Bellwether

Lessons from Early Learning Loss Interventions and What Leaders Should Do Next

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About this series: In this series of policy reports, Bellwether, in partnership with the Center for Analysis of Longitudinal Data in Education Research (CALDER) at the American Institutes for Research, examines how COVID-19 pandemic-era research can support state and local leaders in navigating today's K-12 policy challenges now and into the future.

Executive Summary

Five years after the COVID-19 pandemic began, the K-12 learning disruptions it created continue to echo across the nation. Research indicates that students lost approximately half a grade level in math and one-third in reading during the pandemic, yet as of spring 2023 only three states have returned to pre-pandemic achievement levels in reading and just one in math.[1] Economic projections suggest these unresolved learning deficits could cost the United States up to $31 trillion in lost productivity and economic growth[2] – substantially exceeding the $770 billion researchers estimate is needed to make a full academic recovery.[3]

Early research on the pandemic's effects has shown that the district and school a child attended during the pandemic significantly influenced both how much learning was lost and how much has been recovered. Whether and how long a school stayed in remote instruction proved particularly detrimental, for example. As a result, elementary students, students of color, and students in high-poverty schools were disproportionately affected by the pandemic and saw widening achievement gaps.[4]

Given the important role that districts and schools play, well-implemented interventions can also accelerate learning recovery – especially for students who experienced the most learning loss. This report highlights promising examples from Illinois, Tennessee, and Alabama to demonstrate that effective recovery is possible when interventions are well-designed and properly implemented:

- The **Illinois Tutoring Initiative** was a state-led high-impact tutoring program that showed statistically significant improvement for tutored students in both reading and math, with particularly strong results for special education students and English language learners.
- **Tennessee's Learning Loss Remediation Summer Camps** provided statewide summer programming that improved achievement for participants, with students from economically disadvantaged families showing similar growth rates to more affluent peers.
- **Birmingham, Alabama's Intersession Program** used optional intensive instruction during school breaks that nearly returned Birmingham to pre-pandemic achievement levels in math, with participating students showing significantly greater gains than nonparticipants.

From these examples arise six recommendations for local and state policymakers to consider when implementing academic recovery programs:

Local Policymakers and Administrators	State Policymakers and Administrators
Raise public awareness around the urgency for academic recovery.	Create the enabling conditions for districts' and schools' success.
Assess districts' unique needs and target resources to schools rather than individual students.	Help districts address the logistical barriers that impact effectiveness.
Enlist effective educators to deliver high-quality programming and/or instruction.	Maximize resources by focusing on high-quality implementation in the most disadvantaged districts.

Over the past five years, much time and energy have been spent defining the problem at hand; this report contributes an additional perspective by examining what has worked and what can be learned from early successes. Across the country, young Americans are struggling to catch up on what they lost. They need education leaders to prioritize learning recovery for both their individual sakes, and for society as a whole.

Introduction

Compared to 2020, American life in 2025 looks fairly normal: Schools are fully reopened, kids no longer "do" school in their bedrooms, and families have largely resumed the normal rhythms of life. The federal government spent billions of dollars to bring students up to speed, and millions of young people have graduated into adult life. It seems like the COVID-19 pandemic is in the rearview mirror, but for many American K-12 students? Not yet.

The pandemic's disruptions to K-12 education continue to reverberate through American schools. While there has been some academic recovery since schools reopened, the pace has been slow and uneven. As of spring 2023, only three states (Illinois, Mississippi, and Louisiana) have caught up to pre-pandemic levels of achievement in reading, and only one state has done so in math (Alabama).[5] Math scores from the 2024 National Assessment of Educational Progress (NAEP) show that more students are below basic proficiency in 2024 than they were in 2019,[6] with Hispanic, indigenous, female, and economically disadvantaged students seeing the largest declines in overall average scores.[7] For the majority of the country, unresolved learning loss poses significant risks that demand immediate and sustained attention from policymakers.

