Version 1.0 - March 2021

THE ACCELERATION IMPERATIVE

A Plan to Address Elementary Students' Unfinished Learning in the Wake of Covid-19

THOMAS B. FORDHAM INSTITUTE
ADVANCING EDUCATIONAL EXCELLENCE

TABLE OF CONTENTS

In Microsoft Word version, Control/Command+Click on the sections below to go directly there or type Control/Command+F and click “Headings” to open the Navigation Pane.

Executive Summary **2**

Introduction **5**

Chapter One: School Culture and Climate

- Positive school culture **16**
- Adult mindsets **20**
- Professional learning **26**
- Safe and supportive climate **33**
- Family engagement **39**

Chapter Two: Curriculum

- High-quality, knowledge-rich curriculum **46**
- Reading **51**
- Writing **60**
- Mathematics **67**
- Science and social studies **72**
- Social and emotional learning **78**

Chapter Three: Instruction

- Instructional strategies **84**
- Assessing student progress **88**
- Supports for students with disabilities **93**
- Supports for English learners **97**
- Supports for low-income gifted and talented students **100**

Chapter Four: Recovery

- Targeted help and high-dosage tutoring **104**
- Expanded mental-health supports **114**
- Implementation **123**

EXECUTIVE SUMMARY

In school districts and charter school networks nationwide, instructional leaders are developing plans to address the enormous challenges faced by their students, families, teachers, and staff. While different communities are resuming in-person learning at their own unique paces, all school leaders have their eyes on the same moment: when everyone can safely be back in school full time.

This open-source, evidence-based document is for them. We built this flexible resource with input from dozens of current or former chief academic officers, scholars, and others with deep expertise in elementary education, especially as practiced in high-performing, high-poverty schools. America's public education system may be divvied up into 13,000 districts and 7,000 charter schools, but that doesn't mean we need to work in isolation. As with other open-sourced and crowd-sourced efforts, the goal here is to address common challenges together.

This living document will continue to evolve with the input of readers, including you. Please download and use it as a starting point or supplemental resource for your own planning purposes. It is in the public domain, so feel free to plagiarize it at will! Then register on our wiki (https://caocentral.wiki/), where you can share your comments and experiences.

There are four key design principles at the heart of this effort:

1. Many students—especially the youngest children in the highest-need schools—will need extra help coming out of the pandemic, particularly in the form of **extended learning time, high-dosage tutoring,** and **expanded mental-health supports**.
2. That extra help should complement but **cannot replace what students need from schools' core programs**. Tutoring cannot substitute for high-quality curriculum and mental-health services can't take the place of a positive school culture. No amount of extended learning time can compensate for not making optimal use of the "regular" school day. So while education leaders must address the particular needs of students related to the pandemic, *they may also need to reboot their school-improvement efforts*. Implementing a high-quality curriculum is job No. 1.
3. To make up for what's been lost, **we need to focus on acceleration, not remediation**—going forward rather than going back. That means devoting the bulk of classroom time to challenging instruction, at grade-level or higher, and giving all students access to "the good stuff": a rich, high-quality curriculum in English language arts, mathematics, social studies, science, the arts, and more.

4. Our decisions should be guided by **high-quality research evidence** whenever possible.

Included in this document are dozens of specific recommendations that point to hands-on resources. Many of them are worthwhile at any time, but are particularly relevant to the recovery phase of this crisis. For example:

Positive School Culture

- Administer a school culture survey to evaluate the current strengths and weaknesses across the community, such as those from Johns Hopkins University (which also assesses climate more broadly) or UChicago Impact. Do teachers and staff view the school as having clear, high expectations for teaching and learning? Do they feel that vision is aligned with school or network policies and practices?
- Uphold a consistent, shared code of conduct in which students and adults are expected to work hard, show respect for the rules and for one another, and make positive behavioral choices.
- Open two-way communication between parents and teachers and prioritize staff time to maintain them.

High-Quality Curriculum

- Select and implement comprehensive, high-quality instructional materials that are aligned to college- and career-ready standards; are culturally affirming; capitalize on the findings from cognitive science; and thoughtfully sequence content and instruction in the four core content areas. Reviews from EdReports are helpful; only green-rated curriculum should be used.
- In both English language arts and math, focus on "priority instructional content" as identified by Student Achievement Partners, at least during the 2021-22 school year.
- Establish science and social studies as part of the daily core of elementary school instruction, rather than "special" subjects that happen once or twice a week. Ensure that students are not pulled away from science or social studies instruction for any reason, including for tutoring.
- When selecting a curriculum, also arrange for professional-development services from a training organization that specializes in supporting educators to use that curriculum. Rivet Education is a trusted source of reviews for professional learning providers.

Evidence-Based Instructional Strategies

- Keep struggling students, including those with disabilities and English learners, together with their general-education classmates as much as possible, even as

their specific learning challenges are also being addressed during additional instruction in small-group settings.

- Make sure the needs of gifted and talented students—particularly those who are living in poverty or are children of color—are prioritized in recovery plans too.

Recovery

- Extend the school day and year to provide high-impact, high-dosage tutoring using proven practices.
- Use the same instructional materials for interventions and supports—including tutoring—that are used for regular instruction.
- Implement an evidence-based mental health program such as Cognitive Behavioral Intervention for Trauma in Schools (CBITS), for students who have experienced significant trauma or who have been diagnosed with serious mood, anxiety, or other behavioral disorders.
- Don't bite off more than you can chew. The only recommendations that will help students thrive are ones implemented thoughtfully, with fidelity, and with attention to detail. Aim for quality over quantity, and save some steps for later.

Implementing these recommendations will take real resources of many kinds. Thankfully the federal American Rescue Plan Act will provide a significant amount of money for schools' recovery efforts. It is our hope that this resource will help school districts and charter schools spend that money wisely.

None of these recommendations are brand-new. Almost everything here has been validated by quality research on its actual implementation in existing American schools, in addition to the lived experiences of our expert reviewers. But pulling it all together and applying it at schools that already faced considerable challenges before the pandemic is going to be a heavy lift. We know that. Our goal is to help with the task, and to assist educators in accelerating the progress of our most disadvantaged students across this great country of ours.

INTRODUCTION

All over America, school districts and charter networks are planning for a return to full-time, in-person instruction, hoping that this will be possible by the fall. At that point, the "recovery" phase of the crisis will begin in earnest, as educators work to ensure that the challenges encountered by students since March 2020 do not set them back for the rest of their education careers.

Those challenges have been immense. They include a massive loss of instructional time, as social-distancing requirements forced tens of thousands of schools to shift to fully remote or hybrid learning models; the traumatic loss of life, devastating illnesses, and economic hardships experienced by many students and their families, especially in communities of color; and the emotional strain of America's latest reckoning with racial injustice, prompted by the brutal murder of George Floyd and other Black men and women at the hands of the police.

As education leaders look forward to schools returning to a semblance of normalcy, the key question is how to reorient the systems they lead toward meeting the full range of students' academic, social, and emotional needs in the wake of the multiple crises of the past year.

This document aims to give the nation's chief academic officers a head start on planning for America's educational recovery, with a particular focus on high-poverty elementary schools. Others will also find it useful, including the principals of those schools, administrators, and board members in every type of community with schools impacted by the pandemic.

The document is intentionally a work in progress. It's already the product of thoughtful advice from more than three dozen instructional leaders, scholars, and the like. We intend for it to continue evolving and improving with the help of practitioners and readers. We hope that you will be one of them. Please register on the CAO Central wiki (https://caocentral.wiki/) and add your perspectives to the recommendations herein. By addressing these common challenges together, we all can amplify and sharpen them and—especially—help one another implement them effectively. America's public education system may be divvied up into 13,000 districts and 7,000 charter schools, but that doesn't mean we need to work in isolation. As with other open-sourced and crowd-sourced efforts, the goal here is to address common challenges together.

The U.S contains more than 20,000 high-poverty elementary schools. Each has a particular context and culture. Yet all face similar challenges, especially in the wake of the pandemic: How best to bring every student into grade-level instruction? How best

to help young learners who will be entering kindergarten even less prepared than in the past? How best to honor students' experiences during the pandemic and build upon those experiences when children re-enter actual classrooms?

There may not be one best answer to such questions, but there cannot be 20,000 best answers, either. These challenges are so complex and complicated that we need to tap the best thinking of practitioners and academics nationwide. That's precisely what we're hoping to do; we believe that pooled knowledge, commingled wisdom, and shared experiences will produce a whole that's far more than the sum of its parts.

This document is in the public domain; its purpose is to inform local planning and is designed so that schools and school systems may borrow from it liberally—plagiarize it, too. We have made the latest version of the recommendations available in PDF, Word, and Google Docs formats to make it easy to download and deploy as districts and charter networks form their re-opening and recovery plans.

Design Principles

This document rests on four key assumptions:

1. Many students—especially the youngest children in the highest-need schools—will need extra help coming out of the pandemic, particularly in such forms as **extended learning time, high-dosage tutoring,** and **expanded mental-health supports**.
2. That extra help should complement but **cannot replace what students need from schools' core programs**. Tutoring cannot substitute for high-quality curriculum and mental-health services can't take the place of a positive school culture. No amount of extended learning time can compensate for not making optimal use of the "regular" school day. So while education leaders must address the particular needs of students related to the pandemic, *they may also need to reboot their school improvement efforts*. Implementing a high-quality curriculum is job No. 1.
3. To make up for what's been lost, **we need to focus on acceleration, not remediation**—going forward rather than going back. That means devoting the bulk of classroom time to challenging instruction, at grade-level or higher, and giving all students access to "the good stuff": a rich, high-quality curriculum in English language arts, mathematics, social studies, science, the arts, and more.
4. Our decisions should be guided by **high-quality research evidence** whenever possible.

Let us be clear: the recommendations in this document add up to a picture of a high-performing, high-poverty elementary school, but they do not attempt to cover major innovations that may play an important role in the future. We assume, for instance,

that schools will continue to group students of the same age into grade levels and will continue to allow students to progress to the next grade even if they haven't mastered every single grade-level standard. Nor do we strive here to incorporate new modes of instruction (such as remote teaching and learning over Zoom) that have been so prevalent in recent months.

Mostly, that's because of our decision to hew as closely as possible to existing research evidence in developing an evidence-based plan for educational recovery. Real innovations, by their very nature, have not yet been validated by rigorous research. It's important for schools to experiment with such innovations, but they aren't the focus of the immediate plan, which we intend to be practical, proven, and in most respects familiar.

Whose Evidence?

Whenever possible, the practices we recommend are supported by substantial evidence from high-quality research studies. Resources produced by the U.S. Department of Education's Institute for Education Sciences – especially its collection of Practice Guides and reviews by the What Works Clearing house—have been especially helpful.

Launched in 2003, the What Works Clearinghouse (WWC) is a repository of evidence for "what works" in education. In addition to setting standards for what is (and isn't) considered high-quality research, the WWC examines existing research on "programs, products, practices, and policies in education" and issues reviews and "intervention reports," all in a highly searchable database. Since 2007, the WWC has also produced 24 "Practice Guides," which summarize the findings and recommendations of a panel of experts about the literature on such important topics as *"Improving Adolescent Literacy," "Organizing Instruction and Study to Improve Learning,"* or *"Teaching Math to Young Children."* These practice guides attempt to codify the science when it comes to K-12 education and form the backbone of our recommendations as well.

Of course, we looked beyond the What Works guides for evidence-based practices. Particularly helpful was the EdResearch for Recovery series, a set of short briefs for practitioners on topics that are particularly timely right now, as well as the Johns Hopkins "Evidence for ESSA" portal.

A Reader's Guide

This plan is organized in four chapters: Culture & Climate, Curriculum, Instruction, and Recovery. Each chapter includes several sections, which introduce an array of connected recommendations for high-poverty elementary schools in the wake of the

pandemic. Each section includes rationales for those recommendations based in research, as well as reading lists for further study.

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Why is Recovery last? The additional services that it entails are critical to helping students regain their post-crisis footing. Yet they are secondary to ensuring that the core program of the school is well-designed, aligned to the best evidence, and implemented effectively.

We hope, then, that school systems and charter networks will ask themselves whether their elementary schools have a strong foundation in place: a positive culture and climate; coherent, standards-aligned curriculum with high-quality materials; and evidence-based instructional strategies, including those adapted to target populations. We also hope that these recommendations will provide a roadmap to follow in adopting practices already found in high-performing, high-poverty elementary schools.

INTRODUCTION

The Implementation section offers some tactical suggestions, including how to sequence the recommendations and bring them together into a coherent whole, as well as how they might influence student and teacher schedules.

Yes, it's a *lot* to tackle. It can be difficult to know where to start, especially in reviving schools that may have entered the pandemic without a positive culture and climate, high-quality materials and teacher supports, or instructional strategies for assessing and meeting the needs of individual students. The Implementation section offers some thoughts on how to proceed, but the key is to pick a few essential things to do and then do them well. The recommendations in this plan aren't meant as boxes to check. The only recommendations that *ever* really matter are those that get implemented thoughtfully and effectively—the true art and science of school improvement.

Acknowledgments

This is an open-source, crowd-sourced document, and as such would not be possible without the efforts of multiple educators, academics, and other experts. The first draft was written with loving care by two consultants, Barbara Davidson and Greg Woodward. Barbara is president of StandardsWork and executive director of the Knowledge Matters campaign. Over her long career she has served in leadership or consulting roles at the National Council on Teacher Quality, Great Minds (publisher of *Eureka Math* and *Wit and Wisdom*), the National Assessment Governing Board, and many other essential education organizations. Greg is a former teacher and school leader with experience at both Uncommon Schools and KIPP charter school networks.

That early draft was road tested and readied for wide circulation after feedback from several staff members at the Thomas B. Fordham Institute, including Michael J. Petrilli, Chester E. Finn, Jr., Amber M. Northern, Robert Pondiscio, David Griffith, Chad Aldis, Victoria McDougald, Julie Fitz, and Melissa Gutwein. Then it was ready for feedback and comments from the more than three dozen instructional leaders, scholars, and other experts listed below. We cannot thank them enough for their insights and improvements. Together, they recommended more than 1,000 changes to the original document.

Reviewers:

Name	Title	Organization
Wendi Anderson	Director of Humanities	CenterPoint Education Solutions
Amy Briggs	President	Student Achievement Partners
Susan Pimentel	Founding Partner	Student Achievement Partners
Paul Bruno	Assistant Professor of Education Policy, Organization and Leadership	University of Illinois
Amber Burks-Cole	District Relationship Manager	CenterPoint Education Solutions
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Chrys Dougherty	Program Director, Division of Strategic Planning and Funding	Texas Higher Ed Board
John A. Dues	Chief Learning Officer	United Schools Network
Tracy Epp	Chief Academic Officer	Richmond Public Schools
Emily Freitag	Co-founder and CEO	Instruction Partners
Seth Gershenson	Associate Professor of Public Administration and Policy	American University
Daniel Gohl	Chief Academic Officer	Broward County Public Schools
Mike Goldstein	Founder	Match Education (former)
Derek Gottlieb	Assistant Professor of Teacher Education	University of Northern Colorado
Sofoklis Goulas	Senior Research Analyst	CREDO at Stanford
Mary Alice Heuschel	Deputy Director for K–12 Education, U.S. Program	Bill & Melinda Gates Foundation
Nate Jensen	Director of the Center for School and Student Progress	NWEA
Eric Kalenze	U.S. Ambassador	ResearchED
Rebecca Kockler	Assistant Superintendent of Academic Content	Louisiana Department of Education (former)
Matt Kraft	Associate Professor of Education and Economics	Brown University

Doug Lemov	Managing Director	Uncommon Schools
Kim Marshall	Founder	Marshall Memo
Jared Myracle	Chief Academic Officer	Jackson-Madison County School System (former)
Jamila Newman	Partner	TNTP
Brian Pick	Doctoral Resident	Chicago Public Schools
Gene Pinkard	Director, Practice and Leadership	Aspen Institute
Morgan Polikoff	Associate Professor of Education	University of Southern California
Ricki Price-Baugh	Director of Academic Achievement	Council of Great City Schools
Benjamin Riley	Founder and Executive Director	Deans for Impact
Robert Schwartz	Chief Academic Officer	ICEF (former)
Irvin Scott	Senior Lecturer on Education	Harvard Graduate School of Education
Arnold Shober	Professor of Government	Lawrence University
Katie Shuman	Curriculum Specialist	CenterPoint Education Solutions
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Sivan Tuchman	Research Analyst	Center on Reinventing Public Education
Remy Washington	Chief Academic Officer	Uplift Education
Joey Webb	Director of Academic Services	CenterPoint Education Solutions
Natalie Wexler	Author	*The Knowledge Gap*
Alyssa Whitehead-Bust	Partner	Attuned
Dylan Wiliam	Emeritus Professor of Educational Assessment	UCL Institute of Education
Jason Zimba	Founding Partner	Student Achievement Partners

Based on the feedback from these excellent reviewers, we commissioned a few additional sections. Ashley Berner of Johns Hopkins penned the first draft of the section on School Culture. Christopher Yaluma of Ohio State drafted the one on gifted and talented youth. And John Dues of the United Schools Network wrote parts of the Implementation section. We very much appreciate their great work.

To get the product across the finish line, we turned to editor-extraordinaire Kathleen Carroll. She made the document dramatically more readable and the sections and recommendations much more internally consistent. She will continue to play an editing role on the CAO Central wiki, helping this document to evolve, and improve, in coming weeks and months.

We also thank Tallest Tree for building the CAO Central website; Beyond Definition for marketing help with the project; and the Thomas B. Fordham Institute's Pedro Enamorado for layout and cover design.

Finally, we appreciate the support of the Walton Family Foundation, Bill & Melinda Gates Foundation, Schusterman Family Philanthropies, and our sister organization, the Thomas B. Fordham Foundation.

They say that to travel fast, go alone, and to travel far, go together. This project has gone both fast and far, and it was only possible thanks to the many individuals who contributed their time and attention. Thank you!

CHAPTER ONE: SCHOOL CULTURE AND CLIMATE

POSITIVE SCHOOL CULTURE

In schools with positive cultures, adults share clearly articulated values and beliefs, work purposefully together, and follow well-established norms to meet a common set of high expectations for teaching and learning.

The values and beliefs that a school community puts into practice each day define its culture. Schools with positive cultures have shared narratives, habits of mind, and effective ways of getting things done. They have articulated a coherent vision for excellence and can draw on that to flexibly respond to challenges, craft solutions, and reinforce practices that promote student success.

The conditions that support such cultures are influenced by the school's climate—a distinct but related quality that determines the mood and feeling of a school community, the nature of relationships among adults and students, and expectations for physical and emotional security.[1]

The fast-moving changes and interruptions in schooling caused by the pandemic have highlighted the importance of maintaining a positive school culture. Systems and networks that had established shared beliefs and norms prior to the crisis had more tools to help in their response and recovery. Schools that entered the crisis without aligned structures and values in place were at a disadvantage that was only compounded by the inequities that accompanied remote learning in high-poverty areas.

School culture includes many interrelated parts and can be difficult to define and change. But that will be a critical task to a productive pandemic recovery. School leaders must assess the routine practices of teachers, staff, students, and parents, identify the values and beliefs that drive those practices, and create the conditions for long-term success.

Recommendations:

- Administer a school culture survey to evaluate the current strengths and weaknesses across the community, such as those from Johns Hopkins University (which also assesses climate more broadly) and UChicago Impact.

[1] *From the editors:* For more on this, see the Safe and Supportive School Climate section.

Do teachers and staff view the school as having clear, high expectations for teaching and learning? Do they feel that vision is aligned with school or network policies and practices?

- Work with senior leaders in your school community, including parents and teachers, to ensure a clear articulation of the school's mission and values, and use that mission and vision statement to model actions and drive decision-making related to the pandemic and beyond.
- Conduct an audit of school practices, including curriculum implementation and scaffolding, teacher professional development, the use of advisories, disciplinary codes, grading policies, and awards ceremonies, to ensure a through-line from the school's mission to its institutional practices.
- Facilitate teacher leadership and collaboration to reinforce and share ownership of the school's mission and vision.[2]

Rationale:

A strong and positive school culture is characterized by a clear sense of direction and shared accountability to advance a vision for success, which shapes how teachers and leaders do their jobs. It is built on mutual respect and trust, which are the foundation of learning communities.[3]

Scholars have identified the power of coherent culture in successful schools of all types. For example, a study of high-performing Catholic high schools attributed their impact on students to several aspects of school culture, including a decentralized structure that prioritized decision-making and leadership at the school level and a clear, common understanding of what all students should learn.[4] Scott Seider's exploration of how three Boston charter schools prioritize character development shows the impact of strong school culture as well as social and emotional learning.[5] And Karin Chenoweth's book looking at how beliefs and aligned practices support academic achievement in high-poverty district schools provides another distinct source of examples of school culture at work.[6]

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[2] *From the editors:* Providing more opportunities for staff to communicate directly with one another helps beliefs, values, and aligned actions take root and become stable norms. For more, see "What Makes a Good School Culture?"
[3] *From the editors:* See "Relational Trust: The Glue that Binds a Professional Learning Community" for more.
[4] *From the editors:* See *Catholic Schools and the Common Good* for more on this.
[5] *From the editors*: See *Character Compass* for more on this.
[6] *From the editors*: See *It's Being Done: Academic Success in Unexpected Schools*.

