SOLUTIONS BRIEFS

CED
COMMITTEE FOR ECONOMIC DEVELOPMENT
THE PUBLIC POLICY CENTER OF
THE CONFERENCE BOARD

A Nation Equipped
A K-12 Education System for Today and Tomorrow

Overview

The response to the COVID-19 pandemic upended the US K-12 education system, exacerbated pre-existing challenges around student achievement, and created new obstacles to delivering high-quality learning for all students. Concerns for the US education system were increasing prior to the pandemic as academic achievement and school reforms struggled to keep pace with the evolving demands of the 21st century. School disruptions during the pandemic enervated the US education system, highlighted inequities, and intensified deficiencies leading to a new level of national education crisis which is becoming more and more evident in recent national assessments of achievement.

Insights for What's Ahead

- **US students experienced the largest decline in the 30-year history of the congressionally mandated National Assessment of Educational Progress (NAEP)** in the subjects of math, history, and civics.[1] In reading, scores declined in 30 states and remained stagnant in 22, marking the largest decrease in state-level progress since 1992.[2]

- **Students with low performance and students in high-poverty schools experienced the greatest decline according to assessment data.** The drop in scores for specific subgroup populations was significant enough to widen persistent performance gaps which represent a divergence from moderate progress attained over the past 30 years to close such achievement gaps.

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- **The impact of the response to the pandemic has significantly increased challenges to US K-12 education** due to reversed progress, unfinished learning and widened gaps, increased mental health and behavioral concerns, teacher shortages and burnout, and student absenteeism and disengagement.

- **The mass decline undermines student success,** diminishes equal opportunity, hampers the development of a viable future workforce, weakens confidence in economic prospects, undercuts democracy, and restricts economic growth.

- **The federal government responded by providing an unprecedented level of relief funding — $189.5 billion in Elementary and Secondary School Emergency Relief (ESSER) as part of three stimulus bills.** This funding is roughly three times the annual federal investment in education. It was also complemented by other measures to support education, most importantly the passage of funding to expand broadband access nationally.

- **The deep disruption,** combined with the significant federal funding and advances in technology, particularly with regard to artificial intelligence (AI) and machine learning, provides a unique opportunity to address the long-standing challenges in the US education system.

- **While the funding levels have been unprecedented,** strategies for how to spend the funding must be innovative and comprehensive in order to upend the systemic issues that have long plagued the education system and limited the potential of youth as well as the prosperity of the nation. In addition, bureaucratic barriers must be addressed so that implementation, such as broadband access and other measures, can be delivered in a timely and effective manner.

This Solutions Brief examines the impact of the response to the COVID-19 pandemic on the US K-12 education system. It reviews the historic investment by Congress to restore schools and identifies promising practice examples that offer hope for student success. The country has entered a recovery phase especially as it relates to tackling unfinished learning during this time. But the learning crisis the nation faces provides a unique window to address not only the short-term challenge of pandemic learning loss but also the underlying long-term systemic problems that prevent an effective and vibrant US education system. Moreover, transformation of the education system faces increased urgency as advances in technology, including artificial intelligence, render some jobs obsolete. No single solutions exist, but this Brief proposes a series of recommendations that includes utilizing advances in technology and the extraordinary federal funding for K-12 education in states to enhance learning recovery and repair systemic issues to ensure all children can progress in educational attainment and are equipped to succeed as productive, engaged citizens.

Recommendations

The response to COVID-19 forced extraordinary disruptions to many parts of the US education system and many schools experienced immediate disarray. As a result, the pervasive spotlight on schooling exposed persistent inadequacies of policies and procedures and elevated the urgent need for change. Most critically, the consequence was lost learning for far too many of our students, particularly the most vulnerable and disadvantaged. The great challenge is to find ways to mitigate this damage and narrow (if not eliminate) the learning gap as part of a comprehensive strategy. Analyses of recovery efforts are in the nascent stage, but early lessons and promising practices offer insights to inform education, policy, and business leaders as states allocate remaining historic levels of federal school recovery funding. To employ an education system for today and tomorrow, the following recommendations must be considered.

1 **Personalize student learning, using technological advances, including AI.** Even prior to the pandemic, there was a great variance in student academic levels and the pace of learning. Some schools are pairing differentiated learning techniques with technology to better identify student challenges and strengths, and personalize academic support. School leaders should deliver learning strategies and enrichment in modes that honor the pace of learning for each student, while leveraging technology to maximize educational development and growth. AI is a potential tool for collecting and evaluating a large set of data on how students learn and the pace at which they learn while using technology that holds out the possibility of improving learning and increasing the pace of recovery efforts.

2 **Reconnect students and families into the school system.** Leaders must intentionally reconnect students, together with their families, through school culture building and engagement efforts to increase the feeling of belonging among students. Student and family engagement are closely linked with student attendance, achievement, and the effectiveness of strategies to recover learning lost during the pandemic. Recent best practices include connecting students with caring staff members and home visits to families.

3 **Engage partners to expand capacity.** School districts and staff have an extensive set of responsibilities, from student academic progress to social emotional wellness. School leaders should partner with the business sector; institutes of higher education; local leaders, including leaders in sports and entertainment; and philanthropic and community development organizations to bolster capacity and leverage outside expertise and resources.

4 **Strengthen awareness of and access to post-secondary pathways.** Post-secondary pathways to college, training programs, and careers have grown significantly over the past decade. A number of school districts and high schools have developed innovative approaches to connect high school students to career pathways, encourage post-secondary options, and ease the transition into college including through career academies, apprenticeships, and dual enrollment early college programs. Schools must proactively build awareness of career pathways among students and parents/guardians, which can begin as early as elementary school. Employers, community organizations, and workforce development agencies should be leveraged as vehicles to expand awareness and access to opportunities that position students early for success after high school.

5   **Use data and technology for rapid evaluation to drive strategies and continuous improvement.** The historic investment of federal dollars and philanthropy in the education system for learning recovery attracted an overabundance of ideas and proposals. Local leaders should develop the capacity to track the progress of efforts rapidly and make real-time adjustments to optimize success. The investment in providing technology platforms to students during the pandemic can be leveraged to contribute important learning data. Efforts to expand access and affordability of broadband nationally should continue in order to increase schools' ability to use data and technology as an advantage. Furthermore, policy leaders and decision makers should ensure that investments and spending are informed by targeted goals, evidence-based strategies, and preliminary progress.

6   **Build school-wide capacity to address mental and emotional health needs.** Social-emotional learning and mental health support are essential for any recovery effort inside and outside the school building. Isolation and social distancing harmed mental wellness and hindered the emotional development for many children. However, the shortage of mental health workers continues to challenge school staff. Leaders must consider creative strategies, such as telehealth, to deliver much needed services to students. Further, schools must build awareness of mental health challenges and provide training within the school community in order to equip all members with tools, such as suicide prevention strategies and trauma-informed practices, to address mental and emotional health concerns.