If these academic deficits go unaddressed, both students and the country overall will face long-term economic consequences. In 2020, a report from the Organisation for Economic Co-operation and Development (OECD) estimated that losing one-third of a school year to closures would see students facing a 2.6% loss in income across their lifetimes.[8] In 2022, researchers estimated that students in grades 3-8 lost half a school year in math and a quarter of a school year for reading,[9] which could translate to $900 billion in foregone future wages.[10] For many states, these losses also mean less tax dollars in state coffers. A 2024 analysis estimated that for the hardest-hit states like Delaware and Oklahoma, a 9% loss in student income directly links to a 2.9% lower state gross domestic product (GDP).[11] When accounting for broader losses in productivity and growth, the United States could lose up to $31 trillion, or 1.5 times the entire 2020 U.S. GDP.[12] These macroeconomic losses also mask the very real effects lost schooling and lower achievement will have on individual students, such as the increased likelihood of unemployment,[13] arrest, and incarceration.[14]

Between 2020 and 2024, Elementary and Secondary School Emergency Relief (ESSER) funds provided nearly $200 billion to states and districts to support safe reopening and academic recovery. (For context, in school year (SY) 2019-20, the total amount spent on public education was $925 billion.[15]) Still, another $770 billion (approximately $15,380 per pupil) is needed to address the unresolved learning loss, according to a 2025 estimate by researchers from the Center for Analysis of Longitudinal Data in Education Research (CALDER).[16] While this amount is substantial, it pales in comparison to projected economic losses. The cost of inaction is critical; leaders must find ways to build academic recovery into existing systems to address learning loss.

To chart a path forward, policymakers can turn to the past four years (2021-2024) to understand the scale and magnitude of what was lost, as well as learn from initial recovery attempts by states and districts. During the height of the pandemic, school systems faced unprecedented pressure to implement academic remediation strategies quickly and at scale — a challenging endeavor even in the best of times. Understanding both the successes and limitations of these experiments reveals important insights about what worked, what didn't, and what conditions enabled or impeded success. Building on research CALDER and others have conducted, this policy report elevates six recommendations for state and local policymakers and administrators working to accelerate academic recovery:

Local Policymakers and Administrators	State Policymakers and Administrators
Raise public awareness around the urgency for academic recovery.	Create the enabling conditions for districts' and schools' success.
Assess districts' unique needs and target resources to schools rather than individual students.	Help districts address the logistical barriers that impact effectiveness.
Enlist effective educators to deliver high-quality programming and/or instruction.	Maximize resources by focusing on high-quality implementation in the most disadvantaged districts.

In March 2025, the U.S. Department of Education ended states' ability spend ESSER funds, aside from case-by-case situations approved at the Department's discretion.[17] As federal money disappears, state policymakers must take action to address the remaining learning loss. Evidence on district and state recovery efforts during the past few years offer valuable lessons for states.

Understanding the Scale and Magnitude of COVID-19 Learning Loss

The pandemic's impact on student achievement was substantial, widespread, and inequitable. Researchers have consistently found that students' test scores in fall 2021 — the first point at which most schools had resumed in-person instruction — were significantly below historic trends.[18] Scores from the 2022 NAEP confirmed these findings. Between fall 2019 and fall 2022, the average student lost half a grade level's worth of learning in math and one-third a grade level in reading.[19] As the U.S. Department of Education highlighted, those declines are the largest since NAEP began in 1990.[20] Even one year later, spring 2023 test scores remained significantly lower than pre-pandemic scores in math and reading, for all grades.[21] Taken together, the only comparable events with a similar magnitude of decline are major natural disasters like Hurricanes Katrina and Rita in Louisiana,[22] both of which were regional — not national — disasters.

Disproportionate learning loss widened achievement gaps among student subgroups.

Students of color, those attending high-poverty schools, and elementary school students in particular experienced larger setbacks in learning than their peers, especially in math.[23] For example, on the NWEA MAP Growth test, Black and Hispanic students' score declines were roughly 1.5-1.75x larger (depending on grade level) than those of white students.[24] These effects exacerbated existing achievement gaps, not only reversing years of improvement, but also creating "the largest increase in educational inequity test achievement in a generation."[25]

Students in high-poverty schools were also more likely to fall behind. When comparing students at similar levels of achievement and in similar locations across the country, students in high-poverty K-12 schools saw a 13 percentile point drop between 2019 and 2021, compared to a six point drop for students in low-poverty schools.[26] To put these losses in perspective, researchers compared the average learning loss for a high-poverty school with remote instruction to the average gain from high-dosage tutoring, a well-researched

academic intervention. While high-poverty schools nationally lost roughly 0.44 standard deviations in student achievement, high-dosage tutoring produced only a 0.38 standard deviation gain, suggesting that even providing intensive tutoring to *every* student in these schools would not fully address pandemic-related learning losses.[27]

Students who were already struggling academically before the pandemic also experienced disproportionately steeper declines. On the NWEA MAP Growth test, those who were performing in the lowest quintile in 2019 lost an extra 30% of achievement in math and 67% in reading by 2021, compared to their peers in the top quintile.[28] Among third graders nationally, students who typically scored in the bottom 10% of their class saw their scores drop more than *four times* as much as those in the top 10%.[29] And these effects compounded for historically disadvantaged students. For instance, Black students who were already performing below average (at the 26th percentile) saw their relative position in national rankings drop dramatically, to the 15th percentile.[30]

Importantly, researchers found that these widening achievement gaps were not because individual students fell behind their classmates. Rather, those gaps occurred primarily because certain schools (particularly those serving predominantly students of color and low-income students) experienced more severe disruptions (e.g., emergency school closures and virtual instruction) overall, so the impacts were schoolwide. [31] This finding hints at districts and schools, not student characteristics, as being key drivers of pandemic learning loss — as well as key solutions for recovery.