Positive school cultures have already supported some early responses to the pandemic. For example, a consortium of high-performing charter schools drew on their earlier reform work and professional collaborations to create the National Summer School Initiative (now Cadence Learning).[7] Guilford County Schools, an innovative North Carolina district that has run its own teacher-licensing program since 2008, enlisted its master teachers to build an online library of instructional videos last spring and summer, a natural extension of its teacher-leadership Opportunity Culture initiative.[8]

We note here that a strong culture cannot take root or thrive without a healthy school climate, and the values and actions that support these dimensions tend to go hand-in-hand. Schools must be safe from violence, both for students and teachers. Students from different socioeconomic, racial, or ethnic backgrounds should feel equally at home.[9] Schools must support students' emotional and social needs, while families must feel and actually be included as important members of the school community.[10] Teachers must be respected by their principals, given the tools to lead rigorous classrooms, and provided opportunities to lead and collaborate with one another.

Reading List:

Bryk, A., Lee, V., and Holland, P. (1995). *Catholic Schools and the Common Good*. Cambridge, Mass.: Harvard University Press.

Chenoweth, K. (2007). *It's Being Done: Academic Success in Unexpected Schools*. Cambridge, MP: Harvard Education Press.

Chiefs for Change and Johns Hopkins University Institute for Education Policy. (2020). "How Should Education Leaders Prepare for Reentry and Beyond?"

Cranston, J. (2011). Relational Trust: The Glue that Binds a Professional Learning Community. *Alberta Journal of Educational Research*, 57(1), 59-72.

Daly, B., Buchanan, C., Dasch, K., Eichen, D., and Lenhart, C. (2010). "Promoting School Connectedness among Urban Youth of Color: Reducing Risk Factors While Promoting Protective Factors." *Prevention Researcher*, 17(3), 18–20.

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[7] *From the editors:* For more, see this implementation study.
[8] *From the editors:* For more on Guilford County's work, see this summary of the Opportunity Culture initiative and article about the licensure program.
[9] *From the editors:* For more on this, see this study by Watkins and Aber and this research summary by Adam Voight.
[10] *From the editors:* For more, see "The Essential Supports for School Improvement."

Education World. (2015). "Mission Statements: Where Is Your School Going?"

Gabriel, J., and Farmer, P. (2009). "How to Help Your School Thrive Without Breaking the Bank." Association for Supervision and Curriculum Development.

Hamre, B., and Pianta, R. (2006). "Student-Teacher Relationships." *Children's Needs III: Development, Prevention, and Intervention*. Washington, D.C., National Association of School Psychologists.

Hassel, B., and Hassel, E. (2010). "Opportunity at the Top: How America's Best Teachers Could Close the Gaps, Raise the Bar, and Keep Our Nation Great," Chapel Hill, NC: Public Impact.

Kraft, M., Marinell, W., and Shen-Wei Yee, D. (2016). "School Organizational Contexts, Teacher Turnover, and Student Achievement: Evidence From Panel Data." *American Educational Research Journal*, 53(5), 1411–49.

Manning, J. and Jeon, L. (2020). "Teacher Stress and Second-Hand Trauma: Supporting Teachers During Re-Entry." Baltimore, MD: Johns Hopkins University Institute for Education Policy.

Mattison, E., and Aber, M. (2007). "Closing the Achievement Gap: The Association of Racial Climate with Achievement and Behavioral Outcomes." *American Journal of Community Psychology*, 40(1–2), 1–12.

Osterman, K. (2000). "Students' Need for Belonging in the School Community." *Review of Educational Research*, 70(3), 323–67.

Savitz-Romer, M., Jager-Hyman, J., and Coles, A. (2009). "Removing Roadblocks to Rigor: Linking Academic and Social Supports to Ensure College Readiness and Success." Washington, D.C.: Pathways to College Network, Institute for Higher Education Policy.

Seider, S. (2012). *Character Compass: How Powerful School Culture Can Point Students Toward Success.* Cambridge, MA: Harvard Education Press.

Stemler, S., Bebell, D. and Sonnabend, L. (2011). "Using School Mission Statements for Reflection and Research." *Educational Administration Quarterly* 47(2), 383–420.

Uphoff, N. (2001). "Understanding Social Capital: Learning from the Analysis and Experience of Participation." In *Social Capital : A Multifaceted Perspective*, 215–49. Ithaca, NY: Cornell University Press.

ADULT MINDSETS

Adult mindsets are the beliefs and expectations about student achievement that influence school culture, drive decision-making, and accelerate or hinder student success.

Student outcomes are strongly linked to adult mindsets, and teachers and leaders at high-performing schools tend to share a common set of high expectations for success.[11] That's always been true, but may be more important than ever given the challenges created by the pandemic. Many students are contending with massive learning losses and emotional trauma, and caring adults may be inclined, even in subtle ways, to lower the bar and shield students from challenging work.

While educators should certainly demonstrate empathy, it's essential that adult expectations for student progress remain high—among educators and parents alike.[12] At school, instructional materials, teaching methods, teacher-student interactions, grading practices, and professional learning experiences should ensure mechanisms for expressing high expectations are in place.[13] [14] School culture should push back against the soft bigotry of low expectations—including bias related to race and class—and support students to set and achieve ambitious goals.[15]

Recommendations:

- Articulate shared high expectations for student engagement, work, and mastery across the school, district, or network. Use common planning time to address current mindsets, assumptions, beliefs, biases, and prejudices

[11] *From the editors:* See "The Effects of Teacher Expectation Interventions on Teachers' Expectations and Student Achievement: Narrative Review and Meta-Analysis" and "The Opportunity Myth."
[12] **From F. Chris Curran:** Shaping expectations among parents is important as well; for evidence see studies by Min Zhan and Pamela Davis-Kean.
[13] **From Ricki Price-Baugh:** This is college-focused as a reflection of high expectations. There is nothing wrong with that. We might expand that view, however, to provide more emphasis on student assets, agency, growth mindset, and skills and tools for the future.
[14] **From Amy Briggs:** Throughout, there is lots of talk about holding high expectations which is a good thing, but very little said about building on the many assets that students will bring to school.
[15] *From the editors:* When school staff successfully instill high academic expectations in students (such as graduating from college), students perform stronger academically. This is particularly important for students of color, given the prevalence of racism and implicit bias in our schools and beyond. See "Collective Expectations Protecting and Preventing Academic Achievement."

that may influence staff's ability to set and hold students to high expectations as the school focuses on recovery.[16]

- Select high-quality instructional materials embedded with high expectations.[17]
- Use effective whole-group instruction instead of ability grouping as much as possible, so that lower-performing students are exposed to rigorous, grade-level content.[18]
- Implement a school-wide approach to grading student work to ensure consistently high standards, including rubrics and grading scales and common policies for accepting late assignments.[19]
- Implement a school-wide approach to managing student behavior.[20]
- Administer student surveys uncover the extent to which students believe that teachers hold high academic expectations for them. Survey instruments to consider include those from Tripod or Panorama Education.
- When hiring for teacher vacancies, look for teachers with a record of high expectations for children, and especially children of color. Given the studies showing that teachers of color tend to hold higher expectations for students of color, prioritize teacher diversity in hiring decisions as well.

Rationale:

Teachers hold often unspoken beliefs about who they and their students are and what they both can do, and research shows that those mindsets matter. Several studies have found that students recognize when teachers hold high expectations for them

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[16] *From the editors:* This includes discussing and recognizing the difference between holding all students accountable to high expectations for learning and using high expectations to further inequitable practices and uphold inequitable or racist policies and practices. Research by David M. Quinn shows bias is pervasive in school grading, and research by Travis Riddle and Stacey Sinclair finds evidence of bias in discipline practices, for example.

[17] *From the editors:* See the High-Quality, Knowledge-Rich Curriculum section for more on this.

[18] **From F. Chris Curran:** It's important to clarify what is meant by "whole group instruction." If this is referring to or interpreted as teacher-led, whole class direct instruction, this might result in lost opportunities for socially constructed and applied learning that can occur in small groups. I agree that small groups that sort the lowest achievers into a group that has lower expectations can be problematic. For evidence on the benefits of direct instruction for lower-achieving students, see research by Morgan et al and Kroesbergen et al.

[19] **From Brian Pick:** Student work is a key lever. Suggest looking at EL Education's great Models of Excellence work on this. See also this video of Ron Berger from EL teaching "Austin's Butterfly," a lesson about how descriptive feedback can help students improve their work.

[20] *From the editors:* See the section on Safe and Supportive Climate for more on this.

and perform better academically when they do. Conversely, when teachers hold differentiated expectations for students, as opposed to uniformly high expectations for all students, these low expectations are correlated with lower academic achievement. Tragically, some studies have found that teachers tend to have lower expectations for students of color; helping teachers see their own implicit racial biases and working to counteract them is essential.[21] A rigorous approach to culturally responsive teaching also can support high expectations for all.

One of the best ways to ensure that a culture of high expectations is in place is via the adoption and faithful implementation of high-quality instructional materials.[22] The best instructional materials are designed to give all students access to the same challenging content, including through robust scaffolds embedded to support student learning for students who do not possess the prerequisite concepts or skills.[23] That makes it possible for all students to master grade-level standards.[24]

Connecting mindsets and materials to classroom practice is the next step. High-performing charter networks call this "intellectual prep." They use teachers' common planning time to review curriculum and evidence of student progress, establish common expectations and grading norms, and ensure lessons leave the heavy lifting to students, through productive struggling with rigorous, grade-level content.[25]

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[21] **From Seth Gershenson:** Macro expectations are important, along with the micro expectations in the rest of this section. In this journal article, my co-author and I find that generally expecting a student with graduate college increases the chances that they will.

[22] *From the editors:* For more, see the Curriculum chapter.

[23] **From Jared Myracle:** A key question here is: how will you build a belief in high expectations in staff who say that the curriculum is "too hard" or that "my students can't do this"? I've found this is the primary reason why teachers make changes/adaptations to high-quality instructional materials that lessen the impact. (One possible way to address this challenge is through professional learning that focuses on curriculum scaffolds. See, for example, "The Elements: Transforming Teaching through Curriculum-Based Professional Learning." –*eds*)

[24] **From Natalie Wexler:** This is key. If students are essentially on different tracks, because leveled reading has been made the center of the curriculum, it becomes impossible for those on the lower tracks to meet high expectations.

[25] **From Joey Webb:** The approach to intellectual prep by Achievement First, Uncommon, and Success Academy, for example, is a way to set the stage for high expectations. See this example of an intellectual prep protocol for elementary-school math.

ADULT MINDSETS

Finally, many of the highest-performing, high-poverty schools embrace specific pedagogical practices that convey high expectations, such as those identified by Doug Lemov in his highly influential book, *Teach Like A Champion*. These include four major techniques.[26] [27]

Technique	Technique Description	How it promotes high expectations
No Opt Out	Students are held accountable to always make an effort	Students practice answering challenging questions and know that their teachers are not giving up on them
Right is Right	Partially correct answers from students are not "rounded up" to fully correct	Students receive the message that they are capable of getting an answer completely right
Stretch It	Okay/good verbal and written answers from students are pushed to be more robust	Students are pushed to expand on "B" answers to make them "A" answers
Without Apology	The teacher does not ever apologize for the material being challenging	The students never hear from the teacher that something is too hard for them

[26] **From Remy Washington:** In current times, some practices in the book have come under question. There has been a recent groundswell and backlash over *Teach Like a Champion*, with the book described as culturally insensitive and creating compliant classroom cultures that are absent of joy.
[27] **From Jamila Newman:** We also must think about the balance between high expectations; socio-emotional or trauma-informed instruction; and power, privilege, identity, diversity, equity, and inclusion.

Reading List:

Andrews, D., and Gutwein, M. (2017). " 'Maybe that concept is still with us': Adolescents' racialized and classed perceptions of teachers' expectations." *Multicultural Perspectives*, 19(1), 5-15.

- Demonstrates the baseline principle that teachers' expectations for students have a significant effect on academic achievement.

Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: the indirect role of parental expectations and the home environment. *Journal of Family Psychology*, 19(2), 294.

De Boer, H., Timmermans, A., and Van Der Werf, M. (2018). The effects of teacher expectation interventions on teachers' expectations and student achievement: narrative review and meta-analysis. *Educational Research and Evaluation*, 24(3-5), 180-200.

- Clarifies the concept of high expectations, specifically that students recognize when teachers have high expectations for them, which relates to stronger performance.

Papageorge, N., Gershenson, S., and Kang, K. (2020). Teacher Expectations Matter. *Review of Economics and Statistics*. 102(2). 234-251

Same, M., Guarino, N., Pardo, M., Benson, D., Fagan, K., and Lindsay, J. (2018). "Evidence-supported interventions associated with Black students' education outcomes: Findings from a systematic review of research." U.S. Department of Education, Institute of Education Sciences, Regional Educational Laboratory Midwest: Washington, D.C.

- There is promising evidence for the role that high expectations play in all students' academic outcomes, and particularly so for African-American students.

Timmermans, A., and Rubie-Davies, C. (2018). Do teachers differ in the level of expectations or in the extent to which they differentiate in expectations? Relations between teacher-level expectations, teacher background and beliefs, and subsequent student performance. *Educational Research and Evaluation*, 24(3-5), 241-263.

- When teachers hold differentiated expectations for students in their classrooms, this can be related to lower academic achievement. This speaks to the need to norm all teachers on a culture of high expectations before the school year even starts.

TNTP. (2018). "The Opportunity Myth." New York, NY.

- Finds a larger effect size for adult expectations than other major factors, with the most pronounced impacts on students of color or from low-income families.

Trinidad, J. E. (2019). Collective expectations protecting and preventing academic achievement. *Education & Urban Society*, *51*(9), 1147–1171.

- All adults in a school holding high expectations for students is correlated with positive academic outcomes.

Uchida, A., Michael, R., and Mori, K. (2018). An Induced Successful Performance Enhances Student Self-Efficacy and Boosts Academic Achievement. *AERA Open*, 4(4), 1-9.

- If students believe that they can do something, they experience more academic success.

Zhan, M. (2006). Assets, parental expectations and involvement, and children's educational performance. *Children and Youth Services Review*, 28(8), 961-975.

PROFESSIONAL LEARNING

Professional learning is an ongoing process in which teachers study, probe, and practice new instructional techniques, investigate curriculum, and collaborate with colleagues to enhance content knowledge and pedagogical skills.

Ongoing professional learning for educators that is well designed, based on the science of learning, responsive to teachers' needs, and aligned with school-wide priorities is the bedrock of positive school culture. There's simply no way any school can implement high-quality curricula and research-based instructional practices, or address students' unfinished learning and mental health needs, without it.

Most professional learning should be tied directly to the high-quality curriculum a school, district, or network has chosen.[28] Administrators also should schedule frequent opportunities for observation and feedback on teachers' instructional practice by peers, coaches, and school leaders, using established frameworks and grade-level expectations for student achievement. In addition, during shared professional learning time in subject or grade-level groups, teachers should focus on developing deep content and curriculum knowledge, by studying curriculum, planning and practicing lessons and carefully examining student work.

Recommendations:

- Link professional learning and curriculum work together. When purchasing or procuring curriculum, also arrange for professional development services from the curriculum developer or a training organization that specializes in supporting educators to use that curriculum. Our contributors and reviewers point to leading organizations such as SchoolKit, Teaching Lab, Instruction Partners, TNTP, and Leading Educators. Rivet Education is a trusted source of reviews for professional learning providers.[29]

[28] **From Brian Pick:** This is a really key point! Tied to this idea is teachers taking time to read and study the student text in the ELA curriculum and the student math problems in the math curriculum. I want to start nationwide, virtual book/text groups and math task study groups over the summer for teachers to read, study, and talk about text and tasks.

[29] **From Alyssa Whitehead-Bust:** I have found professional-learning providers sometimes better than the vendor itself at designing and delivering learning.

- Many schools have professional learning communities on the books, but these structures and times are not always well used. Avoid "PLC Lite" by building regular PLC time into the weekly schedule,[30] providing skilled facilitators to lead those sessions, and establishing agendas that focus on curriculum study and candid discussions of student progress, including detailed reviews of work samples and data analysis.[31] [32]
- Schedule time for teachers and instructional coaches to observe other teachers or watch videos of their lessons, and offer feedback, and normalize that as part of grade-level PLC work. In particular, coaches or PLC facilitators should ask questions and push teachers to think deeply about their instruction and impact on student learning.[33]
- Ensure school or district leadership and decision-making is aligned to goals for ongoing professional learning and curriculum implementation. This could mean reassigning a staff member to handle oversight, or partnering with an external professional learning vendor to support change management, provide leadership development, or troubleshoot logistics. In all cases, maintaining a coherent approach to professional learning, using the school's curriculum as a guide, is key

Rationale:

Components of Strong Professional Learning

Strong professional learning focuses on what Richard Elmore terms the "instructional core": the relationship between the content, teacher, and student.[34] Each component of the core affects the others. To improve student learning at scale, schools can raise

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[30] *From the editors:* See the Implementation section for more.
[31] **From Kim Marshall:** Getting teacher teams to do the right stuff is a complicated, difficult leadership challenge. See "The futility of PLC lite" by Douglas Reeves and Rick DuFour and two books by Paul Bambrick-Santoyo of Uncommon Schools: *Driven by Data* and *Leverage Leadership*.
[32] **From Ricki Price-Baugh:** Districts such as Denver, San Diego, and Dallas ISD are deeply engaged in this type of unit study collaboration. With technology, PLCs could meet across schools and even be scheduled so that a content specialist might attend virtually to answer specific questions and concerns.
[33] **From Joey Webb:** I agree with this for a more advanced set of teachers who have relative command of a curriculum. However, for most schools shifting to new curriculum, strong intellectual prep cycles are what will get everyone to deliver a lesson competently. The approach—borrowing from Japanese lesson study (working together to solve an instructional challenge)—comes after teachers have internalized (intellectually) what is in an individual lesson for a curriculum. (For more on intellectual prep, see "Intellectual Prep: What We've Learned." – *eds.)*
[34] *From the editors:* See this article for a brief discussion of this and the book *Bridging the Gap Between Standards and Achievement* for more.

the level of the content that students are taught, increase the skill and knowledge that teachers bring to the teaching of that content, and increase the level of students' active learning of the content. This framework establishes the imperative of putting *what happens in the classroom* at the very center of professional development efforts.[35]

When a school has a high-quality curriculum to focus on, it also has a north star for professional learning. High-quality curriculum supports a teacher's content knowledge and pedagogical skill, builds on the science of learning to present content and activities in a coherent way, and clarifies expectations for teaching and learning. Given the infinite array of possible outcomes to any given lesson—which vary with each student's level of preparation, how they are doing on a given day, what's going on in the world around them, and so forth—teaching is ultimately a series of hundreds of granular decisions about execution and response. Curriculum-based professional learning focuses those decisions and helps to ensure that, over time, they are made with increased intentionality and consistency. [36] [37]

Another vitally important feature of effective professional learning and schools is the prioritization of time for intentionally structured PLCs. Numerous studies document teacher-perceived benefits of PLCs, and some also demonstrate positive student outcomes, including increases in academic achievement.[38] By far the most compelling use and rationale for PLCs is the opportunity for teachers to collaboratively interrogate and intellectually prepare to teach the curriculum, as well as identify what is (or is not) working and why. PLC structures also can support observations by peers or instructional coaches. This is akin to Japanese lesson study, which provides

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[35] **From Chris Dougherty:** Teacher learning has three components: pedagogical content knowledge, or ways to teach specific topics and concepts in the curriculum in each subject; routine classroom practices and procedures as in Doug Lemov's work, which save time, increase engagement, and support SEL and growth mindset; and the learning science that underlies the first two and addresses common misconceptions.

[36] **From Morgan Polikoff:** PD should focus on the ways the curriculum teaches certain content. For example, why does the curriculum emphasize certain skills or ideas? Why is it structured how it is? How can it be effectively implemented and scaffolded?

[37] **From Rob Schwartz:** This does not all happen over a summer. It's sustained work over years and years that requires aligned district and school leadership, the buy-in of union representatives, and stability at the school board/superintendent level. For teachers, ongoing intellectual prep is key to the fidelity of implementation of the curriculum, ensuring they have the appropriate content knowledge and can guide Tier 2 interventions by anticipating gaps and misconceptions. If, for example, they over-scaffold curriculum, it loses its effectiveness. I see this a lot in classrooms that use high-quality curriculum and it is mostly a belief challenge, where teachers do not think students can handle it or do not like to see them struggle.

