Calculate the Percent of Time Spent on a Subject:

Step 1: To calculate the percent of time that students spend in math, for example, first identify the total number of instructional periods in the school day. Make sure to exclude lunch, passing time, or any other schoolwide free time from this calculation. For example, if you have an 8-period day but all students receive one period off for lunch, then your school day would have 7 instructional periods.

	P1	P2	P3	P4	P5	P6	P7	P8	% of Time in Math
Student A *Proficient*	ELA	**Math**	Science	Lunch	History	French	Elective	Elective	1 of 7 periods = 14%
Student B *Not Proficient*	ELA	**Math**	Science	Lunch	History	French	Elective	**Math**/ Elective	1.5 of 7 periods = 21%

In our example table: Number of instructional periods = 7

Step 2: Next, identify how many periods of math instruction each student receives. For many students, this may just be one period of math instruction a day, but for others, it may be more.

In our example table:
# of periods of math instruction received by Student A = 1
# of periods of math instruction received by Student B = 1.5

Step 3: Divide the number of periods that a student spends in math class by the total number of instructional periods in the day. Be sure to exclude lunch or passing time from your calculations. In the example above, Student 1 who is proficient in math spends 1 out of 7 instructional periods in math, resulting in 14 percent of his time spent in math. Student 2 who is not proficient in math takes an additional math enrichment block every other day during period 8. Because Student 2 spends 1.5 out of 7 instructional periods in math, he is spending 21 percent of his instructional time in math.

Note that this calculation assumes that all the periods in the school day are the same length of time. If the periods are all different durations, you will want to adjust the weight of each class accordingly. You will also want to make adjustments if classes don't meet every day. For example, classes that meet every other day should only be counted as a 0.5-period class, whereas classes that meet every other day and that only meet for a single semester (half the year) should only be counted as a 0.25-period class.

In our example table:
Student A spends 1 out of 7 instructional periods in math = 1/7 = 14%
Student B spends 1.5 out of 7 instructional periods in math = 1.5/7 = 21%

To compare the time spent in math across an entire school:

1. Calculate the percent of time spent in math for all students in the school (as described above).
2. Divide all the students into two categories—students who are proficient in math and students who are not proficient in math—and calculate the average percent of time spent in math across each of the two groups.
3. Compare the two averages to determine if the school is substantially differentiating the amount of instructional time that students receive based on their needs.

Endnotes

1. Kaplan, C. and Chan, R.. "Time Well Spent: Eight Powerful Practices of Successful, Expanded-Time Schools." National Center for Time and Learning, 2011. http://www.timeandlearning.org/time-well-spent-eight-powerful-practices-successful-expanded-time-schools.
2. As mentioned above, this time should be supported by a highly-effective teacher and high-quality instructional materials. Furthermore, the inclusion of students in this additional time should not preclude the inclusion of students in more heterogeneous classes throughout their academic day.
3. Fryer, Roland G. "Injecting charter school best practices into traditional public schools: Evidence from field experiments." *The Quarterly Journal of Economics*. Research on Reading Recovery's 1:1 tutoring model can be found here: http://ies.ed.gov/ncee/wwc/pdf/intervention_reports/wwc_readrecovery_071613.pdf.
4. Cortes, Kalena E., and Joshua S. Goodman. "Ability-tracking, instructional time, and better pedagogy: The effect of double-dose algebra on student achievement." *The American Economic Review*.
5. Dynarski, M., Gleason, P., Rangarajan, A., and Wood, R. "Impacts of dropout prevention programs: Final report." A research report from the School Dropout Demonstration Assistance Program evaluation, 1998.
6. Hattie, John C. "Visible Learning: A synthesis of over 800 meta-analyses relating to achievement." Routledge, Taylor & Francis, 2009.
7. Zvoch, K., and Stevens, J. J. (2012). Summer school effects in a randomized field trial. *Early Childhood Research Quarterly*. Retrieved from http://dx.doi.org/10.1016/j.ecresq.2012.05.002.
8. Barrow, L., Markman, L., and Rouse, C. E. (2009). Technology's edge: The educational benefits of computer-aided instruction. *American Economic Journal: Economic Policy*.