7   **Grow the teacher pipeline.** The pandemic intensified a growing teacher shortage across the country. State leaders and the federal government have invested in efforts to expand pathways into the profession in partnership with teacher preparation programs. The Registered Apprenticeship model, working closely with the business community, has recently been lauded as an innovative approach to growing the teacher pipeline. The first registered apprenticeship program for teaching in the nation was approved in 2022 and serves as a model to all states.

8   **Invest in students early.** Research demonstrates that early learning gaps can be identified by the age of two,[3] and significant studies have demonstrated the long-term benefit of high-quality early learning opportunities; that is, all learning from birth through third grade. Further, remediation grows increasingly challenging in higher grade levels. In addition to efforts to expand high-quality early learning options, local leaders should invest resources to address student performance gaps as early as kindergarten to ensure student success in subsequent grades.

9   **Prepare now for future disruptions.** Scientists predict a growing occurrence of natural disasters and pandemics which increases the likelihood of future school disruptions. School leaders must learn from the hard lessons of the COVID-19 pandemic and the impact of the length and depth of school closures to improve emergency preparedness, minimize the length of school closures, and deliver improved methods for continued learning if closure is necessary.

10   **Consider funding sustainability.** The extraordinary federal investment delivered to state and local education agencies offered a great deal of flexibility to help meet the urgency and scale necessary to address the impact of COVID-19 on schools. Leaders should consider sustainability solutions for longer-term strategies to avoid damage from a funding cliff when federal relief dollars expire. For example, policymakers should consider a phased-in match requirement to gradually replace short-term federal funding with sustainable local resources for those programs that are long-term.

11   **Establish a national taskforce to identify best practices.** Robust, highly-effective solutions are paramount to help mitigate the academic and social-emotional harm following the pandemic and prepare all students for the demands of the 21st century. Congress should establish a national taskforce and invest in research to adequately assess lessons learned, best practices, and innovative strategies in K-12 education, including learning recovery, student and family engagement, personalized learning, and integrated artificial intelligence.

COVID-19 DISRUPTIONS UPENDED AN ALREADY CHALLENGED K-12 EDUCATION SYSTEM

Prepandemic assessments

The pandemic struck an American education system beleaguered by achievement challenges. In 2019:

- In reading, only 35 percent of 4th graders and 34 percent of 8th graders scored at or above proficient based on the National Assessment of Education Progress (NAEP).

- In math, only 41 percent of 4th graders and 34 percent of 8th graders scored at or above proficient by the same measure.[4]

- 24 percent of high school seniors scored at or above proficient in math.

- 37 percent of high school seniors scored at or above proficient in reading.[5]

- There were no statistically significant gains in achievement for most racial or ethnic subgroups compared to the prior assessment year in math;[6] in reading, performance slightly declined.[7]

The pandemic has markedly increased the systemic problems in K-12 education. By 2022, the most significant consequences of the pandemic response included:

- Reversed achievement progress;

- Unfinished learning;

- Widened gaps in learning inequity between children with adequate socioeconomic resources and those without;

- Increased mental health and behavioral concerns;

- Teacher shortages and burnout;

- Student absenteeism and disengagement; and

- Projected negative impact on GDP and lifetime earnings for students.

Postpandemic assessments: Reversed achievement progress and widened gaps in learning inequity

The magnitude of impact from COVID-19 disruptions on the education system is only now coming into focus. Based on new data, the response to COVID-19, including most importantly the closure of schools, halted academic progress across the country, reversed decades of gains, and widened performance gaps between certain student subgroups.

The recent release of National Assessment of Educational Progress (NAEP) data for 2022 placed the scope of learning loss into a national context. On the NAEP math assessment, students experienced the largest decline in the history of the test.[8] In reading, scores declined in 30 states and remained stagnant in 22, marking the largest decrease in state-level progress since 1992.[9]

Historically, students testing in the highest percentile have increased scores or remained stagnant, while students testing in the lowest percentile have declined. However, 2022 NAEP math and reading scores declined across all student performance levels. In a separate NAEP assessment of long-term trends in reading and mathematics for 9-year-olds, reading and math scores experienced the largest decline in three decades.[10]

While all student groups lost ground, assessment results reveal disparate impacts on lower-performing students, students in high-poverty schools, and Black and Hispanic students. There were no significant increases on the 2022 Long Term Trends NAEP assessment. Still, the drop in scores for specific subgroup populations was significant enough to widen persistent performance gaps. On the long-term NAEP assessment of reading, 9-year-olds who tested in the lower 10th percentile experienced a 10-point score decline, whereas 9-year-olds who tested in the upper 90th percentile experienced a 2-point decline. In math, the decline by students in the lower 10th percentile was 4 times larger than that of students in the upper 90th percentile.[11]

Figure 1

Score changes in NAEP long-term reading and mathematics at five selected percentiles for 9-year-old students: 2020 and 2022
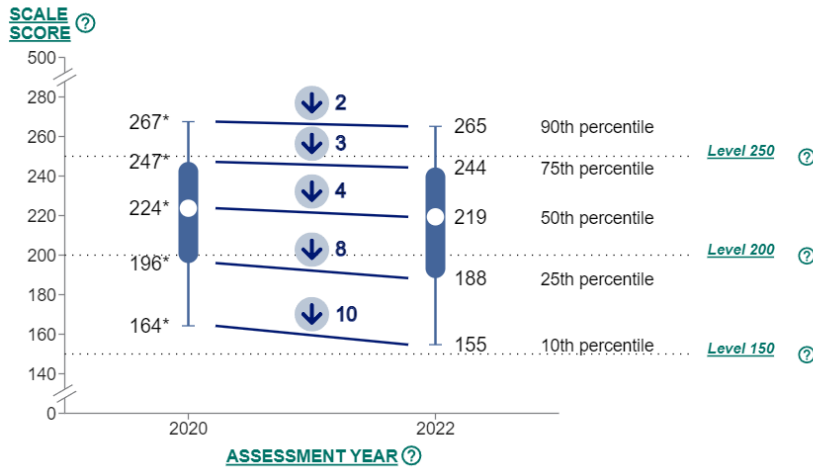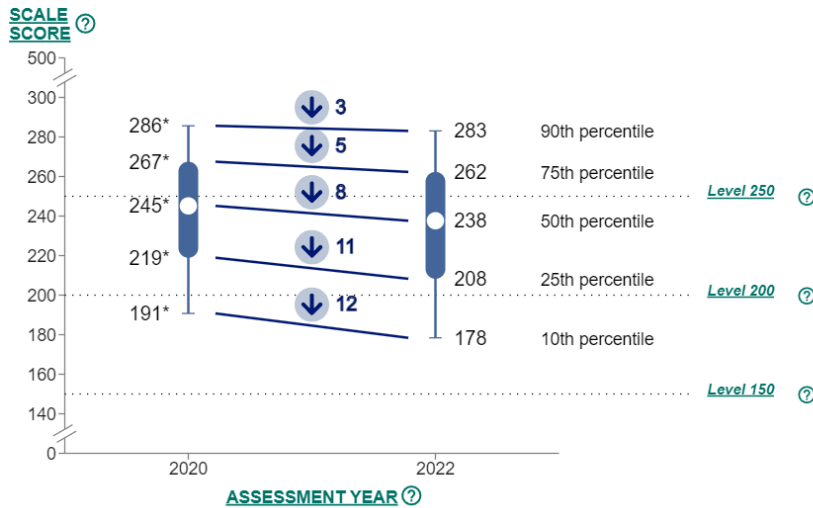

Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2020 and 2022 Long-Term Trend (LTT) Reading and Mathematics Assessments.

Long-term assessment scores for Black, Hispanic, and White students each declined by 6 points in reading, leaving performance gaps unchanged. In math, while all student scores decreased, the decline in Black and Hispanic student scores expanded the performance gaps between these students and White students by 7 points and 3 points, respectively. The shift represents a divergence from moderate progress attained in recent years to close performance gaps.

In addition to reading and math declines, NAEP scores decreased for students in the subject areas of civics and history. The scores reveal that only 13 percent of 8th graders achieved proficiency in US history[12] and 22 percent in civics.[13] More than 85 percent of eighth graders were not able to describe the country's major themes, events, people, and ideas, with nearly a third not reaching a basic understanding of civics. Historically, the results represent the lowest level on record since the assessment began in 1998. The data suggests that pandemic impacts, such as school closures and online learning formats, are a principal influence for the wide decline.[14]

Initial school closures affected more than 55.1 million students in the US.[15] The abrupt disruptions upset student learning conditions and exploited resource disparities between students in families living on low incomes and those living in higher-income families. The divide in access to reliable internet and learning devices is well documented,[16] as is the evidence that high-income districts spent less time in remote learning and returned to in-person instruction sooner.[17, 18] Students with disabilities, representing more than 7 million students,[19] also fell victim to inadequate access to resources as they were disconnected from critical school-based services that could not be replicated at home or delivered virtually. Overall, the resource gap between students offered a boost to historically advantaged students while further diminishing learning experiences and outcomes for historically underserved students. (For a more detailed review of the effect of remote learning, see CED's report Reimagining K-12: Emerging from Disruption with Insights for Reform).[20]

Mental health concerns and student well-being

At the height of the pandemic, the rapid rise in mental health challenges among youth prompted the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, and Children's Hospital Association to declare a national emergency in child and adolescent mental health[21] and the US Surgeon General to issue a public health advisory calling attention to the urgency of youth mental health issues and offering recommendations for action.[22]

Three years after the pandemic began, schools are now inundated by the residual effect of the widespread and dismal mental health crisis. National survey data from April 2022 found that 70 percent of schools experienced an increase in the percentage of students in need of mental health services, and 76 percent reported increased staff concerns about students showing signs of depression, anxiety, and trauma. Two-thirds of schools have increased mental health services in response to the growing need, yet 88 percent do not feel strongly equipped to provide services to all students in need.[23]

School leaders also suggest the response to the pandemic negatively impacted student social-emotional and behavioral development, evident by the dramatic rise

in disruptive behavior. In the May 2022 national School Pulse Survey, more than 80 percent of public-school officials agreed that the school closures and the response to the pandemic hindered behavioral development and confirmed reports of increased student misconduct including bullying, fighting, verbal abuse or physical attack of staff, prohibited use of electronics, and disregard for instruction.[24]

Student absenteeism and disengagement

The response to the pandemic fueled the exodus of 1.4 million students from the US public education system between the fall of 2019 and 2020, with the greatest declines in prekindergarten and kindergarten.[25] Enrollment numbers remained unchanged for the 2021–2022 school year.[26] The percentage of students being homeschooled doubled by the fall of 2022,[27] and researchers estimate private schools experienced a 4.3 percent increase in enrollment.[28]

After consideration of students who relocated to different states and the changing demographics of school-aged youth, analysts calculate an estimated one-third of the students unaccounted for are essentially missing.[29] Many of the missing are marginalized students—foster youth, children experiencing homelessness, students with special needs, English language learners, and migrant students.[30] Given the high enrollment decline in the early grades, students whose parents decided to skip kindergarten—since it is only compulsory in 19 states and the District of Columbia—could account for many of the missing students.[31] The numbers could also reflect older students who struggled to keep up with school during closures or joined the workforce to support family and decided not to return to school.

Disengagement remains a factor, even among those who have returned to school, and is evident in the number of students who are chronically absent (defined as missing ten percent or more of school days) which doubled after COVID. There were 16 million students chronically absent in the spring of 2022 compared to 8 million prior to the pandemic.[32] Chronic absenteeism, which is more prevalent in children living in poverty and students with disabilities, undermines student support efforts and increases the risk of persistent academic challenges.

Teacher and staff shortages

Along with the challenge of retaining students, school districts also have to contend with attracting and maintaining teachers and staff. The pandemic intensified teacher and staff shortages which increased due to teacher burnout, early retirement, COVID-illnesses, and unfortunately, COVID deaths. A national teacher's organization determined that 600,000 educators left the classroom between January 2020 and 2022 based on estimates from the US Bureau of Labor Statistics data.[33] As the 2022–2023 school year began, there were 36,000 teaching vacancies across the country and 163,000 positions held by underqualified teachers.[34] Of public schools with vacancies, 64 percent reported difficulty filling general education teaching positions with fully certified teachers. School leaders also reported challenges with hiring fully certified staff members in critical areas including mental health (73 percent) and transportation staff (94 percent).[35]

