here. First and most obvious is that elementary schools should make more room for high-quality instruction in history, civics, geography, and the other knowledge-rich—and engaging—subjects that comprise social studies. Excessive amounts of time spent on ELA appear not to yield the additional reading gains that well-intentioned educators hoped for. Frankly, it is not clear to us why science—presumably also a “content-rich” subject—did not demonstrate similar benefits to social studies. Perhaps its discipline-specific vocabulary (“[tier-three](#)” words) is too specialized to impact literacy broadly. What we do know is that there is rarely such a thing as wasted knowledge and teachers should facilitate the gathering of riveting content for kids. David Coleman, one of the architects of the Common Core standards and now College Board CEO, [once aptly referred](#) to restoring “elementary teachers to their rightful role as guides to the world.” That’s spot on.

Second, teachers should use the ELA block efficiently to build student knowledge. Of course that could mean adopting one of the well-regarded knowledge-rich curricula now on the market, but it doesn’t have to. Beefing up the literacy block with high-quality texts about history, geography, and other social studies topics could go a long way—both in helping young learners to become better readers and in capturing their imaginations to increase student engagement.

Third, policymakers and administrators should [align reading assessments](#) with curricular content. Daniel Willingham, a cognitive psychologist at the University of Virginia, once wrote this simple yet profound statement: “Reading tests are really knowledge tests in disguise.” That means that we need to get serious not only about how we teach students knowledge but also how we test it. It calls for a much more deliberate approach to how we sequence particular content across grade levels and how we sample from it to inform new tests that reward and prioritize knowledge development.

We add to the authors’ takeaways a few additional thoughts of our own. First, it’s often the small changes in education that can shift the tide. There’s no doubt that making bigger waves—opening charter schools to compete with district schools, increasing the rigor of state standards, replacing half or more of staff in failing schools—can rock a becalmed boat. But it might also make faint-hearted passengers seasick. Throwing a smaller pebble in—simply shrinking the massive ELA block to make more room for students to learn about geography, history, civics, and the like—can make for a ripple effect.

And with lots of kids doing “remote learning” again this year, it is more important than ever that kids be engaged. We need to give them more material—not less—that grabs their imagination, piques their curiosity, inspires new interests, and—the icing on the cake—improves how they read.

Schools need to get creative about how to get young students engaged in building knowledge while at home. Books are terrific (including [read-alouds](#) available on YouTube), but documentaries and [TV shows](#) work, too.

Though surely well intended, the massive ELA block has become a barrier to progress in reading, especially for poor kids and kids of color. The best elementary school teachers direct students' gaze not in the mirror, under the mistaken notion that children can only be engaged by texts about their lives and experiences, but out the window where they can encounter just a smidgeon of what our globe of awe and wonder has to offer.

We end by telling you what we told you: Spending more time in elementary school on the "skill" of reading comprehension at the expense of teaching content may sound like a good idea, but it actually works against the very outcomes we're trying to achieve. So let's stop doing it!



I: Introduction

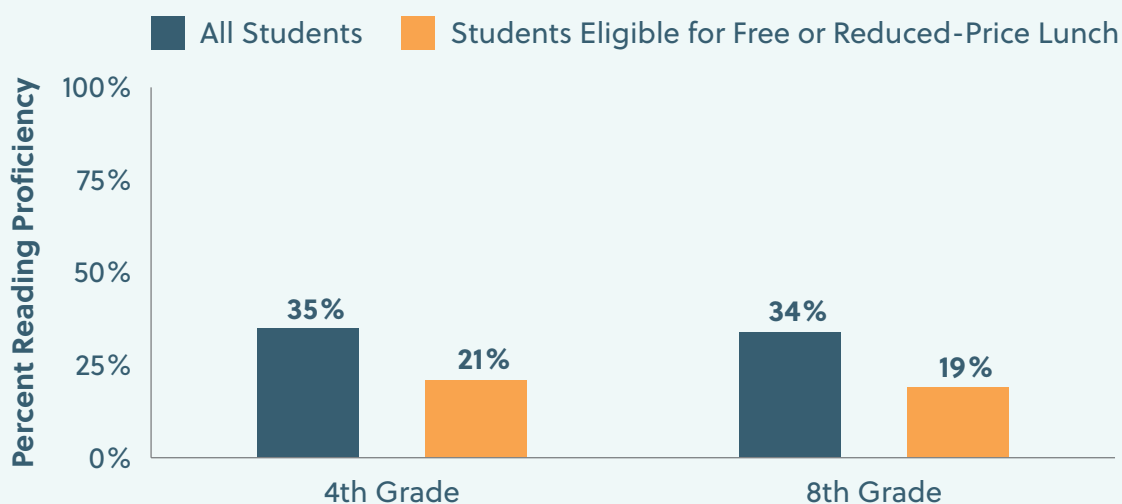
Over thirty years ago, E.D. Hirsch advanced the argument that true literacy stems from broad knowledge of the world. Without an understanding of art, music, history, science, geography, and literature, students struggle with articles in the local newspaper, let alone texts in college courses. They also earn lower scores on reading tests. It is background knowledge, built in and outside the classroom and around the kitchen table, that enables fluent reading comprehension. Unfortunately, many American elementary schools fail to emphasize knowledge building, especially in the earliest grades. Instead, they tend to treat reading comprehension as an independent “skill” and subjects like social studies and science as domains to be studied later, in line with the common but false assumption that children should “first learn to read and then read to learn.”

Curriculum enthusiasts have long argued that adopting content-rich language arts curricula would help to remedy the knowledge deficit. Another approach is simply to devote more classroom time to subjects like science and social studies. It’s an open question whether more time spent on such content-rich subjects in elementary school classrooms might positively impact students’ reading progress over time.

With two-thirds of American fourth and eighth graders failing to read proficiently—and far worse outcomes for students from disadvantaged backgrounds—improving the reading ability of young students could hardly be a more urgent priority for our elementary schools (Figure 1).⁸ Over decades of education reform, literacy levels have barely budged, which raises questions about whether classroom time is being put to the best use. If knowledge is a key to literacy, elementary classrooms must devote time to building it. But do they?

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Figure 1. Only a third of American students read proficiently.



Source: National Assessment for Educational Progress (NAEP) 2019.

To help understand how classroom time is currently spent in U.S. elementary schools and how it might be better utilized, this study uses nationally representative data to address the following question: How does the distribution of instructional time across subjects relate to students' reading growth?

More specifically, we address these three questions:

1. How does the amount of classroom time spent on different subjects—including English language arts (ELA), math, science, social studies, and other subjects—differ across elementary classrooms?
2. Do students in classrooms who spend more time on certain subjects make greater progress in reading during their elementary school years than students who spend less time in these subjects?
3. Do the effects of different uses of instructional time vary by key student factors such as socioeconomic status, home language environment, and gender?

In *Section II*, we examine prior research on early literacy. *Section III* brings a brief discussion of our methodology. *Section IV* presents key findings on the first research question, and *Section V* includes results for the second and third questions. In *Section VI*, we discuss the implications of our findings for education policy and practice.



II: The other “reading war”

The so-called “reading wars” have seen battles and skirmishes for decades now. In 1955, Rudolf Flesch’s bestseller *Why Johnny Can’t Read* argued against the then-popular “sight method” of teaching students to read, which deemphasized phonics. In the next decade, Harvard’s Jeanne Chall referred to disagreements about whether to focus early reading instruction on phonics as “the great debate.” In her definitive review of research on literacy instruction from 1912 (!) to 1965, she concluded “that a code-emphasis method [i.e., phonics] . . . produces better results.” In recent decades, evidence has continued to mount that the best way to build a foundation for reading in the early years is the development of phonemic awareness and decoding skills, which enable students to sound out words using phonics. Yet the controversy has persisted.⁹

Even as phonics battles rage in the realm of primary reading, another tussle has been with us for ages regarding how best to develop the vital elements of reading ability that go beyond decoding skills.

On one side, the typical solution to America’s abysmal elementary reading outcomes has been the obvious one: Schools should spend more time on literacy instruction. Previous research has shown that third-grade classrooms spend twice as many hours on language arts as on math and twice as many on math as on social studies and science.¹⁰ To improve the reading proficiency of at-risk and underserved children, schools have invested ever-more time in reading instruction, often providing a “literacy block” that can stretch to two hours—or more—per day.¹¹ Federal policy may have contributed to this trend by mandating annual state testing in reading and math, which many educators and commentators blame for narrowing the curriculum to the tested subjects.¹²

On the other side, critics contend that long stretches of literacy instruction do more harm than good because of how that time is spent. Education writer Natalie Wexler observes that much of it is allocated to efforts to develop formal, generalized reading skills such as “finding the main idea,” “determining the author’s perspective,” “summarizing,” and “clarifying.”¹³

Yet a small but plucky army of cognitive psychologists, analysts, and educators has long cast doubt on the view that reading is a discrete skill that can be mastered independently from acquiring knowledge. To these contrarians, a focus on academic *content*—not generalized reading skills and strategies—will equip students with the background knowledge they need to comprehend all sorts of texts and make them truly literate. Both common sense and substantial research affirm that students benefit from some time spent on reading comprehension strategies, but the critics say their centrality to contemporary reading instruction is crowding out subjects that would help students build knowledge. Moreover, the status quo’s focus on more abstract reading skills may contribute to socioeconomic and racial/ethnic gaps in literacy, as more affluent and White students tend to have more access to knowledge-building resources in the home.¹⁴

In the late 1990s, the National Reading Panel took up the banner of early phonemic awareness, phonics, and decoding skills to achieve reading fluency. Its other pillars of “scientifically-based reading” focused on vocabulary and comprehension, but the panel did not explicitly address the extent to which these abilities are built on a foundation of knowledge (for more, see “The link between background knowledge and literacy”).

There’s little doubt that background knowledge is critical for a reader to make sense of a given text. A key question, though, is whether spending more time on content-rich subjects can improve reading comprehension.

There’s little doubt that background knowledge is critical for a reader to make sense of a given text.

