



CTE

Center for
Teaching Excellence

Supporting First-Year Students Through Instruction



Cassandra Sedelmaier is a faculty fellow for the University of New Haven Center for Teaching Excellence. After leaving a career in criminal justice to become a full-time educator, Cassandra attended Quinnipiac University's Master of Arts in Teaching program. Prior to joining University of New Haven full-time, she worked in public education, first supporting special education and English Language Learners in the classroom, providing 1:1 and small group instruction and instructional support, and then as a junior and senior AP and social science teacher. As a teacher, she witnessed firsthand the impact of the pandemic on high school students who are now graduating and entering universities with very diverse learning needs. As we adapt our practice to meet the needs of our many diverse learners and cultivate scholarship in students that have struggled with the negative impacts of the pandemic, her intimate knowledge of where they are coming from educationally and the approaches to learning they are most familiar with can make significant contributions to the faculty. Cassandra looks forward to supporting the CTE's mission of promoting inclusive, high-impact teaching throughout the university.

Audience: Fall 2023 Educators/Facilitators (all levels welcome)

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Agenda

- Big picture: Understanding where first-year students are and their needs
- Instruction to build academic habits
- Discussion



How far behind are first-year students?

COVID-19 has exacerbated **already declining** scores for incoming students

- Early 2020 NAEP test scores in reading and math declined for 13-year-old students - the first drop registered since 1969¹

Research suggests that **globally**, academic delay due to missed learning equal to **35% of a typical school year's progress**²

- On average, students lost **roughly 1/3** of normal school year progress and learning
- On average, students missed equivalent of **7-10 weeks of math learning** in 2020-21
 - Worse for high-poverty schools that were remote for the majority of the 2020-21 school year - resulted in **loss of 22 weeks of in-person math learning**³

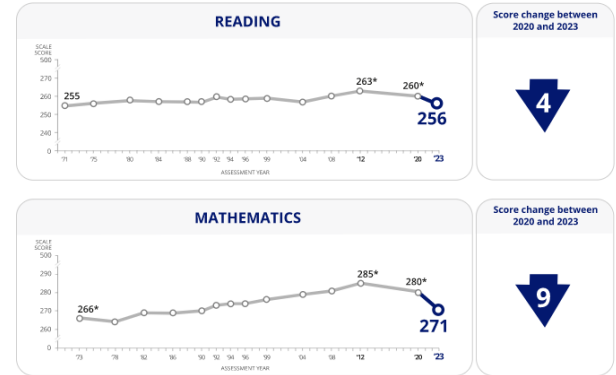
Student Performance Across Subjects

Changes in average scores and scores at selected percentiles, by subject and grade

Subject	Grade/Age	Current Year	Prior Year	Average score	Percentiles				
					10th	25th	50th	75th	90th
Long-Term Trend Mathematics	Age 13	2023	2020	↓	↓	↓	↓	↓	↓
Long-Term Trend Reading	Age 13	2023	2020	↓	↓	↓	↓	↓	↓

FIGURE | Trend in NAEP long-term trend reading and mathematics average scores for 13-year-old students

DISPLAY AS **GRAPH** **TABLE**



* Significantly different ($p < .05$) from 2023.

NOTE: The NAEP long-term trend (LTT) assessment results are reported by the year in which the school year ends. For example, the age 13 assessment was administered during the fall of the 2022-23 school year and results are reported as 2023 LTT at age 13.



How far behind are first-year students?