Impact on GDP and lifetime outcomes for students

If unfinished learning remains unchanged, pandemic learning loss will have a tremendous impact on future workforce opportunities and lifetime outcomes for students. The majority of students, including high-performing students, experienced academic declines during the pandemic. If academic recovery efforts fall short, the loss will stunt the potential of an entire generation. The learning loss has powerful implications for the career trajectories and lifetime earnings of students, widened socioeconomic gaps, and US economic growth. Research has demonstrated a connection between earned income and the college from which a student graduates; graduates of more selective institutions typically earn more than graduates from less selective schools.[36] Students who graduate high school with a deficit due to unfinished learning may be precluded from attending more selective institutions or restricted from more competitive fields of study that may lead to higher-earning careers.
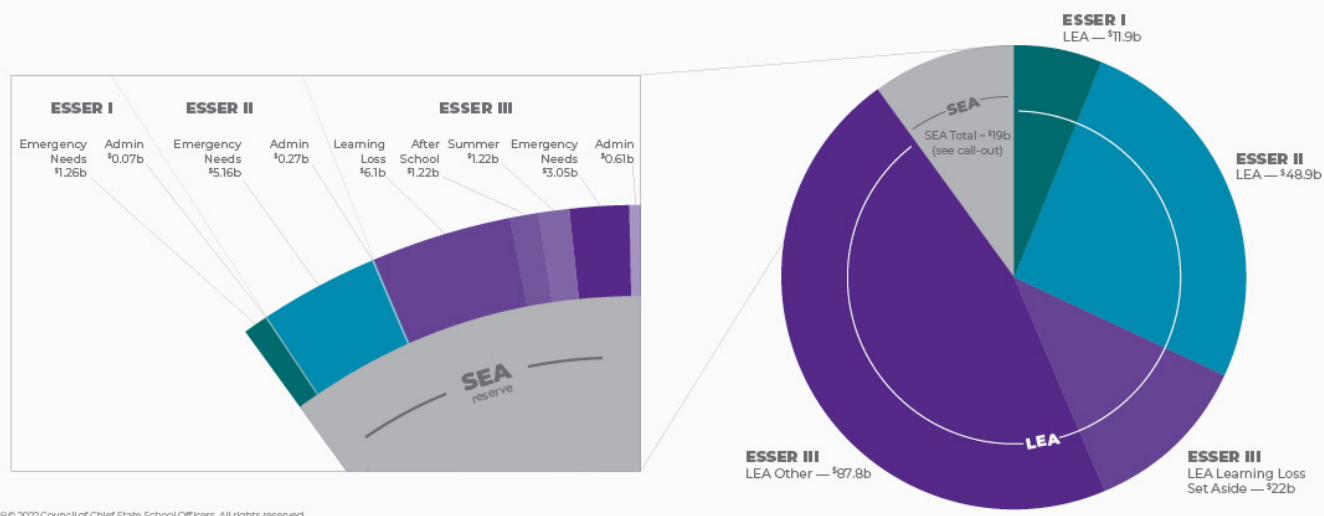
According to a projection from The Conference Board, the future value of income loss in lifetime earnings for students on all levels due to COVID disruptions could cost them collectively up to $27.3 trillion over 25 years. During this same timeframe, the economy could also experience up to a $10.1 trillion cut to real GDP. Experts suggest significant investments in academic recovery and varied learning strategies are imperative to mitigate the harm of the pandemic on future outcomes for youth and the prosperity of the country.

UNPRECEDENTED FEDERAL EMERGENCY RELIEF FOR ELEMENTARY AND SECONDARY SCHOOLS

States and districts received $189.5 billion in federal Elementary and Secondary School Emergency Relief (ESSER) funding to address the impact of the COVID-19 pandemic on schools and students over six academic years—roughly three times the annual federal investment in education. The funding was provided through three stimulus bills that Congress passed beginning in March 2020 as part of the Coronavirus Aid Relief and Economic Security (CARES) Act, in December 2020 as part of the Coronavirus Response and Relief Supplemental Appropriations (CRRSA) Act, and in March 2021 as part of the American Rescue Plan (ARP) Act.[37]

To prioritize districts with the greatest need, the ESSER funding was allocated to states based on Title 1 formula funding, which helps children of low-income families meet local academic standards and reflects roughly the number of disadvantaged students in each state. Ten percent of funds were set aside for state education agencies (SEAs), and the remaining 90 percent were designated for local education agencies (including local education agencies or LEAs, primarily school districts, and some public charter schools). (See Figure 2.) By the end of 2021, all funds for each round of ESSER had been distributed by the US Department of Education to states, following approval of state plans.[38]

ESSER DISTRIBUTION OF FUNDS

ESSER I
Emergency Needs $1.26b
Admin $0.07b

ESSER II
Emergency Needs $5.16b
Admin $0.27b

ESSER III
Learning Loss $6.1b
After School $1.22b
Summer $1.22b
Emergency Needs $3.05b
Admin $0.61b

SEA reserve

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ESSER I
LEA — $11.9b

SEA
SEA Total ~ $19b
(see call-out)

ESSER II
LEA — $48.9b

ESSER III
LEA Other — $87.8b

LEA

ESSER III
LEA Learning Loss Set Aside — $22b

Source: Council of Chief State School Officers, CCSSO.org

The funding support reached 16,884 school districts and charter school networks[39] across the country and included a high level of flexibility for spending which was intended to spur innovation responsive to local needs and opportunities. Designated in the third round of ESSER funding, state educational agencies (SEAs) are required to allocate 5 percent to address learning loss, 1 percent for summer school, and 1 percent for after-school programs. LEAs are required to allocate a larger amount at 20 percent to unfinished learning.[40] At approximately the halfway mark through the funding window, states (and the school districts within them) have spent varying portions of their ESSER allocations—from under a fifth in the District of Columbia and Vermont to just over half in Iowa and Hawaii. Currently, states and districts are on track to fully expend the relief money to meet the deadline next year in September 2024. (See Figure 3.)

Given the spending rates, the outcomes and effectiveness of recovery efforts are still being measured. But the recent assessment scores indicate that much damage has been done and that timely, innovative, and effective programs are required. Consequently, real-time assessments of programs underway that can be scaled and shared locally and nationally must be achieved as soon as possible. Another significant concern is that the pandemic funding levels are significantly higher than the annual federal spending levels, and therefore, the programs and personnel decisions implemented risk not being sustainable to address the educational challenges.

For some states, there is such a variance in how the dollars were being spent—ranging from 4 to 17 percent of total revenue—that the fiscal cliff will affect each state unequally. Because of how the ESSERs funds were distributed, based on Title 1 formula funding to states, some districts received no ESSER money, while the highest needs districts saw increases of 40 percent or more.[41] Districts will need to consider how to maximize the remaining resources to sustain long-term impacts.

