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Is more time in school beneficial for students?

In a review of 74 studies, findings showed a positive causal effect of increasing time on student achievement.



A summary of findings from
Kraft & Novicoff, 2024

This report summarizes findings from:

Time in School: A Conceptual Framework, Synthesis of the Causal Research, and Empirical Exploration.

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Kraft, Matthew A., and Sarah Novicoff. "Time in School: A Conceptual Framework, Synthesis of the Causal Research, and Empirical Exploration." *American Educational Research Journal* 61, no. 4 (August 2024): 724–66.

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Measuring time in school

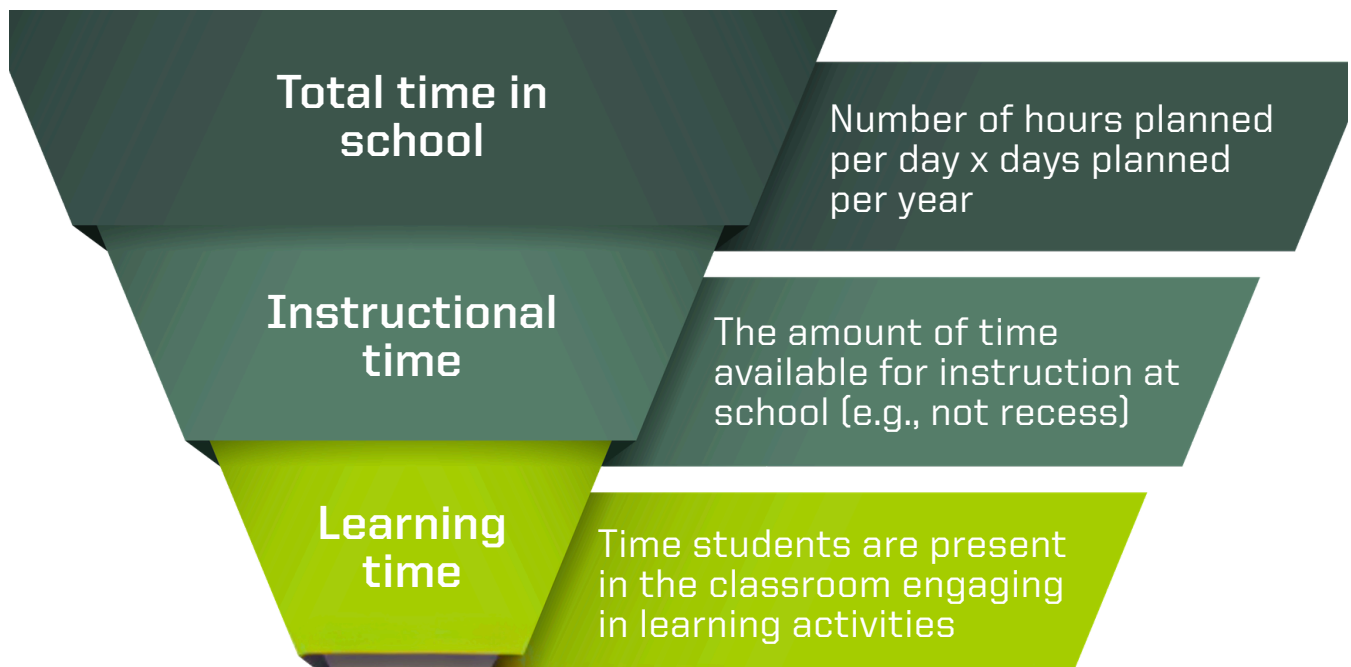
Time in school is measured using:

- Days of school in a school year
- Start and finish dates of the school year
- Hours spent in school each day



Researchers have also focused specifically on time spent learning (vs during transitions or breaks) and school start times.