The district and school a student attended played a significant role in determining their achievement outcomes during and post-pandemic.

Districts varied considerably in how their achievement and growth patterns shifted from historical trends in subject areas, student subgroups, and baseline achievement levels.[32] When researchers compared actual fall 2021 performance in math on the NWEA MAP Growth test to expected levels (based on pre-pandemic trends), they found that while 88.5% of districts performed below predicted levels, 11.5% actually outperformed projections.[33] Exploring these discrepancies further, researchers found that much of the variation could be attributed to *district* factors rather than individual student characteristics,[34] implying that the factors leading to test score declines were local and community-wide[35] (e.g., broadband access, regional COVID-19 case rates, unemployment rates, political partisanship, or urbanicity).[36] Even within a single district, different schools shaped students' learning experiences, especially in math. For example, CALDER researchers found that about three-quarters of the widening gap in math between the highest- and lowest-performing students in a district was associated with the school they attended.[37]

A key aspect that contributed to the variance in students' experiences is how long their district or school stayed in remote instruction. Researchers found that students in low-poverty schools fell behind expectations when they transitioned to remote or hybrid learning, but students in high-poverty schools lost at least 50% more achievement than their higher-income peers under the same circumstances.[38] The authors framed the disparity bluntly: "High-poverty schools were more likely to go remote and they suffered larger declines when they did so."[39] Moreover, compared to their low- and mid-poverty counterparts, high-poverty schools spent an additional 2-9 weeks (depending on the state) in remote instruction, with an overall average of 5.5 more remote weeks.[40] Black and Hispanic students were also more likely to experience remote instruction, and

overall, researchers concluded that emergency virtual learning was a primary contributor to widening achievement gaps.[41]

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[TKTK Emergency Virtual Instruction Piece Title] looks more closely at the effects of remote instruction, its intersection with virtual learning, and valuable takeaways from the pandemic era that could influence how technology continues to play a role in student learning.

Federal funding seems to have helped with recovery efforts, but the effects have been unevenly distributed across districts.

Precisely measuring ESSER's impact is challenging because the data on spending lags behind real-time expenditures.[42] Early research nonetheless indicates that ESSER funds facilitated modest improvements in student achievement, attributing ESSER funding to about 18% of students' SY22-23 math recovery and 12% of reading recovery.[43] Research from CALDER also suggests that each $1,000 increase in ESSER funds per pupil led to an insignificant increase for English and language arts (ELA) achievement, but a statistically significant (albeit small) increase in math achievement.[44]

The estimated impact of ESSER dollars varies across districts, however.[45] High-poverty districts benefited the most: In February 2025, researchers estimated that ESSER aid could be attributed to "all of the improvement in achievement" among high-poverty districts.[46] Determining the causes of these differences, however, is challenging because ESSER funds were constrained but also fungible, making it difficult to distinguish which improvements are directly attributable to interventions funded by ESSER dollars versus other programs and initiatives.[47] At the same time, some authors believe that the positive impact of ESSER funds on student outcomes might be understated given that funding could be used on physical or operational improvements such as air conditioning, the effects of which are more difficult to quantify and might last well beyond any analyses' time frame.[48] Overall, the available evidence generally concludes that federal funding did contribute positively to students' academic recovery, but the specifics may vary based on the district and how the money was spent.

Although student outcomes are improving, full recovery still requires urgent, substantial action to mitigate long-term economic effects.

The 2024 Education Recovery Scorecard, written by researchers from Stanford University, Harvard University, and Dartmouth College, found that from 2022 to 2023, K-12 students recovered approximately one-third of what they had lost in math and one-fourth of what they had lost in reading, on average.[49] This is no small feat, as the authors point out: "Such improvements…in a single school year mean that students learned 117[%] in math and 108[%] in reading of what they would typically have learned in a pre-pandemic school year."[50] At the same time, more must be done — if recovery continues at the same pace, the average student will need at least one more year of recovery for math and two for reading.[51] However, maintaining the same pace of recovery will be challenging given the lack of additional federal funding post-ESSER. From 2025 on, students in disadvantaged K-12 districts will likely have even longer uphill battles to full recovery.