Figure 3
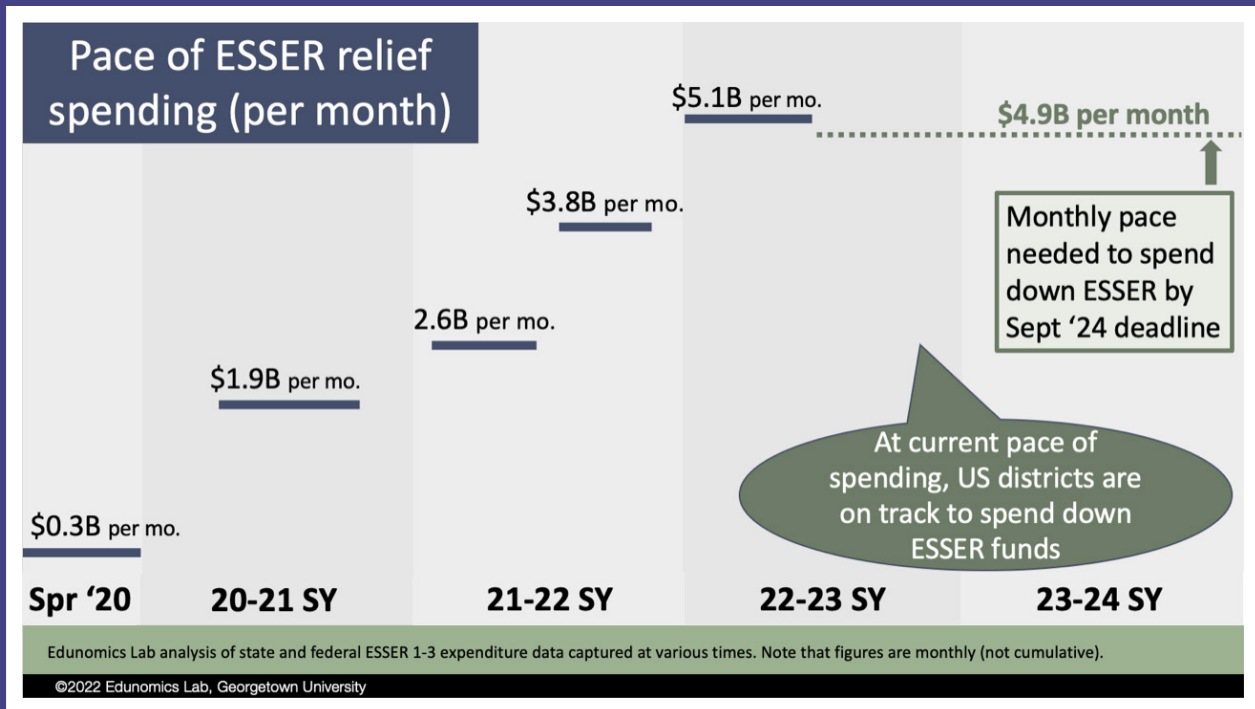
Source: Edunomics Lab, Georgetown University

How the money has been spent

States were required to publicize the use of funds, in addition to specifying spending amounts, to maximize transparency. However, to date, 20 states have not shared details beyond the amount spent. Among the spending details that have been provided are a range of target services that have been incorporated by states and districts to address pandemic impact including tutoring, summer learning, lengthening the school day or year, social and emotional learning, facility improvements, and expanding capacity.

ESSER State Reserve Spending Priorities
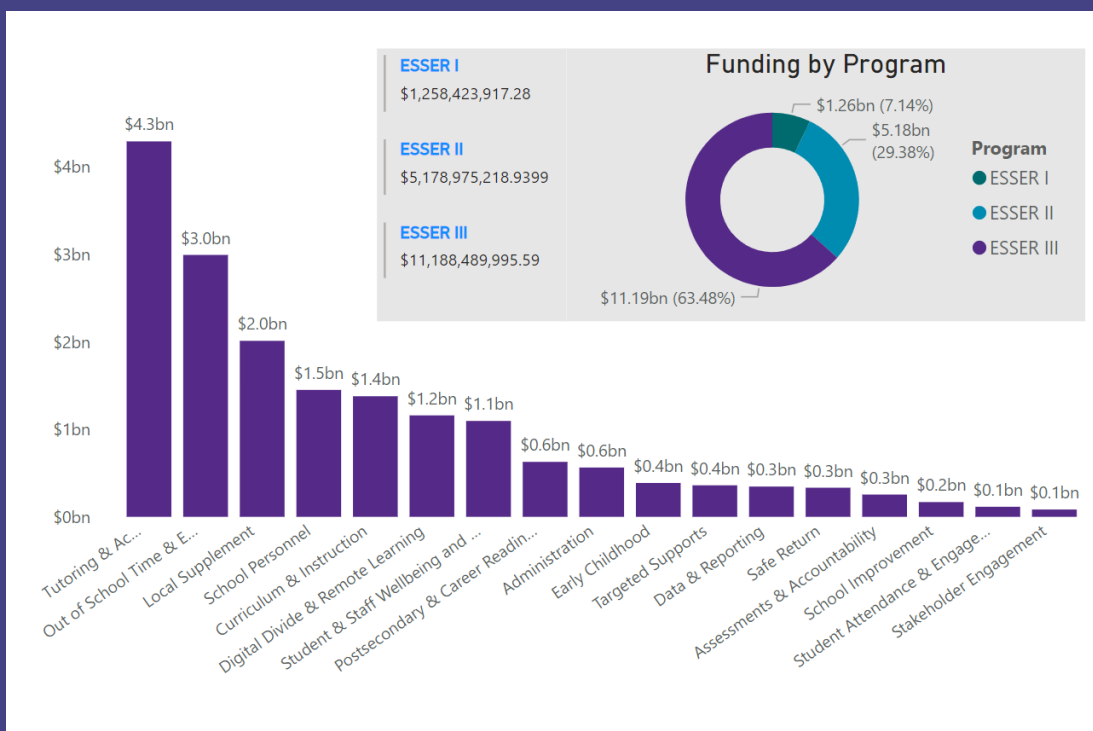
Source: Council of Chief State School Officers, CCSSO.org

Safety, remote learning access, and student participation

Initial use of funding addressed requirements to deliver safe in-person learning and expand remote access in the case of continued closures. During the 2020–2021 school year, 16.7 percent of LEA expenditures went to physical health and safety, which included cleaning, disinfecting, and upgrading school ventilation. More than 40 percent of LEAs dedicated funds to expand access to high-quality home internet for students through mobile hotspots, district-managed wireless networks, and other access points. LEAs also prioritized efforts around reengaging chronically absent and disconnected students. More than 75 percent of LEAs reported implementing reengagement strategies which included direct outreach to students and families, implementing new curriculum, using homeless liaisons and community organizations, and offering credit recovery programs.[42]

Extended learning time, summer learning, and mental health

Several LEAs spent funding on extending the school day or year or on adding time in summer to accelerate learning. Reporting in this category falls under the "meeting students' academic, social, emotional, and other needs" category which also includes implementing rigorous curricula, tutoring, providing wraparound services, and funding additional school counselors and staff. Expenditures related to meeting student needs accounted for 43.2 percent ($6.1 billion) of spending in FY 2021 with plans to expend

$42.4 billion over the remaining funding period. Other spending categories include operational continuity, which represented 38.2 percent of spending; physical and health safety, which received 16.7 percent of funds; and mental health supports, which captured 1.9 percent (almost $300 million) of LEA funds. Mental health supports include services by licensed professionals as well as professional development for school staff. SEAs reported plans for LEAs to spend $4.91 billion on mental health supports before the funding expires.[43] Given the level of disruption for children as a result of school closings, mental wellness and social emotional learning continues to receive increased attention as some of the more immediate reopening needs have been met.