[38] *From the editors:* For example, see "A review of research on the impact of professional learning communities on teaching practice and student learning."

teachers the opportunity to plan, teach, observe, and critique their practice with colleagues.[39]

Some districts and networks can serve as examples of this approach to curriculum-based, collaborative professional learning. For example, under the LEAP program at DC Public Schools, teachers meet weekly with trained leaders to unpack and rehearse lessons from the district's Common Core-aligned curriculum and are regularly observed and given feedback from an instructional coach.[40]

Research Review

The evidence base for curriculum-based professional learning is nascent, and more research is needed. But there is a strong base of research supporting our professional learning recommendations.

In a 2009 article, Thomas Guskey and Kwang Suk Yoon summarized findings from more than 1,300 studies that looked at impacts of professional development on student learning. The research indicated several characteristics of effective efforts. These include a focus on content, with activities that "were designed to help teachers better understand both what they teach and how students acquire specific content knowledge and skill," and on careful adaptation of varied instructional practices rather than a single set of "best practices." Effective development also involves outside experts, without whom teachers tended to focus on practices they already considered effective, rather than those shown to produce results.[41]

In addition, a 2017 research brief by Linda Darling-Hammond, published by the Learning Policy Institute, cites seven features of effective professional development, based on a review of 35 studies over the last three decades:[42]

1. Content focused
2. Incorporates active learning using adult learning theory
3. Supports collaboration, typically in job-embedded contexts
4. Uses models and modeling of effective practice
5. Provides coaching and expert support

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[39] **From Jason Zimba:** For example, see "Collaborative lesson research," which suggests a U.S.-friendly adaptation of Japanese lesson study.
[40] **From Tracy Epp:** Other examples and resources include IDEA Public Schools Days of Practice; Achievement First's intellectual prep and unit unpacking protocols, EL Education's protocols for studying the quality of student work, and Uncommon Schools' *Practice Perfect*.
[41] *From the editors:* They also found evidence that workshops are not necessarily ineffective and that follow-up is crucial to success. For more, see "What Works in Professional Development?"
[42] From the editors: See "Effective Teacher Professional Development."

6. Offers opportunities for feedback and reflection
7. Of sustained duration

The Carnegie Corporation of New York recently released a Challenge Paper about the importance of curriculum-based professional learning that builds on this research.[43] It calls for decision-makers at the system and school levels, curriculum designers, professional learning facilitators, and school-based personnel to begin to align their systems around such a vision.[44]

Transformative professional learning promotes a high level of cognitive dissonance, disturbs teachers' equilibrium, and must include the time and support they need to reflect on and revise their thinking.[45] [46] This happens as teachers gain new evidence about what works with their students through using the curriculum materials, which prompts changes in practice and ultimately, beliefs and assumptions.

Our bet is that this type of "transformative professional learning" is a defining characteristic of effective elementary schools, based on the strength of the arguments for high-quality, content-rich curriculum. It can support teachers as they develop mastery with that curriculum and ensure that school leaders and outside experts "walk the walk" as they lead their team.

Reading List:

Briars, D. and Resnick. L. (2000). "Standards assessments—and what else? The essential elements of standards-based school improvement." Los Angeles, CA: The National Center for Research on Evaluation, Standards, and Student Testing.

Darling-Hammond, L., Hyler, M., and Gardner, M. (2017). "Effective Teacher Professional Development." Palo Alto, CA: Learning Policy Institute.

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[43] *From the editors:* See "The Elements: Transforming Teaching through Curriculum-Based Professional Learning."
[44] **From Morgan Polikoff:** Also look at Louisiana's curriculum-oriented PD approach. (Louisiana has created open-source curriculum and aligned professional-learning resources. For more on this, see AEI's "Lessons from Louisiana's efforts to create a new marketplace for high-quality K–12 curricula and professional development." – *eds*)
[45] **From Remy Washington:** The part of the line that is powerful here is that "disturbs teachers' equilibrium." Teachers often sit with the cognitive dissonance and stay attached to the belief and not the reality. Helping leaders to support teachers to disrupt their beliefs would be game-changing.
[46] **From Irvin Leon Scott:** It's critical to create a culture of trust and safety. Teachers are less inclined to take the risks needed to grapple with this dissonance in schools without the aforementioned culture. For example, see "Trust in Schools: A Core Resource for School Reform," which explores the role of relational trust in 400 Chicago elementary schools.

Dogan, S., Pringle, R., and Mesa, J. (2016). The impacts of professional learning communities on science teachers' knowledge, practice and student learning: A review. *Professional Development in Education*, 42(4), 569–588.

- Reviews empirical studies on the impact of PLCs on the practice and knowledge of K-12 science teachers, specifically examining changes in disciplinary content knowledge and pedagogical content knowledge, and found that PLCs can help teachers increase both types of knowledge.

Elmore, R. (2002). "Bridging the Gap between Standards and Achievement: The Imperative for Professional Development in Education." Washington, D.C.: Albert Shanker Institute.

- Student learning depends on the relationships established between a teacher, their students, and the content, which is defined as the "instructional core." Attention to all three is essential for improved student outcomes.

Guskey, T., and Yoon, K. (2009). What Works in Professional Development? *Phi Delta Kappan*, 90(7), 495-500.

Jackson, C. K., and Makarin, A. (2017). "Can Online Off-The-Shelf Lessons Improve Student Outcomes? Evidence from a Field Experiment." National Bureau of Economic Research.

- The impact of implementing a high-quality curriculum increases when coupled with professional development. While the impact occurs for all teachers, it is largest for the weakest teachers.

Killion, J. (2008). "Assessing Impact: Evaluating Professional Development." Thousand Oaks, CA: Corwin and Learning Forward.

- Professional learning can be designed and executed to produce changes in adult knowledge, skills, behaviors, practices, attitudes, aspirations and beliefs (KASAB).

Reeves, D., and DuFour, R. (2016). The futility of PLC lite. *Phi Delta Kappan*, 97(6), 69-71.

Short, J., and Hirsch, S. (2020). "The Elements: Transforming Teaching through Curriculum-Based Professional Learning." Carnegie Corporation of New York.

Somma, V. (2016). *The impact of lesson study on teacher effectiveness*. Doctoral Dissertation. St. John's University (New York.) ProQuest Dissertations Publishing.

Takahashi, A. and McDougal, T. (2016). Collaborative lesson research: maximizing the impact of lesson study. *ZDM*, 48, 513–526

- Looks at some cases of where Japanese lesson study went wrong and right in the U.S., recommends a more "America-friendly" version called Collaborative Lesson Research, and presents details and preliminary results from a three-phase model of school-based CLR at 15 urban U.S. schools.

Taylor, J., Getty, S., Kowalski, S., Wilson, C., Carlson, J., and Van Scotter, P. (2015). An Efficacy Trial of Research-Based Curriculum Materials With Curriculum-Based Professional Development. *American Educational Research Journal*, 52(5), 984-1017.

- Highly effective professional learning positions teachers to further their expertise in content knowledge, pedagogical knowledge, and pedagogical content knowledge.

Thompson, C., and Zeuli, S. (1999). "The Frame and the Tapestry: Standards-Based Reform and Professional Development" in *Teaching as the learning profession. Handbook of policy and practice*. Darling-Hammond, L. and Sykes, G., eds. San Francisco, CA: Jossey-Bass.

- Learning to teach in new ways requires teachers to examine their current assumptions and beliefs about content, how they teach that content ,and how their students learn best.

Wiener, R., and Pimentel, S. (2017). "Practice What You Teach: Connecting Curriculum & Professional Learning in Schools." Aspen Institute.

Willems, I., and Van den Bossche, P. (2019). Lesson Study effectiveness for teachers' professional learning: a best evidence synthesis. *International Journal for Lesson and Learning Studies*. 8(4), 257-271.

- Review of research describing Lesson Study as a powerful professional development approach as a result of its positive impact on teachers' professional learning in terms of knowledge, skills, behavior, and beliefs.

Vescio, V., Ross, D., and Adams, A. (2008). A Review of Research on the Impact of Professional Learning Communities on Teaching Practice and Student Learning. *Teaching and Teacher Education: An International Journal of Research and Studies*, 24(1), 80–91.

- A review of research; the collective results suggest that well-developed PLCs have positive impacts on both teaching practice and student achievement.

SAFE AND SUPPORTIVE CLIMATE

In a safe and supportive climate, students and adults maintain caring, trusting relationships that promote mutual respect, physical and emotional security, and productive teaching and learning.

Feeling safe and valued is vital to a child's development. Learning suffers when students are fearful for their safety, worry about being bullied, or don't view their teachers as having high expectations for their success. In a healthy, supportive climate, students are engaged and take intellectual risks. They follow well-established rules and norms for behavior that their teachers and school leaders model and maintain. Such a community is characterized by positive relationships between teachers and students, a place where genuine respect is the norm, and where all students feel they belong.

The same is true for adults—both the teachers and families who make up a school community. In a nurturing climate, educators and family members share candid exchanges based on mutual interests and respect. Their social and emotional needs are part of the equation.

This climate does not occur magically—rather, it must be cultivated through deliberate school-wide strategies, expectations, and rules. A safe and supportive climate should reflect shared values and take into account the communities and cultures students bring with them to school. And it must include sound classroom-management practices and developmentally appropriate supports, including social well-being and mental health interventions. This will be particularly important—and challenging—in the post-pandemic era, given the significant trauma so many students (especially those growing up in poverty) likely experienced over the past year.

Recommendations:

- Establish and maintain authentic, candid relationships with students and their families that reflect and show respect for their community and culture. In-school activities like greeting individual students by name, making time for regular check-in conversations, can be helpful, as can family-outreach strategies like

calling home to share a positive report from a school day or surveying parents on their opinions of the school.[47] [48]

- Uphold a consistent, shared code of conduct in which students and adults are expected to work hard, show respect for the rules and one another, and make positive behavioral choices. Focus efforts on preventing disruption, including through recognizing and rewarding positive behavior and providing mental-health supports to students who have experienced trauma and may struggle with self-regulation.[49]
- Set and communicate high expectations for all students and provide access to these goals through universal supports, such as after-school office hours or tutoring that is open to all.
- Guard against racially biased discipline, including by carefully tracking and analyzing data on misbehavior and the school's response, including office referrals and in or out-of-school suspensions.
- Plan classroom rosters and schedules that recognize and build on teachers' unique strengths and contributions to the school community, including through assigning instructional duties by subject-area strength or "looping" students so they work with the same teacher for more than one year.[50]
- Anticipate trauma among teachers and adopt practices that support their emotional well-being, such as informal socializing, regular check-ins, and limits on evening emails.

Rationale:

Positive relationships between students and teachers are at the core of a successful classroom environment, one where students feel seen, work hard, and treat one another with respect.[51] [52] We know that when there are such relationships, students are happier and more likely to thrive. A positive school climate is correlated with beneficial student

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[47] *From the editors:* See more about this topic in the Family Engagement section.
[48] **From Eugene Pinkard:** Positive relationships and sustaining connections don't just come from clear and consistent expectations—they require explicit attention, and can be data-informed just as academic content instruction can be.
[49] *From the editors:* See more about this in the Expanded Mental-Health Supports section, as well as this suite of resources for trauma-sensitive schools from the U.S. Department of Education.
[50] *From the editors:* For more, see this study by Brian Jacob and Jonah Rockoff.
[51] **From Rob Schwartz:** See Lisa Delpit's chapter on "Warm Demanders" from *Multiplication Is for White People* for an example of this. (See also this brief, user-friendly summary of the Warm Demander approach. –*eds*)
[52] **From Brian Pick:** See Zaretta Hammond's work on culturally responsive teaching and neuroscience.

outcomes on many measures, including attendance, assessment outcomes, high-school graduation rates, adolescent physical health, and adolescent civic behaviors.[53]

But it is important to understand that strong relationships don't mean friendship-like bonds or generic feelings of being liked.[54] The Search Institute's Developmental Relationships Frameworks provides a sound model for educators looking to create school climates that foster learning. It is based on five elements: express care, challenge growth, express support, share power, and expand possibilities.[55] In this understanding of climate, teachers don't just express care for their students, they envision and communicate ambitious possibilities for their futures and provide the challenges and supports needed to realize that potential.

Schools with safe and supportive climates also take into account the holistic needs of teachers and students to get outdoors and play. Engaging, high-quality instruction is key, but so are opportunities for physical activity and unstructured, student-led games and playground time. Daily schedules should have time for exercise outdoors or in—for adults and for kids.[56]

This all rests of skillful classroom management, which minimizes disruption and sets clear rules and expectation for behavior and success. Students feel safer and behave better when they know that there are transparent norms in the classroom, and when they know what the consequences will be if they make a mistake.[57]

The National Council on Teacher Quality, in its overview of the research, stresses that positive relationships are developed not through friendship but through a teacher's implementation of "fair rules and productive routines."[58] In other words, teachers need to create a structured, positive environment for students in order for the relationship to be a positive one.[59] Concrete strategies for classroom teachers can be found in "Reducing Behavior Problems in the Elementary Classroom," a practice guide published by the Institute of Education Sciences that affirms the importance of

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[53] *From the editors:* For more, see the National School Climate Center.
[54] **From Eric Kalenze:** Students respond better to knowing they have a teacher who cares about their success—however that's manifested—than knowing they have a teacher who 'likes them'. We've over-corrected on the 'it's all about relationships' piece, and it's the slippery slope to more bad practices than I can even name.
[55] *From the editors:* See the institute's website for the full framework of five elements and 20 aligned actions.
[56] *From the editors:* See the section on physical activity in "Supporting Teachers During Re-Entry."
[57] *From the editors:* See this meta-analysis that looks at evidence-based practices for positive classroom environments for more.
[58] *From the editors:* See "Training Our Future Teachers: Classroom Management" for more.
[59] **From Doug Lemov:** School is a collective endeavor that requires adjustment in behavior by everybody. In the current climate, in which authority and authoritarianism are confused and in which people confuse the highly public cases of abuse of authority by entities within the justice system with the benevolent and necessary exercise of authority within a school, will be disastrous for the kids we most hope to serve with our interests in social justice.

teaching and reinforcing consistent rules and routines, reinforcing appropriate behavior, and imposing consequences for negative behavior.[60] In addition, principals and other school leaders should occupy a steady presence in the school's halls and classrooms, which can prevent disciplinary problems from occurring.[61]

The starting point is to ensure that students are highly engaged in learning by choosing high-quality, rigorous curriculum that is content-rich, interesting, and culturally relevant, and by applying instruction that connects *all* students to it.[62] In elementary school classrooms, this tends to mean trading out disconnected literacy skill-building activities like "making inferences" for text-based learning about high-interest topics like the Underground Railroad or explorations in space. Relationships and rules are key, but rich content and effective teaching also help to create orderly and purposeful classroom environments.

Reading List:

Delpit, L. (2013). *Multiplication Is for White People: Raising Expectations of Other People's Children*. The New Press.

Epstein, M., Atkins, M., Cullinan, D., Kutash, K., and Weaver, R. (2008). "Reducing Behavior Problems in the Elementary School Classroom: A Practice Guide (NCEE #2008-012)." Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

- Provides the evidence base for the idea that clear rules and expectations that are reinforced deliberately by teachers improve student behavior.

Greenberg, J., Putnam, H., and Walsh, K. (2014). "Training Our Future Teachers: Classroom Management." National Council on Teacher Quality.

- Draws heavily on research-backed classroom management practices and identifies five key strategies that teacher candidates should master: establish rules, build routines, reinforce positive behavior, impose consequences for misbehavior, and foster student engagement.

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[60] **From Vivian Tseng:** Given the prevalence of racial disparities in discipline, it'll be important to help educators go about this work in ways that do not lead to racial disparities. A lot of this can be implicit bias so not necessarily intentional.

[61] *From the editors:* See "Administrative visibility and its effect on classroom behavior" for more on this.

[62] **From Joey Webb:** Educators often use the statement "meet students where they are" when thinking about student engagement. This is often a veil to dilute or reduce the rigor of grade-level work. Instead, consider it as a statement that understands exactly "where" the student is. What city do they live in? What about them makes learning relevant? Meaningful learning environments can be both rigorous and culturally relevant and, taken together, make for students who "lean in" from the seats their seats because they are engaged and challenged.

Hamre, B., and Pianta, R. (2005). Can Instructional and Emotional Support in the First-Grade Classroom Make a Difference for Children at Risk of School Failure? *Child Development*, 76(5), 949–67.

Jacob, B., and Rockoff, J. (2011). "Organizing Schools to Improve Student Achievement: Start Times, Grade Configurations, and Teacher Assignments." Washington, D.C.: Brookings Institution.

Manning, J., and Jeon, L. (2020). "Supporting Teachers During Re-Entry." Baltimore, MD: Johns Hopkins University Institute for Education Policy.

Nelson, B.S., and Hammerman, J.K. (1996). "Reconceptualizing teaching: Moving toward the creation of intellectual communities of students, teachers and teacher educators." From *Teacher Learning: New Policies, New Practices. The Series on School Reform.* McLaughlin, M., and Oberman, I., eds. Newton, MA: Center for Development of Teaching

- Provides a framework for the idea of classrooms as "intellectual communities" that are the ultimate end of the rules and relationships that foster positive behavior.

Oliver, R., Wehby, J., and Reschly, D. (2011). Teacher classroom management practices: Effects on disruptive or aggressive student behavior. *Campbell Systematic Reviews.* 4(1), 1-55.

- Summary showing how strong classroom management systems based on clear and transparent rules can reduce disruptive student behavior.

Quin, D. (2017). Longitudinal and Contextual Associations Between Teacher–Student Relationships and Student Engagement: A Systematic Review. *Review of Educational Research*, 87(2), 345–387.

- Review of 46 studies on the impact of strong relationships between teachers and students that decisively shows positive impacts on academics, attendance, positive behavior, and many other areas.

Roorda, D., Koomen, H., Split, J. and Oort, F. (2011). The Influence of Affective Teacher–Student Relationships on Students' School Engagement and Achievement: A Meta-Analytic Approach. *Review of Educational Research*, 81(4) 493-529.

- Looks across 99 studies to investigate the associations between affective qualities of teacher–student relationships and students' school engagement and achievement to find evidence of the major impact of positive relationships on academic success.

Simonsen, B. Fairbanks, S., Briesch, A., Myers, D., and Sugai, G. (2008). Evidence-based Practices in Classroom Management: Considerations for Research to Practice. *Education and Treatment of Children*. 31(3), 351-380.

- Summary of research that finds evidence that setting and reinforcing clear expectations for behavior is an effective classroom-management practice.

Skinner, E., and Belmont, M. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology*, 85(4), 571-581.

FAMILY ENGAGEMENT

Family engagement names a core responsibility of a school community: to build partnerships that involve families in a student's education, provide the information and resources that families need to support academic success, and listen to and act on families' needs and wants for their children.

To fully reopen schools and begin to correct for pandemic-related interruptions, students need to reliably attend class and meet expectations for behavior and out-of-school assignments. In the current pandemic, many families have been through significant trauma, from illness or losing loved ones, or from financial hardship and losing a job or a home. A return to full-time schooling for these students is far from assured, and getting back on track at school will take hard work and focused support both at school and at home.

Family engagement is always critical to student success, but never more so than now. Schools and families will need to rebuild in-person connections and shore up trust—first, so parents can feel secure in sending children back to school buildings full time, and second, so they can communicate and troubleshoot challenges to support and accelerate student learning. Some of the digital tools that schools and families have put in place to keep connected over the last year can help.

Recommendations:

- Regularly communicate expectations for student attendance, behavioral, and grade-level expectations—and why these are important factors in children's development and success as adults. In addition, share the concrete steps the school or district is taking to support students to meet these expectations and make up for pandemic-related learning losses, including how families can support these efforts at home. Accessible forms of communication like text messages can build trust and "nudge" families, to the benefit of students.[63]
- Work to build (or rebuild) trust at the system level, including by soliciting families' goals for their children and including those goals in program planning.

[63] **From Seth Gershenson:** For homework and attendance, the nudge/text message interventions show promise – see this recent piece from FutureEd.

Many of the least-connected parents already distrusted schools even before the pandemic, given their own negative experiences with schools or other institutions. Publicly listening and acting on family priorities is one way to rebuild trust, such as by surveying families and publicly sharing how those responses inform decision-making.

- Open two-way lines of communication between parents and teachers and prioritize staff time to maintain them. Family engagement cannot be seen as something "done" to families. True engagement is mutual and relies on open and frequent communication about what's working and what's not, with students' needs at the center. Successful tactics can include arranging regular "office hours" when families can contact staff for any reason, regular virtual parent-teacher conferences, or stepped-up outreach efforts by school counselors to check in with families about their needs and expectations.
- Advocate for and enlist expert help to step up social-service supports and highly effective instruction. Work with community service providers to anticipate and respond flexibly to a variety of family needs, including by expanding social-service and mental-health supports.[64] [65] And, partner with expert organizations to support highly effective instruction using high-quality curriculum.

Rationale:

School disconnection has played out differently for different families during the pandemic. While some families gained insights as daily instruction played out over Zoom, other households haven't dialed in. Even the most engaged students have experienced some degree of physical isolation from school environments, while the least engaged students have experienced no schooling at all.