Persistent problem that will face this incoming class and those to come

- Learning deficits emerged early in pandemic - research indicates **deficits have neither closed nor widened substantially** ¹
- Data suggests students **return to school an average of 5 months behind** academically ²
- **Federal funding to address learning loss set to expire in 2024** despite research that it could take “billions more dollars and several years for students to properly recover” providing a dismal outlook for future incoming students ³

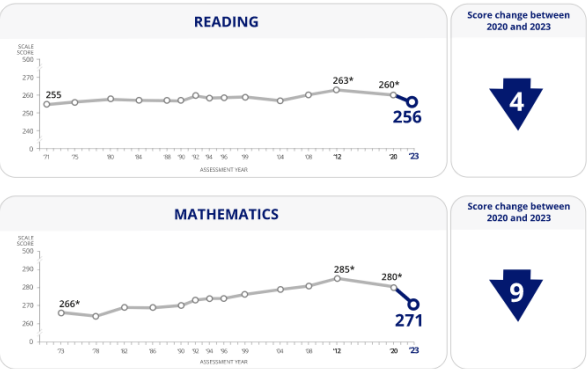
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1. Bethäuser, B.A., Bach-Mortensen, A.M. & Engzell, P. A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic. *Nat Hum Behav* 7, 375–385 (2023). <https://doi.org/10.1038/s41562-022-01506-4>
 2. Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2021b, July 27). *Covid-19 and education: The lingering effects of unfinished learning*. McKinsey & Company. <https://www.mckinsey.com/industries/education/our-insights/covid-19-and-education-the-lingering-effects-of-unfinished-learning>
 3. Mervosh, S., & Wu, A. (2022, October 24). Math scores fell in nearly every state, and reading dipped on national exam. The New York Times. <https://www.nytimes.com/2022/10/24/us/math-reading-scores-pandemic.html>



How far behind are first-year students? (Math)

Learning deficits during the COVID-19 pandemic are **larger in math than for reading**¹

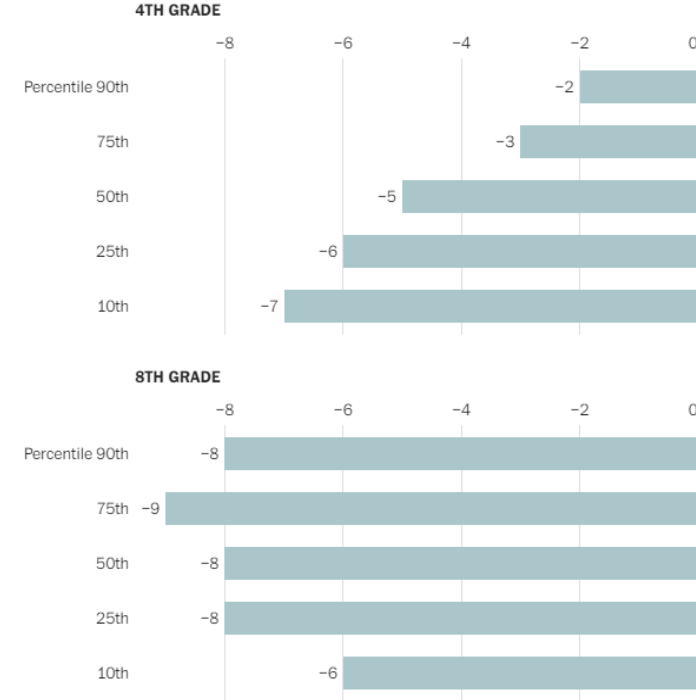
Examination of **8th grade progress provides long-term insight** for future incoming cohorts as “eighth grade is that gateway to more advanced mathematical course taking” and **learning disruption at at level may leave students missing foundational algebra and geometry skills needed in higher education**²

- Only **24%** of 13-year-old students **report taking algebra** in 2022-23, down from 34% a decade ago
- In 2022 8th grade math scores **declined across performance distribution** for the first time since 1990³
 - Largest decline since initial assessment in 1990
 - Average math scores were lower by 5 points at 4th grade and 8 points at 8th grade compared to 2019

*Note: Grade 12 (current first-year college students) were last tested in 2019, this data evaluates **long-term trends** for students in future incoming cohorts,⁴ research reported **no evidence of variation across grade levels**⁵