The present study puts this question to the test. It builds on the intuition that growing students’ knowledge of the world through subjects other than ELA may be more effective in developing literacy than additional “reading” instruction. It also takes a longer view than most previous research on this topic: We follow students’ classroom experiences and reading development over a six-year period, from kindergarten through fifth grade, capturing accumulating knowledge via assessments that measure more sophisticated reading ability as students age.¹⁵

The long view is important because knowledge and vocabulary accrue slowly. A third grader may be able to sound out “Cincinnati,” but if she hasn’t studied some geography, she likely won’t comprehend the word. Knowledge that helps build a broad vocabulary has a clear effect on literacy.¹⁶ Over multiple years, the students whose teachers spend more time on content-rich learning in subjects such as social studies, science, and art may see a larger accumulation of knowledge and greater improvement in reading.

The link between background knowledge and literacy

E.D. Hirsch, Jr., professor emeritus of education and humanities at the University of Virginia, was one of the first to argue that American schools’ focus on reading skills paradoxically undermines reading progress. Hirsch claimed that knowledge of the relevant topics in a text—pertaining to literature, science, philosophy, history, arts, culture, geography, and so on—does more to improve literacy than do generalized reading strategies.

Experimental research reveals how background knowledge influences a reader’s abilities. A number of studies show that students comprehend more, perform better at immediate recall, and acquire more additional information when they already possess strong background knowledge of the topic.¹⁷ Cognitive psychologist Daniel Willingham explains the connection in his book *The Reading Mind*. “[W]riters always omit a great deal of information needed to make sense of what they write,” Willingham explains, so “[t]he reader must have the right information in memory to make the inferences that bridge the meaning of what he reads.”

Scholars have run experiments on the effects of background knowledge in a variety of topic areas, from learning the rules of chess and bridge to learning computer programming and electronics. The best-known study showed that baseball-savvy students strongly outperformed students with less knowledge of the sport in comprehending a written description of a half-inning. Importantly, this was true for high-knowledge students who were also generally *poorer* readers than their low-knowledge counterparts, which demonstrates the significance of specific background knowledge relative to general reading ability.¹⁸ More recent experimental studies show that providing background information improves test performance.¹⁹ Particularly relevant to the present study, elementary students who were randomly assigned to spend a greater share of ELA time on science and social studies content performed better in those subjects and slightly better on literacy assessments.²⁰

Curricular evaluations have also demonstrated that students taught in Hirsch’s CKLA program plus phonics improved in reading ability more quickly than similar students not in the program.²¹ Another study analyzed how kindergarten classroom contexts, including the amount of language arts instruction, impacted students’ reading and math skills, finding that students in classes that spent more time on reading instruction did not improve relative to their peers who spent less time on it.²²



III: Methodology

Data and sample

We use nationally representative data from the federal Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K: 2011), which samples over 18,000 students in their kindergarten year and follows them through fifth grade, collecting semiannual or annual measures on students, their parents, teachers, and schools, including annual assessments in reading and math. This longitudinal, nationally representative study design enables us to assess reading progress associated with school experiences from kindergarten through fifth grade.

Our analytic sample includes all students for whom we have nonmissing observations on all student-level measures (more below) and for whom we have teacher-reported classroom time measures in at least three of the five years in which data were collected. We use ECLS-K: 2011 analytic survey weights throughout the analysis to account for the sampling design and to adjust for nonresponse. Our final analytic sample includes 6,829 students.

Measures

Reading assessments. Our key outcome is fifth-grade reading performance, as measured by an ECLS-K reading assessment, which is a traditional reading assessment including questions that gauge basic reading skills (for example, print familiarity, letter recognition, and sight vocabulary), vocabulary knowledge (including vocabulary in context), and reading comprehension.²³ These assessments were administered by NCES in each round of data collection, and item response theory (IRT) scale scores were calculated to enable comparison of growth over time. The present study uses this fifth-grade reading assessment as the final outcome, while controlling for kindergarten reading scores, yielding a five-year measure of reading development.


Time use. The key independent variable is a measure of classroom time use. Teacher surveys ask teachers (1) how often children in their class spend time in each subject area (ranging from never to five days a week) and (2) how much time is spent on these lessons (ranging from never to more than three hours).²⁴ Using these items, we generate a set of “time-use” variables that estimate the amount of classroom time spent in specific subject areas. These items are combined and transformed to generate a measure of time per day in each subject (and summed to yield an indicator of the total amount of instructional time per day). Then, we average the time-use variables across grades, yielding an estimate of student exposure to different subjects in first through fifth grade.²⁵ No data on specific curricula or teaching practices are available for the analysis.

Student, teacher, and school controls. In regression models (described further below), we control for a set of student-, teacher-, and school-level factors to further isolate the relationship between time-use and reading growth. These include baseline scores on two rounds of kindergarten reading assessments (fall and spring); family income; home language; student age, race, disability status, and pre-kindergarten participation; kindergarten measures of cognitive skills (science, math, and working memory) and non-cognitive skills (executive function); and a host of teacher and school characteristics, including school sector (private, public, magnet, or charter),²⁶ school locale (urban, suburban, town, or rural), and average length of teacher tenure. We include a control variable for “departmentalization” when schools employ specialized subject-area teachers, as they may report instructional time differently than teachers who teach all of the core subjects themselves.²⁷

Analysis

We first examine the distribution of time spent on ELA, math, science, social studies, and other subjects on average across and within grade levels. We observe this distribution across a series of student- and school-level indicators hypothesized to correlate with student exposure to content-rich subject areas: student family income; student race/ethnicity; whether the student attends a public, private, or charter/magnet school; and length of teacher tenure.

Next, we address whether the amount of time spent in particular subjects generates greater reading progress. We conduct regression analyses with fifth-grade reading as the outcome and time-use indicators by subject as the key independent variables, controlling for above, as well as the total amount of reported time per day (to account for variation in the length of the school day). These models are described further in *Appendix A*.



Finally, we examine whether the effects in time use vary by certain student factors, including family socioeconomic status, home language environment, and gender. Again, see *Appendix A* for more.

Because the amount of classroom time devoted to different subjects is not randomly assigned and may correlate with other factors for which we are unable to control—such as teacher quality—it is possible that one or more of these factors is driving a correlation between class time usage and student learning. Still, a finding that different use of class time is correlated with greater improvement in reading after controlling for various potential confounders could imply a causal effect or, at the very least, suggest how better teachers employ instructional time.



IV: How is time allocated in elementary school classrooms?

We first look at how instructional time is spent in elementary school classrooms across different subjects, schools, teachers, students, and grade levels.

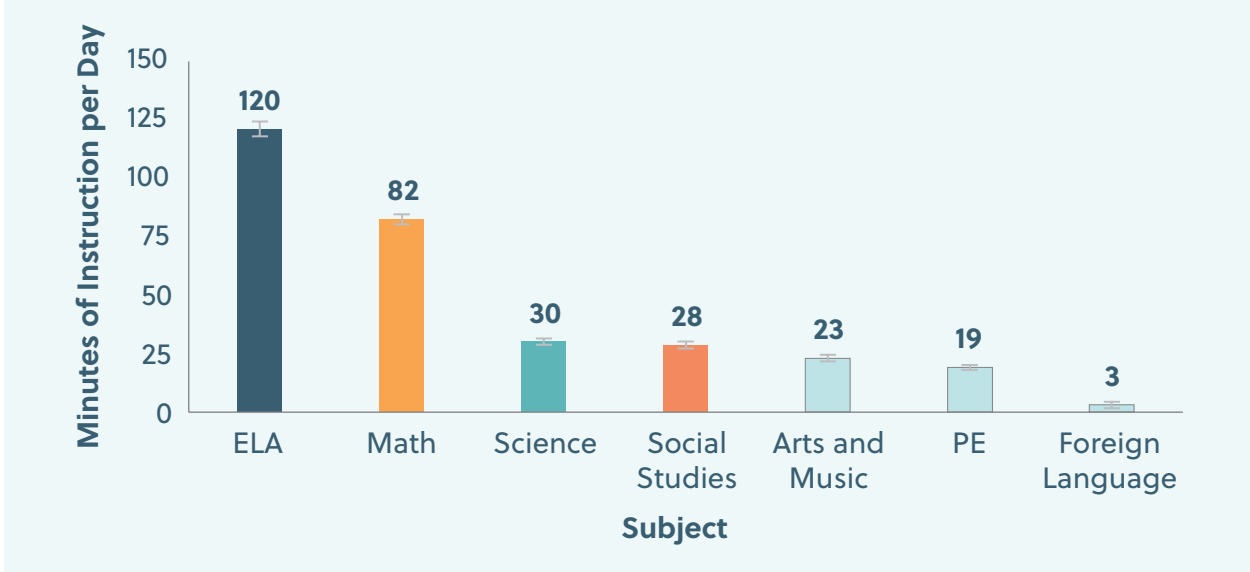
Finding 1: Elementary school students spend much more time on ELA than on any other subject.

Figure 2 presents average time usage for grades 1 through 5. Elementary teachers report that students spend more time on ELA than on any other subject, at two hours daily. Math is second, at nearly an hour and a half per day. Other subjects receive far less instructional time: Excluding math, students on average spend more time on literacy than on all other subjects combined, including science (30 minutes), social studies (28 minutes), arts and music (23 minutes),²⁸ physical education (PE) (19 minutes), and foreign language (3 minutes).

Said another way, ELA instruction accounts for 39 percent of instructional time in U.S. elementary schools (Figure 3), which average about five hours (302 minutes) of total instructional time per day. More than a quarter (27 percent) of that time is spent on math, while science and social studies each occupy about 10 percent. In Figure 3 and thereafter, we combine the smaller subjects (arts and music, PE, and foreign language) into a “non-core” category,²⁹ which accounts for 15 percent of instructional time.