Inviting kids and families back to school, so they are prepared to be full partners in the hard work of catching up academically, is key. Understanding the cultural factors that shape families' immediate concerns and priorities is important. Schools and families can more easily agree on short-term objectives, like daily attendance, homework, and

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[64] **From Chrys Dougherty:** Schools need to be able to enlist outside providers to assist struggling families that are having difficulty supporting their children's learning in the recommended ways. In general, efforts to provide a knowledge-rich curriculum in the schools should be complemented by third-party efforts to improve the neighborhood environment and expand out-of-school learning opportunities for less advantaged students.

[65] **From Vivian Tseng:** I think a deeper engagement with the research on low-income families might also be useful because it complicates suggestions that families must ensure their children arrive at school rested and prepared to learn. Patrick Sharkey, for example, has found that neighborhood violence has negative effects on children's well-being and cognitive performance. Community violence is not something that low-income parents can control. In addition, low-income families who live in crowded housing situations or who have unstable housing will also find it challenging to ensure that their children are rested when they arrive at school.

reading, when they are connected to a shared goal of a "meaningful future" for students.[66]

A 2016 report by the Pacific Regional Education Lab suggests that two-way communication that includes frequent data sharing with families can help.[67] Sharing data with parents about children's general academic progress, including both formative and summative assessment scores, has a particularly high impact on students' academic success. Positive impacts are enhanced when the school asks families about students' interests, behaviors, and challenges.

For example, a 2019 study out of Germany found evidence that frequent communication between schools and families can increase students' completion of homework assignments. This means that when schools share data on students' homework completion on a recurrent basis, students are more likely to turn in homework. The study found that simply assigning homework without a strong and sustained parent-family relationship did not result in high homework completion rates.[68]

While there is some debate over the value of homework, especially in the younger grades, we know that well-chosen homework assignments are beneficial to students and can communicate with parents what their children are learning at school.[69] In addition, reading at home for at least 20 minutes a day at home has significant academic benefits. A compelling 2020 longitudinal study from the Oxford Review of Education found significant academic benefits correlated with students reading at home, but only when the materials read are *books* and not other printed materials (such as comics or newspapers). Schools should consider ways to provide books to read at home.

Finally, both families and schools have a role to play in reducing student absenteeism.[70] A 2007 study from The Mailman School of Public Health at Columbia points to the devastating academic costs of chronic absenteeism. Chronically absent students score 5 percent lower, on average, on math and reading standardized assessments compared to their peers.

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[66] *From the editors:* See, for example, "Envisioning a meaningful future and academic engagement."
[67] *From the editors:* See part four of this toolkit of community engagement resources for more.
[68] **From Rob Schwartz:** The research on the impact of homework in general is mixed. If it's high-quality and builds on what they learned in class that's one thing. If it's busy work – it's a waste of time.
[69] **From Chrys Dougherty:** Knowing what students are studying should help parents in conversations with their children about school. Anecdotal evidence reported in E.D. Hirsch's *How to Educate a Citizen* indicates that knowledge-rich curriculum enriches the discussions between parents and their children.
[70] *From the editors:* See "Improving Student Attendance with School, Family, and Community Partnerships."

FAMILY ENGAGEMENT

In short, family engagement should be based on principles of transparency and mutual trust, as articulated in the following delineation of roles/responsibilities:

Core Principle	Role of the School	Role of Families
Respect for Families and their Cultures: The heart of family engagement is trust, and that means building real relationships.	Find concrete ways for the principal and classroom teachers to know students, their families, and their cultures	Participate in school events, both the academically-oriented ones (like Back to School night) and ones intended to build community and celebrate cultures.
Attendance and Readiness: Students make the most academic and social-emotional progress when they have enough sleep and are present every day.	Provide rigorous and engaging lessons that start on time every day. Offer social supports to families if attendance and readiness are significant challenges.	To the extent possible, ensure that students get enough sleep and arrive at school on time every day. Take advantage of supports offered by the school to ensure their child's academic success.
Homework: The daily completion of aligned homework assignments supports students' mastery of the school's rigorous curriculum.	Assign meaningful homework assignments that support students' mastery of the curriculum.	Ensure that students complete their homework every day and bring it to school.
Reading: Students need a high-quality curriculum and should read independently for at least 30 minutes every day.	Implement a robust, research-backed ELA curriculum in school and make concrete, low-cost recommendations for texts to read at home.	Read to young children every day. Ensure that older students read for at least 30 minutes per day.[71]
Screen Time:	Provide concrete, realistic suggestions for how families can set and enforce screen	Set and enforce screen time limits and steer children

[71] **From Jared Myracle:** I'd get even more specific and ask families to read on a similar topic to what is included in their current ELA module, science curriculum, or social studies curriculum. We developed a reading guide in Jackson to share with parents that was a bulletpoint list of certain topics for them to focus on (based on the curriculum's topics).

Excessive screen time can create attention challenges for young children, plus keeps them from moving their bodies.	time limits while children are not at school.	toward reading, exercise, and play instead.
Active Communication: Students' success in school is dependent on parents and teachers routinely and actively communicating with each other.	Share routine academic performance updates with families on at least a weekly basis, in families' preferred languages. Solicit families' feedback via regular, valid, and reliable surveys.	Actively communicate with their child's teacher, including reading all emails and texts that come from the school. Offer feedback proactively or via surveys.

Reading List:

Dettmers, S., Yotyodying, S., and Jonkmann, K. (2019). Antecedents and Outcomes of Parental Homework Involvement: How Do Family-School Partnerships Affect Parental Homework Involvement and Student Outcomes? *Frontiers in Psychology*. 10.

- Simply assigning a lot of homework does not necessarily lead to its being completed. Robust family engagement (family-school partnerships in a German context) leads to improved homework completion.

Garcia, M.E., Frunzi, K., Dean, C.B., Flores, N., & Miler, K.B. (2016). "Toolkit of resources for engaging families and the community as partners in education. Part 4: Engaging all in data conversations." Washington, D.C.: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Pacific.

- Speaks to the importance of sharing data with families about how their children are doing in a meaningful way as a key part of a family engagement strategy.

Hill, N., Liang, B., Price, M., Polk, W., Perella, J., and Savitz-Romer, M. (2018). Envisioning a meaningful future and academic engagement: The role of parenting practices and school-based relationships. *Psychology and the Schools*, 55(6), 595-608.

Jerrim, J., Lopez-Agudo, L., and Gutiérrez, O. (2020). Does it matter what children read? New evidence using longitudinal census data from Spain. *Oxford Review of Education*. 46(5), 515-533.

- It's widely stated that reading every day is essential for kids' literacy development. This longitudinal study makes the compelling case that this is only the case when students read books and not other printed material.

Pondiscio, R. (2019). *How the Other Half Learns: Equality, Excellence, and the Battle Over School Choice*. Avery.

- Points to the important role of being transparent and direct with parents, among other successful aspects of Success Academies Charter Schools.

Romero, M., and Lee, Y. (2010). "A National Portrait of Chronic Absenteeism in the Early Grades." New York, N.Y.: National Center for Children in Poverty, Columbia University.

- Confirms the detrimental effects of chronic absenteeism in elementary school on school success by examining children from across various incomes and race/ethnicity groups in a nationally representative sample of children entering kindergarten.

Sharkey, P. (2010). The acute effect of local homicides on children's cognitive performance. *Proceedings of the National Academy of Sciences*, 107(26), 11733-11738.

Sheldon, S. (2007). Improving student attendance with school, family, and community partnerships. *Journal of Educational Research*, 100(5), 267-275.

- A robust family engagement strategy plays a key role in improving attendance

CHAPTER TWO: CURRICULUM

HIGH-QUALITY, KNOWLEDGE-RICH CURRICULUM

High-quality, knowledge-rich curriculum thoughtfully sequences content and activities based on the science of learning and provides the materials, tools, and professional learning teachers need to deliver effective instruction.

The faithful implementation of a comprehensive, high-quality curriculum is a necessary (though not sufficient) condition for a high-performing elementary school. High-quality instructional materials shape what students learn, how they engage with content, and how teachers manage their instructional time. Such curricula effectively sequence content for maximal benefit, and the best also incorporate evidence-based practices based on how children learn. A school that has not carefully implemented a high-quality curriculum will struggle to help students address unfinished learning and make sense of the tumultuous events of the last few years.

Recommendations:

- Select and implement comprehensive curriculum materials that thoughtfully sequence content and instruction in the four core content areas: English language arts/literacy, mathematics, history/geography, and science.[72]
- Base curriculum decisions on college- and career-ready standards and evidence-based instructional practices. Reviews from EdReports are helpful; only green-rated curriculum should be used.
- Ensure leadership in curriculum implementation is deliberate, intensive, and responsive to teacher feedback.[73] [74]
- Ground professional development in the specific content of the curriculum and ensure it explains the research foundation for the curriculum's framework and orientation.

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[72] *From the editors:* Subject-specific recommendations are featured in the Reading, Mathematics, and Science and Social Studies sections.
[73] **From Bailey Cato Czupryk:** Implementation is a really important contributing factor that should be remembered throughout this section. I worry that a reader of this doc could think that just adopting materials will fix everything.
[74] **From Rob Schwartz:** This could also argue for a recommendation for partnering with a support org (i.e. Instruction Partners, TNTP, or Teaching Lab) to ensure fidelity of implementation. It's hard to implement curriculum effectively.

- Focus on "priority instructional content," as identified by Student Achievement Partners, at least during the 2021-22 school year.
- Schedule weekly meetings for grade-level professional learning communities (PLCs) to study the curriculum, examine samples of student work and other data, observe teacher practice, and plan upcoming lessons.

Rationale:

Adopting and implementing a new high-quality, knowledge-based core curriculum is challenging at any time; it will be all the more so in the wake of the pandemic. But for schools, districts, or charter networks currently without one, it will be well worth the effort, as it allows educators to make the best use of instructional time to help students build essential knowledge and skills. In addition, using the same high-quality curriculum across an entire school—or, preferably, an entire district or charter network—can identify and ultimately help prevent gaps in students' knowledge and enable teachers to reliably predict what information students already possess as they move from classroom to classroom.

Schools need to both select and implement new curriculum wisely. Decision-makers at schools and districts can investigate possible curriculum at EdReports.org and select among green-rated programs. They also should consider the science of learning in making those decisions.[75] [76]

Evidence shows that changing to a high-quality curriculum can have a strong positive effect on student learning. State-based studies looking at Florida, Indiana, and California have affirmed that the "curriculum effect" is real and particularly large for disadvantaged students.[77] However, David Steiner of Johns Hopkins University raises important questions about what might contribute to curriculum's impact on student

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[75] *From the editors:* The science of learning can help sharpen our understanding of high-quality curriculum. The 1999 book "How We Learn," identifies these three elements: First, learning should be based on prior knowledge, and teaching should unearth and clear up misperceptions and help students build on what they already know. Second, a deep base of knowledge distinguishes experts from novices; learning should help students become experts who can retrieve knowledge quickly and apply it to new situations. Third, metacognition (or thinking about your thinking) should be developed in each area of a curriculum as it helps students take control of their learning.

[76] **From Natalie Wexler:** I worry about the huge and damaging overemphasis on decontextualized metacognitive strategies that's been going on for decades. Not to mention that there's evidence from the 2009 Rethinking Reading Comprehension Instruction study that teaching metacognitive strategies can actually INTERFERE with comprehension, as compared to a more content-focused approach. What does work to get students thinking metacognitively in an effective way is WRITING, assuming it's taught explicitly, beginning at the sentence level, and embedded in the content of the curriculum. (This is discussed in *Handbook for Metacognition in Education*, which includes the chapter "Writing Is Applied Metacognition.")

[77] *From the editors:* For more, see "Is curriculum quality uniform? Evidence from Florida," "Large-Scale Evaluations of Curricular Effectiveness: The Case of Elementary Mathematics in Indiana," and "Big Bang for Just a Few Bucks: The impact of math textbooks in California."

learning in a policy brief for StandardsWork. For example, many different types of materials are described as "curriculum" and the selection and implementation of curriculum vary widely, so the precise drivers have not yet been precisely defined.[78]

In addition, recent evidence indicates that curriculum alone is not enough—the quality of implementation has a major impact on instruction and learning.[79] One study spanning 6,000 schools and six states did not find positive effects from implementing high-quality instructional materials, perhaps because of the absence of high-quality instructional supports. Other studies have found that more than half of the possible impact of shifting to a stronger curriculum is lost if the transition does not include development supports to shift teacher practice in a way that specifically supports the new materials.[80]

Curriculum also should serve as a bedrock of professional learning for teachers, and the lens through which continuous improvement in practice is both inspired and measured. Using well-designed, high-quality curriculum can free teachers' time and energies to practice and refine their instruction, since they are no longer urged or expected to essentially design their own.[81] Few teachers have the time or the training to do this well.

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[78] *From the editors:* In addition, teachers often supplement curriculum materials with resources available for download online, such as those shared on Teachers Pay Teachers and Share My Lesson. In 2020's "The Supplemental Curriculum Bazaar: Is What's Online Any Good?" a team of reviewers looked at ELA resources from these sites and rated them as mostly mediocre—or worse. While teachers are understandably eager to capitalize on new resources, it's important that what they bring in to the classroom is of high quality. Plans to implement high-quality curriculum could also consider ways to foster collaborative, appropriate supplementation. Even so, supplementation may compromise the coherence of a curriculum

[79] **From Ricki Price-Baugh:** There is no perfect textbook. Every book has strengths and limitations. Having a textbook that is based on Common Core Standards and the instructional shifts they require, is better than not having any direction for teachers to utilize. However, teachers or schools should not have to individually determine which portions of a textbook need greater emphasis or where key ideas may be missing or provide insufficient student practice. Central offices can produce that information after careful analysis. Central offices can also provide advice on where and when to bring in additional resources to go deeper into a topic or to address unfinished learning to better meet district or state expectations. Central offices can also alert teachers to likely areas of unfinished learning and provide videos, strategies, or professional development for addressing these areas along with engaging students engage in grade level learning.

[80] **From David Steiner:** It's also important that there be vertical (year-to-year) integration so that it's clear what the end of year expectations are.

[81] **From Doug Lemov:** Off-the-shelf curriculum also benefits from "decision rights"—the idea that teachers earn or are granted the right to modify the curriculum to fit their students' needs as they demonstrate mastery and proficiency. In other words, a first-year teacher and a sixth-year master teacher should use curriculum differently. The first should simply do as told. The second should have earned the right to modify in certain ways. But what ways and how much? And when do they earn these decisions rights? A school should think that through!

Reading List:

Bransford, J., Brown, A., and Cocking, R. (1999). *How People Learn: Brain, Mind, Experience, and School*. Washington, D.C. National Academy Press.

Cabell, S.Q., and Hwang, H. (2020). Building Content Knowledge to Boost Comprehension in the Primary Grades. *Reading Research Quarterly*, 55(1).

Chingos, M. and Whitehurst, G.R. (2012). "Choosing Blindly: Instructional Materials, Teacher Effectiveness, and the Common Core." Washington, D.C.: Brookings Institution.

- Curriculum selection has large and statistically significant effects on student outcomes, rivaling teacher effectiveness interventions.

Bhatt, R., and Koedel, C. (2013). Is curriculum quality uniform?: Evidence from Florida. *Economics of Education Review*, 34, 107-121.

- Textbook choice has statistically significant effects on test scores, this evaluation of curricular effectiveness in elementary mathematics finds.

Jackson, C. and Makarin, A. (2017). "Can Online Off-The-Shelf Lessons Improve Student Outcomes? Evidence from A Field Experiment." National Bureau of Economic Research. Working Paper No. 22398.

- Evidence suggests investments in curriculum components are highly scalable and effects are greatest with weakest teachers, who are disproportionately present in high-needs classrooms.

Koedel, C. and Polikoff, M. (2017). "Big Bang for Just a Few Bucks: The Impact of Math Textbooks in California." Brookings Institution.

- Finds that non-trivial gains in student achievement are attainable simply by choosing more effective curriculum materials, with effect sizes on par with what one could expect from a hypothetical policy that substantially increases the quality of the teaching workforce. "Choosing a more effective textbook is a seemingly straightforward policy option for raising student achievement."

Polikoff, M. with Dean, J. (2020). "The Supplemental-Curriculum Bazaar: Is What's Online Any Good?" Washington, D.C.: Thomas B. Fordham Institute.

Steiner, D. (2017). "Curriculum Research: What We Know and Where We Need to Go." StandardsWork, Inc.

- Research indicates that curriculum is a critical factor in student academic success, particularly in the upper grades, and that that comprehensive, content-rich curriculum is a common feature of academically high-performing countries.

Taylor, J. A., Getty, S. R., Kowalski, S. M., Wilson, C. D., Carlson, J., and Van Scotter, P. (2015). An Efficacy Trial of Research-Based Curriculum Materials With Curriculum-Based Professional Development. *American Educational Research Journal*, 52(5), 984-1017.

- A preponderance of evidence links expertise in content knowledge, pedagogical knowledge, and pedagogical content knowledge to successful outcomes for students. Highly effective professional learning positions teachers to further their expertise in all three.

Whitehurst, G. (2009). "Don't Forget Curriculum." Brookings Institution.

- Looks at the effect sizes of a variety of policy levers and interventions (e.g. charter schools, merit pay, preschool programs) compared to curriculum and claims that "anyone interested in 'doing what works for the kids' should pay attention...Curriculum effects are large compared to most popular policy levers."

READING

A high-quality reading curriculum is based on research, comprehensive, and features both components of a strong program of study: an explicit and systematic approach to foundational skills instruction and rich opportunities for vocabulary development and exposure to academic content.

Literacy is the bedrock of a high-performing elementary school and should be the No. 1 priority for post-pandemic educational recovery. A high-quality elementary curriculum imparts essential foundational skills in early reading and uses rich, engaging, and culturally responsive literary and informational texts. This allows students to build background knowledge of the world as they learn to read and draw meaning from print—a critical component of literacy instruction. Students need systematic foundational skills instruction as well as a strong vocabulary and wide exposure to academic content.[82]

However, identifying such curricula can be difficult, as research identifying the effectiveness of specific programs is fraught with challenges. For example, the fidelity of implementation varies and comparisons with control groups are hard to come by. Still, the best ELA curricula embed practices that themselves have been validated by rigorous research and are grounded in the science of reading. In addition, independent curriculum reviews such as those by EdReports, which rates quality based on alignment to college- and career-ready standards, can provide important information about a variety of programs.

In the discussion below, we focus on three considerations for elementary ELA curriculum selection and implementation: the science of reading, standards alignment, and design that gives all students access to grade-level content. We explore how these high-impact elements play out in an exemplar curriculum from EL Education.

Recommendations:

- Select and implement a high-quality, comprehensive curriculum that is based in the science of reading, rich in content, rigorous, culturally relevant, and includes strong teacher-facing materials. We suggest EL Education, which has earned

[82] **From Amber Burks-Cole:** High-quality ELA elementary curriculum includes an explicit and systematic approach to all components of reading (Phonemic Awareness, Phonics, Vocabulary, Comprehension and Fluency) with a strong early foundation in oral language, and an emphasis on engagement.

high ratings from EdReports in grades K-8 and was found effective in a 2013 Mathematica study.

- Give all students "the good stuff," or appropriately complex texts that align to grade-level standards, by providing struggling readers with the necessary scaffolding and supports.
- Align staff on the adaptation and roll out of new curriculum, including any modifications needed to address learning loss.
- Build in regular time for teachers to engage in curriculum study as part of collaborative planning.

Rationale:

The Science of Reading

The "science of reading" is a relatively new buzz phrase for a body of research that has existed for over 30 years. In 2000, the National Reading Panel reviewed the evidence and identified five elements of effective reading instruction: **phonemic awareness, phonics skills, fluency, vocabulary,** and **comprehension**.[83]

Despite the panel's clear consensus that systematic instruction in **phonemic awareness** and **phonics** for all children was the most effective approach to teaching word-level reading, resistance to that message has continued among many educators and within teacher-training programs.[84] Meanwhile **fluency** has often been misinterpreted to simply mean speed, when in fact it refers to reading at an grade-appropriate pace and with appropriate expression. Lack of fluency, which has been called the "bridge" between foundational skills and comprehension, is often the hidden cause of reading difficulties at upper grade levels.[85]

The remaining two elements—vocabulary and comprehension—depend largely on the expansion of children's knowledge. Direct **vocabulary** instruction is important, especially with regard to words that appear frequently in academic writing, but it can't provide children with all the words they need in order to become competent readers. English-speaking children add about eight words a day to their vocabularies during the first several years of schooling. The only way for them to acquire new words so quickly

[83] *From the editors:* See the National Reading Panel's report, "Teaching Children to Read."
[84] *From the editors:* See Emily Hanford's radio documentary series on this.
[85] *From the editors:* See "Readers Who Struggle" for more on this.

is through a process called "statistical learning," which depends on their expanding their knowledge about the world.[86]

With **comprehension**, the panel discussed only the evidence supporting instruction in certain strategies, omitting any mention of the voluminous evidence that knowledge of the topic is a key factor in comprehension. As a result, many educators wrongly concluded that instructing students in "skills and strategies" was sufficient to build their comprehension.