Personnel investments

A disaggregation of LEA expenditures by school accounting subcategories, which overlap reporting categories, presents greater details on LEA FY 2021 spending priorities. Personnel spending, for example, which is covered across multiple reporting categories, accounted for almost half (44 percent) of the relief funds. Personnel investments include hiring new staff as well as expanding hours and compensation for existing staff to address learning recovery needs. Given teacher shortages exacerbated by the pandemic, many districts followed the recommendations of the US Department of Education to use funding to help stabilize and support the teaching workforce.[44] However, investment in labor will create a fiscal cliff in fall 2024, and districts will struggle to mitigate the funding loss for nontemporary measures.

Tutoring and accelerated learning

States leveraged their reserve funding to drive innovation and achievement in several areas. Tutoring and accelerated learning received the greatest investment from state set-aside funding, totaling $4.3 billion thus far. Out-of-school time and extended learning opportunities closely followed, receiving $3 billion from states to LEAs. Other state spending categories include school personnel, addressing the digital divide, student and staff well-being, postsecondary success, data and reporting, safe return, early childhood, and engagement. Across the three funding rounds, similar to LEAs, states adjusted priorities from immediate reopening necessities to evolving recovery needs.[45] (See Figure 4.)

Time deadlines for spending funds

States and districts were required to spend the first round of funding, ESSER I, by January 28, 2023. Seven states, plus Washington, D.C., received approval to extend the deadline to March 30, 2024, attributing delays to staff shortages and supply chain disruptions. The second round of funding, ESSER II, must be obligated by September 30, 2023, and spent by January 28, 2024. The US Department of Education has issued guidance for states seeking to request a liquidation extension that would extend the spending deadline of ESSER II to March 31, 2025.[46] The final and largest funding, ESSER III, has an obligation deadline of September 2024 and spending deadline of January 28, 2025. Recent congressional action to raise the debt ceiling included a provision to rescind unobligated COVID-relief spending. However, ESSER funding would not be impacted by the specific proposal but would reduce funding from efforts to support mental health and summer school services for Native American students, which is funded separately.[47]

A critical question remains: Will the ESSER funding be ultimately effective in helping students recover learning? Moreover, has the current funding expended delivered enough momentum yet in states to catalyze long-anticipated transformation within the K-12 education system so that a great majority of graduates realize postsecondary success and become productive citizens.

A UNIQUE OPPORTUNITY TO INNOVATE

While the harm has been significant, the historic investment of federal relief aid, combined with the rapid advancement in technology, are providing a unique opportunity for states and districts throughout the country to undertake innovative strategies and partnerships to combat both the short-term and long-term pandemic challenges in order to equip the nation's youth for today and tomorrow. Evaluation of existing efforts is in a nascent stage, and Congress should consider ways to expedite a national assessment of programs and initiatives underway.

But, even at this interim stage, an analysis of promising practices and lessons from early implementation offer guidance to inform upcoming efforts as education leaders devise plans to spend remaining ESSER funding and key stakeholders aim to sustain the impact of recovery initiatives. Significant investment of ESSER funds in learning recovery and varied learning as well as family and student engagement strategies are needed. The following priority recommendations include program and strategy examples.

Personalize learning—Tap the power of technology and advances in AI

In a new report, researchers present variations in students' pace of learning which have significant implications on learning recovery strategies. In a standard 180-day school year, a high-pace learner will progress 40 days more than the average student, while the low-pace learner will only achieve 150 days of learning, resulting in a loss of 30 days' worth of learning, annually.[48] The loss is significant when compounded across multiple school years. The pace differential can undercut the tutoring and expanded instructional time efforts underway in many states. Schools must personalize recovery supports out of consideration for different learning paces and levels of retained knowledge to help all students maximize learning opportunities. AI is a potential tool for collecting and evaluating a large set of data on how students learn and the pace at which they learn while using technology that holds out the possibility of improving learning and increasing the pace of recovery efforts.

The Rhode Island Nurses Institute Middle College Charter High School used ESSER funding to implement a software program that enables teachers to deliver differentiated reading and math practice activities. The program complements a universal screener in use by the school to identify students who need increased academic interventions. Together, the technology tools inform tutoring needs and targeted interventions. Nearly 70 percent of the school's incoming ninth graders were below grade level in reading, with many reading at or below the elementary level. The integrated technology programs helped deliver notable progress for 91 percent of students in both math and reading.[49]

The state of Nebraska secured a partnership to deliver personalized support to students in nearly 500 schools beginning in the 2020–2021 school year using an innovative math tutorial learning platform. The program promotes deeper learning by delivering personalized reinforcement of concepts following live instruction from the classroom teacher. By the spring of 2022, students who used the platform experienced significant learning gains, while students who did not experienced declines. A statewide study reviewed student performance on the 2022 Nebraska Student-Centered Assessment System (NSCAS) and discovered double digit growth for low-performing students, students in families living on low-incomes, English learners, and Black and Latino students. Scores for students from low-income families grew 12 percentage points, those for Black and Latino students increased 9 percentage points, and those for English learners increased by 16 percentage points. The greatest gains were achieved by students who completed three or more learning lessons weekly.[50]

These programs allows schools to leverage the power of technology and artificial intelligence (AI) to scale learning impact. While great concerns exist around the safety and security of AI, experts suggest the tool could help schools become more adaptive to the needs of students. AI also has the potential to grant teachers more time for meaningful student engagement by assuming routine tasks and automating tedious requirements.[51] Still, challenges exist around privacy, surveillance, bias, and access equity which will delay any immediate, widespread adoption of AI in K-12 schools.