1. Betthäuser, B.A., Bach-Mortensen, A.M. & Engzell, P. A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic. Nat Hum Behav 7, 375–385 (2023). <https://doi.org/10.1038/s41562-022-01506-4>
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3. Ibid.
4. U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2022 Reading Assessment.
5. Betthäuser, B.A., Bach-Mortensen, A.M. & Engzell, P. A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic. Nat Hum Behav 7, 375–385 (2023). <https://doi.org/10.1038/s41562-022-01506-4>

Change in average math scores from 2019 to 2022



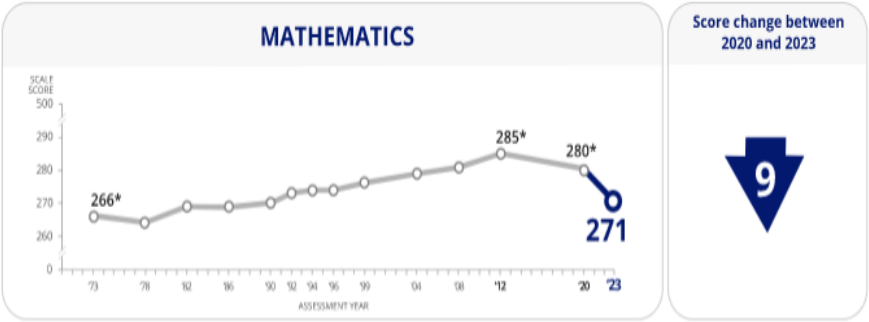
Source: 2022 NAEP results, National Center for Education Statistics

THE WASHINGTON POST



How far behind are first-year students? (Math)

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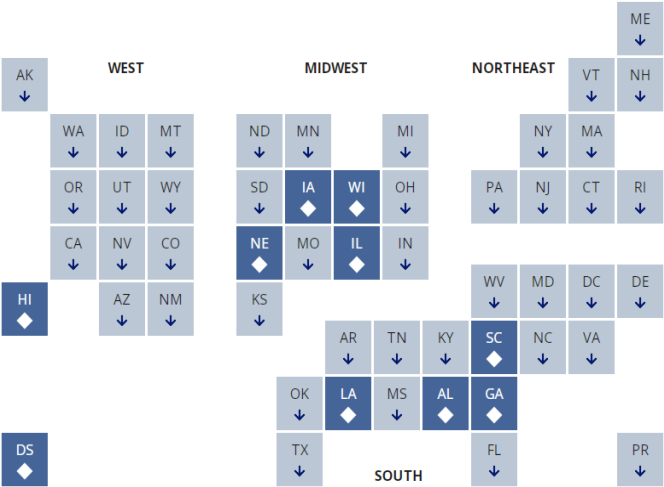
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Fourth-grade mathematics scores declined across all regions of the country and in 43 states/jurisdictions

Results for states/jurisdictions reflect the performance of students in public schools only and are reported along with the results for public school students in the nation.

FIGURE | Change in average scores between 2019 and 2022 for fourth-grade public school students in NAEP mathematics, by state/jurisdiction

DISPLAY AS **GRAPH** **TABLE**





How far behind are first-year students? (Reading)

Data indicates that learning deficits during the COVID-19 pandemic are **less in reading than for math** ¹

Prior to the pandemic (2019), national and international assessment demonstrated **stagnant or declining performance in reading and writing** ²

- Reading scores in 2019 were higher only for the highest-performing students at the 90th percentile ³
- Average reading score for 12th grade students was 2 points lower compared to 2015 and 7 points lower than the first assessment year, 1992
- **2023 reading scores for age 13 at all percentile levels declined** compared to 2020, especially for lower-performing students who showed declines of 6 to 7 points

1. Bethäuser, B.A., Bach-Mortensen, A.M. & Engzell, P. A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic. *Nat Hum Behav* 7, 375–385 (2023). <https://doi.org/10.1038/s41562-022-01506-4>

2. Goldstein, D. (2022, March 8). It's "alarming": Children are severely behind in reading. *The New York Times*. <https://www.nytimes.com/2022/03/08/us/pandemic-schools-reading-crisis.html>

3. U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2022 Reading Assessment.

GRADE 4 | REGION, STATE, AND DISTRICT PERFORMANCE

Share this report

Fourth-grade reading scores declined across all regions of the country and in 30 states/jurisdictions

Results for states/jurisdictions reflect the performance of students in public schools only and are reported along with the results for public school students in the nation.