Using ESSER spending data to quantify the cost of helping students recover is tricky, both because of the data lag described earlier, and because districts were only required to spend 20% of their funds on academic recovery.[52] However, to catch up the students most impacted by the pandemic – often those in high-poverty districts who spent more than 50% of SY20-21 in remote or hybrid instruction – researchers estimate that a district would have had to spend *all* of its federal aid specifically on academic recovery interventions, a far cry from the 20% legally required.[53] As a result, future projections based on ESSER funding will likely underestimate the true extent of recovery costs.

Accounting for this, CALDER researchers calculated that schools would need another $15,380 per pupil (or another $770 billion, in total nationwide) to address the unresolved learning loss.[54] The sum is large: more than double the entirety of ESSER funding ($200 billion) and twice the level of pre-pandemic per pupil K-12 spending ($14,800 in SY19-20)[55] – but there is not another ESSER on the horizon. In the absence of additional federal and/or state funding, local and state leaders and policymakers will need to be creative and intentional when allocating resources, and the past few years may offer clues regarding what types of academic interventions and recovery efforts to prioritize.

Lessons from Early District and State Interventions

During and post-pandemic, K-12 districts and states implemented academic recovery interventions often according to pre-pandemic research recommendations. Although many programs saw substantial variation in both approach and implementation, recovery programming across the country typically fits into one of seven common archetypes, each with their own typical target population (Table).[56]

Table: Common K-12 Interventions Used to Address Learning Loss, United States

Academic Intervention Archetype	**Target Student Population[57]**
Summer learning	Generally ubiquitous and open to all students, with priority given to economically disadvantaged and low-performing students
Tutoring	Primarily for students performing below a district-determined threshold
"Push-in" or "pull-out" interventions (where students attend individualized interventions during the school day)	
Extended school years and intersessions (instructional time during breaks in the academic year)	Generally targeted at low-performing schools
Out of school time or afterschool programming	
Additional instructional blocks	

Virtual learning	Occasionally targeted for all students in a grade level range, or as an intervention support for struggling students

The variation in types of programs and their target student populations make it difficult to compare these interventions against one another, as each has trade-offs.[58] Even comparing the same types of interventions is challenging due to differences in program structure. For example, summer learning programs emerged as one of the most common uses of ESSER funding for academic recovery,[59] but in evaluations researchers found significant variation in enrollment size, schedules, staffing models, and student participation rates.[60] Other design elements such as dosage (or intensity), intended recipients, provider qualifications, delivery mode (in-person vs. remote), or location also varied widely.[61] Additionally, some districts faced prescriptive state mandates about their recovery strategies, while others had near-complete autonomy in program design.[62] The extensive variation in intervention approaches makes it challenging to draw broad conclusions about effectiveness, but researchers are still finding valuable lessons in the emerging evidence.

The sheer scale of learning loss and widespread barriers to implementation prevented many interventions from being effective.

The need for academic recovery is urgent; however, state and local policymakers and administrators should temper their expectations about the pace of recovery. As noted earlier, even effective, intensive strategies like high-dosage tutoring are still insufficient to fully address learning loss for the hardest-hit students.[63] While pre-pandemic research identified promising evidence for tutoring and other interventions,[64] these studies typically examined programs implemented at a much smaller scale than what is needed for pandemic recovery. When making pandemic-era decisions, therefore, policymakers and administrators lacked guidance on how to effectively scale up these interventions to the level needed to fully address COVID-19-related learning loss.[65]

Districts and schools also faced suboptimal conditions and implementation barriers that affected their ability to deliver high-quality programming.[66] COVID-19 variants causing infection waves made it difficult for districts to plan programs,[67] while staffing shortages, lack of central office capacity, transportation and scheduling challenges, and other logistical barriers often delayed program launches throughout 2021 and 2022.[68] These constraints often forced administrators to modify interventions in ways that diverged from evidence-based practices, replaced classroom time, or targeted different student populations than originally planned.[69] The resulting implementation varied dramatically: for example, in one study on tutoring and small group interventions across eight K-12 districts, the time students spent with tutors ranged from six to 50 hours per year, with most programs delivering fewer hours than intended.[70] Student participation rates were also concerningly low, ranging from less than 1% to 20% of eligible students.[71]