Reconnect with students and families

The rise and persistence of chronic absenteeism since the pandemic is indicative of the lingering challenge of reengaging students, and the recovery period provides an opportunity to address this long-term, systemic impediment to student success. According to a recent NPR Ipsos poll, most Americans and parents of K-12 students agree that teachers are professionals who should be trusted.[52] Schools must seize this opportunity, leverage this trust, and intentionally reconnect with students and families and build relationships that help students reengage in the school experience. While early implementation results vary two illustrative examples of putting this into practice are the following:

The Metro Nashville Public School district in Tennessee devised a strategy that deliberately connects its student body with a caring staff member in order to build relationships on a one-on-one basis and network students, as well as their families, to services that address identified needs. Through the district's Navigator Initiative, 61,000 students participate in regular check-ins with an assigned Navigator to address academic, social-emotional, and other needs. Teachers, office staff, cafeteria staff, and administrative assistants comprise a team of almost 6,000 Navigators. While the district intends to conduct a formal evaluation in the future,

feedback and reflections from participants offer encouragement. Students have expressed excitement and gratitude about the opportunity to build a supportive relationship at school. In one particular Navigator experience, a student was encouraged to apply for a student member role on the local board of education. Parent and teacher participants both reported noticeable improvements in student motivation and sense of belonging at school due to the Navigator program. [53] The initiative was inspired by the Harvard EdRedesign Lab's success planning framework which promotes personalized, relationship-based strategies that help remove obstacles and clear pathways for children to reach their fullest potential.[54]

The state of Connecticut established the Learner Engagement and Attendance Program (LEAP) to reconnect students and families with schools and address chronic absenteeism. The program includes home visits to foster relationships with parents and help families navigate challenges that get in the way of school attendance. The program also supports enrollment in extended learning opportunities including after-school and summer programs. After the 2021–2022 school year, the program yielded nearly a 15-percentage-point improvement in attendance.[55]

Engage partners to expand capacity

Between the teacher shortage and a growing list of responsibilities, school leaders and staff have been stretched thin. Schools should partner with businesses, public officials, local leaders, and philanthropic and community-based organizations to expand capacity and leverage outside expertise and resources. Several evidence-based, school-community partnership models exist that help connect students and families with social service supports to remove barriers to learning including community schools, school-based health centers, and Promise Neighborhoods. Significant partnerships also exist in the afterschool and summer program space.

In Ector County, Texas school officials outsourced tutoring services to lighten the burden on schools and established outcomes-based contracts, which factored student success into payments to tutoring partners in addition to hours of service. Tutors delivered support in various formats including video sessions and chats, and tutoring was integrated into the school day. As a result, the district's graduation rate rose to the highest level in more than 20 years, and the Ector County district went from an F rating in 2019 to a B rating in 2022 by the Texas Education Agency for the first time in the school district's history.[56]

Build access to postsecondary pathways; Provide opportunities for apprenticeships

High school represents the end of basic education in the US. As students exit with a diploma, they should also have a well-informed plan to enter or continue a career pathway. Schools should integrate career exposure and work-based learning opportunities, which can begin as early as elementary school. In California's Cajon Valley Union School District, students are exposed to career possibilities starting in kindergarten and begin to explore their strengths and interest in the context of the future workforce. The World of Work program implemented in the district exposes students to 78 career options between kindergarten and 12th grade and helps students to envision themselves as a valuable participant in the workforce. The curriculum uses the Holland Code, a research-based career framework, to foster basic occupational interests that can be further explored as students progress within the learning continuum.[57]

A growing number of high schools have developed career academies and apprenticeship partnerships to immerse students in the world of work and demystify the postsecondary transition process. Early college and dual enrollment high schools, which give students the opportunity to earn college course credit and degrees while still in high school, are also on the rise. Schools need to deliver multiple strategies and leverage the business and workforce development industry to ensure students effectively transition from high school into productive citizens.

The state of Colorado committed ESSER funding to launch a competitive grant program, the Colorado RISE Turnaround Education Fund, to promote innovation and build local capacity to transform student outcomes. Seventeen projects awarded by the fund deliver postsecondary supports and pathways to students at various grade levels. The efforts include partnerships between school districts and institutions of higher education with some targeting services to students in rural areas.

Three of the funded projects include:

- **The Southwest Colorado Education Collaborative** Teachers and administrators seek to afford students in rural areas with the same opportunities available to peers in more populus areas. The Collaborative is a partnership between five school districts, a community college, a four-year college, and the business community. Students gain exposure to career options through job shadowing, internships, and mobile learning labs.[58]

- A career pathway program launched by the **Vista Charter High School** to help students envision and plan their post-secondary future as well as to connect students with the surrounding business community.

- **The Pathway to Prosperity program,** which was established by The Santa Fe Trail Board of Cooperative Educational Services (BOCES) in New

Mexico, helps prepare students within the Board's six school districts for college and career success. The program engages students in college and career prep activities as early as 4th grade and includes a capstone project as well as internships for high school juniors and seniors. The program also includes student entrepreneurship fairs and tours of local businesses and institutions of higher education.[59]

Utilize data and technology for rapid evaluation to drive strategies and continuous improvement

The historic investment of federal dollars provides policymakers and school leaders the capability to develop the capacity and infrastructure for districts to use technological advances to rapidly collect data, assess the impact of strategies, and initiate real-time adjustments that will maximize student outcomes. School policies and local regulations should be reviewed and adjusted to foster greater agility of the education system. States could leverage relationships and resources to help evaluate the impact of initiatives across states and promote cross-district learning and collaboration. Further, the federal government should expedite the national expansion of broadband to all communities across the country.

The state of Connecticut has placed a high priority on capturing, evaluating, and improving results of recovery efforts around the state to optimize strategies and maximize impact. The state's Department of Education established the Center for Connecticut Education Research Collaborative (CCERC) to regularly evaluate COVID-19 relief funded projects and deliver real-time lessons to continuously inform and improve strategies.[60] In 2021, the state funded the creation and expansion of summer programs through various partners. By January 2022, the Collaborative had evaluated the 2021 programs, analyzed lessons learned, and delivered recommendations to inform planning for the following summer.[61]

Expand capacity to support mental and emotional well-being

To combat the significant toll that pandemic loss and social distancing placed on emotional development, schools must expand the capacity to address the mental and emotional needs of students and staff. Nationally, the shortage of mental health workers has restricted social-emotional strategies for many schools. Some states and districts have incorporated school-based telehealth services which enable licensed professionals to serve a larger number of students, and sooner. One telehealth practitioner reported a more than 50 percent decrease in the time it takes to deliver services after a referral is received, from 20 to 25 days to 9 days on average.[62] Experts urge schools and districts

to build capacity among school community members to support mental and emotional health in addition to leveraging the service of licensed professionals.[63]

The Mental Health Technology Transfer Center Network and National Center for School Mental Health at the University of Maryland developed a free, online course for school staff to help aid students who are in distress using evidence-based strategies.[64] Students should also be equipped to recognize and address mental health concerns which could empower them to offer peer support and accountability as well as develop greater self-awareness and resilience.