FIGURE | Change in average scores between 2019 and 2022 for fourth-grade public school students in NAEP reading, by state/jurisdiction



NOTE: DS = Department of Defense Education Activity (DoDEA), a federally operated nonpublic school system responsible for educating children of military families. See more about [DoDEA](#).



What else is contributing to first-year student struggles?



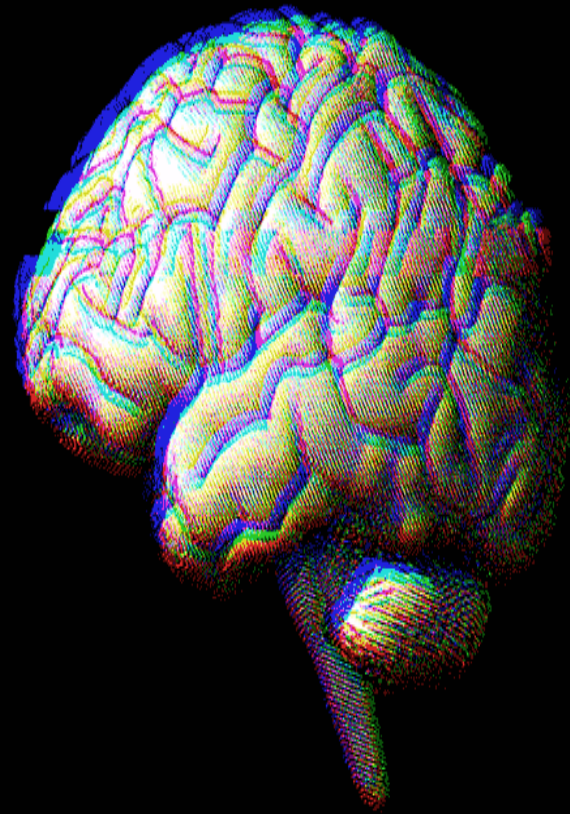
Students are struggling with **overall decreased ability to focus** and **higher rates of disruption to their attention**

Increasing media consumption of all types, media multitasking, rates of ADHD in young people indicate **general decrease in student attention span** ¹

- Emerging research that short, fast-paced videos make sustained activities that don't offer instant gratification harder
- Ability to **inhibit distractions and sustain / shift attention appropriately hindered**
 - Brains become accustomed to constant changes in TikTok environment that does not require sustained attention

Outlook positive for harnessing power of media in the classroom - **TikTok as educational** tech to foster academic achievement ²

- **84%** of the students found it easier to understand to course materials using TikTok
- **80%** of the students had better motivation to study course materials



1. Jargon, J. (2022, April 11). *TikTok Brain explained: Why some kids seem hooked on social video feeds*. The Wall Street Journal. https://www.wsj.com/articles/tiktok-brain-explained-why-some-kids-seem-hooked-on-social-video-feeds-11648866192?mod=article_inline

2. Febrianti, Y., Herawati, M., & Hanifah, S. (2022, December). Effect of using TikTok as learning media on academic achievement of pharmacy students. In AIP Conference Proceedings (Vol. 2645, No. 1). AIP Publishing.



What does this all mean to our
students?



In our students' words...

I feel like I have a hard time learning and understanding material if it's just spoken to me. I am a very visual learner, so examples and step by step explanations are key to help me to understand what I am working with. When I took my online course for college, it was extremely difficult for me to understand. I don't learn well online so I'm very glad that all of my classes are in person.

For math and equations, practice problems we go through as a class helps a lot to understand the concepts.

Doing in class work helps me a lot to understand topics and make sure that I have a complete understanding of those topics.

I think professors can do more hands on activities like crisis simulations or mock trials in CJ to further understanding of how these work in the job force.