School System 20/20 includes both a vision for transformative change as well as a methodology for charting a path and measuring progress toward that change across the seven areas of transformation. Using a data-driven approach, it enables districts to see exactly how resources— *people*, *time*, and *money*—are deployed, and identify where they can better meet student and teacher needs.

School System 20/20 assessment tools help district leaders measure and track the conditions for change and their resource use. Based on our experience working with districts, on our extensive district database, and on published research, the tools use qualitative and quantitative metrics to evaluate progress.

Education Resource Strategies (ERS) is a non-profit organization dedicated to transforming how urban school systems organize resources—people, time, and money—so that every school succeeds for every student.

Additional ERS resources to help you extend time for struggling students include:

- **School Designer Curriculum on Targeted and Dynamic Learning Resources:** This information outlines different building blocks to consider when determining how to personalize learning opportunities for students, including differentiated time and group size.
- **Best Practices Template on Targeted and Flexible Intervention Blocks:** This guide details the specific resource questions to answer during the planning process.
- **School Scheduling Tools:** These tools and guiding questions help you align your school improvement priorities with your bell and master schedules.

ERStrategies.org/system2020

SCHOOL SYSTEM 20/20 | Data Decisions

Do All Students Get the Learning Time They Need?

6 strategies for providing extra learning time within the school day

The Challenge:

In many urban districts, less than half of the students are proficient in math and English Language Arts (ELA). Research shows a clear correlation between increasing quality learning time and student achievement, especially for at-risk populations.[1] Yet, districts do not always ensure that students get the extra time they need to catch up. And when students *are* offered remedial opportunities, these sometimes cause unintended consequences—like academic tracking or access to fewer elective courses. How can districts provide lower-performing students with additional academic time, without limiting access to rigorous, on-standard instruction and time to learn with their high-performing peers?

School System 20/20 *Data Decisions* highlights common opportunities ERS sees in districts across the country. The series explores how current resource choices can yield big results for students and teachers, getting districts closer to the School System 20/20 vision.

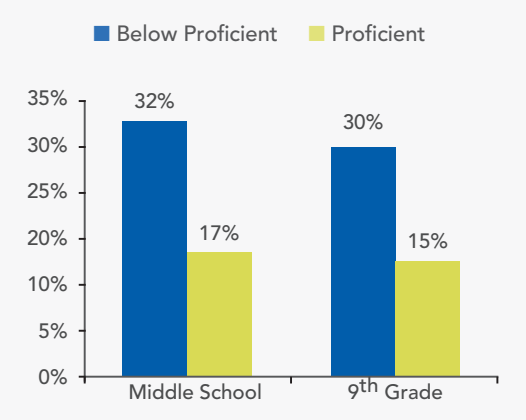
The Data:

For this brief, ERS analyzed student schedules in 10 sample districts of different sizes from across the country. We found that in many districts, schools only provide more instructional time for some of their struggling students. For example, in District P (located in the South, with 150,000 students), schools *do* provide more instructional time for students who are behind in ELA. Our analysis showed that middle school students who were not proficient in ELA the prior year spent 32 percent of total instructional time in ELA compared to 17 percent for proficient students. Similarly, 9th grade students who are low-performing in ELA spend twice as much time in that subject, on average, compared to students who are proficient (30 percent versus 15 percent).

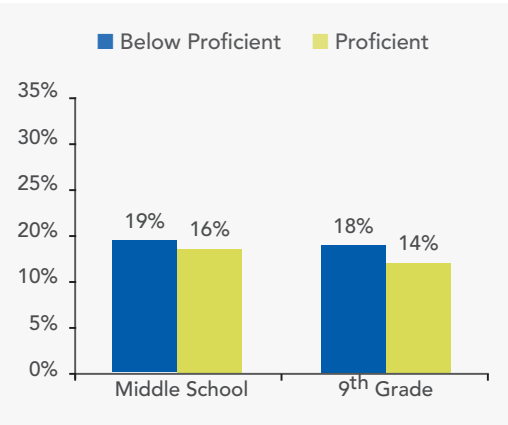
Overall, this translates to an additional 50 minutes a day of ELA instruction for below-proficient students. When used well, this time can go a long way in helping them get the extra support they need to catch up with their peers.[2]

But the story is very different in math where below-proficient students and proficient students spend virtually the same amount of time in math class. A small subset of below-proficient students do get math intervention, but the additional time and support is not availabe to all below-proficient students who need it.

