SCHOOL PRACTICES TO ADDRESS STUDENT LEARNING LOSS

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Brief No.1

This brief is one in a series aimed at providing K-12 education decision makers and advocates with an evidence base to ground discussions about how to best serve students during and following the novel coronavirus pandemic. Click here to learn more about the EdResearch for Recovery Project and view the set of COVID-19 response-and-recovery topic areas and practitioner-generated questions.

CENTRAL QUESTION

Which areas should schools prioritize for intensive academic intervention and what strategies are most effective?

This brief looks at potential interventions for students who have fallen out of typical grade range – particularly those who were struggling before the pandemic. Please refer to our upcoming brief in this series for strategies aimed at students experiencing less severe learning loss. Evidence suggests that, although most students will experience some learning loss, the majority will still be able to engage with grade-level content.

KEY INSIGHTS

Breaking Down the Issue

- Learning losses are likely to show up differently across grades and subjects, with intensive recovery needs concentrated in the early grades and among already struggling students.
- Supportive school environments and strong teacher-student relationships speed recovery from learning loss.

Strategies to Consider

- High-dosage tutoring that is directly tied to classroom content – helping students succeed in their coursework – can substantially accelerate learning in both math and reading for the most struggling students.
- Extended learning time interventions, including weeklong acceleration academies staffed with highly effective teachers and some double-dose math structures, show strong evidence of effectiveness.
- Strong systems to monitor for early student warning signs paired with strong norms and routines help students recover emotionally and engage academically.

Strategies to Avoid

- Compressed content, grade retention, and enhanced Response to Intervention (RTI) show less evidence that they substantially shift learning outcomes for struggling students, and some have potential adverse long-term consequences.

BREAKING DOWN THE ISSUE

Learning losses are likely to show up differently across grades and subjects, with intensive recovery needs concentrated in the early grades and among already struggling students.

- **The students who are most likely to fall out of range for their grade include those who were already struggling and those in the primary grades.**
  - Even with large predicted learning losses, most students will remain within the typical grade range and be able to engage with typical class content next year. Typical differences in achievement between students in the same classes are already large. In grades 6-8, the typical difference in math achievement between students at the 25th and 75th percentile at a given grade is 5-6 years' worth of learning. In grades 4 and 5, the difference is 2-3 years of learning, and in the primary grades the difference is one and a half years of learning.
  - Growth rates are steepest in early grades, and estimates of summer learning loss are larger, as well.
- **Losses are likely to be larger in math than ELA, but math losses will potentially be more responsive to intervention efforts.**
  - The Northwest Evaluation Association's recent report predicting average student learning loss forecast larger losses in math (one-half to two-thirds of a regular year's growth) than reading (one-third of a regular year's growth).
  - Many studies have found greater variation in learning growth in math than in reading and greater sensitivity to interventions and school environments, although there is debate on whether this is caused by actual differences in student learning or in differences in test sensitivity across the subjects.
  - Evidence suggests that course completion in high school math courses matters for later earnings, particularly for students of color.

Supportive school environments and strong teacher-student relationships speed recovery from learning loss.

- **Strong, supportive, and sustained relationships with adults in schools consistently predict children's capacity for resilient behavior, even in the face of traumatic experience.**
  - Research on the stress of school closures and on the academic impact of Hurricane Katrina finds that while students initially experience some learning loss, the persistence of these losses depends on the receiving environment. Losses fade after a year or two when students return to stable schools. Losses tend to persist, especially in math, when students reenter chaotic or hostile environments.
  - Students who have at least one stable and committed relationship with a supportive adult are more likely to respond to adversity and succeed. Even students who have been through major traumas, such as refugees from war, show resilience, if they have supportive adults in their lives.
- **Students who were already facing adversity will struggle in the coming year for multiple, intertwined reasons, including loss of learning from the prior year, trauma, long-term stress, and declining family resources.**
  - Rates of illness and death and the economic impacts of the crisis are hitting Black and Hispanic families the hardest.
  - Previously low-achieving students will be least likely to have gained ground through current online learning options, according to studies of online versus face-to-face credit recovery in Chicago, of online charters in Ohio, and of virtual schooling in Florida.

STRATEGIES TO CONSIDER

High-dosage tutoring that is directly tied to classroom content – helping students succeed in their coursework – can substantially accelerate learning in both math and reading for the most struggling students.