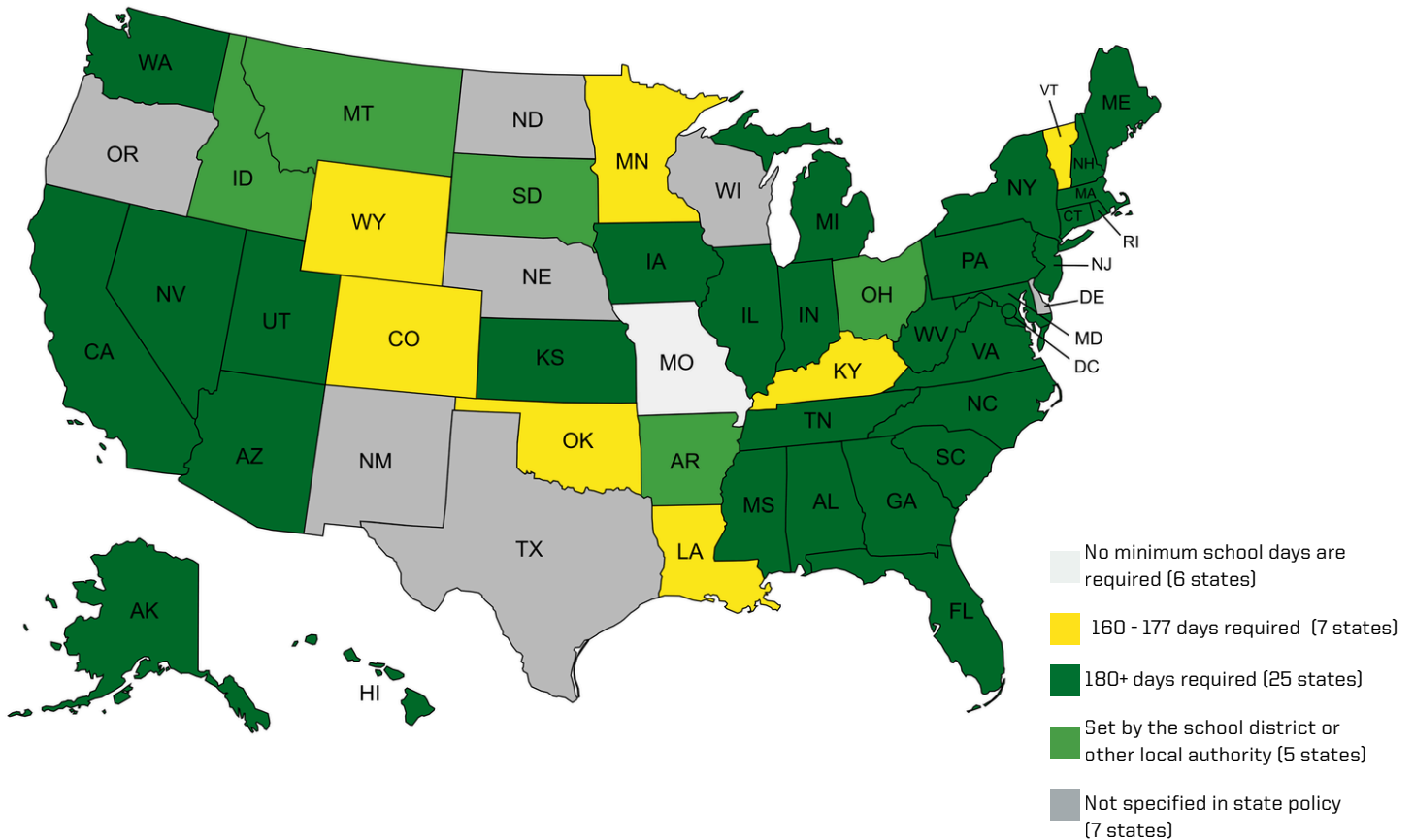
Time in School



Approaches to changing time in school

- Individual changes, such as adding days to the year
- Multiple changes simultaneously, such as extending the school day and year, increasing total instructional time, and incorporating high dosage tutoring throughout the extended school day.

States vary in their requirements for days in a school year.



States also vary in how they define time in school

- Fifteen states place parameters around school start and/or finish dates, and 27 leave the decision to local school districts.
- Thirty-five states differentiate the hours/minutes in a day or year, or the days in a year, based on grade levels and 25 states provided or specified the option of year-round schooling in state policy.
- States also differ in what is formally considered “instructional time” (e.g., recess, teacher training days) and how they handle make-up days.

Is more time in school beneficial for students?

Yes, most studies showed a **positive causal effect** of increasing time on student achievement.