Alignment to College- and Career-Ready Standards

At their core, college- and career-ready ELA standards require:

- Strong grounding in foundational reading skills (phonics, phonemic awareness, vocabulary, comprehension, and fluency)
- Exposing all students to more complex texts
- Close reading of these complex texts
- Reading more informational texts
- Building background knowledge by diving deeper into content
- Growing academic vocabulary and syntax
- Speaking and writing grounded in evidence from texts

While there are curricula specifically developed with these elements in mind, a 2019 report by the nonprofit organization EdReports estimated that only 16 percent of school districts are using such ELA curriculum in their elementary schools.[87]

Research demonstrates the imperative for building students' background knowledge and vocabulary.[88] Elementary schools' ELA curriculum should work to systematically build knowledge and vocabulary across a wide variety of high-interest, culturally relevant texts, including those about history, geography, science, the arts, and more.

At lower grade levels, as students practice and build early reading skills and vocabulary, whether they know something about the topics in their ELA assignments can accelerate or slow their development. Children tasked with unfamiliar topics may

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[86] *From the editors:* See Mark Seidenberg's *Language at the Speed of Sight* (pgs. 111-113), and additional resources about the science of reading on his website.

[87] **From Morgan Polikoff:** For more on this, see our recent report "Exploring Coherence in English Language Arts Instructional Systems in the Common Core Era."

[88] *From the editors:* See this essay by Susan Pimental, literacy expert and lead author of the Common Core State Standards for English Language Arts and Literacy: "When students know something about a topic, they are better able to read a text in which that topic is discussed, even when the sentence structure is complex or the words are unfamiliar."

experience early failure and learn to dislike reading, leading them to practice less and develop more slowly than their peers. This can determine how the "Matthew Effect," the phenomenon in which the rich get richer and the poor get poorer, plays out for them later on in school. This hazard looms even larger now, when so many students in poverty have not had access to in-person instruction or have struggled to learn remotely since school closures began.

Expanding Access to "the Good Stuff"

Another foundational design principle is the expectation that *all* students will be given "the good stuff." In the case of ELA curriculum, this means that every student, including those with gaps in background knowledge or decoding skills, should be engaged with the curriculum's rich, grade-level texts with appropriate scaffolding and support.[89] This differs from the common practice of assigning struggling readers to "just right" texts, which limits their exposure to grade-level content. A commitment to this principle will not only build the knowledge and vocabulary so vital to literacy success, but also will communicate the high expectations we have for all students. And it will begin to inculcate the growth mindset and accompanying student agency that characterizes excellent elementary schools.[90]

Providing all students with access to the same knowledge also promotes social-emotional well-being. It enables children who would otherwise be relegated to lower-level reading groups to contribute their insights to discussions, demonstrate their capabilities to their peers, and feel that they are full members of the classroom community. [91]

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[89] **From Remy Washington:** I get that good stuff is relating to grade-level text, but we need to ask if there is anything about culturally relevant or diverse text, or specifically anything about identity formation, that also should be taken into consideration when curating the "good stuff."

[90] **From Michele Caracappa:** This is critical. Some teachers will have the instinct, given the disruptions of the last year, to provide less complex text to their students, especially those who appear to have fallen farthest behind. Instead, we must provide these students with more opportunities to grapple with rich and worthy texts and tasks and provide more support to ensure they are able to stay on track to achieve year-end goals.

[91] **From Wendi Anderson:** This is so vitally important. For too long, struggling students were disadvantaged by being provided with lower-complexity texts. While it still happens, the emphasis on this design principle is helping to address this issue.

Identifying Comprehensive, High-Quality Curriculum

When making a curriculum selection, a key priority should be on the **comprehensiveness** of the instructional materials.[92] We use this word, in the ELA context, to suggest several things, including:

- There is a distinct strand of the curriculum focused on explicit and systematic instruction in reading foundational skills.
- The curriculum valorizes both text complexity (predominantly through read-aloud in the primary grades) and volume of reading, such as through extended independent reading time, to build knowledge and vocabulary.
- There is coherence in the presentation of topics in order to grow content knowledge. Units are organized by topic, and topics are explored deeply and build on one another sequentially over the school year and across years. Reading and writing are integrated with science, social studies, music, and other content areas, rather than presented as atomized, skills-based activities.
- On-the-spot assessments and end-of-unit performance assessments are part of the curriculum and grounded in its content.
- Student-facing and teacher-facing materials are included.

Example: EL Education

EdReports has identified a handful of comprehensive, high-quality, knowledge-building, standards-aligned ELA curricula.[93] We are particularly enthusiastic about *EL English Language Arts*, which was found to be effective in a 2013 study by

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[92] **From Amy Briggs:** Here are the five literacy accelerators:
1. Securing solid foundational reading skills early on in students' school careers (ideally by grade 3) so students can continually develop as fluent readers in every grade level thereafter.
2. Expanding the vocabulary children bring with them through a volume of reading and word study.
3. Growing knowledge of the familiar and broader world so students develop a trove of knowledge to reference whenever they read.
4. Teaching students to use evidence when speaking and writing about what the text is communicating.
5. Deepening understanding of what is read through regular, close reading of ever-richer, more complex texts, with supports as needed for universal access and success.

[93] *From the editors:* These include several from nonprofit publishers, including Core Knowledge Language Arts and Wit and Wisdom.

Mathematica Policy Research. [94] We hold this curriculum in high regard for the following reasons:

1. Its structure builds domain-specific vocabulary and Tier 2 academic vocabulary as well. Each grade is organized into four modules lasting eight weeks, organized around topics like water conservation, ratifying the 19th amendment, or athletes leading social change. These topics are highly appealing and use rich and engaging texts. Each module contains three units that focus first on knowledge building, then on reading, and then on writing.[95]
2. A separate "Skills Block" provides a complete foundational skills program using decodable texts and an aligned suite of assessments.
3. It is specifically developed to support social-emotional learning and to meet the needs of English Learners.
4. It is free and open source. While there are materials costs in implementation, including purchasing the trade books it uses, the curriculum can be accessed free of charge through many different online platforms, including EL Education, Open Up Resources, LearnZillion, and modEL Detroit, which provides school users lots of flexibility.
5. The curriculum is highly "educative." It explains pedagogical decisions throughout the materials and includes strong teacher training content through "Your Curriculum Companion." Topics range from, "What Makes a Text Worthy and Compelling?" to "How Will the Curriculum Empower My Students to Own Their Learning?" [96]
6. In 2019, EL Education entered into a partnership with CenterPoint Education Solutions to develop web-based, curriculum-aligned, K-8 interim assessments to mirror the curriculum's scope and sequence and

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[94] *From the editors:* The 2013 Mathematica study of EL Education in middle schools found that students experienced five additional months in reading gains after two years and seven months after three years.

[95] **From Michele Caracappa:** Given the disruption to student learning in 2020-21, questions to consider include: How should schools move forward if not all modules were taught in the previous year? Could practices like curriculum compacting (pulling from research on gifted education practices) be employed? How should teachers ensure that the most critical content for each grade-level is focused on? We also should consider other structural changes that leaders and teachers may need to implement. Will 2nd graders who missed out on a great deal of phonics instruction in 1st grade need more time to work on decoding? Are there elements of the kindergarten curriculum that are typically considered precursors to "kindergarten readiness" that actually must be addressed explicitly? Teachers and leaders will benefit from more specific guidance and support.

[96] **From Rob Schwartz:** EL Education is the curriculum I would most often recommend, but it is also the most complex to implement well. I would not recommend it unless a district has specific, ongoing professional learning supports for teachers and leaders that focus on the macro of how the curriculum works and the science of reading, as well as the micro of how to implement each individual structure within EL.

complement the existing formative assessments embedded in the curriculum. This allows teachers to see clearly what concepts students have mastered and which concepts require additional instruction or student practice.

Reading List:

ACT. (2006). "Reading between the lines: What the ACT reveals about college readiness in reading."

- The ability to handle complex text is the distinguishing characteristic between students who go on to do well in college and work and those who don't.[97]

Adams, M., Wong Fillmore, L., Goldenberg, C., Oakhill, J., Paige, D., Rasinski, T., Shanahan, T. (2020). "Comparing Reading Research to Program Design: An Examination of Teachers College Units of Study." Student Achievement Partners.

- Outlines how the Teachers College Units of Study ELA curriculum is not aligned to the Common Core, in particular due to its lack of attention to knowledge-building.

EdReports. (2019). "The State of the Instructional Materials Market – 2019 Report."

Hanford, E. "Hard Words: Why Aren't Kids Being Taught to Read?" APM Reports, September 10, 2018.

Hanford, E. "At a Loss for Words: What's Wrong with How Schools Teach Reading?" APM Reports, August 22, 2019.

Hanford, E. "What the Words Say: Many kids struggle with reading – and children of color are far less likely to get the help they need." APM Reports, August 6, 2020.

- These radio documentaries explore why schools have not embraced the science of reading, the ways in which pseudoscientific ideas about literacy have influenced instruction, and the impact on disadvantaged students.

Hempenstall, K. (2003). The three-cueing system: Trojan horse? *Australian Journal of Learning Disabilities.* 8(2), 15-23.

- This study outlines a common yet non-research-backed instructional technique from Australia. The paper points to the pitfalls of how "unfounded but

[97] **From Chrys Dougherty:** The connection shown to college success is indirect. Handling complex text is connected to meeting the College Readiness Benchmark on the ACT Reading exam, which in other research is connected to success in specific college courses.

passionately held belief[s]" can have a detrimental impact on the teaching of reading.

Kaufman, J., Thompson, L., and Opfer, V. D. (2016). "Creating a Coherent System to Support Instruction Aligned with State Standards: Promising Practices of the Louisiana Department of Education." Santa Monica, CA: RAND Corporation.

- Describes the successes of the Louisiana Department of Education in promoting the use of high quality (and therefore content-rich) ELA materials.

Kilpatrick, D. (2015). *Essentials of Assessing, Preventing, and Overcoming Reading Difficulties.* John Wiley & Sons.

- Describes the "three-cueing" system and paints a picture of how pseudoscience can come to take hold in educational practices.

Moats, L. (2000). "Whole Language Lives On: The Illusion of 'Balanced' Reading Instruction." Thomas B. Fordham Institute.

- Critiques the whole language and balanced literacy approach to teaching reading, and argues that the science around teaching reading points to systematic phonics instruction.

National Reading Panel. (2000). "Teaching Children To Read: An Evidence-Based Assessment of the Scientific Research Literature on Reading and Its Implications for Reading Instruction."

Nichols-Barrer, I. and Haimson, J. (2013). "Impacts of Five Expeditionary Learning Middle Schools on Academic Achievement," Mathematica Policy Research, Cambridge MA.

- Mathematica found stronger academic results in ELA (and also Math) for schools using EL Education's (then called Expeditionary Learning) curricula.

Pikulski, J. and Chard, D. (2011). Fluency: Bridge Between Decoding and Reading Comprehension. *The Reading Teacher*, 58(6), 510-519.

Pimentel, Susan. "Why Doesn't Every Teacher Know the Research on Reading Instruction?" *Education Week*, October 26, 2018.

- Outlines the crucial role that building content knowledge plays in building literacy.

Polikoff, M., Wang, E., Haderlein, S., Kaufman, J., Woo, A., Silver, D., and Opfer, V.D. (2020). "Exploring Coherence in English Language Arts Instructional Systems in the Common Core Era." Creative Commons Attribution 4.0 International Public License.

Rasinski, T. "Readers Who Struggle: Why Many Struggle and a Modest Proposal for Improving Their Reading." *The Reading Teacher*, 70(5), 519-524.

READING

Shanahan, T. (2019). Why Children Should be Taught to Read With More Challenging Texts. *Perspectives on Language*, Fall 2019.

- Debunks the research on the incorrect idea that children should be taught to read with leveled readers.

Shanahan, T. "New Evidence on Teaching Reading at Frustration Levels." *Shanahan on Literacy*, May 28, 2017.

- Students make more progress in reading achievement when they read texts that are considered to be above their grade level.

Stanovich, K. (1986). Matthew Effects in Reading: Some Consequences of Individual Differences in the Acquisition of Literacy. *Reading Research Quarterly.* 21(4), 360-407.

- Spells out the impact of the Matthew Effect on literacy acquisition. There are big implications for students' long-term ELA achievement based on how much knowledge is or is not taught throughout their education.

Wexler, N. (2019). The Knowledge Gap: The Hidden Cause of America's Broken Education System—And How to Fix It. Avery.

Willingham, D. "The Usefulness of Brief Instruction in Reading Comprehension Strategies," *American Educator,* Winter 2006-07.

- Teaching reading comprehension strategies can be effective for literacy skills if they are taught briefly, with diminishing achievement returns for curricula that overplay the their importance.

Wren, S. (2002). "Ten Myths of Reading Instruction." *SEDL Letter.* Southwest Educational Development Lab.

- Describes more ways in which non-evidence-backed ideas about teaching reading can have damaging effects.

WRITING

High-quality elementary-school writing curriculum teaches explicit skills through activities that align with the cognitive loads of young students, using content-rich prompts that boost academic learning in all subjects.

Explicit writing instruction not only improves students' writing skills but also helps build and deepen their knowledge, boosts their reading comprehension and spoken language ability, and fosters habits of critical and analytical thinking. The process of planning, writing, and revising can be taught in intentional, sequential steps. In following this process, students can improve their skills and overall comprehension and retention of information. It's imperative that schools not scrimp on writing instruction as they help students recover from the pandemic.

To be effective, writing should be embedded in the content of the core curriculum and begin at the sentence level. As Judith Hochman and Natalie Wexler describe in *The Writing Revolution: A Guide to Advancing Thinking Through Writing in All Subjects and Grades*, "Writing and content knowledge are intimately related. You can't write well about something you don't know well. The more students know about a topic before they begin to write, the better they'll be able to write about it. At the same time, the process of writing will deepen their understanding of a topic and help cement that understanding in their memory." They go on to establish six key principles of the Hochman method, which include explicit skills instruction, the infusion of grammar in practice, and an emphasis on planning and revising. These form a strong basis for high-quality, effective writing instruction for all students.

Recommendations:

- Adopt and implement a high-quality English Language Arts curriculum (see the section on "Reading").
- Select a writing curriculum and activities that feature explicit, carefully focused instruction and connect to a variety of content, including by building writing time into all subjects. To date, The Writing Revolution (also known as the Hochman method) is the only curriculum that combines these two elements.
- Writing activities should start at the sentence level. Tasking young students with longer assignments that will overtax them and short-circuit learning. Sentences are the building blocks for all writing.
- Expand teachers' awareness and enthusiasm for the role that frequent sentence-level writing, sentence expansion and combining, and even note-

taking activities can play in enhancing any kind of instruction. A school-wide study of *The Writing Revolution* can serve as a sound starting point.

- Invest in ongoing curriculum-based professional learning for leaders, instructional coaches, and teachers to build expertise and fully leverage the power of high-quality writing instruction.

Rationale:

Content and Cognitive Science

There is a robust body of research indicating that writing has the potential to boost comprehension and retention, extending back to the 1970s. Some of this has fallen under the rubric of "writing to learn," while studies in cognitive psychology use other terminology.

In a landmark study, undergraduates were given five minutes to read an article. They then were randomly assigned to one of four tasks: reading the article once; studying it for 15 additional minutes; creating a "concept map" or bubble diagram of the ideas in the article; or writing what they could remember from the passage, known as "retrieval practice." When tested a week later, the group that had engaged in writing had a clear advantage in recalling information and making inferences.[98]

Writing about a topic is also akin to preparing to teach something you have learned, which has been shown to improve recall, a phenomenon called the "protégé effect."[99] Essentially, writing requires students to recall something they have slightly forgotten (the mechanism at work in retrieval practice) and explain it in their own words (the mechanism at work in the protégé effect). A recent meta-analysis has found that writing about content in science, social studies, and math reliably enhanced learning in all three subjects.[100]

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[98] *From the editors:* See "Retrieval Practice Produces More Learning than Elaborative Studying with Concept Mapping." For more about writing and retrieval, see "The effect of repeated writing on memory," which compares memorization among Japanese and American students using writing as a memorization strategy.

[99] *From the editors:* For example, in a study by Muis et al., elementary students who were solving complex math problems used more metacognitive strategies when preparing to teach those strategies compared to a control group. In a study by Nestojko et al., participants who were told they would be teaching a passage had better recall than those who were told they would be tested on the passage.

[100] *From the editors:* See "The Effects of Writing on Learning in Science, Social Studies, and Mathematics: A Meta-Analysis."

But most existing approaches to writing instruction fail to take full advantage of these potential benefits. Instead, they ask students to write about their own experiences or about random topics, without providing much background information.

In addition, most vastly underestimate how difficult it is to learn to write.[101] Young students may be juggling everything from letter formation and spelling to putting their thoughts in a logical order. Yet virtually all approaches to writing instruction expect inexperienced writers, including kindergartners, to write multi-paragraph essays. The theory is that students need to develop their voice, fluency, and writing stamina from the earliest stages. But writing at length only *increases* cognitive load, potentially overwhelming working memory and depriving students of the cognitive capacity to absorb and analyze the information they're writing about, much less acquire target skills. [102]

The Institute of Education Science's *Practice Guide* on elementary writing cites 25 studies finding a variety of positive effects that follow on close attention to the writing process. It also recommends that one hour a day be devoted to students' writing beginning in the first grade, and acknowledges that this is unlikely to be achieved unless writing practice occurs in the context of non-ELA content area instruction.[103]

Starting at the Sentence Level

Studies have shown the positive effects of interventions such as sentence combining and sentence expansion and teaching sentence-construction skills generally.[104] The IES *Practice Guide* recommends that students be taught to construct sentences. There are also indications in the literature on "writing to learn" that shorter writing assignments, including poems, yield larger benefits.[105] . In addition, focusing on learning to construct sentences before moving on to paragraphs lightens the load on students' working memory, freeing up cognitive space for absorbing and analyzing the content they're writing about.

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[101] *From the editors:* Research shows that writing imposes a heavier cognitive load on working memory than reading. See "Writing, Reading, and Listening Differentially Overload Working Memory Performance Across the Serial Position Curve."

[102] **From Jamila Newman:** I think it's important that schools see writing as gateway to student independence and agency. Reading and listening often position students as consumers, but writing and speaking position students as producers of argument, opinion, and ideas.

[103] From the editors: See "Teaching Elementary School Students to Be Effective Writers."

[104] *From the editors:* See both "Writing Next" and "Writing to Read," two Carnegie Corporation of New York reports published by the Alliance for Excellent Education.

[105] *From the editors:* See "The Effects of School-Based Writing-to-Learn Interventions on Academic Achievement" and "The Effect of Carrying out Writing to Learn Activities on Academic Success of Fifth Grade Students in Secondary School on the Subject of 'Force and Motion'."

And yet for some reason, there appear to have been *no* studies testing whether an approach that explicitly teaches students to write sentences *before* asking them to embark on lengthier writing has greater benefits. We hope that such studies will soon be undertaken.

In the meantime, it seems evident that it's best to begin writing at the sentence level. Sentence-level instruction not only lightens cognitive load, it also makes instruction in the conventions of written language (grammar, punctuation, etc.) far more manageable. Teachers confronted with page after page of error-filled writing often don't know where to begin, and they don't want to discourage students by handing back a sea of red ink. And if students can't write a good sentence, they'll never be able to write a good paragraph or a good essay.

Many students don't simply absorb the mechanics of constructing sentences from their reading, as most approaches to writing instruction assume. Rather, they need to practice how to use conjunctions, appositives, transition words, and so forth. Activities that teach these skills, when embedded in the content of the curriculum, simultaneously build writing skills, content knowledge, and analytical abilities.

For example, students learning about the Civil War might be given the sentence stem "Abraham Lincoln was a great president _____" and then asked to finish it in three different ways, using "because," "but," and "so." This kind of explicit instruction can also familiarize students with the syntax and vocabulary that are found in written but not spoken language and boost reading comprehension. Once you have learned to use a word like "despite" or a construction like the passive voice in your own writing, you're in a much better position to understand it when you encounter it while reading.

Example: The Writing Revolution

The potential of explicit writing instruction that is embedded in the content of the curriculum and begins with sentence-level strategies is enormous. As far as can be determined, The Writing Revolution method is currently the only method of writing instruction that combines these two features. It rests on six key principles:

1. Students need explicit instruction in writing, beginning in the early elementary grades.
2. Sentences are the building blocks of all writing.
3. When embedded in the content of the curriculum, writing instruction is a powerful teaching tool.
4. The content of the curriculum drives the rigor of the writing activities.
5. Grammar is best taught in the context of student writing.
6. The two most important phases of the writing process are planning and revising.

Once students are ready for lengthier pieces, The Writing Revolution focuses considerable attention on teaching students to construct clear, linear outlines. When students transform their outlines into finished pieces of writing, they are able to construct coherent, fluent paragraphs and essays by drawing on the sentence-level strategies they have been taught.

Reading List:

Arnold, K., Umanath, S., Thio. K., Reilly, W., McDaniel, M., Marsh, E. (2017). Understanding the cognitive processes involved in writing to learn. *Journal of Experimental Psychology: Applied.* 23(2), 115-127.