These factors contribute to a growing body of evidence that early recovery interventions did not produce substantial gains for students, especially when compared to the scale of learning loss. For example, an analysis of pandemic-era summer school programs found math gains consistent with pre-pandemic research,[72] which generally finds summer learning effective.[73] However, these increases still addressed only about 2% to 3% of overall pandemic-related learning losses in math.[74] To put this in perspective, even under the best-case scenarios with intensive programming, districts would need to provide summer school to all students for 2-3 consecutive years just to return to pre-pandemic achievement levels in math.[75] Another analysis that reviewed

22 interventions across multiple K-12 districts found that only three showed statistically significant positive effects – one in math and two in reading.[76]

The early evidence indicates that an intervention's success was deeply dependent on how well it was implemented. As state policymakers consider future investments into academic recovery, they should pay close attention to ensuring that programs are evidence-based as well as implemented with fidelity. To help shape their thinking, the following section examines a few promising approaches from early recovery efforts.

Three promising examples of well-implemented recovery initiatives offer lessons for how strong implementation can facilitate learning recovery.

According to the 2024 Education Recovery Scorecard, Illinois was one of the states with the least amount of math learning loss, while Tennessee improved math test scores by more than one-third of a grade level within a single year.[77] The 2025 Education Recovery Scorecard highlighted that in Alabama, Birmingham has nearly recovered all learning loss, despite being a high-poverty district and therefore heavily impacted by the pandemic.[78] Although more research is needed to fully understand how these regions have bounced back, examining early interventions in Illinois, Tennessee, and Birmingham, Alabama suggests that strong implementation practices such as strategic state-district partnerships, creative program design, and robust on-the-ground support are key factors for successful learning recovery.

Scaling Evidence-Based Practices for High-Quality Implementation: Lessons from the Illinois Tutoring Initiative

The Illinois Tutoring Initiative (ITI) ran from 2022 to 2024 as a state-led program that used ESSER funding to provide high-impact tutoring to students in districts with the greatest need.[79] Early evidence suggests there have been meaningful positive impacts on student achievement: Tutored students statistically outperformed non-tutored peers in both reading and math during the 2022 and 2023 school years.[80] The program also appears to be particularly effective for students receiving special education services and English language learners, who showed even larger gains in mathematics compared to other participants.[81] Beyond test scores, students also reported increased reading persistence and motivation.[82]

A key driver of these results was the state's commitment to evidence-based practices. State administrators emphasized that while districts had flexibility to account for regional circumstances, they were also held accountable to implementing best practices for tutoring, including small group sizes, relationship-building between tutors and students, regular progress monitoring, and alignment with school curriculum. Initiative staff conducted "Fidelity Implementation Trainings" that were confirmed by third-party observations to ensure that tutors understood how to implement practices with fidelity.[83] And most importantly, state leaders embedded evaluation plans into the design of the program, allowing them to build data infrastructure that could closely track implementation quality and student outcomes.[84]
ITI ended in fall 2024 when ESSER funding ran out and leaders were unable to secure more state funding.[85] Nonetheless, for policymakers seeking to scale effective academic interventions, ITI provides a promising example of how to **design a program around evidence-based practices, invest in fidelity training, and embed an evaluation plan** from the outset. The consequent adherence to best practices and ability to measure meaningful student outcomes sets it apart from other tutoring programs and even garnered attention from the White House.[86]

ITI also underscores how **implementation support from the state enables quality at scale**. While districts oversaw tutoring on the ground, state-level administrators handled program design and evaluation, while providing resources such as data infrastructure and technical assistance. Finally, ITI suggests that targeted

supports for the highest-need students can help accelerate recovery for those most impacted by pandemic disruptions. By combining state coordination with local implementation and rigorous evaluation, ITI provides a promising model for expanding evidence-based academic recovery initiatives.

Sustainable Policy Design and Implementation: Lessons from Tennessee's Learning Loss Remediation Summer Camps

In 2021, Tennessee lawmakers passed the Learning Loss Remediation and Student Acceleration Act, which provided funding to all districts to create and implement summer programming for students.[87] All public school students in grades 1-8 were eligible to attend, but each program identified "priority students" to serve, such as those from low-income families and students performing below proficiency on standardized tests.[88] The summer program also maintained high dosage through full days of STREAM (Science, Technology, Reading, Engineering, Arts, and Mathematics) and physical education.[89]Among the programs, summer camp participation in particular was associated with student improvement in both ELA and math.[90] Notably, students from economically disadvantaged families who attended the camps showed similar growth rates to their more affluent peers in both math and ELA.[91] Participation was also widespread: by the second summer of implementation, statewide attendance rates rose above 79%.[92]

The Learning Loss Remediation and Student Acceleration Act supported strong implementation at multiple levels. For example, the Act required all districts to offer summer programming, but gave both the Tennessee Department of Education (TDOE) and school districts plenty of time to design and build the camps (Disclosure).[93] This runway ultimately allowed administrators to focus on program quality, such as ensuring that staff were licensed and properly endorsed teachers. The Act also required all districts to administer pre- and post-tests to measure academic growth and the camps' effectiveness.[94] Consequently, researchers were able to determine that students' participation in camps correlated with their academic growth, and that teachers who staffed camps were typically above average in effectiveness.[95] Post-summer surveys also saw coordinators report that at least 94% of camps were "adequately staffed,"[96] addressing a key pain point of many interventions.