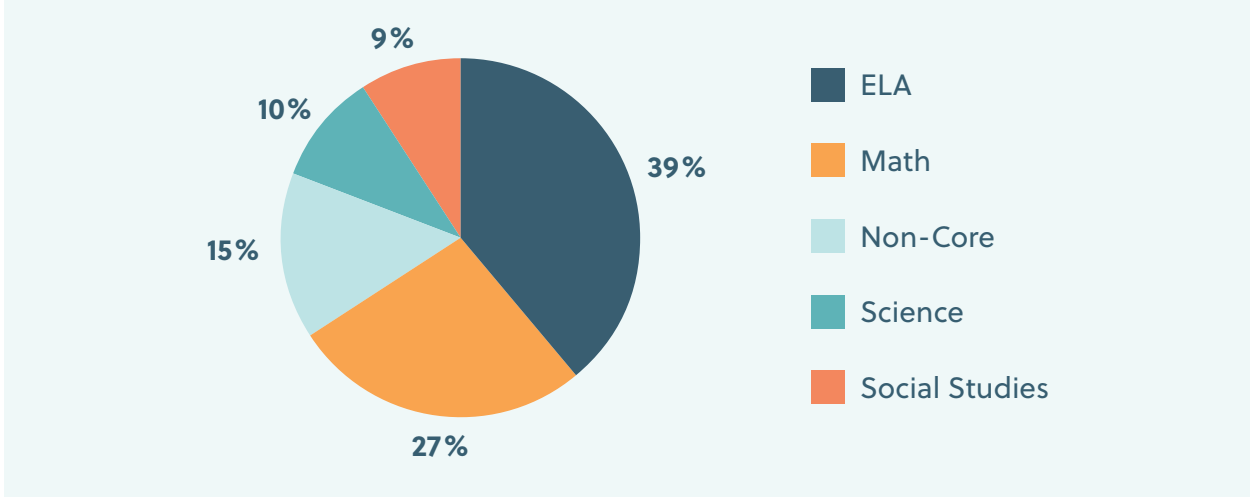
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Figure 2. Students spend an average of two hours per day on ELA instruction.



Note: The figure contains pooled averages of grades 1 through 5. The mean total instructional time is 302 minutes per day. Analytic sample includes 6,829 students. "Arts and music" includes art, music, dance, and theater. Error bars represent 95 percent confidence intervals.

Figure 3. Of the total instructional time, 39 percent is spent on ELA, while barely 20 percent is spent on science and social studies combined.



Note: The figure contains pooled averages of grades 1 through 5. The mean total instructional time is 302 minutes per day. "Non-core" includes art, music, theater, dance, physical education, and foreign language. Analytic sample includes 6,829 students.

Still, considerable variation exists across students in how much instructional time they receive in each subject (Table 1). For example, although students average 120 minutes per day of ELA instructional time from first to fifth grade (column 4), 10 percent of students receive 93 minutes or less (column 2), while the 10 percent at the other extreme receive 147 minutes or more (column 6).

Other subjects exhibit even more variation. Students at the 90th percentile of social studies and science instructional time (column 6), for example, spend nearly three times as much time (43-45 minutes) on those subjects as students in the 10th percentile (15-16 minutes). Non-core subjects show a similar pattern, where students in the 90th percentile receive 68 minutes of instruction, an 183 percent increase over students in the 10th percentile (24 minutes) and a 62 percent increase over the median student (42 minutes). Math instruction ranges from 63 minutes at the 10th percentile to 102 minutes at the 90th percentile.

Table 1. There is substantial variation in the distribution of instructional time by subject.

Subject (1)	10th Percentile (2)	25th Percentile (3)	Median (4)	75th Percentile (5)	90th Percentile (6)
ELA	93	105	120	135	147
Math	63	73	81	90	102
Non-Core	24	31	42	54	68
Science	16	22	29	37	45
Social Studies	15	21	28	35	43
All	252	275	302	328	352

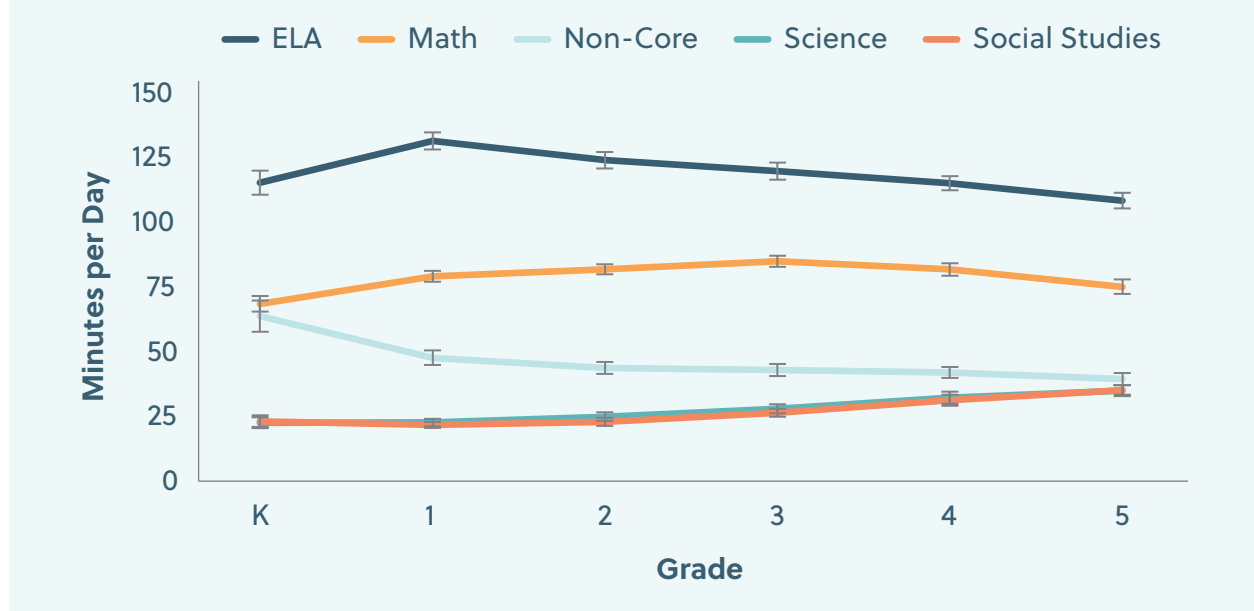
Note: Table contains pooled averages of grades 1 through 5. "Non-core" includes art, music, theater, dance, physical education, and foreign language. Analytic sample includes 6,829 students.

Finding 2: In the later elementary grades, somewhat more instructional time is allocated to science and social studies and somewhat less to ELA and non-core subjects.

Although elementary students spend more time in ELA relative to any other subject, its allocation tends to diminish as students age. As we see in Figure 4, the peak of ELA instruction occurs in first grade at 129 minutes; by grade 5, however, students spend an average of 106 minutes per day in ELA.

Reported math instruction comprises 68 minutes per day in kindergarten, peaking at 85 minutes in third grade and then falling back to 75 minutes by fifth grade. As students move into the later elementary grades, they spend a little more than a half hour on science or social studies, which get even shorter shrift in grades K–2 (25 minutes or less on each subject per day). Time spent on other non-core subjects falls from an average of 64 minutes per day in kindergarten to just 39 minutes per day in grade 5.

Figure 4. As elementary students progress through the grades, more time is allocated to science and social studies, while less is allocated to ELA and non-core subjects.

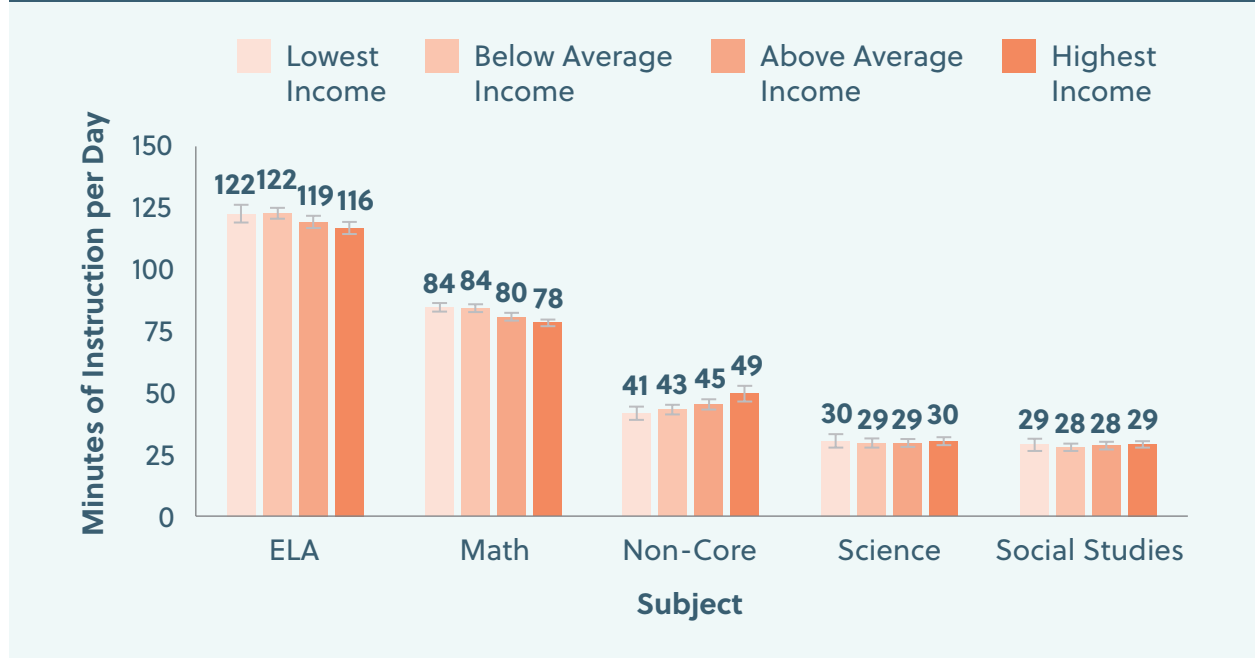


Note: “Non-core” courses include art, music, theater, dance, physical education, and foreign language. Analytic sample includes 5,449 students. The overall mean total instructional time by grade (not shown) ranges from 293 to 303 minutes in kindergarten to fifth grade. 22 percent attend “half-day” kindergarten yet receive more than half (63 percent) of the instructional time that full-day kindergarteners receive, at 203 and 322 total minutes, respectively. Error bars represent 95 percent confidence intervals.