Bangert-Drowns, R., Hurley, M. and Wilkinson, B. (2004). The Effects of School-Based Writing-to-Learn Interventions on Academic Achievement: A Meta-Analysis. *Review of Educational Research.* 74(1), 29-58.

Graham, S., and Hebert, M. A. (2010). "Writing to Read: Evidence for how Writing Can Improve Reading. Carnegie Corporation Time to Act Report." Washington, D.C.: Alliance for Excellent Education.

- Teaching sentence-construction skills has improved reading fluency and comprehension.

Graham, S. and Perin, D. (2007). "Writing Next: Effective Strategies to Improve Writing of Adolescents in Middle and High Schools – A report to Carnegie Corporation of New York." Washington, D.C.: Alliance for Excellent Education.

Graham, S., Kiuhara, S.A., and MacKay, M. (2020). The effects of writing on learning in science, social studies, and mathematics: A meta-analysis. *Review of Educational Research.* 90(2), 179-226.

- Embedding writing instruction in content and having students write about what they are learning in English language arts, social studies, science, and math has boosted reading comprehension and learning across grade levels.

Hochman, J. and Wexler, N. (2017). *The Writing Revolution: A Guide to Advancing Thinking Through Writing in All Subjects and Grades*. Jossey-Bass.

Graham, S., Bollinger, A., Booth Olson, C., D'Aoust, C., MacArthur, C., McCutchen, D., and Olinghouse, N.(2012). "Teaching elementary school students to be effective writers: A practice guide (NCEE 2012-4058)." Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Karpicke, J., and Blunt, J. (2011). Retrieval Practice Produces More Learning than Elaborative Studying with Concept Mapping. *Science.* 331(6018) 772-775.

Mueller, P. A., and Oppenheimer, D. M. (2014). The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking. *Psychological Science*, 25(6), 1159–1168.

- Two key takeaways: the benefits of writing for information retention are strongest with writing by hand rather than on the computer; and the act of writing solidifies students' knowledge of a subject.

Naka, M., & Naoi, H. (1995). The effect of repeated writing on memory. *Memory & Cognition,* 23(2), 201–212.

- Demonstrates the crucial link between writing about something and remembering the content involved.

Panero, N.S. (2016). Progressive mastery through deliberate practice: A promising approach for improving writing. *Improving Schools*, 19(3), 229-245.

- Summarizes the research on improving writing quality as well as writing strategies that improve reading comprehension, and connects those to practices taught in The Writing Revolution.

Seven, S., Koksal, A.P., Kocak, G. (2017). The Effect of Carrying out Writing to Learn Activities on Academic Success of Fifth Grade Students in Secondary School on the Subject of 'Force and Motion. *Universal Journal of Educational Research.* 5(5), 744-749.

Tindle, R. and Longstaff, M.G. (2015). Writing, Reading and Listening Differentially Overload Working Memory Performance Across the Serial Position Curve. *Advances in Cognitive Psychology.* 11(4), 147-155.

Wexler, N. (2019). "Writing and cognitive load theory," *ResearchED*, Issue 4,

- "Writing can impose such a heavy burden on working memory that students become overwhelmed, unable either to improve their writing skill or to benefit from the positive effects that writing can have on reading comprehension and learning in general."

Willingham, D. (2003). Students remember … what they think about. *American Educator,* 27(2), 37–41.

- Writing can facilitate students' thinking about what they are supposed to learn.

MATHEMATICS

High-quality elementary math curriculum concentrates on arithmetic while also empowering students to develop mathematical reasoning, discourse skills, and an identity as a learner within a mathematical community.

What little data we have indicates that remote learning has been particularly challenging for students in mathematics. Schools will need to ensure that their "recovery" strategies allow ample opportunities for students to complete unfinished learning before moving on to new concepts.

Adopting and faithfully implementing a high-quality elementary mathematics curriculum that is aligned to college and career-ready standards—the same curriculum across all grade levels—is one essential step.[106] Such curriculum does the following:

- Concentrates heavily on arithmetic. Students analyze and solve word problems, practice calculating fluently with mental math and written algorithms, and use the four basic operations on whole numbers, fractions, and decimals.
- Provides sufficient practice with procedures and basic facts—all developed on a basis of concepts and understanding.

[106] **From Jason Zimba:** There is value in having the whole school working with a single math program over the entire span of grades, and following it as designed. It is important to reduce the variation in teaching within a single school. Teacher choice—arising from good intentions—can easily vaporize the rigor of a curriculum or defeat its design in other ways. Here are some takeaways from William Schmidt's 2012 book *Inequality for All* (in which he compares instruction among 500 classrooms in six U.S. school districts – *eds.)* The third item is the most stark:

1. Schmidt emphasizes that "...at the elementary grades, most of the variation among classrooms ... was due to differences in how individual teachers allocated their instructional time across topics—a regrettable outcome, since at these grades teachers are typically not well prepared in mathematics.... More district or school guidance is badly needed to help these teachers, but it is generally not provided."
2. Schmidt found that "the vast majority of differences in instructional time for arithmetic at 5th grade were due to differences from teacher to teacher. The large amount of variance in instructional time for arithmetic at the early grades is particularly problematic because instructional time allocated in these early grades lays the foundation for work in later grades. ... differences in content coverage related to number can only foster inequalities that are not only likely to grow in magnitude over time but which could be difficult to eliminate in the subsequent grades, even under the best of conditions. The decisions of individual teachers clearly dominate how time is allocated to instruction in the early grades, and as a result, the variation in those choices is a major source of ... large inequalities....."
3. Schmidt reports that "In one 1st-grade classroom, the children spent around six months on place value and whole-number operations (mostly addition and subtraction). The corresponding time was only around one month in another 1st-grade classroom. ... these are not even the most extreme values in the study, since we have eliminated the 10% most outlying values."

- Enables teachers to orchestrate effective forms of mathematical discourse during lessons, such as eliciting connections between different representations of a problem, or connections between different student strategies.
- Enables a teacher to constitute the classroom as a mathematical community that promotes students' mathematical identity, agency, and belonging.
- Includes effective supports for English learners.
- Enables teachers to involve parents in their children's mathematical education.

Recommendations:

- Adopt and implement a single, high-quality elementary mathematics curriculum across all grades and schools that is aligned to college and career-ready standards. EdReports has given strong favorable reviews to several products, including two we consider exemplars: Eureka Math and Zearn. Their materials are free or low-cost, and both have been adopted widely by some of the best-performing elementary schools in the country.[107]
- Use the same curriculum for interventions and supports—including high-dosage tutoring—that is used for Tier 1 instruction.
- Dedicate training and planning time to help teachers build expertise in the curriculum, including building on what students already know to connect them to grade-level work. In math professional-learning sessions, staff developers should explicitly link what teachers are learning to the curriculum they are using.

Rationale:

- Studies show that students become more efficient and flexible in selecting appropriate ways to solve problems when they have been regularly exposed to questions that require different strategies to answer. [108] For example, in Eureka Math and Zearn, classroom discussions are facilitated about the strategies selected with such questions as "Which strategy do you prefer and why?" or "Which strategy is the most efficient?"

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[107] **From Brian Pick:** Additional considerations include printing v buying the student books, using digital v print teacher materials, and whether your school needs the manipulatives or not. (*From the editors:* For example, the Eureka Math curriculum can be downloaded for free, but some supplementary materials, including the digital suite, are available for purchase only.)

[108] *From the editors:* This is recommendation No. 4 in IES Practice Guide 16, "Improving Mathematical Problem Solving in Grades 4 Through 8."

- Research also underscores the importance of teaching students how to use visual representations. Students who learn to visually represent the mathematical information in problems prior to writing an equation are more effective at problem solving. High-quality curricula build this progression into the development of all concepts.[109]
- Finally, how fractions are treated, beginning in the earliest grades, is another hallmark of high-quality programs. IES reviews the research and concludes that "a high percentage of U.S. students lack conceptual understanding of fractions, even after studying fractions for several years."[110] This supports using a curriculum that places a high premium on building a conceptual understanding of fractions and the ability to use them to think mathematically.

Reading List:

Achieve the Core. (2013). K-8 Publishers' Criteria for the Common Core State Standards for Mathematics.

- The basis for the quality indicators used by EdReports in its curriculum reviews. Describes necessary instructional shifts and establishes criteria for how those should show up in curriculum.

Atkinson, R., Derry, S., Renkl, A., and Wortham, D. (2000). Learning from examples: Instructional principles from the worked examples research. *Review of Educational Research*, 70(2), 181–214.

- Curricula that include multiple worked examples for math problems are effective at promoting conceptual understanding.

Cooper, G., and Sweller, J. (1987). The effects of schema acquisition and rule automation on mathematical problem-solving transfer. *Journal of Educational Psychology*, 79(4), 347–362.

- When lessons teach students the concepts (schema) under certain math rules, students' conceptual understanding and fluency are improved.

Frye, D., Baroody, A. J., Burchinal, M., Carver, S. M., Jordan, N. C., and McDowell, J. (2013). "Teaching math to young children: A practice guide." Washington, D.C.:

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[109] *From the editors:* This is recommendation No. 3 in IES Practice Guide 16, "Improving Mathematical Problem Solving in Grades 4 Through 8."
[110] *From the editors:* See IES Practice Guide No. 15, "Developing Effective Fractions Instruction for Kindergarten Through 8th Grade."

National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education.

Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., and Witzel, B. (2009). "Assisting students struggling with mathematics: Response to Intervention (RtI) for elementary and middle schools." Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Ginsburg, A., Cooke, G., Leinwarnd, S., Noell, J., and Pollock, E. (2005). "Reassessing U.S. International Mathematics Performance: New Findings from the 2003 TIMSS and PISA." American Institutes for Research: Washington, D.C.

- Finds no evidence of a sharp decline by U.S. students on PISA compared with TIMSS.

Halpern, D., Aronson, J., Reimer, N., Simpkins, S., Star, J., and Wentzel, K. (2007). "Encouraging Girls in Math and Science." Washington, D.C.: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education.

Jacobs, V., Franke, M., Carpenter, T., Levi, L., and Battey, D. (2007). Professional development focused on children's algebraic reasoning in elementary school. *Journal for Research in Mathematics Education*, 38(3), 258–288.

- Professional development on bringing in algebraic reasoning to elementary math lessons improved students' grasp of mathematical content. Speaks to potential benefits of using a curriculum that builds in the teaching of algebraic thinking at the elementary level.

Ng, S.F., and Lee, K. (2009). The model method: Singapore children's tool for representing and solving algebraic word problems. *Journal for Research in Mathematics Education*, 40(3), 282–313.

- The method of model drawing used in Singapore's national math curriculum for nearly all word problems has had a positive impact on student achievement.

Rittle-Johnson, B., Star, J. R., and Durkin, K. (2009). The importance of prior knowledge when comparing examples: Influences on conceptual and procedural knowledge of equation solving. *Journal of Educational Psychology*, 101(4), 836–852.

- Students' prior conceptual and procedural knowledge is essential at the elementary school level and even more important in middle-school Algebra classes.

Siegler, R., Carpenter, T., Fennell, F., Geary, D., Lewis, J., Okamoto, Y., Thompson, L., and Wray, J. (2010). "Developing effective fractions instruction for kindergarten through 8th grade: A practice guide." Washington, D.C.: National Center for Education

Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Tajika, H., Nakatsu, N., Nozaki, H., Neumann, E., and Maruno, S. (2007). Effects of self-explanation as a metacognitive strategy for solving mathematical word problems. *Japanese Psychological Research*, 49(3), 222–233.

- Promoting students' ability to explain their thinking has a positive impact on their ability to solve math word problems.

Woodward, J., Beckmann, S., Driscoll, M., Franke, M., Herzig, P., Jitendra, A., Koedinger, K. R., and Ogbuehi, P. (2012). "Improving mathematical problem solving in grades 4 through 8: A practice guide." Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

SCIENCE AND SOCIAL STUDIES

High-quality history, geography, and science curricula, taught daily, sequentially impart the knowledge students need to become engaged and informed citizens and are an essential component of literacy achievement.

Science and social studies, including history and geography, are each important in their own right given schools' essential mission to prepare students for citizenship in our democracy. In addition, the critical role that content knowledge plays in learning to read and write is clearly established and has received increased attention in recent years.[111]

The cultivation of such knowledge will not happen by accident, but instead is the result of exposure to content-rich instruction that is frequent, systematic, and of high quality. The use of outstanding curriculum, taught with care, seriousness, and daily frequency, is vital to this pursuit. Elementary schools must protect instructional time for these subjects, including when recovering from pandemic-related learning loss. The evidence indicates that schools should commit to 30 minutes of daily lessons each for science and for social studies lessons.[112]

Recommendations:

- Establish science and social studies as part of the daily core of elementary school instruction, rather than "special" subjects that happen once or twice a

[111] *From the editors:* For more on the evidence and recommended practices, see our sections on Reading and Writing.

[112] **From F. Chris Curran:** My prior work here finds that in the ECLS-K:2011, on average, classrooms are spending about 120-150 minutes per week on science as well as on social studies. This suggests most classrooms are falling short of this goal. (See "Early Elementary Science Instruction: Does More Time on Science or Science Topics/Skills Predict Science Achievement in the Early Grades?")

week.[113] Students in all grades should receive at least 2.5 hours of science and 2.5 hours of history/geography instruction each week.[114] [115]

- Adopt and faithfully implement a high-quality science curriculum that is rich in content knowledge, aligned to the Next Generation Science Standards, and well-respected by external reviewers like EdReports and Louisiana Believes.[116] One curriculum to consider: Amplify Science.
- Adopt and faithfully implement a high-quality social studies curriculum that is rich in content knowledge and culturally relevant. Leading reviewers do not rate such programs. Still, we are enthusiastic about Core Knowledge History and Geography, which provides a comprehensive and sequential exploration of world and American history and geography.[117]

Rationale:

Learning about science and social studies, including history and geography, is valuable on its own. Exposing elementary-school students to a broad knowledge base in science and history/geography prepares them to knowledgeably participate in civic life. It expands their capacity to assimilate new, more complex information related to these subjects throughout their schooling careers and, it would stand to reason, their non-schooling pursuits in the years to come.

Yet too often elementary schools spend the bulk of instructional time on skills practice that is not grounded in rich content.[118] The cost of a knowledge-light elementary

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[113] **From Derek Gottlieb:** This is huge – so far, the most novel and far-reaching of the recommendations in this report. You've said several times, now, that something like background knowledge is deeply important to learning any of the competencies that we expect students to demonstrate, and yet it's been a tall, tall order to try to DO background knowledge AND, say, reading instruction simultaneously. Making a place for knowledge development in history/geography/science, and insisting that this be a part of daily practice, is a significant—and POSITIVE—change in the conduct of most elementary schools. It's a big deal and a good idea.

[114] **From John Davis:** To me, the inclusion of literacy practices, specifically around fluency and writing, must be incorporated into science and social studies instruction as a real lever to improved student outcomes around reading. While of course this isn't an intervention, it almost is in the fact that science and social studies knowledge building with strong literacy practices will lift up a struggling student, and most schools, systems, and teachers do not already see it as such. The inclusion of these practices together in Social Studies and Science, in my opinion, can almost act like an intervention.

[115] **From Brian Pick:** Love this and might give up a 90-minute math block for it.

[116] *From the editors:* EdReports has just started reviewing elementary science programs. We look to Amplify Science, the only curriculum with an all-green rating for "coherence and scope"(though it rated yellow for alignment to NGSS). Amplify Science also received a Tier I "exemplifies quality" rating from Louisiana Believes, a widely respected independent curriculum-rating program led by the Louisiana Department of Education.

[117] *From the editors:* Core Knowledge History and Geography follows the tradition of Core Knowledge's popular ELA curriculum, which earned a Tier I rating from Louisiana Believes and an all-green rating from EdReports.

[118] *From the editors:* U.S. elementary schools have been devoting increasingly less time to these subjects over the past two decades. For example, see "Science Instructional Time Is Declining in Elementary Schools: What Are the Implications for Student Achievement and Closing the Gap?"

school experience is paid most heavily by children who grow up in poverty with less-educated parents. These are the students who often aren't benefiting from summer vacations to Old Faithful in Yellowstone National Park or family conversations over the dinner table about deforestation in the Brazilian rainforest.

This has broad implications for literacy as well. Studies show that when low-income children are explicitly taught the background knowledge contained on tests of reading comprehension, they perform equally well as their higher income peers on those tests.

Consider the "baseball study."[119] Researchers compared the reading comprehension of four groups of students tasked reading a passage about baseball: good and poor readers who knew and didn't know something about the game. Not only did the poor readers who knew something about baseball outperform the good readers who knew nothing about the game, the poor readers who knew something about baseball performed almost as well as the *good* readers who did.[120]

This echoes international education comparisons that find high-performing countries tend to use high-quality curriculum that builds content knowledge. In addition, a recent study by the Thomas B. Fordham Institute found that increasing instructional time in social studies is associated with improved reading ability, while more time in English language arts instruction is not. These benefits are particularly strong for girls and children from lower-income or non-English-speaking families.[121]

Unsurprisingly, that is not what we recommend. On the contrary, schools should implement high-quality curriculum in both content areas; curricula that are both easy for teachers to implement and that focus on systematically teaching the most important and world-expanding scientific and historical/geographic concepts and skills.

Good instruction in science and social studies is dependent on curricula that build students' knowledge carefully and systematically. But many school districts rely on teachers without subject-area expertise, or have teachers create their own curriculum or piece together lessons from websites like teacherspayteachers.com. In science, this means that students learn random tidbits of knowledge over their elementary school education – frogs one year, butterflies the next, and the solar system the

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[119] *From the editors:* See "Effect of prior knowledge on good and poor readers' memory of text."
[120] *From the editors:* Cognitive science tells us that the amount of information we can keep in working or short-term memory is small. When reading, students can handle a few unfamiliar words and concepts, but the cognitive load of encountering a wholly unfamiliar subject shuts them down. Therefore, information stored in a student' long-term memory about a given topic turns out to be decisive for comprehension of new material about the same subject. For more on this, see the section on Instructional Strategies.
[121] *From the editors:* See "Social Studies Instruction and Reading Comprehension: Evidence from the Early Childhood Longitudinal Study."

following year (or maybe frogs or butterflies again). The lessons might be engaging and interactive, but they lack conceptual integrity. Students rarely gain sufficient prerequisite knowledge to explore new topics in depth, and therefore lack a cohesive understanding of important scientific and historical phenomena.

In social studies, high-quality programs like Core Knowledge History and Geography, or CKHG, avoid a common problem: the longstanding and baseless assumption that history is a developmentally inappropriate topic for children below 4th or 5th grade, and that students' primary interest will be in themselves and their own immediate experience.[122] The standard elementary-school social studies sequence follows a series of "expanding environments" that reflect this assumption: all about me, my family, my neighborhood or community, and so on. Alternatively, some social studies curricula take so broad an approach to "themes" that they become insipid and meaningless—for example, "Culture Around the World." Both approaches deprive children of the opportunity to expand their knowledge of the world and the vocabulary that goes with it.

Reading List:

Akerson, V. and Donnelly, L. (2010). Teaching Nature of Science to K-2 Students: What Understandings Can They Attain? *International Journal of Science Education*, 32(1), 1-28.

Akerson, V., Buck, G., Donnelly, L, Nargund-Joshi, V. and Weiland, I. (2011). The Importance of Teaching and Learning Nature of Science in the Early Childhood Years. *Journal of Science Education and Technology*, 20, 537–549.

Cabell, S. and Hwang, H. (2020). Building Content Knowledge to Boost Comprehension in the Primary Grades. *Reading Research Quarterly*, 55(1), 99-107.

- Discusses why content-rich instruction supports language and content acquisition and improves linguistic and reading comprehension. Also shares preliminary results of an IES study of the Core Knowledge Language Arts curriculum.

[122] **From Chrys Dougherty:** In this regard, misconceptions about "developmental stages" and "developmental appropriateness" have often influenced choices about what to teach in the early grades in these subject areas. For example, "expanding horizons" social studies curricula assume that teaching in K-3 shouldn't go much beyond children's immediate surroundings. See the writings of Dan Willingham on "developmental appropriateness," including this article and blog posts (first this, and then this follow-up).

Common Core. (2009). "Why We're Behind: What Top Nations Teach Their Student but We Don't." Washington, D.C.

- Common Core, the precursor to Great Minds, found that commonalities among the diverse countries with the highest PISA scores: education systems that emphasize content knowledge in academic standards, curriculum, and assessments.

Curran, F., and Kitchin, J. (2019). Early Elementary Science Instruction: Does More Time on Science or Science Topics/Skills Predict Science Achievement in the Early Grades? *AERA Open*, 5(3), 1-18.

- More time spent on science topics correlates with higher science achievement in elementary school. This speaks to an idea that should not be taken for granted: spending more time on science leads to higher levels of achievement.

Elleman, A., Lindo, E., Morphy, P. and Compton, D. (2009). The Impact of Vocabulary Instruction on Passage-Level Comprehension of School-Age Children: A Meta-Analysis. *Journal of Research on Educational Effectiveness*, 2(1), 1-44.