The authors note that a **10% increase or more** of total time in school is most likely to produce small increases in student achievement in the U.S. context.

However, the causal effect of time on student academic outcomes **may have diminishing returns**: extending an already long school day from 7 to 8 hours is unlikely to have the same benefit as increasing a short school day from 5 to 6 hours.



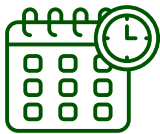
The study authors offered four primary recommendations for school decision-makers:

Avoid reducing time in school.



Findings in this study, as well as studies of the [four-day school week](#), have shown negative effects of less time in school for student outcomes.

Shift start times and schedules while maintaining time in school.



Research has shown that later start times and schedules designed so that students take core academic classes earlier in the day may benefit students. This alternative may be less costly compared to extending time in school.

Make efforts to utilize instructional time more effectively.



These efforts include behavioral interventions to increase student attendance, schoolwide systems to reduce student removals from classes, policies that limit school intercom and phone use, and incentives to curb teacher absenteeism.

Focus on schools that offer the least amount of time.



Schools that offer less time already might produce the largest returns on time added.

Schools **implementing multiple changes** had the largest positive effects.

In studies of charter schools in New York and Massachusetts, and one study of public schools in Texas, math score changes ranged from 0.09 to 0.38 standard deviation units (SD), English language arts (ELA) scores between 0.06 and 0.27 SD, and Reading scores between -0.01 and 0.04 SD as time in school increased. Across math, ELA, and reading, these effects translate to a percentile change ranging from 3.60 to 14.80 percentile points.

Math

A student in the 50th percentile moves to between the 54th - 65th percentile with more time in school.

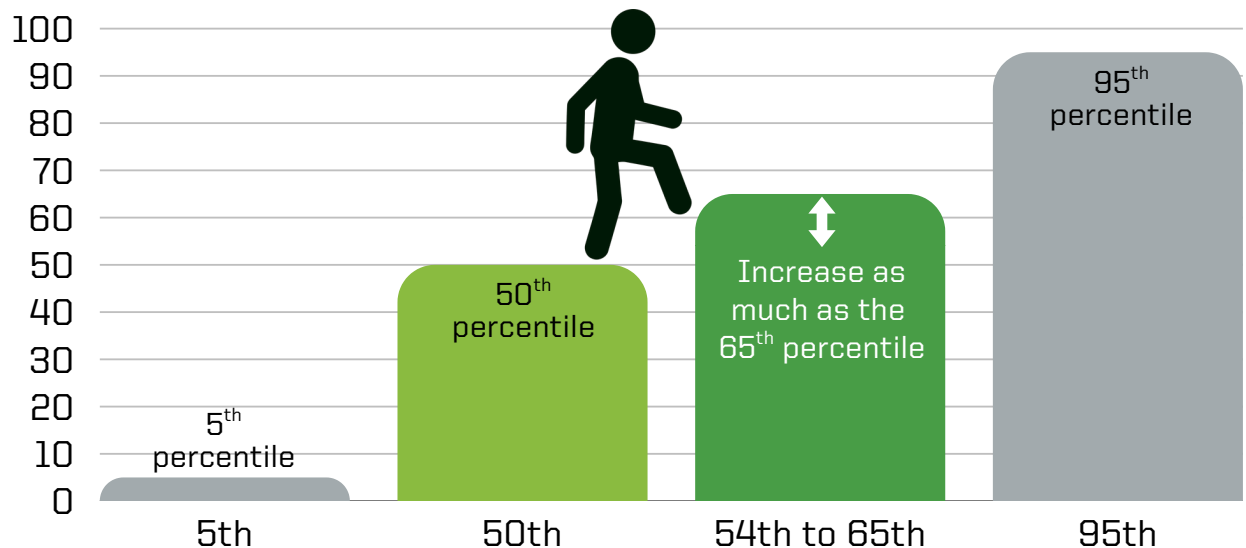
ELA

A student in the 50th percentile moves to between the 52nd - 61st percentile with more time in school.

Reading

The average student stays near the 50th percentile or moves to as high as the 52nd percentile with more time in school.

A student in the 50th percentile would improve between 4 and 15 percentile points in math.