Finding 3: Students from less affluent backgrounds, Hispanic students, and those attending public schools (traditional and charter) spend more classroom time on ELA than do other students.

Figure 5 shows how classroom time is utilized for different subjects relative to family income.³⁰ Although the general pattern remains the same, those from more affluent families spend slightly less time on ELA and math than their less affluent counterparts—which may be freeing up time for them to spend on non-core subjects. Students spend about the same amount of time on social studies and science regardless of socioeconomic status.

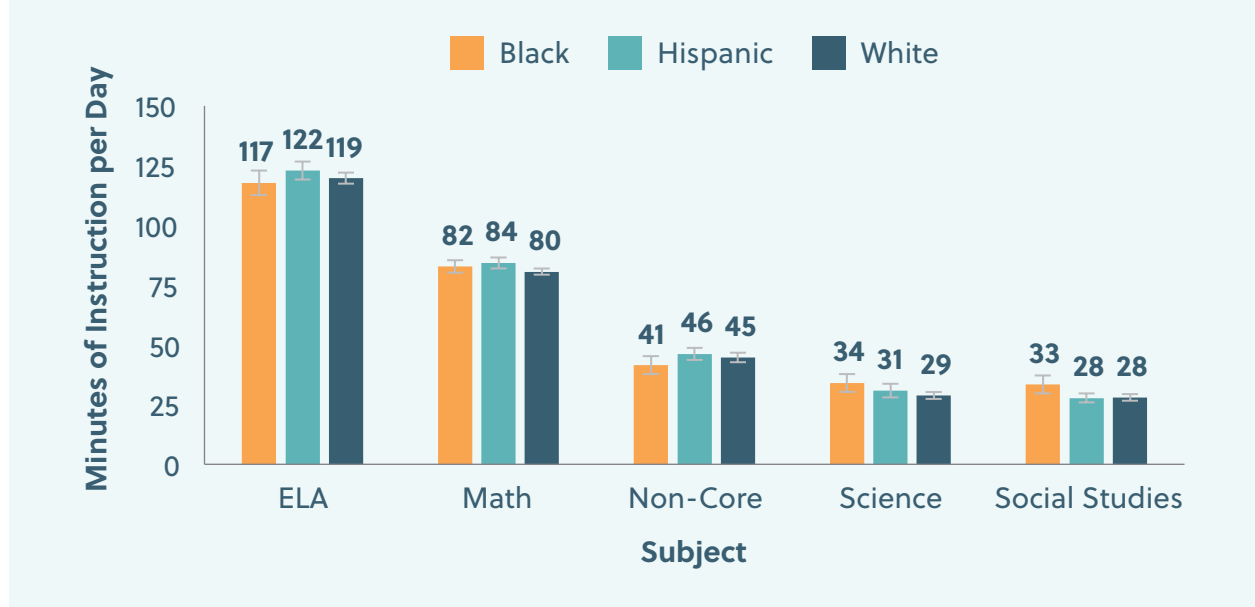
Figure 5. Compared to their less affluent peers, students from more affluent families spend slightly less classroom time on ELA and math and slightly more on non-core subjects.



Note: The figure shows pooled averages of grades 1–5. Indicators of socioeconomic status (for example, “highest income”) reflect quartiles of the family income distribution. “Non-core” courses include art, music, theater, dance, physical education, and foreign language. Analytic sample includes 6,829 students. The total mean instructional time per day (not shown) by income is as follows: 301 minutes (lowest income), 300 minutes (below average income), 297 minutes (above average income), and 301 minutes (highest income). Error bars represent 95 percent confidence intervals.

Differences in class time use for students of different racial/ethnic backgrounds are negligible, but Hispanic students do spend slightly more time on ELA than Black or White students (Figure 6), although the differences are not statistically significant.³¹

Figure 6. There are no substantial differences in instructional time usage by race/ethnicity.

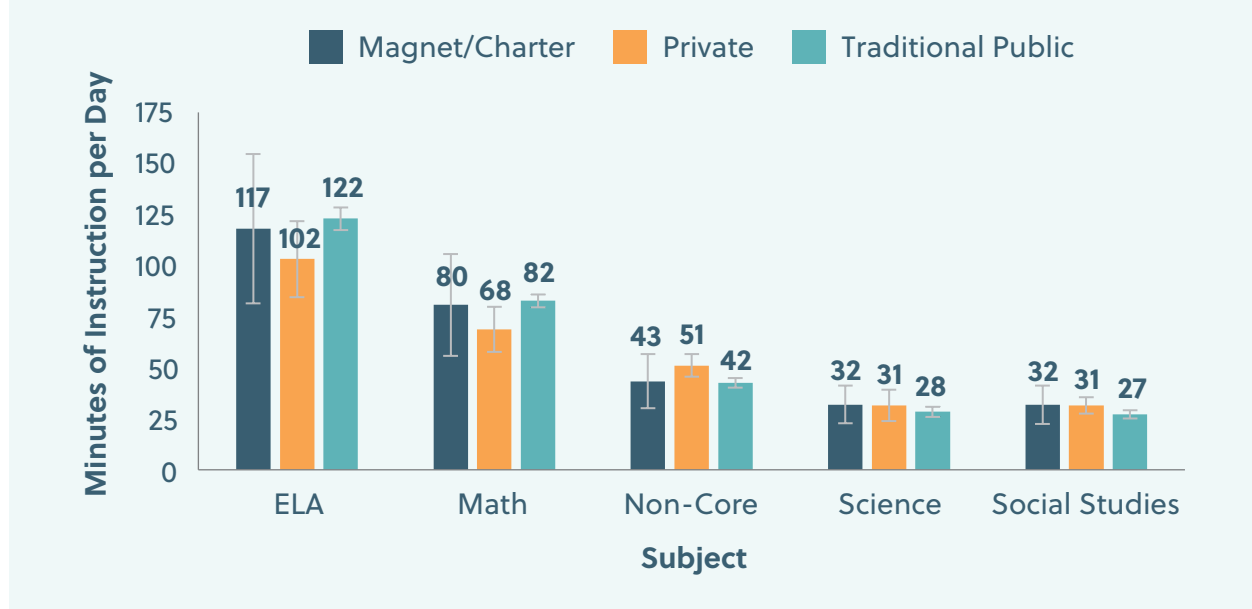


Note: The above figure shows pooled averages of grades 1–5. “Non-core” courses include art, music, theater, dance, physical education, and foreign language. Analytic sample includes 590 Black students, 1,527 Hispanic students, and 3,813 White students. The mean total instructional time per day (not shown) is 305 minutes for Black students, 309 minutes for Hispanic students, and 299 minutes for White students. Error bars represent 95 percent confidence intervals.

Figure 7 shows how instructional time is spent in different school sectors, including traditional public schools, private schools, and (combined) magnet and charter schools.³² Private schools tend to spend less time on reading and math instruction and more on other non-core subjects than do schools in other sectors, although few of these differences are statistically significant, likely due to the smaller sample sizes. On the other hand, magnet and charter schools spend a bit more time on social studies and science than do other school types.

We also examined differences in instructional time by years of teacher experience (not shown). Teachers with longer tenure (above the median of 13.5 years) tend to spend a few more minutes per day on ELA than their less-experienced colleagues, but otherwise these differences are negligible.

Figure 7. Private schools spend much less time on reading and math and more time on non-core subjects than schools in other sectors.



Note: The figure shows data for grades 1–5. Charter and magnet schools have a common code in the public use ECLS-K data. Analytic sample includes 3,019 public school students, 507 private school students, and 106 magnet and charter school students. “Non-core” courses include art, music, theater, dance, physical education, and foreign language. The mean total instructional time per day (not shown) is 303 minutes for traditional public school students, 290 minutes for students in private schools, and 307 minutes for students in magnet and charter schools. Error bars represent 95 percent confidence intervals.



V: How does instructional time relate to reading improvement?

This section examines the potential impacts on reading improvement of how time is spent in the classroom. First, we examine potential effects of instructional time on all students, and then we report effects by student socioeconomic status, early reading ability, gender, and home language.

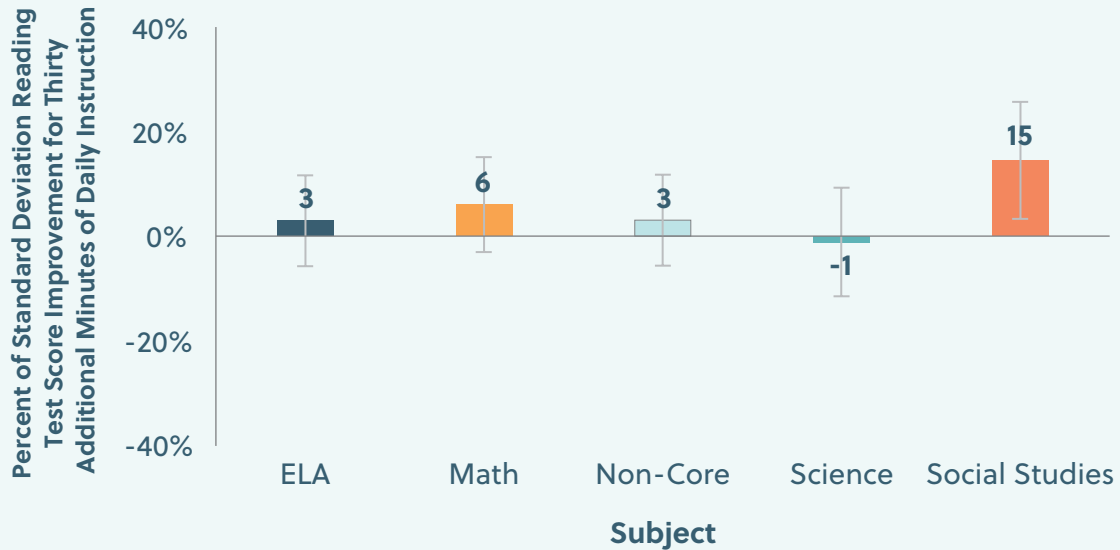
Effects on all students

Finding 4: Increased instructional time in social studies—but not in ELA—is associated with improved reading ability.