- Teaching explicit vocabulary, which is a major component of history and science curricula, has a positive impact on reading comprehension.

Fincher-Kiefer, R. (1992). The Role of Prior Knowledge in Inferential Processing. *Journal of Research in Reading.* 15(1), 12-27.

- Students with background knowledge of a particular subject are better equipped to figure out the meaning of unknown words connected to a corresponding domain of knowledge. This suggests that giving students a broad knowledge base in elementary school will better prepare them to learn new vocabulary in middle and high school.

Kaefer, T., Neuman, S., and Pinkham, A. (2015). Pre-existing background knowledge influences socioeconomic differences in preschoolers' word learning and comprehension. *Reading Psychology*, 36(3), 203-231.

- Students from lower-income backgrounds perform equally well on measures of reading comprehension when explicitly taught relevant background knowledge. This indicates background knowledge's significant role in reading comprehension and points to its potential to reduce the achievement gap.

Kuhn, D. and Pearsall, S. (2000). Developmental Origins of Scientific Thinking, *Journal of Cognition and Development.* 1(1), 113-129.

McNamara, D., Kintsch, E., Songer, N., and Kintsch, W. (1996). Are good texts always better? Interactions of text coherence, background knowledge, and levels of understanding in learning from text. *Cognition and Instruction*, 14(1), 1–43.

- Strong background knowledge helps students comprehend texts that are not well written or coherent. This suggests that the type of background knowledge built by history and science lessons is more decisive in reading comprehension than even high-quality texts.

Metz, K. (2008). Narrowing the Gulf between the Practices of Science and the Elementary School Science Classroom. *The Elementary School Journal*, 109(2), 138-161.

National Research Council. 2007. "Taking Science to School: Learning and Teaching Science in Grades K-8." Washington, D.C.: The National Academies Press.

Recht, D. and Leslie, L. (1988). Effect of prior knowledge on good and poor readers' memory of text. *Journal of Educational Psychology, 80*(1), 16–20.

Tyner, A. and Kabourek, S. (2020). "Social Studies Instruction and Reading Comprehension: Evidence from the Early Childhood Longitudinal Study." Thomas B. Fordham Institute, Washington, D.C.

- A massive federal database of how much instructional time is spent on different subjects reveals that more time on social studies, not English language arts, is associated with improved reading ability.

Willingham, D. (2006). "How Knowledge Helps." *American Educator*, 30(1).

Willingham, D. (2007). "Critical Thinking: Why Is It So Hard to Teach?" *American Educator*, 31 (3).

Willingham, D. (2008). "What Is Developmentally Appropriate Practice?" *American Educator*, 32(3).

SOCIAL AND EMOTIONAL LEARNING

Social and emotional learning, or SEL, refers to the skills, values, and attitudes that promote success. As described by CASEL, it is "the process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions."[123]

The development of critical social and emotional skills is a longstanding component of elementary education, and is arguably more important now than ever. Many students will have spent more than a year away from school with limited opportunities to socialize with other children. And many will have experienced significant traumas related to the pandemic, economic downturn, and George Floyd's murder as well.

Effective social and emotional learning (SEL) is best encountered not in standalone programs but within the context of academic lessons that provide students opportunities to encounter, reflect on, and practice habits of character. Such activities are inclusive and recognize and affirm students' diverse cultures.[124] The proliferation of SEL programs is based on the recognition that students' emotions and social contexts are deeply intertwined with their success in school and beyond, including in the labor market.

Recommendations:

- Build SEL into core academic programs, such as by adopting an English Language Arts curriculum that incorporates the comprehensive teaching of social and emotional skills. For example, the Aspects and Habits of Character promoted in EL Education's English Language Arts curriculum are ready complements to familiar, widely-used definition of SEL.[125]
- Create a school culture, school-wide expectations around student behavior, and expectations for teachers and other staff that focus on supporting and modeling positive social and emotional skills.

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[123] *From the editors:* Examples of leading definitions and frameworks for SEL development include those from CASEL (the Collaborative for Academic, Social, and Emotional Learning), the Yale Center for Emotional Intelligence, and Responsive Classroom.

[124] **From Michele Caracappa:** Consider how you ensure SEL is culturally affirming. Look at the work of Dena Simmons, formerly of the Yale Center. (See, for example, "Why We Can't Afford Whitewashed Social-Emotional Learning." *–eds.)*

[125] *From the editors:* See "Fostering Character in a Collaborative Classroom."

By systematically and opportunistically integrating character development into its ELA curriculum, schools can address social and emotional learning far more effectively than only with a standalone program.

Rationale:

Supporting students in social and emotional learning can have broad, positive impacts on a host of outcomes. In a 2011 meta-analysis in *Child Development*, the authors analyzed studies of 213 studies SEL interventions involving more than 270,000 children of varying grade levels. Despite significant variation in the nature of the interventions considered, overall the programs significantly improved students' behavior and academic skills. When they revisited the topic in 2017, the authors confirmed the follow-up effects of SEL interventions on positive academic and behavioral outcomes. (Granted, most of these programs likely were of the standalone type.) In addition, a recent study of Chicago high schools found students had fewer absences, higher grades, and higher rates of graduation when their high schools were better at fostering emotional well-being and the habit of working hard.[126] [127]

While there is not standalone research on the efficacy of the SEL components of ELA programs like the EL curriculum, its SEL features are aligned to those of other strong SEL programs. Specifically, the Aspects of Character integrated into each EL lesson address the features of all strong SEL interventions that demonstrate the highest impact—that they are recurrent, encourage prosocial behavior, and support students' mental health.

Those aspects/habits fall into three core areas: work to become effective learners, work to become ethical people, and work to contribute to a better world. For example, in a third-grade unit entitled "Overcoming Learning Challenges Near and Far," students read *Nasreen's Secret School: A True Story from Afghanistan* by Jeanette Winter. While a typical ELA curriculum would likely have used the text to advance students' reading comprehension or analysis skills, the EL curriculum has students discuss and write about questions of democratic values and "standing up for what is right" in the context of a girl forced to attend school secretly.

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[126] *From the editors:* See "School Effects on Socioemotional Development, School-Based Arrests, and Educational Attainment."

[127] **From Seth Gershenson:** In addition, we know that teachers vary in their ability to teach noncognitive skills. See these three studies: "Linking teacher quality, students attendance, and student achievement," and "Teacher effects on complex cognitive skills and social-emotional competencies," and "What do test scores miss? The importance of teacher effects on non–test score outcomes."

In addition, although an emerging topic of research, there is evidence that SEL programs have a positive impact on the inculcation of democratic values. A 2017 study examined the voting frequency of adults who developed psychosocial skills early on in elementary school. Over 20 years, the study found that students who possessed such skills were more likely to vote as adults.

Reading List:

Aspen Institute. (2017). "Putting It All Together." National Commission on Social, Emotional, and Academic Development: Washington, D.C.

Aspen Institute. (2019). "Integrating Social, Emotional, and Academic Development (SEAD): An Action Guide for School Leadership Teams." National Commission on Social, Emotional, and Academic Development: Washington, D.C.

Barbarasch, B. and Elias, M. J. (2009). "Fostering social competence in schools." In R. W. Christner and R. B. Mennuti (Eds.), *School-based mental health: A practitioner's guide to comparative practices* (pp. 125–148). New York, NY: Routledge/Taylor & Francis Group.

- Points to many possible benefits of SEL, including developing a sense of citizenship.

Collaborative for Academic, Social, and Emotional Learning (CASEL). (2008). "Social and Emotional Learning (SEL) and Student Benefits: Implications for the Safe Schools/Healthy Students Core Elements." Washington, D.C.: National Center for Mental Health Promotion and Youth Violence Prevention.

- Well-implemented SEL programs can have positive impacts on students' academic, behavioral and health outcomes.

Durlak, J., Weissberg, R., Dymnicki, A., Taylor, R. and Schellinger, K. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432.

- Meta-analysis that points to clear academic and behavioral benefits for students in schools that have undertaken SEL interventions. A significant, positive impact on a range of outcomes is associated with a variety of interventions.

Gershenson, S. (2016). Linking teacher quality, student attendance, and student achievement. *Education Finance and Policy*, 11(2), 125-149.

Holbein, J. (2017). Childhood Skill Development and Adult Political Participation. *American Political Science Review*, 111(3), 572-583.

- This 20-year study demonstrates that kindergartners with "psychosocial skills" were more likely to vote in adulthood. The study was based on a childhood

random assignment participation in a specific elementary school SEL intervention, The Fast Track Project.

Humphrey, N. (2013). "Social and emotional learning: A critical appraisal." Washington, D.C.: Sage Publications: Thousand Oaks, CA.

- Reviews the many complex factors impacting SEL and implementation. SEL is not a fully crystallized concept that can simply be adopted and implemented.

Immordino-Yang, M.H., Darling-Hammond, L. and Krone, C. (2018). "The Brain Basis for Integrated Social, Emotional, and Academic Development: How Emotions and Social Relationships Drive Learning." Aspen Institute. National Commission on Social, Emotional, and Academic Development: Washington, D.C.

- An emotionally safe environment is not only a good in and of itself, but is necessary for student learning.

Jackson, C. K., Porter, S., Easton, J., Blanchrd, A. and Kiguel, S. (2020). School Effects on Socioemotional Development, School-Based Arrests, and Educational Attainment. *American Economic Review: Insights*, 2 (4): 491-508.

Jackson, C. K. (2018). What do test scores miss? The importance of teacher effects on non–test score outcomes. *Journal of Political Economy*, 126(5), 2072-2107.

Kraft, M. A. (2019). Teacher effects on complex cognitive skills and social-emotional competencies. *Journal of Human Resources*, 54(1), 1-36.

O'Conner, R., De Feyter, J., Carr, A., Luo, J. L. and Romm, H. (2017). "A Review of the Literature on Social and Emotional Learning for Students Ages 3-8: Outcomes for Different Student Populations and Settings (Part 4 of 4). REL 2017-248." Washington, D.C.: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Mid-Atlantic.

- SEL programs seem to have a bigger positive impact on students from low-income backgrounds. Only high-quality SEL approaches appear beneficial.

Sklad, M., Diekstra, R., De Ritter, M., Ben, J. and Gravesteijn, C. (2012). Effectiveness of School-Based Universal Social, Emotional, and Behavioral Programs: Do They Enhance Students' Development in the Area of Skill, Behavior, and Adjustment? *Psychology and Schools*, 49(9), 892-909.

- Meta-analysis of 70 studies points to the positive impact of SEL on "social skills, antisocial behavior, substance abuse, positive self-image, academic achievement, mental health, and prosocial behavior."

Taylor, R., Oberle, E., Durlak, J. and Weissberg, R. (2017). Promoting Positive Youth Development Through School-Based Social and Emotional Learning Interventions: A Meta-Analysis of Follow-Up Effects. *Child Development*, 88(4):1156-1171

- Confirms the positive follow-up effects of SEL interventions on behavioral and academic outcomes.

Wiglesworth, M., Lendrum, A., Oldfield, J., Scott, A., ten Bokkel, I., Tate, K., and Emery, C. (2016). The Impact of Trial Stage, Developer Involvement and International Transferability on Universal Social and Emotional Learning Programme Outcomes: A Meta-Analysis. *Cambridge Journal of Education*, 46(3), 347-376.

- International meta-analysis identified a positive impact of SEL interventions on academic and behavioral outcomes

CHAPTER THREE: INSTRUCTION

INSTRUCTIONAL STRATEGIES

Instructional strategies are the techniques and materials teachers use to accelerate student progress, informed by the science of learning.

Some of the most compelling literature on what works in K-12 education comes from cognitive science, which describes how the brain takes in, stores, and retrieves information. The research points to four key instructional strategies that can be used across the curriculum to maximize learning and the retention of knowledge, stimulate knowledge transfer to related topics, and create opportunities for retrieval and application.[128] They are: posing questions that deepen understanding, encouraging active recall, scheduling distributed practice (or spacing), and mixing topics together during lessons (or interleaving).

Recommendations:

- Select instructional materials, in part, based on how well they capitalize on the findings of cognitive science.
- Make sure all end-of-unit assessments are cumulative and contain content from previous units. (Ideally these assessments will be included in the high-quality curriculum the school adopts.)
- Provide teachers with ongoing training in the science of learning, such as by having them read *Make It Stick: The Science of Successful Learning* or participating in The Learning Agency's online course *Learn Better: The New Science of Learning to Learn*.
- Provide teachers with professional development on spacing, interleaving, and retrieval.
- Make sure that teacher observation rubrics cue evaluators to look for these instructional practices.

Rationale:

High-impact instructional practices rooted in cognitive science mix content topics and vary student activities. They revisit topics over time and challenge students just

[128] **From Doug Lemov:** The science of retrieval practice is really important, but not as important as the science of working memory cognitive load. Ollie Lovell's book *Sweller's Cognitive Load Theory in Action* is a great summary.

enough to accelerate development. And they engage students with aligned assessments and feedback. Here are the key practices and terms:

Spacing refers to how teachers time their lessons and assessments. Rather than stacking lessons on the same topic one after the other, delaying re-exposure to material over a period of several weeks and months—whether through homework assignments, in-class reviews, quizzes, or other activities—significantly increases the amount of information students remember.

Interleaving happens when lessons mix content and activities force students to shift cognitive gears. Such "varied practice" boosts long-term retention, particularly in math.[129] Rather than studying math operations of a certain type in isolation, for example, it is more effective to mix different topics and types of problems.

Cognitive effort—or the amount of available brainpower students spend on a lesson—matters too. One of the most exciting discoveries from learning science is that it appears that the greater the cognitive effort required to retrieve something from memory, the stronger the retention of that information. Lessons should be "just right" in terms of effort and include plenty of opportunities to recall and use new to knowledge and skills.

And, it turns out, the evidence shows that **quizzing students** is one of the most potent of those retrieval practices. As explained in the Institute for Education Sciences Practice Guide *Organizing Instruction and Study to Improve Student Learning*, "the act of recalling information from memory helps to cement the information to memory and thereby reduces forgetting. By answering the questions on a quiz, the student is practicing the act of recalling specific information from memory." Research also shows that taking a test is "almost always" more effective than spending more time studying the same material and that students who are tested frequently rate their classes more favorably.

Finally, the literature on **feedback** as an instructional strategy is vast. In *Make It Stick*, Brown, Roediger, and McDaniel write, "Studies show that giving feedback [on wrong answers to test questions] strengthens retention more than testing alone does and, interestingly, some evidence shows that delaying the feedback briefly produces better long-term learning than immediate feedback." (The reason, they suggest, is that learners can quickly become dependent on being corrected.)

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[129] *From the editors:* Check out this summary of the research on interleaving in *Scientific American* for more.

How to apply these to the classroom? We find practitioner-friendly guidance from education psychology professor Barak Rosenshine, whose influential "Principles of Instruction" report formed the basis of the list below, which first appeared in AFT's *American Educator* magazine:[130]

- Begin a lesson with a short review of previous learning
- Present new material in small steps, with student practice after each step
- Ask a large number of questions and check the responses of all students
- Provide models
- Guide student practice
- Check for student understanding
- Obtain a rate of high success
- Provide scaffolds for difficult tasks
- Require and monitor independent practice
- Engage students in weekly and monthly review

Reading List:

Brown, P., Roediger, H., McDaniel, M. (2014). *Make It Stick: The Science of Successful Learning*. The Belknap Press of Harvard University Press.

- The book is a "must read" for anyone interested in the science of learning.

Willingham, Daniel T. (2010). *Why Don't Students Like School?: A Cognitive Scientist Answers Questions About How the Mind Works and What It Means for the Classroom*. Wiley.

- Another comprehensive look at the science of learning, and how to apply it in the classroom.

Carpenter, S.K., Pashler, H., Wixted, J.T., and Vul, E. (2008). The effects of tests on learning and forgetting. *Memory & Cognition*, 36, 438-448.

- Findings confirm that testing enhanced overall recall more than restudying did.

Cepeda, N.J., Pashler, H., Vul, E., Wixted, J.T., and Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin*, 132, 354-380.

[130] *From the editors:* Other scholars have identified similar principles and practices; see, for example, Greg Ashman's 2020 book *The Power of Explicit Teaching and Direct Instruction*.

- Contains a review and quantitative synthesis of hundreds of experiments on the effects of massed versus distributed practice.

McDaniel, M.A., and Fisher, R.P. (1991). Tests and test feedback as learning sources. *Contemporary Educational Psychology*, 16(2), 192-201.

- Tested facts (for which feedback was provided) are better recalled on a final criterion test than untested facts, showing the beneficial effects of testing.

Pashler, H., Bain, P., Bottge, B., Graesser, A., Koedinger, K., McDaniel, M., and Metcalfe, J. (2007) "Organizing Instruction and Study to Improve Student Learning (NCER 2007-2004)." Washington, D.C.: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education.

Pomerance, L., Greenberg, J., and Walsh, K. (2016). "Learning About Learning: What Every New Teacher Needs to Know." Published by the National Council on Teacher Quality.

Rohrer, D., and Taylor, K. (2006). The effects of overlearning and distributed practice on the retention of mathematics knowledge. *Applied Cognitive Psychology*, 20, 1209-1224.

ASSESSING STUDENT PROGRESS

Assessing student progress refers to the ongoing practice of testing students' abilities to retrieve and apply new information and skills, through curriculum-aligned tests, quizzes, and checks for understanding.

Regular curriculum-aligned assessments provide both students and teachers with the feedback they need to improve teaching and learning.[131]

For teachers, data on classroom performance provides insights about their instruction's effectiveness and individual student understanding and misconceptions. For students, timely and meaningful feedback regarding mastery and performance can help them chart progress and better achieve learning goals.

Assessments include tests and quizzes as well as regular checks for understanding, which provide detailed information about what students do and do not yet know.[132]

Recommendations:

- Select curriculum in part based on the strength of the varied ways in which checks for understanding and other regular formative assessments are handled within it.
- At least once a month, dedicate a grade-level Professional Learning Community meeting to analyzing student work and planning instructional strategies in response.
- Distinguish carefully between assessments that uncover problems with foundational skills and those that are aimed at evaluating more complex comprehension.

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[131] **From Kim Marshall**: There's a world of difference between on-the-spot "dipstick" assessments during lessons (followed up immediately by teachers) and benchmark/periodic/quarterly/unit assessments taken up in teacher team meetings, ideally driving improvements in instructional techniques and effective follow-up with struggling students. Dylan Wiliam, for one, has serious doubts about the impact of the latter and touts the critical importance of the former. I think you need to distinguish between these, address the challenges of the latter, and make separate recommendations. Implementation and PD of these two are quite different. (For more, see dylanwiliam.org. –*eds*)

[132] **From Doug Lemov:** Arguably just as important are intentional daily practices to gather and respond to data about student mastery… that is, using check for understanding techniques such as tracking student answers during instruction.

- Guide students to review and reflect on their performance on assessments as a means to accelerate learning, including by setting goals, identifying obstacles, and planning for future success.

Rationale:

Our recommendations are heavily influenced by a practice guide published by the Institute of Education Sciences in 2009, *Using Student Achievement Data to Support Instructional Decision Making*. IES published the guide despite acknowledging that the research into using assessment to make instructional decision is not yet conclusive about what works. This indicates the important role of assessment and how desirable it is that we channel it in the most effective ways possible.

Nonetheless, two of the recommendations informed by the IES guide do have some basis in research findings: making data part of an ongoing cycle of continuous instructional improvement, and teaching students to examine their own data and to set, reflect on, and assess learning goals.[133]

Using data to drive continuous instructional improvement calls on teachers and an instructional leadership team to:[134]

- **Collect and prepare a variety of data about student learning.** Data from curriculum-aligned and curriculum-embedded assessments are the most valuable, such as those from performance tasks, quizzes, or exit tickets. Students' writing, including sentence-level activities, is another important source of data that has too often been overlooked.
- **Interpret data and develop hypotheses about how to improve student learning**. Such work should happen independently and in teams and analysis should be done at the classroom and individual student level.[135] Variability in classroom-level data can provide important insights into

[133] **From Nate Jensen:** This does require a bit of knowledge on the part of both adults and students to set learning goals that balance what is meaningful with what is realistic. Setting a goal, in and of itself, has value. Setting a goal that would result in a meaningful outcome that requires the student to stretch, but does not set them up to fail, will likely be more impactful for students.

[134] **From Amy Briggs:** I would suggest going beyond the IES core ideas to also include these three precepts. First, assessment should be used to determine *how* to bring students into grade-level instruction, not *whether* to bring them into it. Second, assessment should center on formative practices. Teachers should leverage such sources of information as exit tickets, student work, and student discussions and use these sources of information to inform instructional choices in connection with high-quality instructional materials. Third, teachers should employ targeted checks for very specific subject and grade-level instructional purposes (specifically, phonics or math fluency inventories, checks for reading fluency).

[135] **From Alyssa Whitehead-Bust:** In addition, student work analysis is one of the most useful ways, in my mind, of developing meaningful hypotheses about student understandings, unfinished learning, and misconceptions.

expectations and content coverage that teachers and leaders will want to address. Much of the work of this kind of collaborative reflection will happen during grade-level Professional Learning Community time.