Tennessee provides a promising example of how state policymakers can contribute to academic recovery by helping districts scale high-quality programs. By taking action early but also giving states and districts adequate implementation time, Tennessee lawmakers gave students access to high-quality programs. Lawmakers also drove both broad participation and equity by combining universal access requirements with targeted student prioritization. And perhaps most importantly, **Tennessee lawmakers created a sustainable approach to academic recovery that did not rely on ESSER dollars**: although the program was originally planned just for 2021 and 2022, summer camps have continued into 2024 and beyond.[97]

Accelerating Academic Recovery via Effective Educators: Lessons from Intersession Programming in Birmingham, Alabama

One evidence-based way to combat learning loss is through additional instructional time;[98] however, parents in Birmingham, Alabama were reluctant to extend the school year.[99] Instead, beginning in October 2021 Birmingham City Schools implemented an optional intersession program during fall, winter, and spring breaks with five additional days of intensive instruction in math, science, and reading during each break period, totaling up to four weeks of additional instructional time.[100]

By 2023, Birmingham had nearly returned to pre-pandemic achievement levels in math,[101] and one analysis suggested that higher achievement was correlated with intersession attendance.[102] Data from both the Alabama Comprehensive Assessment Program (ACAP) and i-Ready assessments suggests that participating students exhibited greater academic improvements than non-participants.[103] Students in early grades (who were some of the most impacted by the pandemic) appeared to have benefited the most: third graders who attended intersessions gained an average of 22 points on ACAP math assessments compared to 13 points

for third graders who didn't attend.[104] Notably, while voluntary academic programs sometimes disproportionately attract higher-achieving students, the 3rd and 4th graders who attended intersessions actually entered with lower test scores than their non-participating peers.[105] These students also appeared to show larger academic gains than the non-participants,[106] suggesting the program effectively reached and supported those most impacted by pandemic disruptions.

Birmingham's approach stands out for its intensive support for teachers as the drivers of learning. The district used ESSER funds to offer competitive compensation ($60/hour) to teachers who led the additional instructional time.[107] Birmingham also ensured that the intersession curriculum aligned directly with state standards, ensuring the extra time reinforced core academic content.[108] Finally, class sizes during intersessions were kept intentionally lower, from 14 to 16 students.[109] These strategies relieved teachers of extra planning burdens, reduced the amount of time they needed to spend with low-performing students during regular classroom days, and allowed them to be their most effective during intersessions.

Birmingham's intersessions demonstrate how districts can **leverage their most effective teachers to add high-quality instructional time, thereby maximizing resources and impact**. Moreover, student participation from fall 2021 to fall 2024 has more than tripled (from 1,800 students to over 7,000[110]), suggesting that leaders were able to effectively communicate the program's value to families. Finally, although the program has been downsized from three intersessions to two due to expiring ESSER dollars, the state legislature has allocated another $1.8 million to continue intersessions for SY24-25, and Birmingham leaders are seeking ways to make the program sustainable.[111] The district's ability to secure additional state funding further highlights how careful program design and implementation can help build sustainable support for recovery initiatives.

While the national picture of academic recovery remains concerning, the experiences of Illinois, Tennessee, and Birmingham, Alabama demonstrate that well-designed and systematically implemented interventions show promise for accelerating student learning and closing pandemic-related achievement gaps. However, while early research on these initiatives is promising, there is still much more to learn about the long-term effectiveness of these initiatives through more research and analysis. There are also numerous other state and district-level initiatives that have not been examined closely by researchers. Overall, far more research is needed on past efforts to promote academic recovery to better inform future state efforts.

Recommendations for Policymakers and Administrators

2025 marks five years since the beginning of the pandemic, yet pandemic-related learning losses are still affecting students with no end in sight. Addressing these deficits demands sustained attention and action; education leaders must prioritize integrating learning recovery efforts into everyday life and existing systems. Examples from Illinois, Tennessee, and Birmingham, Alabama suggest that with or without additional funding, meaningful recovery requires commitment to implementing high-quality programming well and monitoring student outcomes closely. Across the existing research as well as the examples above, a few themes arise that serve as recommendations for both state and local policymakers.