Figure 8 shows the effects of additional instructional time spent on each subject.³³ Contrary to the practices of many schools, time spent on ELA—the subject that would appear most relevant to the outcome we’re measuring—is not associated with reading improvement. Likewise, neither math instructional time nor time spent on non-core subjects (including art, music, and other non-core subjects) corresponds to gains or losses in reading. Although presumably also a content-rich subject, instructional time for science has no relationship with reading development either.

In fact, *social studies is the only subject with a clear, positive, and statistically significant effect on reading improvement.* On average, students who receive an additional 30 minutes of social studies instruction per day (roughly equivalent to moving from the 10th to the 90th percentile of social studies instructional time) in grades 1–5 outperform students with less social studies time by 15 percent of a standard deviation on the fifth-grade reading assessment, even after controlling for multiple measures of kindergarten reading ability and a host of student, school, and teacher factors.³⁴

Figure 8. More instructional time devoted to social studies is correlated with greater reading growth from first through fifth grade.



Note: Analytic sample includes 6,731 students. Effects are in standard deviations of fifth-grade assessment scores. For example, the first bar indicates that the effect of thirty minutes of additional ELA daily instruction is associated with a 3 percent of a standard deviation increase in student reading progress from kindergarten to fifth grade. However, because the error bars overlap with the baseline (0 percent), this effect is not statistically significantly different from zero. Contrast that with the 15 percent effect for social studies, where the error bars do not overlap with the baseline, indicating that the result is statistically significantly different from zero. Error bars represent 95 percent confidence intervals.

Effects by student characteristics

As shown above, increased instructional time in social studies is correlated with increased reading ability during elementary school. But does this effect vary by student characteristics? We tackle that question next.

Finding 5: The students who benefit the most from additional social studies time are girls and those from lower-income and/or non-English-speaking homes.

First, we examine how the effect of instructional time varies by students whose families are in different income quartiles (Figure 9). The only significant difference by socioeconomic status (SES) is the amount of time spent in social studies. Effects are consistently positive for students in the bottom three SES quartiles but nearly zero and statistically insignificant for students in the wealthiest quartile. More specifically, students in the bottom three quartiles

have similar positive effects from an additional 30 minutes of daily social studies instruction during elementary school, corresponding to greater reading development between 17 and 21 percent of a standard deviation.

There are generally no statistically significant differences for students based on the amount of ELA, math, non-core, or science instructional time, regardless of SES (the one exception is for students in the most affluent quartile, for whom additional science instruction is positive).

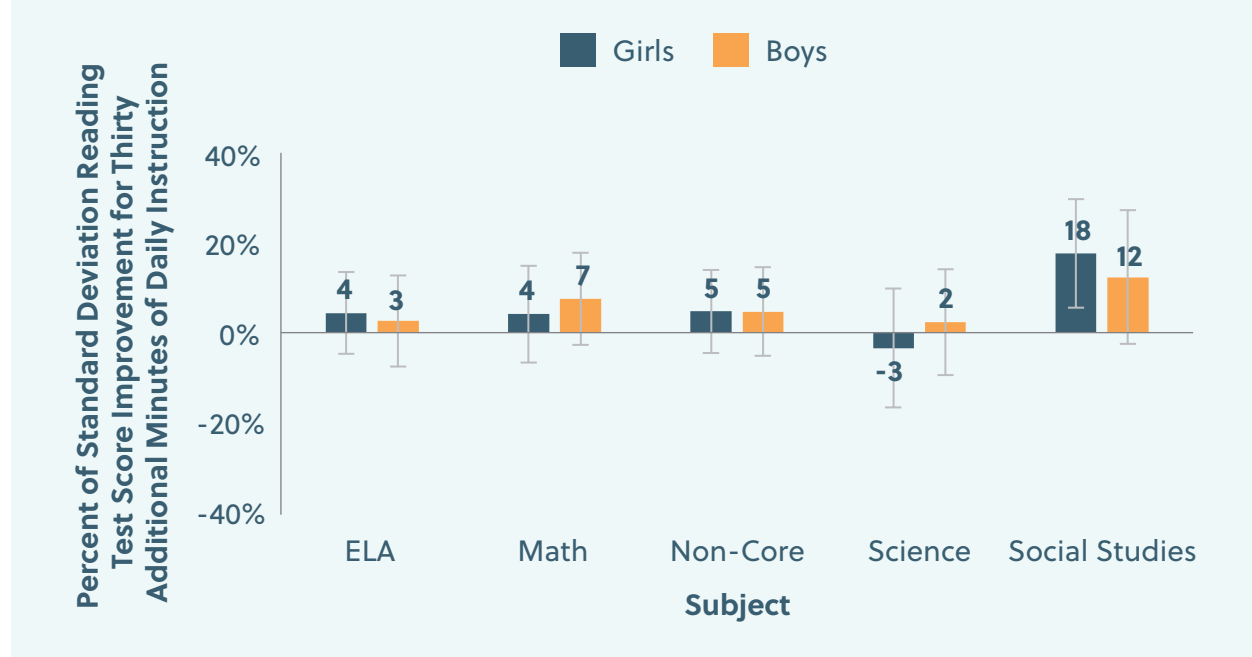
Figure 9. More instructional time in social studies is related to greater reading growth from first through fifth grade for all students except those in the top income quartile.



Note: Analytic sample includes 6,731 students. Indicators of socioeconomic status (for example, “affluent”) reflect quartiles of the family income distribution. Effects are in standard deviations of fifth-grade assessment scores. Note that the 17 percent of a standard deviation effect for students in the “below average income quartile” is only statistically significant at the 90 percent confidence level. Error bars represent 95 percent confidence intervals.

Figure 10 shows the effects of instructional time for students by gender. Additional social studies instruction for boys and girls provides similar benefit, but the effect for girls is a bit stronger. There are no statistically significant effects of instructional time in other subjects for students of either gender.

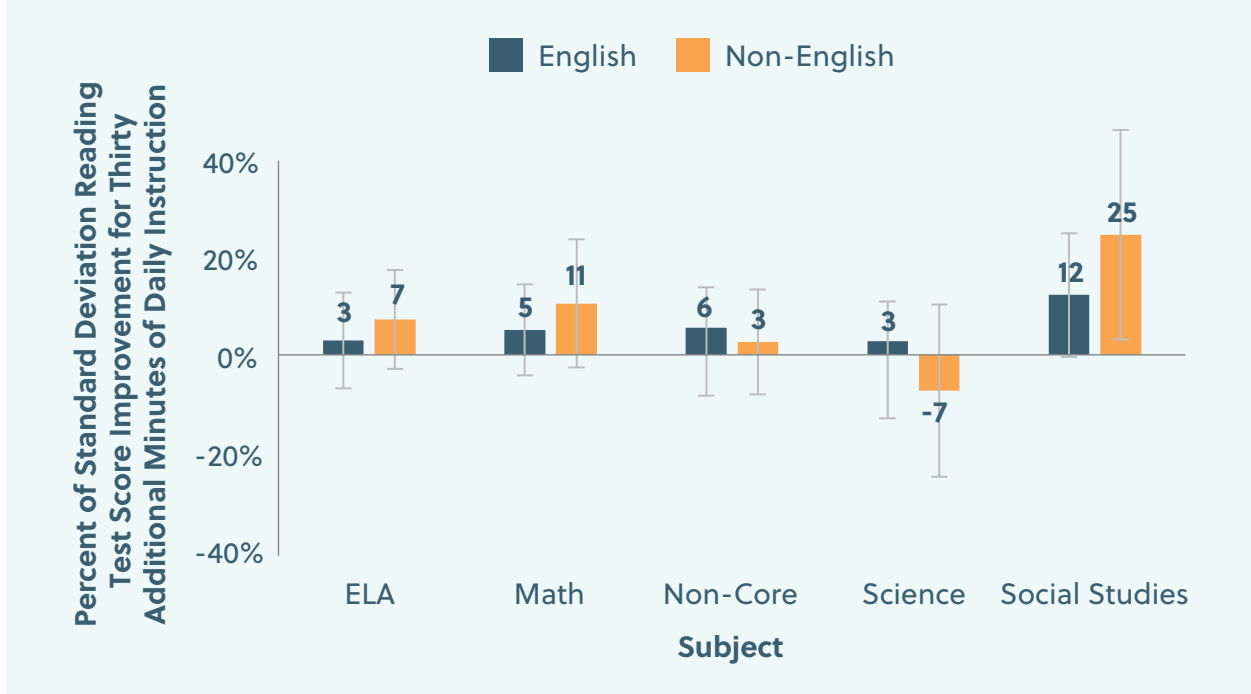
Figure 10. For both boys and girls, additional social studies time is associated with greater progress in reading.



Note: Analytic sample includes 6,731 students. Effects are in standard deviations of fifth-grade assessment scores. Error bars represent 95 percent confidence intervals.

Finally, we examine the effects of instructional time by home language. Students from homes in which English is not the primary language see larger effects from social studies instructional time than do students from homes where it is (Figure 11). For students from non-English-speaking homes, an additional 30 minutes of social studies time per day during elementary school corresponds to about a quarter of a standard deviation increase in reading ability. For students from primarily English-speaking families, that same 30 additional minutes corresponds to an improvement in reading of about 12 percent of a standard deviation (statistically significant only at the 90 percent confidence level). Interestingly, the effects of additional ELA instructional time are small and statistically insignificant for both groups, although the estimated effect on students from non-English-speaking homes is about double that for other students (7 versus 3 percent of a standard deviation).