I wish professors took the time to get to know each individual students learning style... Personally I am a hands on-learner and I think professors could do more hands on activities in classes to help students get a better understanding.

Transitioning has been very tough for me. In college, you have more of a responsibility to get things done. Professors won't care if you had not done an assignment or missed a class, it's now all up to me to complete my assignments and voice if I'm having trouble with my work. With high school, I felt as if I was monitored all the time. I had little freedom and teachers were a lot stricter about missing work...

One thing that I wish professors knew about me as a learner is that I enjoy doing group work with people as it helps build teamwork but only if the people pick up their slack.

be more dynamic and have more activities in class

just checking in with us throughout the semester to make sure we all are doing alright it shows greatly to us when our professors actually check in and care for us.

I wish that professors had a better understanding of how Zoom learning for a large majority of our high school experience has impacted our learning abilities.

Professors can develop better communication among the class by encouraging group work and discussions to promote an forum where students feels comfortable sharing opinions and asking questions.

Not just notes while the teacher lectures, have there be an assignment the lecture is based around so for the second half of class the teacher can help with the assignment.

if there is an essay to write, I would like my professor to have assignments prior to the final draft. This will help me to begin writing and map it all out than just giving me a due date and that's it.

I was most intimidated by the transition of relationships with professors. I am used to a close community of support from my High School teachers and advisors and coming to College, I was worried I would not have the same support to reflect my concerns or needed advice

I wish they knew that they need to explain materials rather than just read straight off a powerpoint with no further clarification because that doesn't help me learn



What can we do?



Effective academic advising, supports over remediation

Recent research indicates that **lowering curriculum standards/course outcomes, remedial education ¹ and co-requisite remediation ² contribute little** to credit completion or likelihood of earning college credential ³

- A comprehensive study of co-requisite remediation in Tennessee found the the program did not improve students' math achievement, nor boost chances of passing college math
- Research found **intensive tutoring was more beneficial** to catching students up than remediation or co-requisite remediation

What can we do to offer intensive tutoring?

- **Office hours** - encourage students to make appointments with instructor or TA
- Encourage or incentivize utilization of **existing** (often underutilized) **campus services**
 - Reduce stigma associated with **tutoring** and **support services**
 - **Use of University Learning Assistants in classroom**

1. Fain, P. (2019, August 4). Tennessee's move of math remediation to K-12 fails to boost college completion, study finds. Inside Higher Ed. <https://www.insidehighered.com/news/2019/08/05/tennessees-move-math-remediation-k-12-fails-boost-college-completion-study-finds>

2. Logue, A. W. (n.d.). The data already tell us how effective co-requisite education is (opinion). Inside Higher Ed. <https://www.insidehighered.com/views/2018/07/17/data-already-tell-us-how-effective-co-requisite-education-opinion>

3. Kane, T. J., Boatman, A., Kozakowski, W., Bennett, C., Hitch, R., & Weisenfeld, D. (2019). *College remediation goes back to high school: Evidence from a statewide program in Tennessee* (No. w26133). National Bureau of Economic Research.



Gradual release and scaffolded instruction

Gradual release lesson planning to foster independent learning through **mixed delivery methods** and **student-centered instruction**

- Guided inquiry
- Active learning
- Lecture
- Group work
- Online discussion
- Use of educational technology - [Pear Deck](#), [Kahoot](#), [Padlet](#), [Jamboard](#)

Scaffolding to foster independent learners and build academic skills / executive functioning

- Structured assignments
- Detailed syllabi
- Regular reminder
- Structure course to build skills in organization, time management, and study strategies

[Best Practices for college freshmen](#)

Learner Background

Describe the students' prior knowledge or skill related to the learning objective(s) and the content of this lesson. How did the students' prior performance in this content area or skill impact your planning for this lesson?

Student Learning Objectives(s)

Identify specific and measurable learning objectives for this particular lesson.

Materials/Resources

List the materials you will use in each learning activity including any technological resources.