% of Instructional Time That Students in District P Spend in English Language Arts



% of Instructional Time That Students in District P Spend in Math



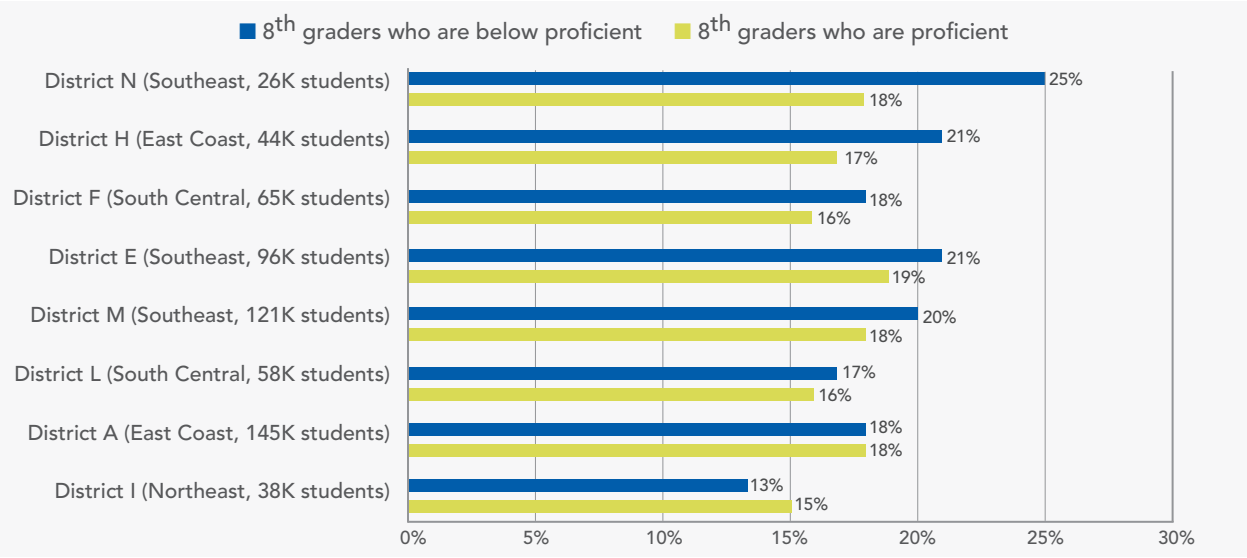
What we see in math is a common trend across the country. ERS often finds that schools in most districts do not substantially differentiate the amount of time that low-performing students spend in core subjects compared to their higher-performing peers.

For example, in the chart below, you can see that District N is the only district that substantially increases the amount of time that low-performing students spend in math. Eighth grade students who are not proficient in math spend 25 percent of their time in math, on average, compared to just 18 percent for students who are already proficient.

In contrast, District I provides *less* time to its students who are not proficient relative to those who are; this finding is a red flag warranting deeper discussion regarding the opportunities available to catch students up.

It's important to note that simply whether or not a district provides additional time for struggling students does not show us the whole picture. Some districts choose to extend time in critical subjects like ELA and math for *all students*, creating extension time for higher-performing students, while also providing struggling students the support they need to catch up. Conversely, just adding time to students' schedules does not mean student performance will improve. Districts should look at other data and metrics to ensure schools offer high-quality instruction during that time. For example, we often look at data on the effectiveness of teachers responsible for the additional time, group sizes in those courses compared to others, and the availability of high-quality curriculum and training and support for teachers on how to use time well.