Figure 11. Additional social studies time is tied to greater progress in reading regardless of students' home language, although the effect is stronger for students in non-English-speaking homes.



Note: Analytic sample includes 6,731 students. Effects are in standard deviations of fifth-grade assessment scores. Error bars represent 95 percent confidence intervals.



VI: Summary and implications

Here's what we've learned: Devoting more instructional time to social studies is associated with increased reading ability over the course of five years of elementary school. This is true for all but the most affluent students. Female and low-income students, as well as those from non-English-speaking families, are especially likely to benefit. On the other hand, increased instructional time in math, non-core, science, and—crucially—ELA is generally not associated with more reading improvement.

Spread out over first through fifth grade, these impacts are modest but suggest that, at the margin, students are not getting additional benefit from lengthy periods of ELA instruction.

We draw three lessons from these findings.

1) Elementary schools should make more room for high-quality social studies instruction.

In the average elementary classroom, students spend two hours on language arts, 28 minutes on social studies, and even less time in art, music, or foreign language, despite the fact that additional social studies time is associated with improved reading scores. Our findings imply that shifting twenty, thirty, or even forty minutes away from less effective ELA activities (such as practicing comprehension skills) and reinvesting that time to learn more about geography, history, civics, and the like will improve students' reading ability. Just as important, additional social studies time will probably also help students develop the strong knowledge base needed for a successful transition to middle school. That's why organizations like the Council of Chief State School Officers recommend elementary classrooms dedicate at least 45 minutes to social studies each day.³⁵

The link between social studies and reading may stem from the way that social studies instruction can help build systematic knowledge and vocabulary in multiple domains, which are broadly applicable and transferable to other topics. Social studies can help students understand history, current events, family and social relationships, and common narratives; whereas, reading passages that putatively cover other subjects, such as literature or drama, may assume the reader already has a grasp of such knowledge. Although many have often

considered science to be another content-rich subject,³⁶ the inherent vocabulary in science classes may be too specialized to impact literacy broadly.

Unfortunately, social studies has long been neglected in American primary schools. Elementary teachers are often taught that students should “first learn to read, so they can read to learn,” even though youngsters can learn a lot about the world before they can decode (who hasn’t seen animated kindergarteners wrapped in suspense as their teachers share aloud well-written historical and mythical narratives?). When schools do teach social studies, it is often so watered down or devoid of controversy that it neither builds knowledge nor captures student interest.³⁷ Given the positive impacts of today’s often mediocre social studies instruction, imagine how students might benefit if we delivered even more engaging instruction in history, geography, and civics. Moreover, because the effects of social studies instruction are strongest for students in lower socioeconomic classes, more time in the subject may help close reading gaps.

2) Teachers should use the literacy block efficiently to build student knowledge.

Whether or not schools trim their sprawling literacy blocks to make room for more instruction in social studies and other content-rich subjects, they can still make better use of that time by infusing it with content-rich texts and topics.

Curriculum advocates are increasingly aware of the importance of building knowledge. In fact, EdReports, a nonprofit group that provides reviews of K–12 instructional materials, includes in its evaluations a measure of knowledge richness (“building knowledge with texts, vocabulary, and tasks”). For example, it gives high marks to the ELA curriculum *Wit & Wisdom*, noting that it “provide[s] ample opportunities for students to build knowledge through content-rich, integrated reading, writing, speaking, listening, and language experiences.”³⁸ Encouraging schools to use such curricula could be transformative to the reading block.

Regardless of whether a school embraces a specifically packaged curriculum, teachers can still play a crucial role in beefing up the literacy block. The notion that students’ choice of reading material boosts intrinsic motivation is well grounded in research,³⁹ but that doesn’t mean that students don’t benefit from teacher guidance. Allowing them to choose between a handful of teacher-selected, high-quality texts on various topics fosters buy-in and may inspire new interests. One way that teachers curate is through the use of “text sets,” which facilitate deep learning around specific topics.⁴⁰

3) Policymakers and administrators should align reading assessments with curricular content.

That improving students' reading ability stems more from exposure to additional social studies than to more English language arts suggests a rethinking of how we measure literacy. Reading assessments—including the ECLS-K assessment used in this report—tend to focus on abstract reading skills. Such skills-centric assessments nonetheless require background knowledge, as they include reading passages to assess comprehension. But because those passages may relate to any conceivable topic, they can incentivize classroom teachers to focus on test-prep and reading strategies. In turn, districts often choose curricula with the same orientation that prizes skills over rich content.

What we need, in the words of Hirsch and Pondiscio, is a “domain-specific approach to language arts.” In other words, “rather than idle away precious hours on trivial stories or randomly chosen nonfiction, reading, writing, and listening instruction would be built into the study of ancient civilizations in first grade, for example, Greek mythology in second, or the human body in third.”⁴¹

In this way, reading tests would subsequently include texts from a variety of genres on these same topics. Cue Hirsch and Pondiscio: “Teachers would still teach to the test, emphasizing domain-specific knowledge (because it might be on the test), but no one would object, because it would help students not only pass the current year’s test but build the broad background knowledge that enables them to become stronger readers in general.”⁴² Of course, “no one” objecting is a high bar, but we can imagine that many teachers might embrace an assessment that reflects some of the particular texts and content topics they’ve covered during the year.

More specifically, this new generation of reading assessments would, in the earliest grades, use rich texts to target decoding and basic comprehension skills. Then, as students master the basics, the focus would shift to broadening vocabulary, reading comprehension, and writing about specific topics, including science, art, geography, and history.

Louisiana is taking a step in this direction by pioneering a set of reading assessments that align with the state’s social studies curricula. For now, it is limited to a few districts and charter networks in the Bayou state—but, if fruitful, such an approach could have much broader impacts for literacy across the nation.⁴³

We are not the first to find that the expansive time devoted to language arts instruction does not improve student reading.⁴⁴ But we *are* the first to find that literacy gains are more apt to materialize when students spend more time in social studies. Diminishing or transforming the ELA block, then, should move to the top of the literacy agenda. Yes, we should keep fighting for high-quality phonics-based instruction in the earliest grades, but that must be complemented by a diet rich in content that grabs the hearts and imaginations of our youngest learners.



Appendix A: Technical appendix

Time-use measure

The ECLS-K teacher surveys have been used in numerous studies to test the relationship between classroom content and student outcomes.⁴⁵ Surveys like these are subject to some degree of bias from both nonresponse and respondent bias. ECLS-K corrects for nonresponse bias through the adjustment of sample weights postsurvey, and the weighted response rates do not reflect nonresponse bias.⁴⁶

Overall, response rates were high among teachers across questionnaires. For example, in fifth grade, teacher response rates average approximately 82 percent of the weighted sample. In order to ensure that unusual response patterns did not drive results, we eliminated teacher responses where the daily instructional time averaged less than two hours or more than eight hours and include only students for whom a majority of years of data are valid and within this range. Respondent bias does not affect sample size but does generate measurement error, which attenuates results and could possibly affect their interpretation.

Analyses

In *Section V*, we present the results of regression analyses linking instructional time and student reading development. Although these models are described briefly in *Section III*, we discuss them in detail below.

The models with results presented in *Section V* include fifth-grade reading scores as the outcome variable and instructional time by subject as the key independent variables. We control for fall and spring kindergarten reading assessments (and an interaction between those assessment scores); kindergarten assessments in math, science, and in executive functioning; total instructional time; and a range of student, school, and teacher factors. Student socioeconomic status is based on the ECLS-K variable *x12sesl*, which is a continuous measure of family socioeconomic status. The SES indicator in the ECLS-K: 2011 reflects the socioeconomic status of the household at the time of data collection and includes

five components: parent/guardian 1's education, parent/guardian 2's education, parent/guardian 1's occupational prestige score, parent/guardian 2's occupational prestige score, and household income.⁴⁷

The main models, presented in Section V, take the following form:

$$(1) Y_s = \beta_0 + \beta_1 \text{InstructionalTime}_s + \beta_2 \text{KinderReading}_s + \beta_3 \text{TotalInstructionalTime}_s + \beta_4 \text{StudentDemo}_s + \beta_5 \text{School}_{st} + \beta_6 \text{Teacher}_{st} + \varepsilon_{st}$$

where Y_s is fifth-grade reading performance for student s . $\text{InstructionalTime}_s$ is a vector of classroom time-use variables including ELA, math, social studies, science, and a pooled measure of the time spent on other “non-core” subjects including art, music, dance, theater, PE, and foreign language. KinderReading_s is a vector of (lagged) kindergarten reading measures for student s , including a fall reading assessment, a spring reading assessment, and an interaction term for the two kindergarten assessments. $\text{TotalInstructionalTime}_s$ represents the total amount of instructional time, which is a sum of the $\text{InstructionalTime}_s$ measures for each student. StudentDemo_s is a vector of student-level control variables, including the SES variable described above; age at kindergarten matriculation; race; disability status; and dummies representing whether the student's home language is English and whether the student attended a pre-kindergarten education program. School is a vector of school-level factors including whether the school is private, traditional public, or public charter or magnet in each school year and predominant urbanicity of the schools the student attended during elementary school (urban, suburban town, or rural). Teacher_s is a vector of teacher factors including the average length of students' teacher's experience from grades 1–5 and dummies representing whether the student's teacher concentrates in a specific subject in grades 3, 4, or 5. The coefficient on β_1 for each academic subject provides the average effects of additional instructional time on student reading development.