Local Policymakers and Administrators	State Policymakers and Administrators
Raise public awareness around the urgency for academic recovery.	Create the enabling conditions for districts' and schools' success.

Assess districts' unique needs and target resources to schools rather than individual students.	Help districts address the logistical barriers that impact effectiveness.
Enlist effective educators to deliver high-quality programming and/or instruction.	Maximize resources by focusing on high-quality implementation in the most disadvantaged districts.

For Local Policymakers and Administrators

Raise public awareness around the urgency for academic recovery.

A 2022 survey found that many parents remain unaware of how far their children have fallen behind academically.[112] This lack of awareness may partly stem from grade inflation during and after the pandemic that masks students' true needs and complicates recovery efforts.[113] It may also stem from leaders who are not incentivized to bring attention to persistent learning gaps for fear of backlash. In any case, however, local leaders should be actively communicating the continued urgency of academic recovery to maintain momentum and engagement, even without any political incentives. The research provides evidence of both the persistent achievement gaps and the potential for well-implemented interventions to accelerate recovery: Birmingham, Alabama nearly returned to pre-pandemic math levels through concentrated effort, while Tennessee and Illinois showed significant gains among their most vulnerable students. However, those gains can only be made if students and families understand the need for attending recovery programming.

Districts should develop clear communication strategies that help families understand both the scale of unresolved recovery needs and what they can realistically expect from the available interventions.[114] This could include sharing regular updates on district-level recovery progress, providing individual student achievement data in accessible formats, and highlighting success stories from existing programs. By maintaining transparency regarding both challenges and opportunities for acceleration, districts can build the community support and student participation needed for recovery initiatives.

Assess districts' unique needs and target resources to schools rather than individual students.

Research shows that a student's district and school play a significant role in their achievement, suggesting that resources might be more efficiently deployed at the school level. As ESSER funds wind down, local leaders should consider concentrating resources in their lowest-performing areas, rather than trying to serve individual students across many schools. This approach aligns with evidence from Birmingham's intersession model in Alabama, which offered additional learning time to entire school communities rather than individual students. Additionally, Birmingham's model mitigates concern that the intervention might not end up serving the intended students, as most of the students served were those with below-average test scores. CALDER researchers also recommend that targeted recruitment efforts could be an effective strategy to ensure that students who are most in need know about and can access interventions.[115] Tennessee exemplified this alternative approach: Leaders kept programming available to all but still identified priority students, thereby balancing open enrollment policies with targeted recruitment to ensure students who need interventions the most receive them.

When identifying schools for interventions, CALDER researchers warn that assuming a district's student populations follows the national trends for academic learning recovery can be unreliable, as many districts have students with different needs than the national average.[116] As a result, local administrators should look

carefully at their district's pre- and post-pandemic trends to compare and identify schools or neighborhoods that could benefit from extra resources.

Enlist effective educators to deliver high-quality programming and/or instruction.

Local policymakers can capitalize on their most effective educators to maximize the impact of academic recovery initiatives, rather than relying solely on external providers or less experienced staff. Tennessee attributes much of their summer programs' success to staffing teachers with above-average effectiveness ratings, while in Alabama, Birmingham's high hourly compensation helped attract qualified teachers to its intersession programs. Even Illinois's tutoring program, which originally sought out non-teacher tutors, eventually added educators to the tutor pool to increase capacity.[117] One study examining a district that assigned struggling students to "expert" teachers (based on evaluation scores) found that the expert teacher improved achievement significantly more than a non-expert teacher, leading researchers to suggest that to stretch resources, districts could focus on teacher quality and maximize existing class time.[118]

As local leaders work to make academic recovery the norm, districts could consider ways to leverage their strongest educators, perhaps through competitive compensation like Birmingham's $60/hour rate or by engaging them in program design and improvement efforts. This approach can ensure recovery initiatives maintain instructional quality while capitalizing on existing relationships between students and effective teachers.

For State Policymakers and Administrators

Create the enabling conditions for districts' and schools' success.

State policymakers play a crucial role in creating the conditions for successful academic recovery by providing districts with clear requirements, adequate resources, and robust implementation support. Tennessee's Learning Loss Remediation Act showcased how thoughtful legislative action can give districts the runway needed to design and staff recovery programs. Illinois demonstrates that states can leverage their resources to provide centralized training and data systems that help districts implement evidence-based practices. And in Alabama, Birmingham's example highlights how state flexibility around program design (for example, allowing optional intersessions rather than mandatory extended years) enables districts to adapt interventions to local needs while maintaining quality standards.