% of Time Spent in Math by 8th Graders



The Solution:

There are important questions to consider when determining how to provide additional time in core subjects for lower-performing students:

1. **Do you have sufficient talent and expertise to provide additional time?** More time in a core content area often necessitates more teachers in that content. Teacher assignment and hiring practices should reflect a commitment to providing additional quality time to students.
2. **How will you ensure the time is used well?** The frequency and duration of the additional time, source of instruction, supporting curriculum, and other factors all influence the impact that extra time has on students.
3. **How will you ensure students who need additional help still have access to rigorous, heterogeneous core instruction?** When providing additional time to struggling students, it is important to avoid tracked, homogenous classrooms where students have limited flexibility to move into different groups as they progress. Further, instruction that is targeted to student needs should not come at the cost of rigorous on-standard instruction. This may mean pursuing additional time beyond the school day. Regardless of how and when the additional time occurs, it is important to build in opportunities to monitor student progress, regroup students, and provide regular access to classrooms of heterogeneous peers.
4. **How will you ensure that students retain access to meaningful and engaging enrichment opportunities outside of core?** When providing students with additional time in core classes, it's important that this additional time does not come at the expense of non-core instruction, which can be critical for promoting student engagement and helping students develop well-rounded skills. As schools extend time in core classes for lower-performing students, they should also consider extending the day for some or all of their students too. If that's not feasible within the budget, other options include increasing the number of periods in the day, running electives on a more frequent rotation (while still complying with seat-time), improving integration of the arts, as well as generally improving relevancy and instructional rigor of core content.

With deliberate answers to the above questions, districts may provide extended time for students in the following structures:

1. **High-Dosage Tutoring** creates opportunities for small group instruction and extended time either during or after the school day. Tutoring focuses on specific skill gaps and rapid remediation and acceleration in alignment with the on-standard course content. While this is a resource intensive structure, it has been found to support significant gains in student achievement.[3]

2. **"Double-blocking"** is a common approach to extending time in which students receive two periods versus one period of instruction in the subject(s) in which they are struggling. Double-blocking can work well if prioritized for a grade where the majority of students need extra time in a given subject and when teachers have the tools and support to ensure long blocks of time are used in productive and engaging ways that deliver both on-standard content and content oriented toward catching students up. If the double-block is only needed for some students in a grade versus all students, schools may find a challenge in maintaining an inclusive model for students throughout the remainder of their day as lower-performing students will have to be scheduled together for the course that is double-blocked. These schools may look to leverage before/after school periods to best target to the students who need support without altering the student experience throughout the academic day itself.[4]

3. **Accelerated Course Sequencing** can minimize the breadth of study across subjects while gaining greater exposure and making connections within a targeted subject. Accelerated course sequencing is when students take multiple courses in the same content or integrate multiple courses into the same block of time. Many schools have pursued this with Algebra and Geometry to support students in focusing on their math skills. In general, these courses are typically complementary in nature, though not intended to be pre-requisites for one another. Another method for accelerated course sequencing can include strategically pairing electives that complement the core content needs (i.e., Visual Art and Geometry).[5]

4. **Flexible acceleration/enrichment blocks** are intended to provide targeted acceleration opportunities where every four to eight weeks, teachers can use assessment data to determine which students should attend, and how students should be regrouped within these blocks. Schools can look to structure time in conjunction with short-term electives or project-based learning opportunities to ensure students have the opportunity to enter and exit extra support over time. This model also supports an opportunity to receive their typical core instruction in heterogeneous groups.[6]

5. **Summer School** limits the summer learning loss [7] and can support students in catching up with their peers. If provided by qualified teachers, with strong instructional materials, it can also serve as an acceleration tool by previewing concepts students will face in the following year.

6. **Technology** also provides additional opportunities for small group instruction either during or after the school day. For example, assigning lower-paid staff, such as tutors or paraprofessionals, to monitor a technology lab can be a cost-effective way to free teachers and **other instructional experts to work with smaller groups of students. In a blended learning context, students may switch in and out of the lab group and teacher-directed group over the course of the week.**