Learning Activities

Initiation:

Briefly describe how you will initiate the lesson. (i.e., set expectations for learning and tell students why this learning is important; articulate to learners what they will be doing and learning in this lesson, and tell students how they will demonstrate learning.)

Lesson Development:

Describe how you will develop the lesson, what you will do to model or guide practice, and the learning activities in which students will be engaged in order to gain the key knowledge and skills identified in the student learning objective(s). Identify the instructional grouping (whole class, small groups, pairs, individuals) you will use in each phase of instruction.

Modeling - How you model the knowledge (lecture/slides, a practice problem on the board, etc.)

Guided Practice - how students will engage as a group in the knowledge (ie. class discussion or small group discussion), tackling the information/problem together before then engaging independently

Independent Practice - students engage independently in the content (ie. closing question set/survey), how will you assess/measure that student is proficient

Closure:

Briefly describe how you will close the lesson and help students understand the purpose of the lesson.



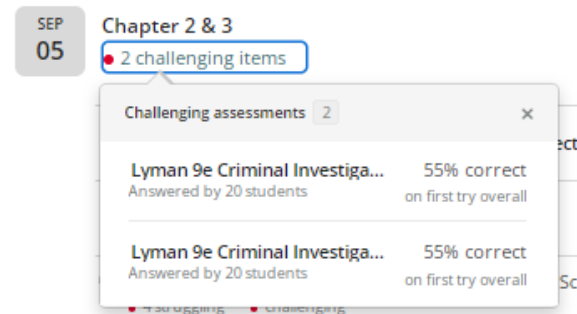
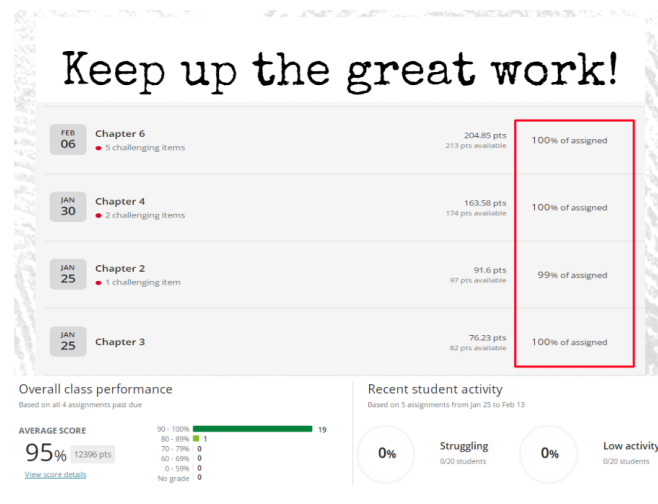
Data-driven instruction and assessment to support growth

Creating classroom **culture of data** - Data driven practice cultivates **independent learners**

Initial **diagnostic** and **regular formative assessments** measure student background and current level of mastery

- Data-informed instruction allows us to identify content that needs further review and instructs students on their individual and class growth areas
- **Early intervention** that combines data and feedback
 - **Regular, prompt** feedback (formative assessments) ¹
 - Students accustomed to regular feedback and grade status updates
- **Demonstrate value of assessment** as more than assigning of a grade
 - Students can better measure their own progress and mastery of content, as well as identify areas of growth
 - Model to students assessment is diagnostic tool to measure mastery, inform *their* study practice, and help us as instructors meet their needs

1. Clement, M. (2018). Six things that make college teachers successful. *Faculty Focus*.





If we aim to incorporate just **5-10%** of growth (just one recommendation) in our own practice each semester or year, over time we can make radical change to our content delivery and support of students in a way that is manageable

What is one takeaway or recommended practice that you can set as a goal for the 2023-24 school year?

or

Which recommended practice seems most challenging or in need of support to implement?



Q & A

Thank you for joining us today

Contact

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<https://cte.newhaven.edu/>

Click here to schedule 1:1
consultation:

<https://cte.newhaven.edu/teaching-consultations/>



Students, write your response!