Heterogeneous effects

To examine heterogeneity in the observed effects, we run additional analyses to test differences by SES, gender, and English-language status. In these models, we transform the continuous SES measure into a quartile categorical variable, where 1 is the lowest quartile group and 4 is the highest. Gender remains a binary variable, where 1 equals female. Our indicator of home language is a binary variable where 1 indicates that a language other than English is spoken at home (gleaned from the kindergarten parent survey). We run the following model for these analyses:

$$(2) Y_s = \beta_0 + \beta_1 \text{InstructionalTime}_s + \beta_2 \text{SES}_s + \beta_3 \text{InstructionalTime} * \text{SES}_s + \beta_4 \text{KinderReading}_s + \beta_5 \text{TotalInstructionalTime}_s + \beta_6 \text{StudentDemo}_s + \beta_7 \text{School}_{st} + \beta_8 \text{Teacher}_{st} + \varepsilon_{st}$$

$$(3) Y_s = \beta_0 + \beta_1 \text{InstructionalTime}_s + \beta_2 \text{Gender}_s + \beta_3 \text{InstructionalTime} * \text{Genders}_s + \beta_3 \text{KinderReading}_s + \beta_4 \text{TotalInstructionalTime}_s + \beta_5 \text{StudentDemo}_s + \beta_6 \text{School}_{st} + \beta_7 \text{Teacher}_{st} + \varepsilon_{st}$$

$$(4) Y_s = \beta_0 + \beta_1 \text{InstructionalTime}_s + \beta_2 \text{HomeLang}_s + \beta_3 \text{InstructionalTime} * \text{HomeLang}_s + \beta_3 \text{KinderReading}_s + \beta_4 \text{TotalInstructionalTime}_s + \beta_5 \text{StudentDemo}_s + \beta_6 \text{School}_{st} + \beta_7 \text{Teacher}_{st} + \varepsilon_{st}$$

All coefficients remain the same as the main model, except SES, gender, and home language are in turn removed from the *StudentDemo*_s vector and interacted with the main variables of interest, *InstructionalTime*_s.



Appendix B: Robustness check

An advantage of this study is its relatively long horizon, which allows us to analyze how more time in content-rich subjects may accumulate over five years of elementary school to improve reading outcomes. Still, a critical reader may wonder whether this long-term correlation is driven by better readers needing—and receiving—less ELA instruction, resulting in more time for instruction in social studies and other subjects. Because our analysis controls for multiple measures of kindergarten reading ability, it cannot be the case that differences in initial reading ability are driving the correlation. But what if students who accelerate fastest in reading in the early grades are subsequently instructed less in ELA and more in social studies in the later grades? If this were true, it would explain the correlation between reading improvement and social studies instruction but would suggest that the arrow of causality runs in the opposite direction. In other words, it would imply that social studies instruction is not influencing student reading abilities. This appendix presents the results of this robustness check.

Specifically, we test this question: Do students who make the most progress in reading in early grades receive less ELA instruction—and more social studies instruction—in later grades?

We find that students who make substantial progress in reading in the early grades receive very similar amounts of reading and social studies instruction as students who make very little progress. Table B1 shows that, compared to third-grade students in the 1st percentile of prior reading growth, third-grade students in the 99th percentile of prior reading growth have very similar amounts of instructional time in ELA and social studies, receiving just six fewer minutes in ELA and less than one additional minute in social studies. Neither of these differences is statistically significant (the final two rows of the table replicate the analysis for kindergarten through fourth grade, where the differences are even smaller).

Because instructional time is measured by teacher responses to surveys about their classrooms in general, it makes sense that student progress is not a good predictor of instructional time in later grades. Given these similarities in later instructional time for

students at the furthest extremes of the growth spectrum, we can be confident that the correlations between social studies instruction and reading improvement identified in the main report are not driven by this potentially confounding pattern.

Table B1. Student reading growth in earlier grades is not a good predictor of instructional time in later grades.

	Students in 1st percentile growth in early grades (1)	Students in 99th percentile growth in early grades (2)	Difference (3)
ELA (3rd grade)	121.3 minutes	114.9 minutes	-6.4
Social studies (3rd grade)	26.7 minutes	27.6 minutes	+0.9
ELA (4th grade)	115.8 minutes	116.0 minutes	+0.2
Social studies (4th grade)	31.2 minutes	32.5 minutes	+1.3

Note: Analytic sample includes 6,115 to 6,350 students, depending on the grade level. Results are from regression models estimating effects of reading growth in earlier grades on instructional time in later grades, controlling for total instructional time in the later grades. None of the differences are statistically significant.




Endnotes

- 1 Donna R. Recht and Lauren Leslie, "Effect of Prior Knowledge on Good and Poor Readers' Memory of Text," *Journal of Educational Psychology* 80, no.1 (1988): 16–20, doi:10.1037/0022-0663.80.1.16; Katherine A. Rawson and Walter Kintsch, "Exploring Encoding and Retrieval Effects of Background Information on Text Memory," *Discourse Processes* 38, no. 3 (2004): 323–44, doi:10.1207/ s15326950dp3803_3; Carol McDonald Connor et al., "Acquiring Science and Social Studies Knowledge in Kindergarten Through Fourth Grade: Conceptualization, Design, Implementation, and Efficacy Testing of Content-Area Literacy Instruction (CALI)," *Journal of Educational Psychology* 109, no. 3 (2017): 301–20, doi:10.1037/edu0000128.
- 2 Eric Donald Hirsch Jr., Joseph F. Kett, and James S. Trefil. *Cultural Literacy: What Every American Needs to Know* (Boston: Houghton Mifflin, 1987), xiii.
- 3 See endnote 21.
- 4 The final analytic sample includes 6,829 students.
- 5 "Core" refers to ELA, math, science, and social studies, and "non-core" refers to arts and music, physical education (PE), and foreign language. These descriptors are not meant to connote greater or lesser importance of certain courses over others.
- 6 Because the amount of classroom time devoted to different subjects is not randomly assigned and may correlate with other factors for which we are unable to control—such as teacher quality—it is possible that one or more of these factors is driving a correlation between class time usage and student learning. Still, a finding that different use of class time is correlated with greater improvement in reading after controlling for various potential confounders could imply a causal effect or, at the very least, suggest how better teachers employ instructional time.
- 7 The one exception is for students in the most affluent quartile, for whom additional science instruction is positive.
- 8 National Assessment of Educational Progress, 2019.
- 9 For a discussion of contemporary controversies around the use of direct phonics instruction, see Emily Hanford, "Hard Words: Why aren't kids being taught to read?," *American Public Media*, September 10, 2018, <https://www.apmreports.org/story/2018/09/10/hard-words-why-american-kids-arent-being-taught-to-read>.
- 10 Kathleen M. Hoyer and Dinah Sparks, "Instructional Time for Third- and Eighth-Graders in Public and Private Schools: School Year 2011–12," *Statistics in Brief* (Washington, D.C.: National Center for Education Statistics, 2017), <https://nces.ed.gov/pubs2017/2017076.pdf>.
- 11 American schools may spend more time on literacy than any OECD country. As we report in *Section IV*, American elementary classrooms spend 40 percent of instructional time on literacy. The Organization for Economic Cooperation and Development (OECD) does not report this outcome for the U.S., but their studies indicate that the countries with the greatest proportion of time spent on literacy are France (37 percent) and Mexico (35 percent), both of which spend a smaller proportion of instructional time on literacy than the U.S. Many OECD countries seem to spend far less time on elementary literacy instruction than the U.S., including Canada (27 percent), Japan (24 percent), Finland (24 percent), and Germany (20 percent). "Chart D1.2a. Instruction time per subject in primary

- education (2014)," *Education at a Glance 2014: OECD Indicators*, OECD Publishing, <https://doi.org/10.1787/eag-2014-en>.
- 12 See Erik W. Robelen, "Most Teachers See the Curriculum Narrowing, Survey Finds," *Curriculum Matters*, Education Week, December 8, 2011, http://blogs.edweek.org/edweek/curriculum/2011/12/most_teachers_see_the_curricul.html. Although federal accountability policies, beginning with the No Child Left Behind Act of 2001, may have contributed to the emphasis on reading over potentially more content-rich subjects such as science and social studies, the disproportionate amount of time spent on reading instruction predates these changes to federal law. A study from the late 1970s shows that in kindergarten through third grade, more instructional time was spent on reading than on math, social studies, and science combined. In fourth through sixth grade, the distribution of instructional time was more evenly distributed across core subjects, but more than seventy minutes per day was still spent on reading in those grades. Iris Weiss, *Report of the 1977 National Survey of Science, Mathematics, and Social Studies Education* (Research Triangle Park, NC: Center for Educational Research and Evaluation, 1978), <https://files.eric.ed.gov/fulltext/ED152566.pdf>.
- 13 Natalie Wexler, *The Knowledge Gap: The Hidden Cause of America's Broken Education System—and How to Fix It* (New York, NY: Avery, 2019).
- 14 The What Works Clearinghouse Practice Guide on reading comprehension in grades K to 3 gives explicit teaching of comprehension strategies a "strong" evidence rating. Timothy Shanahan, Kim Callison, Christine Carriere, Nell Duke, P. David Pearson, Christopher Schatschneider, and Joseph Torgesen, *Improving reading comprehension in kindergarten through 3rd grade: A practice guide* (NCEE 2010-4038), Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education, whatworks.ed.gov/publications/practiceguides.
- 15 In later grades, assessments generally become more sophisticated, shifting from low-level "decoding" skills to passages that require greater context knowledge. See, Chris Schatschneider et al., *A Multivariate Study of Individual Differences in Performance on the Reading Portion of the Florida Comprehensive Assessment Test: A Brief Report* (Tallahassee, FL: Florida Center for Reading Research, 2004), <https://eric.ed.gov/?id=ED495465>.
- 16 Lowry Hemphill and Terrance Tivnan, "The Importance of Early Vocabulary for Literacy Achievement in High-Poverty Schools," *Journal of Education for Students Placed at Risk* 13, no.4 (2008): 426–51, doi:10.1080/10824660802427710.
- 17 For a review of these studies, see Donna R. Recht and Lauren Leslie, "Effect of Prior Knowledge on Good and Poor Readers' Memory of Text," *Journal of Educational Psychology* 80, no.1 (1988): 16–20, doi:10.1037/0022-0663.80.1.16.
- 18 Recht and Leslie, "Effect of Prior Knowledge," 16–20.
- 19 Katherine A. Rawson and Walter Kintsch, "Exploring Encoding and Retrieval Effects of Background Information on Text Memory," *Discourse Processes* 38, no.3 (2004): 323–44, doi:10.1207/s15326950dp3803_3.
- 20 Carol McDonald Connor et al., "Acquiring Science and Social Studies Knowledge in Kindergarten Through Fourth Grade: Conceptualization, Design, Implementation, and Efficacy Testing of Content-Area Literacy Instruction (CALI)," *Journal of Educational Psychology* 109, no.3 (2017): 301–20, doi:10.1037/edu0000128.
- 21 For example, a study of the CKLA curriculum in New York City showed that CKLA students had more than double the fall-to-spring reading growth of a matched sample of students in the city and outperformed the control group over three years, as well. Additionally, researchers from Florida State University are currently conducting a five-year, \$3.2 million Institute of Education Sciences–funded study on the effectiveness of the CKLA curriculum for students in kindergarten through second grade. See <https://ies.ed.gov/funding/grantsearch/details.asp?ID=1791>. Core Knowledge, "The NYC Core Knowledge Early Literacy Pilot: K–Grade 2 Results," New York City Department of Education, 2012, <https://www.coreknowledge.org/wp-content/uploads/2016/12/CK-Early-Literacy-Pilot-3-12-121.pdf>. See also Robert Bradley, "Evaluation of the Core Knowledge Program in Arkansas" (Charlottesville,