- **Schools that have restructured to provide around two hours of daily tutoring as part of an extended school day have been able to meaningfully close gaps in achievement.**
  - Boston's Match Education developed a tutoring model – The Match Corps – that brought in recent college graduates for relatively low stipends to conduct daily one-to-two tutoring, four days per week, for early high school students. Many aspects of the program encouraged coherence with coursework that is often absent from other tutoring programs.
  - The Match Corps program, which costs around $2,500 per student per year, led to gains of "one to two additional years of math in a single school year above and beyond what kids typically learn in a year." Follow-up studies in Chicago and Houston have validated the approach.
  - A randomized trial of daily four-on-one reading tutoring for middle school students found positive effects on attendance and ELA tests scores, especially for Black and Hispanic students. The program cost $2,200 per student per year.

Extended learning time interventions, including weeklong acceleration academies staffed with highly effective teachers and some double dose math structures, show strong evidence of effectiveness.

- **Turnaround gains in Lawrence, Massachusetts in both math and ELA appear to have been largely driven by the effects of week-long "acceleration" academies aimed at struggling students.**
  - Acceleration academies, described in this research paper, "provided struggling students with targeted, small-group instruction in a single subject, delivered by select teachers over week-long vacation breaks."
  - Students, who had been selected for a "special opportunity to get extra help," worked in homogenous ability groups of around 10-12 students and received about 25 hours of extra instruction.
  - The academies, which cost around $800 per student per week, led to student gains of 0.1 standard deviations in both math and reading, equivalent to around three months of student learning.
- **In Chicago, double-dose math classes in 9th grade where students received additional time for math in early high school showed significant positive effects on algebra test scores and long-run outcomes.**
  - Chicago required all 9th graders with low math test scores to enroll in both a full-year regular algebra course and a simultaneous algebra support class, usually taught by the same teacher. Teachers in the program received new curriculum to use – Agile Mind and Cognitive Tutor – and additional professional development.
  - This intervention was not simply about doubling instructional time. Teachers received professional development in using extra instructional time to promote complex thinking in math through student-centered instructional practices. The extra time enabled teachers to feel like they could take risks with new modes of instruction.
  - Students who received the double dose treatment showed larger gains in algebra scores – equivalent to about an extra quarter of a year of growth – and their algebra GPAs were about a quarter of a point higher. The gains were largest for students whose prior math scores were between the 20th and 50th percentiles.

Strong systems to monitor for early student warning signs paired with strong norms and routines help students recover emotionally and engage academically.

- **Systems that track attendance, assignment completion, and grades strengthen schools' ability to individualize services and match specific interventions to the needs of different students so students don't fall behind in their courses.**
  - Students' success in their classes as measured by their grades is highly predictive of their success in later years in high school or college, more so than their test scores.
  - Students could struggle in their courses for many reasons this coming year – not only disruptions in teaching and learning with the shift to remote learning, but also stress and trauma from the crisis itself, and loss in family financial resources. Early warning systems identify students who need support for any reason.
- **Substantial evidence suggests that a focus on students' social-emotional learning is vital to building and rebuilding students' academic engagement.**
  - Incorporating well-conducted school-based SEL interventions has the potential to positively impact the culture and climate of classrooms, student well-being, and improve academic outcomes in the long run. Mindfulness-based programs have shown promise in improving cognitive performance and resilience to stress in children. A recently-studied mindfulness-based intervention in Boston charter schools improved attention and emotional regulation to stress and other negative stimuli for middle school children.
  - More specific approaches in this area aimed at creating predictable norms and routines and ensuring students' physical and emotional safety post-trauma will be the subject of an upcoming brief in this series.

STRATEGIES TO AVOID

Compressed content, grade retention, and enhanced Response to Intervention (RTI) show less evidence that they substantially shift learning outcomes for struggling students, and some have potential adverse long-term consequences.

- **Teaching extra content without changing the degree to which students are getting extra support is unlikely to be successful.**
  - In general, when teachers increase expectations without providing more supports, students' grades decline. Studies of accelerated math classes that try to compress additional requirements into a shorter time frame have demonstrated negative effects, particularly for low-achieving students, in both North Carolina and California.
- **Large-scale grade retention, while still debated as a strategy, has negative consequences without substantial additional support for students.**
  - While some studies have found short-term academic benefits to retaining students in early elementary grades, many identify large negative outcomes.
  - Retaining students, particularly in the middle grades, appears to increase the probability of high-school drop-out.
  - Grade retention is also a costly educational intervention, with an average per pupil cost of $10,700.
- **While there is some evidence that RTI structures have positively addressed inequities in special education diagnosis, research has not found clear gains for students who receive tier II and tier III intervention.**
  - A possible explanation is that RTI interventions seem to crowd out core instruction.

FOR MORE INFORMATION

More evidence briefs can be found at the EdResearch for Recovery website. To receive updates and the latest briefs, sign up here.

Briefs in this series will address a broad range of COVID-19 challenges across five categories:

- Student Learning
- School Climate
- Supporting All Students
- Teachers
- Finances and Operations

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