Schools that **extended the school year** had very small positive effects.

One study included public schools in Colorado, Maryland, and Minnesota that had added one day to the school year. Across grades 3-8, math score changes ranged from 0.003 SD to 0.019 SD. One study from Wisconsin included elementary schools that had added one week to the school year. Math score changes were 0.03 SD, ELA were 0.01 SD, and reading were 0.01 SD. Across math, ELA, and reading, effects translate to a percentile change ranging from 0 to 1.20.

Math

The average student stays in the 50th or moves to the 51st percentile with an extended school year.

ELA

The average student stays near the 50th percentile with an extended school year.

Reading

The average student stays near the 50th percentile with an extended school year.

Schools that **reduced the school year** had very small negative effects.

Two studies included public schools in Maryland and Massachusetts that had subtracted one day from the school year. The study of schools in Massachusetts found math score changes of -0.01 SD and ELA score changes of -0.003 SD.

Math

The average student stays near the 50th percentile with a reduced school year.

ELA

The average student stays in the 50th percentile with a reduced school year.

The study of schools in Maryland looked at the percentage of students who passed the math and reading exams in grades 3, 5, and 8. Score changes ranged from a .53% decrease to a .27% decrease in the percentage of students who passed the math exam, and a .51% decrease to a .14% decrease in the percentage of students who passed the reading exam.

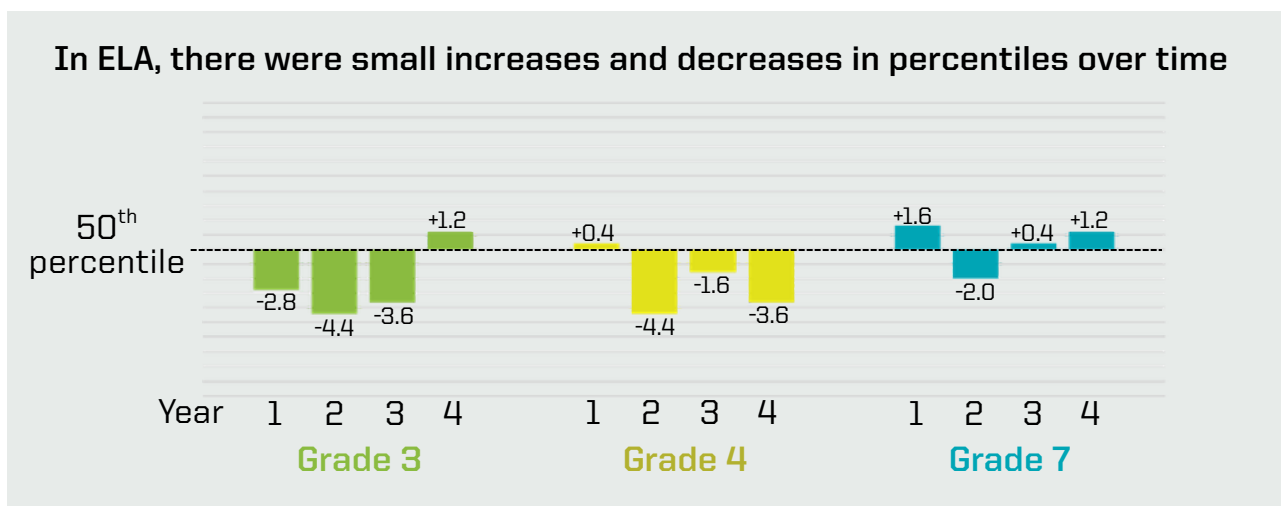
Schools that **extended the school day** had mixed effects.

In one study of public schools in Massachusetts, researchers studied high school students' math and ELA scores after adding 8 hours per week (about 288 hours per year). Math scores changed by 0.25 SD and ELA scores changed by 0.03 SD. Another study of public elementary schools in Florida found that 1 hour added per day on average was associated with 0.06 SD increase in reading scores.

Math	ELA	Reading
The average student moves from the 50 th percentile to the 51 st percentile.	The average student moves from the 50 th percentile to the 60 th percentile.	The average student moves from the 50 th percentile to the 52 nd percentile.