- VA: 2005), https://www.coreknowledge.org/wp-content/uploads/2016/12/CK_Eval_Rpt_AR2005.pdf; Susan Sonnenschein, Linda Baker, and Adia Garrett, "An Analysis of Academic Progress of Children Participating in the Core Knowledge Preschool Program in Baltimore County Head Start Centers," Core Knowledge, 2005, https://www.coreknowledge.org/wp-content/uploads/2016/12/Baltimore_Report.pdf; John Wedman and Alex Waigandt, "Core Knowledge Curriculum and School Performance: A National Study," Core Knowledge, 2004, https://www.coreknowledge.org/wp-content/uploads/2016/12/CK_National_Study_2004.pdf; Herbert J. Walberg and Joseph Meyer, "The Effects of Core Knowledge on State Test Achievement in North Carolina," Core Knowledge, 2004, https://www.coreknowledge.org/wp-content/uploads/2016/12/Walberg_phase3.pdf; and Martha A. Mac Iver, Sam Stringfield, and Barbara McHugh, *Core Knowledge Curriculum: Five-Year Analysis of Implementation and Effects in Five Maryland Schools* (Baltimore, MD: Center for Research on the Education of Students Placed At Risk, 2000), https://www.coreknowledge.org/wp-content/uploads/2016/12/FiveYearEffects_Maryland_2000.pdf.
- 22 Katherine A. Magnuson, Christopher Ruhm, and Jane Waldfogel, "The Persistence of Preschool Effects: Do Subsequent Classroom Experiences Matter?," *Early Childhood Research Quarterly* 22, no.1 (2007): 18–38.
- 23 The most comprehensive information available on the content of the assessments comes from the ECLS-K psychometric reports. These reports indicate that "the ECLS-K:2011 reading framework was modeled after the NAEP 2011 reading framework." Regarding the content of the assessments, these reports indicate that "the number of informational texts and their level of sophistication increases gradually in the ECLS-K:2011 testing battery, such that in second, third, fourth, and fifth grades, approximately two-thirds of the passages are literary texts and one-third of the passages are informational texts." Michelle Najarian et al., *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11: Third-Grade, Fourth-Grade, and Fifth-Grade Psychometric Report*, NCES 2020-123 (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 2020), <https://nces.ed.gov/pubs2020/2020123.pdf>. See also Karen Tourangeau et al., *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K: 2011): User's Manual for the ECLS-K:2011 Kindergarten–Fifth Grade Data File and Electronic Codebook, Public Version*, NCES 2019-051 (Washington, D.C.: U.S. Department of Education, National Center for Education Statistics, 2019), <https://nces.ed.gov/pubs2019/2019051.pdf>.
- 24 The exact wording of the first question is as follows: "How often does the typical child in your class usually work on lessons or projects in the following general subject areas, whether as a whole class, in small groups, or in individualized arrangements?" For each subject (ELA, math, social studies, science, music, art, physical education, dance, theater, and foreign language), the teacher indicates one of the following options: "never," "less than once a week," "1 day a week," "2 days a week," "3 days a week," "4 days a week," or "5 days a week." The exact wording of the second question is as follows: "On the days children work in these areas, how much time does the typical child in your class usually work on lessons or projects in the following general subject areas?" For each subject (see above), the teacher indicates one of the following options: "not applicable/never," "less than ½ an hour a day," "½ hour to less than 1 hour," "1 to less than 1 ½ hours," "1 ½ to less than 2 hours," "2 to less than 2 ½ hours," "2 ½ hours to less than 3 hours," or "3 hours or more." We combine responses for art, dance/creative movement, and theater/creative dramatics into one scale measure of "arts and music." Our construction of these variables follows Mimi Engel, Amy Claessens, and Maida A. Finch, "Teaching students what they already know? The (Mis)Alignment Between Mathematics Instructional Content and Student Knowledge in Kindergarten," *Educational Evaluation and Policy Analysis* 35, no. 2 (2013): 157–78, doi:10.3102/0162373712461850.
- 25 Although information about how instructional time is used can help us understand how much time is spent on different subjects in different types of schools, no information is available on the content of the subjects, curricula, or how instructional practice may emphasize different forms of content.

- 26 The ECLS-K does not distinguish between charter schools and magnet schools in the public-use files analyzed for this report.
- 27 This variable indicates whether there were some core subjects that a teacher did not teach. Although some teachers do not teach all subjects, they are asked to report overall instructional time use for the classroom, not just the instructional time for which they are personally responsible. Because these teachers may report instructional time differently than teachers who teach all the core subjects themselves, this control variable accounts for some of these potential differences in response patterns.
- 28 The ECLS-K survey solicits information about art, music, dance, and theater, which we combine here.
- 29 Throughout this report, we use the term “core” to refer to ELA, math, science, and social studies and the term “non-core” to refer to arts and music, physical education (PE), and foreign language. These descriptors are not meant to connote greater or lesser importance of certain courses over others.
- 30 Economic quartiles are for the families of the sample of students, which is representative of the national student population but not the broader population.
- 31 Additional ELA time for Hispanic students is likely driven by the fact that 53 percent of Hispanic students come from homes where English is not the primary language and therefore may be receiving supplemental ELA instruction, whereas the percentages of students coming from non-English-speaking homes is smaller for Black and White students (4 percent and 2 percent, respectively).
- 32 Charter and magnet schools have a common code in the public-use ECLS-K data.
- 33 Because there may be increasing or diminishing returns to additional instructional time for a given subject, we also examined nonlinear relationships between instructional time use and reading development by including quadratic transformation of each subject variable, but none of those terms were statistically significant.
- 34 A discerning reader may wonder whether this correlation over five years is driven by better readers needing—and receiving—less ELA instruction, resulting in more time for instruction in social studies and other subjects. We address this potential threat to the validity of our results in *Appendix B: Robustness check*.
- 35 “The Marginalization of Social Studies,” Council of Chief State School Officers, 2018, https://ccsso.org/sites/default/files/2018-11/Elementary%20SS%20Brief%2045%20Minute%20Version_0.pdf.
- 36 For example, Wexler cites a teacher concluding from a lecture by psychology professor Dan Willingham that “pulling kids out of science and social studies to give them extra help in reading skills is actually ‘the worst thing you can do’” (p. 57).
- 37 For example, Wexler bemoans the “standard ‘me and my community’ social studies curriculum” of elementary schools, and Fordham’s Chester Finn has targeted the academic guidelines promulgated by the National Council of Social Studies as “avowedly, even proudly, devoid of all content.” See Wexler, *The Knowledge Gap*, 18, and Chester E. Finn, Jr., “Social studies and poison gas,” *Flypaper* (blog), September 18, 2013, <https://fordhaminstitute.org/national/commentary/social-studies-and-poison-gas>.
- 38 Also receiving high marks from EdReports on this measure is Hirsch’s open-source Core Knowledge Language Arts curriculum. “Wit & Wisdom (2016): Series Overview,” EdReports, accessed July 27, 2020, <https://www.edreports.org/reports/overview/wit-wisdom-2016>.
- 39 Alexandra Usher and Nancy Kober, *Summary: Student Motivation—An Overlooked Piece of School Reform* (Washington, D.C.: Center on Education Policy, 2012).
- 40 Find more about text sets from Achieve the Core, Newsela, and ReadWorks at the following websites, respectively: <https://achievethecore.org>, <https://newsela.com>, and <https://www.readworks.org>.
- 41 E.D. Hirsch and Robert Pondiscio, “There’s no such thing as a reading test,” *The American Prospect*, June 14, 2010, <https://prospect.org/special-report/thing-reading-test>.
- 42 Ibid.

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- 43 John C. White, "States don't measure what kids actually know. That needs to change," *The Hill*, April 3, 2018, <https://thehill.com/opinion/education/381285-states-dont-measure-what-kids-actually-know-that-needs-to-change>.
- 44 Magnuson et al., "The Persistence of Preschool Effects."
- 45 Daphna Bassok, Scott Latham, and Anna Rorem, "Is Kindergarten the New First Grade?" *AERA Open* 2, no.1 (2016), doi:10.1177/2332858415616358; Engel et al., "Teaching Students what They Already Know?"; and Vi-Nhuan Le, Diana Schaack, Kristen Neishi, Marc W. Hernandez, and Rolf Blank, "Advanced Content Coverage at Kindergarten: Are There Trade-Offs Between Academic Achievement and Social-Emotional Skills?" *American Educational Research Journal* 56, no.4 (2019): 1254–80.
- 46 Tourangeau et al., *Early Childhood Longitudinal Study*.
- 47 Ibid.