Together, these examples suggest states should establish clear baseline requirements while providing districts with both autonomy and support infrastructure. This might include developing statewide training systems for intervention staff, creating shared data platforms to monitor implementation and outcomes, offering competitive grant funding tied to evidence-based practices, and/or maintaining flexible policy frameworks that let districts innovate while ensuring quality. By focusing on enabling conditions rather than prescriptive mandates, states can help districts a) establish effective academic programming, b) demonstrate their success, and c) scale them to more kids, all while adapting to local contexts.

Help districts address the logistical barriers that impact effectiveness.

State resources can help districts overcome the myriad logistical barriers that researchers found constrained the effectiveness of recovery initiatives. For example, Tennessee's approach of establishing multiple intervention formats (e.g., after-school mini-camps, bridge camps, and summer programs) gave districts flexibility to work around scheduling conflicts. Birmingham's use of intersession periods offered a creative

solution to extending learning time without disrupting established school calendars, while their competitive compensation rates ($60/hour) helped overcome staffing challenges. Illinois demonstrated how states can reduce administrative burden through centralized support systems like the Pearl platform for data management and coordination.

Drawing on these examples, states should consider providing districts with scheduling flexibility, funding for competitive staff compensation, streamlined administrative systems, and technical assistance around program logistics. States might also facilitate resource-sharing across districts and create networks for problem-solving common implementation challenges. This infrastructure support can help districts focus their energy on program quality rather than getting bogged down in operational hurdles that diminish intervention effectiveness.

Maximize resources by focusing on high-quality implementation in the most disadvantaged districts.

Just as local leaders should consider prioritizing districts with the greatest need, state policymakers should target lower-performing districts rather than individual students across a state. Illinois' tutoring program, for example, targeted students from districts that were disproportionately affected by the pandemic. State leaders used a variety of indicators and data to identify these districts before rolling out the program.[119] As a result, Illinois leaders could maximize the impact of their ESSER funding focusing on quality implementation in those districts, rather than spreading resources thinly across all districts or trying to identify individual eligible students across multiple districts.

Some may worry that this strategy would not scale statewide in an equitable way; however, the test score gains for students receiving special education services and English learners, as well as students' increased persistence and motivation, suggests that states can effectively scale interventions in ways that address inequities.

Conclusion

The academic impacts of the COVID-19 pandemic are a crisis that demands immediate and sustained action from policymakers and administrators at all levels, in all states. While students have made some progress toward recovery, the pace remains slow and uneven — especially for the most underserved students. Without additional attention, millions of students risk never catching up to their pre-pandemic achievement levels. Already, an estimated 17 million students have left the K-12 system without having recaptured the learning they missed during the pandemic.[120]

These losses will have macro-level ripple effects across the American society and economy, with some states being hit harder than others.[121] Nationally, the potential losses from a labor force that is less educated are estimated to be *six times* the total losses from the Great Recession, and *17 times* the economic losses calculated due to the pandemic slowdown.[122] But these losses are not yet realized and can still be mitigated.

Well-designed and properly implemented interventions are critical to accelerate learning recovery and begin closing achievement gaps. Examples from Illinois, Tennessee, and Birmingham, Alabama — notably, places that represent both ends of the political spectrum — demonstrate that recovery is possible when states and districts combine adequate resources with strong implementation practices.

However, as ESSER funding and extensions expire, many districts face scaling back or eliminating promising programs. Absent unforeseen future federal action, this presents state policymakers with a critical choice: either intervene with additional support to maintain momentum toward recovery, or accept the profound educational and economic consequences of the status quo. State and local policymakers must act now to assess their communities' needs, target resources strategically, and create the conditions for successful implementation of evidence-based interventions. While the price tag for full recovery is daunting, the alternative costs — both to individual students and to society as a whole — are far greater. Our students cannot afford to wait.

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Disclosure

Bellwether works with organizations and leaders who share our viewpoint-diverse commitment to improving education and advancing equity for all young people — regardless of identity, circumstance, or background. As part of our commitment to transparency, a list of Bellwether clients and funders since our founding in 2010 is publicly available on our website. An organization's name appearing on our list of clients and funders does not imply any endorsement of or by Bellwether.

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About Bellwether

Bellwether is a national nonprofit that exists to transform education to ensure systemically marginalized young people achieve outcomes that lead to fulfilling lives and flourishing communities. Founded in 2010, we work hand in hand with education leaders and organizations to accelerate their impact, inform and influence policy and program design, and share what we learn along the way. For more, visit bellwether.org.

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