In a third study of public schools in Massachusetts, researchers compiled student achievement data for all grades in math, ELA, and science for four years after adding at least 300 hours to the school year per year.

For math, changes ranged from -2.0 percentile points to +5.2 percentile points. For ELA, changes ranged from -4.4 percentile points to +1.6 percentile points. For science, changes ranged from -2.0 percentile points to +11 percentile points.



Other considerations:

The authors also note three trade-offs for decision-makers to consider.

1. Teacher retention: Explore new ways to attract and retain effective teachers who may be disincentivized by longer times in school.

2. Extended school days: Longer days may be marginally less expensive as it does not require additional food or transportation costs, but longer school days often require teachers to adopt new instructional approaches and students to maintain their focus longer.

3. Extended school year: Adding days to the start or end of the school year requires few organizational changes and, thus, may be the easier approach to adding time. The length of the school year is also the dimension of time where the United States lags behind other nations the most.

Methods

Inclusion criteria:

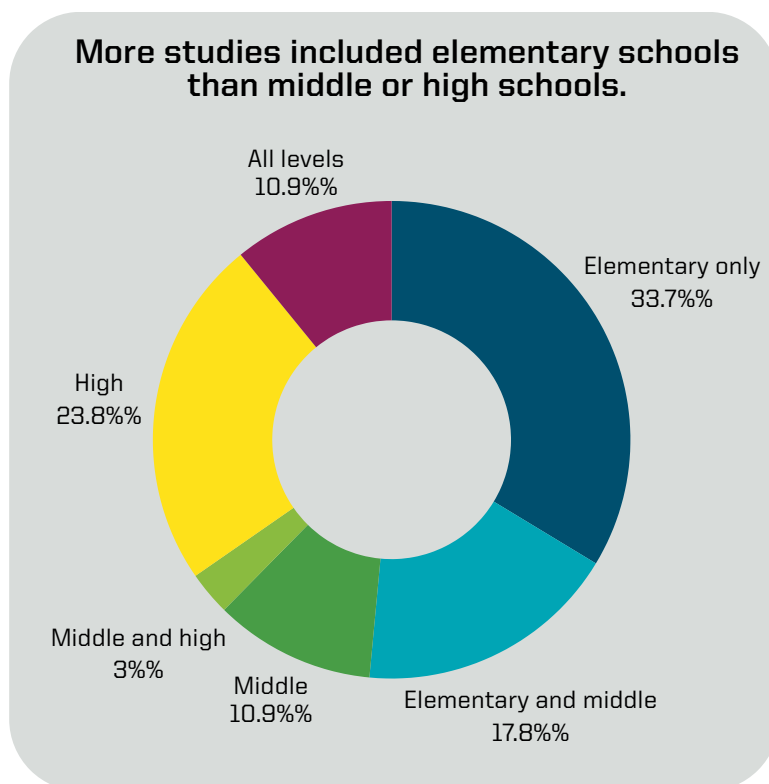
The authors included papers that were:

- Written and published in English.
- Included students in kindergarten through 12th grade.
- Used methods that could support plausibly causal inferences about the effect of time: randomized control trials (RCT), instrumental variables (IV), regression discontinuity (RD) designs, difference-in-differences (DiD)/event-study designs, and panel methods with high-dimensional fixed effects.

Included studies:

The overall sample of included both international (n = 30) and U.S. based (n = 45) studies.

In this report, we have only included U.S. studies. Most studies included schools in multiple states (n = 8) or in Massachusetts (n = 8). Three studies were of schools in Florida, 3 in Oregon, 2 each in Illinois, Indiana, Maryland, Minnesota, New York, and Oklahoma, and 1 each in California, Colorado, Delaware, Texas, Wisconsin, and an unspecified state.



Other considerations:

- There were no consistent differences in the effects of time on student achievement based on student prior achievement, socioeconomic status, race, or gender.
- Given the differences across studies, the authors were not able to statistically combine effects using meta-analysis.



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The HEDCO Institute for Evidence-Based Educational Practice is dedicated to strengthening connections between research and practice in K-12 education in the United States.

Part of the University of Oregon's College of Education, the HEDCO Institute provides education leaders with relevant, accessible, and reliable information about the latest research so they can implement evidence-informed practices and policies.



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