The Billings Public School District in Montana expanded a district-wide depression and suicide training program for school staff and students in response to the alarming rise in mental health challenges and suicidal ideations during the pandemic. The evidence-based Signs of Suicide (SOS) program teaches middle and high school students to identify signs of depression and suicide in themselves and among friends. Students also complete a screening questionnaire to help identify undetected needs. The program's main message is that "Suicide is a fatal response to a treatable disorder—depression." Billings aims to curb mental health challenges and reduce the stigma by growing awareness and equipping the entire school community to A.C.T.—acknowledge, care, and tell.[65] Prepandemic evaluations of the national Signs of Suicide program credited the training for building greater knowledge of depression and suicide, fostering more adaptive attitudes, and reducing suicide attempts. The evaluations found middle school students who reported suicidal ideation prior to the training were 96 percent less likely to report engaging in suicidal behaviors, and high schoolers reported 40 percent fewer suicide attempts following SOS training.[66]

Grow the teacher pipeline

The teacher shortage in schools predates the pandemic; however, the crisis accelerated prior teacher retention and recruitment challenges for schools. According to a recent NPR/Ipsos poll, an alarming percentage of K-12 parents and teachers report that their perceptions of both the quality of public education as well as working conditions for teachers have gotten worse in the past decade.[67] At the start of the 2022–2023 school year, 69 percent of schools attributed hiring challenges to a shortage of candidates.[68] By the beginning of 2023, a significant number of governors announced efforts to grow teacher pathway opportunities in addition to measures that would increase financial incentives for existing and prospective educators.[69] The US Department of Education recently awarded funding to 44 initiatives in an effort to help bolster the educator pipeline through the Teacher Quality Partnership (TQP) grant program and the Supporting Effective Educator Development (SEED) program. The five-year TQP grant program invests in colleges and universities, including schools of education, to

support teacher preparation and residency programs in high-need communities in close partnership with local school districts. The three-year SEED program invests in high-quality teacher preparation programs from various entities, including nonprofits, who couple training with one-year, high-quality clinical experiences.[70]

The state of Tennessee tapped into a national training model with a long history of developing career pathways—Registered Apprenticeships. During the fall of 2020, the Tennessee Department of Education launched "Grow Your Own" programs to address teacher shortages and expand the pipeline into the profession. The initiative attracted partnerships between 14 Educator Preparation Programs and 63 school districts within the state and served nearly 650 candidates by early 2023. The program provides a no-cost pathway into the teaching profession through hands-on training and stream-lined coursework granting participants a bachelor's degree in three years or less.[71] In January 2022, the program became the first federally registered teaching apprenticeship program in the US. Federal apprenticeship programs offer structured on-the-job learning, supplemental classroom education, and nationally recognized credentials.[72] In February 2023, the Tennessee Department of Education invested over $5 million in subgrants to five education preparation providers (EPPs) to expand the teacher apprenticeship programs. The new apprenticeship model includes pathways for licensure-only options as well as bachelor's and master's degrees.[73] The Tennessee "Grow Your Own" program actively recruits local community members—including high school students, existing teacher aids, and parents.

Invest in students early

We have learned a tremendous amount from child development literature about the benefits of early learning experiences and engaging in parental education.[74] In fact, for over 50 years, CED has promoted the importance of and investment in early childhood education to help children build a strong foundation for future learning across grades and lifelong success.[75] Remediation grows increasingly difficult in higher grades, especially after third grade, when students transition from learning to read and begin reading to learn. While participation in high-quality early learning opportunities affords children the best start, kindergarten is the beginning of the formal learning process for many, and students enter with a wide range of prior learning experiences. Research demonstrates that early learning gaps can be identified by the age of two.[76] As a result, K-12 schools should invest in strategies to address learning and developmental gaps as early as kindergarten to significantly improve and sustain academic achievement.

The state department of education in Hawaii piloted a summer transition program for incoming kindergarten students in 2018 to acclimate students and their families to the elementary school experience. The need to support transitions to school in earlier grades exploded after pandemic closures, evidenced by the significant decline in enrollment among preschool and kindergarten families across the country. Among the 11,000 kindergarteners who entered Hawaii public schools in 2021, almost 50 percent had no early learning experience. The Summer Start Kindergarten Transition Program helped to prime soft skills, ease stress, and introduce students to the routines and expectations of the school environment. The three-week program also connects with families to strengthen engagement and ensure students begin their academic career on the best possible footing. The 2022 school year welcomed more than 1,400 students into the program, up from 200 students in 2019, as a result of COVID-19 relief funding. The participation rate reflects the high value parents place on the program, which was also demonstrated in the 95 percent satisfaction rate the program received from parents.[77]

Prepare now for future disruptions

Experts have warned that the next pandemic will arrive sooner than expected. Natural disasters are also occurring more frequently in modern times. Schools must prepare now for future disruptions and establish policies and resources, based on lessons learned, to rapidly reengage students in various formats, including virtually. Many major businesses have established emergency preparedness and disaster recovery plans. School leaders could partner with local businesses to gather insights, strategies, and best practices that can inform school continuity plans. Preparing in advance to develop policies to avoid school closures and devise seamless capabilities to continue teaching and learning remotely is a top priority.

Consider funding sustainability

Many states and local education agencies have devised ambitious solutions, bolstered by historic federal investments, to help students and schools recover. While some strategies were intended as one-time investments, such as school building improvements and professional development, others may require funding over a longer horizon, including tutoring services and personnel spending. Many states advanced robust strategies, like high-dosage tutoring and summer programs, in hopes of rapidly meeting recovery goals and significantly reducing the need for support within the federal recovery funding period. However, experts caution against the idea of a quick recovery. Education leaders and policymakers should build sustainability into all long-term strategies to avoid hitting a funding cliff when federal funding expires. Policymakers should also consider a graduated cost sharing or match requirement that obligates states and LEAs to phase in alternative funding sources as federal funding nears expiration for all long-term initiatives.

Establish a national taskforce to identify best practices

Robust, highly-effective solutions are paramount to help mitigate the academic and social-emotional harm following the pandemic and prepare all students for the demands of the 21st century. Congress should establish a national taskforce and invest in research to adequately assess lessons learned, best practices, and innovative strategies in K-12 education, including learning recovery, student and family engagement, personalized learning, and integrated artificial intelligence.

CONCLUSION

The future prosperity of our nation hinges on the ability of the education system to equip youth with the knowledge, ingenuity, competencies, and skills to be successful in a growingly complex global society. The disruptions, as a result of the impact of the pandemic, produced a critical opportunity for education leaders and other officials to truly assess the condition of learning opportunities in the US and, in turn, prioritize solutions that cultivate successful holistic outcomes for all. While promising practices have emerged across states, the true impact of recovery strategies remains to be seen. As leaders across the country continue to drive initiatives that aim to improve school and student outcomes, long-term success and sustainability must remain front and center.

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