- **Distinguish carefully between assessments that uncover problems with foundational skills (phonemic awareness, phonics) and those that are aimed at evaluating reading comprehension.** Poor results on reading assessments are usually interpreted to require more practice in comprehension skills and strategies, when the struggle may well be with phonemic awareness. If the problem is actually a decoding issue, remediation should be targeted to that. If it's a comprehension issue, care should be taken to determine whether the problem was lack of background knowledge or something else.[136]
- **Modify instruction to test hypotheses and increase student learning.** Again underlying the importance of working in subject or grade-level teams, many of the strategies the IES panelists advise for potentially modifying instruction (e.g. targeting intervention, ensuring performance expectations are clear and grade-level appropriate, peer observation) point to the importance of collaborative, curriculum-based professional learning.

Assessments can also help students develop metacognition about their learning, which can support them as they improve their own performance, with the following actions by teachers:

- **Explain expectations and assessment criteria**. Teacher should articulate and share explicit learning goals for lessons and assignments, as well as clear scoring rubrics both before and after assignments are complete.
- **Provide feedback to students that is timely, specific, well-formatted, and constructive.** The literature is rich on the importance of each of these.
- **Provide tools that help students learn from feedback.** Such tools include templates asking students to list strengths and weaknesses in their responses, worksheets to facilitate reflection, and charts to track progress.

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[136] **From Doug Lemov:** This is one of the areas of greatest challenge. In reading, use of data analysis tools often socializes skill-based versus knowledge-based instruction because the easiest way to cut the data is by standard. Unaddressed it may socialize schools to teach reading incorrectly. In analyzing reading data, the research tells us it would be better for example to assess mastery of passages based on their text complexity and topical area rather than assessing the mastery of questions by standard. In addition, schools should think deeply about how to supplement their data sets. They should add a measure of vocabulary for example—vocabulary being the single most important form of background knowledge.

- **Use students' data analyses to guide instructional changes.** Listening to student reflections on their performance relative to established rubrics can provide useful feedback for teachers.[137]

Reading List:

Black, P., and William, D. (1998). Assessment and classroom learning. *Assessment in Education*, 5(1), 7–74.

- Feedback should be rapid so that students still remember the task and the skills when they were being assessed.

Brunner, C., Fasca, C., Heinze, J., Honey, M., Light, D., Mandinach, E., and Wexler, D. (2005). Linking data and learning: The Grow Network study. *Journal of Education for Students Placed At Risk*, 10(3), 241–267.

- Feedback should provide concrete information and suggestions for improvement

Hamilton, L., Halverson, R., Jackson, S., Mandinach, E., Supovitz, J., and Wayman, J. (2009). "Using student achievement data to support instructional decision making (NCEE 2009-4067)." Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Halverson, R., Prichett, R. B., and Watson, J. G. (2007). "Formative feedback systems and the new instructional leadership." WCER Working Paper. Madison, WI: University of Wisconsin-Madison.

Herman, J., and Gribbons, B. (2001). "Lessons learned in using data to support school inquiry and continuous improvement: Final report to the Stuart Foundation." Los Angeles, CA: Center for the Study of Evaluation, University of California, Los Angeles.

May, H., and Robinson, M. A. (2007). "A randomized evaluation of Ohio's Personalized Assessment Reporting System (PARS)." Philadelphia, PA: Consortium for Policy Research in Education. University of Pennsylvania.

Phillips, N. B., Hamlett, C. L., Fuchs, L. S., & Fuchs, D. (1993). Combining classwide curriculum-based measurement and peer tutoring to help general educators provide adaptive education. *Learning Disabilities Research & Practice*, 8(3), 148–156.

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[137] **From Eugene Pinkard:** This is a valuable point that might be further underscored and applied to the community as a whole. It's important that students develop a sense of agency and ownership cannot simply be teacher-directed. For example, see the UChicago Consortium on School Research's Developmental Framework "Foundations for Young Adult Success" from 2015.

- Providing students with thoughtful and constructive feedback on their progress may improve student achievement.

Saunders, W. M., Goldenberg, C. N., & Gallimore, R. (2009). Increasing achievement by focusing grade level teams on improving classroom learning: A prospective, quasi-experimental study of title 1 schools. *American Educational Research Journal*, 46(4), 1006-1033.[138]

Stiggins, R. (2007). Assessment Through the Student's Eyes. *Educational Leadership*, 64(8), 22–26.

[138] **From Dylan Wiliam:** This study supports the effectiveness of instructional teams. The quoted effect size is at the teacher level, so it is not directly comparable to effect sizes at the student level. But assuming a correlation of 0.15 between teacher quality and student progress, the effect size of 0.79 equates to an effect size of around 0.12 at the student level, which, given that these students were in grades 3-5, represents an increase in the pace of learning of around 20 percent.

SUPPORTS FOR STUDENTS WITH DISABILITIES

Supports for students with disabilities refer to techniques and learning designs that scaffold instruction so all students can participate in whole-class, grade-level lessons.

Targeted interventions for students with IEPs should not occur at the expense of their also receiving quality Tier 1 instruction with the remainder of the class. As much as possible, every opportunity should be provided for student supports that scaffold grade-level instruction, particularly in ELA where the development of academic vocabulary and the opportunity to advance oral language competency are vital to literacy success.[139]

Recommendations:

- Keep struggling students together with their general-education classmates as much as possible, even as their specific learning challenges are also being addressed in small-group Tier 2 settings.[140] The actual instruction students receive in lower-performing groups can be inferior to that received by students in higher-performing groups, much like how assigning students leveled reading books can keep them permanently behind their peers.
- Structure small-group Tier 2 interventions to maximize their positive impact. The literature is clear about the value of small-group intervention for 20 to 30 minutes per day to help students with learning difficulties or unfinished learning.[141]
- Focus Tier 2 time on high-impact skills and topics. In reading, small-group intervention should focus on foundational skills and fluency or comprehension issues related to specific content in the curriculum. The science is long on the benefits to students with reading disabilities of extra time spent on explicit, repetitive, structured instruction that can help them make the connections between the sounds of spoken words and the letters that represent those

[139] **From Rob Schwartz:** One side benefit of note for having IEP students in mainstream classrooms is the extra adults that it brings, whether they are special-education teachers or paraprofessionals. Their role is critical and can be additive by providing additional small-group instruction, annotating and explaining during whole class grade-level instruction, and administering frequent student assessments.
[140] **From F. Chris Curran:** More inclusion also may mean freeing up special-education teachers to work more in Tier 2 small groups, rather than only spending their time in pullout sessions with students with IEPs.
[141] *From the editors*: See the Implementation section for suggestions on how to fit these interventions into the daily schedule.

sounds.[142] While more of the literature on multi-tiered instruction has occurred in reading, the principles are equally appropriate to students struggling with mathematics.[143]

- Select and use high-quality instructional materials that include robust discussions, guidance, and tools to scaffold lessons to meet the needs of all learners. Tier 2 interventions should be provided using the core curriculum and be additive, augmenting rather than replacing students' participation in grade-level lessons as part of the class.[144] Again, much of the benefits of such curricula are experienced in a whole-class setting.

Rationale:

In its *Practice Guides* on Response to Intervention strategies in reading and math, the Institute of Education Sciences cites numerous studies recommending "intensive, systematic instruction in small groups to students who score below the benchmark on universal screening." [145]

In reading, it is recommended that instruction address foundational reading skills identified through screening tools and that small groups meet between three and five times a week for 20-40 minutes each time. The science is long on the benefits to students with reading disabilities of extra time spent on explicit, repetitive, structured

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[142] **From Katie Shuman:** This seems to be alluding to the science on dyslexia. While an important point to make, it does not encapsulate the challenges of all students with reading disabilities (e.g., Oral / Written Language Disorder and Specific Reading Comprehension Deficit). We should instead emphasize the vital importance of explicit, systematic teaching to develop phonemic proficiency and phonic knowledge (for the reasons mentioned) along with instruction in reading fluency, vocabulary word meanings and word-learning strategies, and comprehension strategies. This makes up the right Tier 2 "package" for reading disabilities with data being the crucial deciding factor in dictating the "dosage" of each component for students. For more on this, see the IES Practice Guide on reading RTI.

[143] **From Sivan Tuchman:** MTSS is a way to address all subjects along with social-emotional learning and behavior challenges. It feels pretty important to not overlook this, particularly right now. (*From the editors:* For more on this, see "Improving Instruction, Accessibility, and Outcomes - Multi-Tier System of Supports (MTSS), Universal Design for Learning (UDL), and Differentiated Instruction (DI)" from the CEEDAR Center.)

[144] **From Jamie Spears:** Appreciate the emphasis on "additive" to reinforce the importance of not pulling students from their Tier 1 ELA instruction. However, while high-quality scaffolding practices are critical, there is an opportunity to first double-down on ensuring instruction is accessible, that it attends to learner variability. Building capacity around Universal Design for Learning (UDL) as a tool for attending to educator blind spots goes a longer way than jumping to scaffolds for every learner with diverse needs, plus an understanding of UDL leads to stronger scaffolding practices. (*From the editors:* For more on this topic, see "The UDL Guidelines" from the Center for Applied Special Technology (CAST).

[145] *From the editors:* The evidence base referenced in these IES Practice Guides is extensive. See the appendices at the back of these publications: "Assisting Students Struggling with Reading: Response to Intervention (RtI) and Multi-Tier Instruction" and "Assisting Students Struggling with Mathematics: Response to Intervention (RtI) and Multi- Tier Instruction."

instruction that can help them make the connections between the sounds of spoken words and the letters that represent those sounds.

In mathematics, the evidence indicates that instruction in these small groups should be explicit and systematic. Lessons should focus on common underlying structures in solving word problems, use visual representations, and build fluent retrieval of basic arithmetic facts.

Reading List:

Alsalamah, Areej. (2017). The Effectiveness of Providing Reading Instruction Via Tier 2 of Response to Intervention. *International Journal of Research in Humanities & Social Sciences*. 5(3), 6-17.

- Studies of Tier 2 instruction have not been done on schools where Tier 1 instruction is necessarily strong.

Anderson, Richard C., Hiebert, E., Scott, J., Wilkinson, I., Becker, W., and Becker, W. (1988). BECOMING A NATION OF READERS: THE REPORT OF THE COMMISSION ON READING. *Education and Treatment of Children*, 11(4), 389–396.

- Cited here as the source of concerns about the differences in how lower-level and higher-level students are engaged by teachers.

Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). *Assisting students struggling with mathematics: Response to Intervention (RtI) for elementary and middle schools* (NCEE 2009-4060). Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Gersten, R., Compton, D., Connor, C.M., Dimino, J., Santoro, L., Linan-Thompson, S., and Tilly, W.D. (2008). "Assisting students struggling with reading: Response to Intervention and multi-tier intervention for reading in the primary grades. A practice guide. (NCEE 2009-4045)." Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Hoff, Naphtali. (2002). "An Analysis of Appropriate Groupings and Recommended Strategies and Techniques for Reading in the Classroom." Independent Study Research Paper, Loyola University.

- Teachers tend to ask more stimulating questions when working with higher-level students.

Johnson, E. S., and Boyd, L. (2013). Designing Effective Tier 2 Reading Instruction in Early Elementary Grades with Limited Resources. *Intervention in School and Clinic*, 48(4), 203-209.

- Interventions should include knowledge-building activities.

Shaywitz, S. and Shawywitz, J. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level*. Alfred A. Knopf.

SUPPORTS FOR ENGLISH LEARNERS

Supports for English Learners refer to the techniques, strategies, and materials that help students develop language competence while participating fully in core grade-level lessons.

Meeting the particular needs of the diverse and growing group of English learners (ELs) is a pressing challenge. Although many general education programs and curricula do not provide all of the specific supports ELs need, pull-out programs for most students generally do more harm than good. Specific English-language instruction is appropriate for students with the lowest levels of proficiency, but emerging and developing learners should primarily participate in mainstream grade-level instruction with targeted supports aimed at building their academic vocabulary and oral and written language. That will be particularly important as schools addressed ELs' unfinished learning in the wake of the pandemic. We acknowledge that some consent decrees require pullout programs for EL students, however.

Recommendations:

- Ensure EL students can participate in whole-class, rigorous instruction through scaffolds, including by grounding pullout support activities in academic vocabulary and using curriculum that includes specific EL supports.
- Provide intensive small-group instruction and regular opportunities to develop written language skills based on students' specific learning needs.
- Engage families and build on students' prior knowledge, including home languages and cultural assets.
- Use federal funding earmarked for ELs to offer extended instructional time over and above the regular school day, such as summer programs or after-school, small-group tutoring.

Rationale:

Despite interruptions in in-person schooling, districts and schools must identify and offer targeted supports and accommodations to EL students. A new "EdResearch for Recovery" guide notes that federal waivers issued in spring 2020 are unlikely to recur and recommends using new digital tools to better serve ELs. These include direct

outreach to families, such as through translated text messages, as well as new online professional learning for teachers and paraprofessionals.[146]

Perhaps the most widely respected guidance on EL instruction has emerged from a project out of Stanford University called Understanding Language. Co-chaired by scholars Kenji Hakuta and María Santos, Understanding Language has considerably advanced educator knowledge about the importance of rigorous, grade-level instruction for ELs. The initiative has articulated six principles for effective lesson planning and delivery.

- Provide ELs with opportunities to engage in discipline-specific practices that build conceptual understanding and language competence in tandem
- Leverage students' home language(s), cultural assets, and prior knowledge
- Ensure standards-aligned instruction for ELs is rigorous, grade-level appropriate, and provides deliberate and appropriate scaffolds
- Account for students' English proficiency level(s) and prior schooling experiences
- Foster autonomy by equipping EL students with the strategies necessary to comprehend and use language in a variety of academic settings
- Employ diagnostic tools and formative assessments to measure students' content knowledge and academic language competence

In its *Practice Guide* on the subject, the Institute for Education Sciences considers evidence from 19 separate high-quality studies. The guide supports small-group interventions for EL students but also stresses "enhancing the core instructional program" in three of its four recommendations.[147] These are:

- Teach a set of academic vocabulary words intensively across several days using a variety of instructional activities.
- Integrate oral and written English language instruction into content-area teaching.
- Provide regular, structured opportunities to develop written language skills.
- Provide small-group instructional intervention to students struggling in area of literacy and English language development.

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[146] *From the editors:* See Brief No. 15 by EdResearch in Recovery: "Supports for Students Who Are English Learners."
[147] *From the editors:* See "Teaching Academic Content and Literacy to English Learners in Elementary and Middle School" from the Institute of Education Sciences.

In addition, the guide notes that teachers should find ways to group English learners with their non-English learner peers, because students in heterogeneous groups are likely to benefit from hearing opinions or oral language expressions from students at different proficiency levels.[148] Other discussions of "what works" underscore the importance of explicit and intense instruction in academic vocabulary and the related need for "engaging students in academic discussions about content." Thankfully, several high-quality ELA curricula on the market are designed to support teachers in delivering instruction that meets the needs of EL students.[149]

In short: quality language and literacy instruction occur throughout the school day and across content areas. It's clear that all teachers in the building, including history, math, science, and other disciplines, should incorporate these recommendations.

Reading List:

Baker, S., Lesaux, N., Jayanthi, M., Dimino, J., Proctor, C. P., Morris, J., Gersten, R., Haymond, K., Kieffer, M. J., Linan-Thompson, S., and Newman-Gonchar, R. (2014). "Teaching academic content and literacy to English learners in elementary and middle school (NCEE 2014-4012)." Washington, D.C.: National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education.

Bunch, G., Kibler, A., and Pimentel, S. (2012). "Realizing Opportunities for ELLs in the Common Core English Language Arts and Disciplinary Literacy Standards." Presented at the annual meeting of the Understanding Language Conference, January 2012.

Goldenberg, C. (2013). "Unlocking the Research on English Learners," *American Educator*. Summer 2013. 4-11.

Goldenberg, C. (2008) "Teaching English Language Learners," *American Educator*. Summer 2008. 8-23, 42-44.

Mavrogordato, M., Callahan, R., DeMatthews, D., and Izquierdo, E. (2021). "Supports for Students Who Are English Learners." EdResearch for Recovery.

Santos, M., Darling-Hammond, L., and Cheuk, T. (2012). "Teacher Development to Support English Language Learners in the Context of Common Core State Standards." Presented at the Understanding Language Conference, January 2012

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[148] **From Alyssa Whitehead-Bust:** I don't disagree, but many schools would find this hard to implement, particularly in conjunction with some of the design principles named above

[149] *From the editors:* Contributors suggest looking to Lily Wong Filmore's work on this topic as well. A sample of recent publications are available at achievethecore.org.

SUPPORTS FOR LOW-INCOME GIFTED AND TALENTED STUDENTS

Supports for low-income gifted children include how schools identify, group, instruct, assess and meet the unique needs of academically talented students from less-resourced families.

Now more than ever, high-ability students from low-income families will need specialized attention and guidance from their parents and teachers. Many less-resourced families have experienced illness or personal and financial instability, and low-income students' schooling may have experienced long interruptions due to a lack of resources at home.

Ensuring all students have access to high-quality educational programs and teachers is paramount, and the strategies we outline here would benefit all students. We look at the specific needs of low-income students because the difference in participation in gifted programs between low-income and more affluent students may continue to grow during and post- pandemic if necessary steps are not put in place. For example, many well-off families were able to hire private tutors or create pandemic learning pods for their children—setups that many low-income families are less likely to afford. Bright students from disadvantaged families equally need targeted supports aimed at cultivating their talents.

Recommendations:

Research-based evidence points to six distinctive strategies that can support and challenge gifted children. The National Association for Gifted Children makes the following recommendations to encourage the growth and development of the whole gifted child, including their intellectual, social, emotional, and physical domains.

- **Acceleration** occurs when students move through traditional curriculum at rates faster than typical. Its many forms include grade-skipping, early entrance to kindergarten or college, dual-credit courses such as Advanced Placement and International Baccalaureate programs, and subject-based acceleration (such as when a fifth-grade student takes a middle-school math course). Many researchers consider acceleration to be an appropriate educational planning that matches the level and complexity of the curriculum with the readiness and motivation of the student.
- **Curriculum compacting** is a technique for differentiating instruction for students who have already mastered the material to be learned, Rather than

cueing students to practice what they already know, teachers replace whole-class content with new content, enrichment options, or other activities. This important instructional strategy condenses, modifies, or streamlines the regular curriculum to reduce repetition, allowing time for acceleration or enrichment.

- **Grouping**, or placing students with similar abilities or performance levels together for instruction, has been shown to positively impact student learning gains. Grouping gifted children together allows for more appropriate, rapid, and advanced instruction, to better match their quicker pace of development. Research finds that almost any form of grouping will provide an academic or achievement gain to gifted learners, in addition to positive social and emotional gains.
- **Identification**, or the process by which students are categorized as gifted, is a critical component of effective education for advanced students. Gifted learners exhibit different characteristics, traits, and ways to express their giftedness. It is critical for teachers and school administrators to use assessments and criteria that recognize that giftedness is dynamic, not static, and is represented through all racial, ethnic, and income levels. Different strategies may be needed to ensure diverse students with high potential are identified. One size does not fit all.
- **Pullout and other specialized programs** are among the diverse programming options for gifted and talented students. Research demonstrates the effectiveness of these varied options, such as gifted pullout classes in a subject or standalone schools run by the state (such as the Indiana Academy for Science, Mathematics, and Humanities). In addition, gifted students benefit from local magnet schools, gifted programs that occur after school, on Saturdays, or during summer programs, and from advanced coursework through distance learning or Advanced Placement, International Baccalaureate, or other dual-enrollment classes.
- **Teacher training** is critical to high-level gifted programs, because teachers who know how gifted students learn can use gifted education strategies in the classroom, Because most gifted students spend their school days in regular classrooms, providing basic training for all teachers on how to recognize and serve advanced students can help more appropriately educate those students.

Reading List:

Evidence bolstering recommendations in this section has been gathered by the National Association of Gifted Children and published on the web pages as follows:

Gifted Education Strategies

https://www.nagc.org/resources-publications/gifted-education-practices

SUPPORTS FOR LOW-INCOME GIFTED AND TALENTED STUDENTS

Acceleration

https://www.nagc.org/resources-publications/gifted-education-practices/acceleration

Curriculum Compacting

https://www.nagc.org/resources-publications/gifted-education-practices/curriculum-compacting

Grouping

https://www.nagc.org/resources-publications/gifted-education-practices/grouping

Identification

https://www.nagc.org/resources-publications/gifted-education-practices/identification

Pullout Programs and Specialized Classes

https://www.nagc.org/resources-publications/gifted-education-practices/pull-out-programsspecialized-classes

Teacher Training

https://www.nagc.org/resources-publications/gifted-education-practices/importance-teachers

CHAPTER FOUR: RECOVERY

TARGETED HELP AND HIGH-DOSAGE TUTORING

Targeted help and high-dosage tutoring seek to address unfinished learning through acceleration and structured learning supports, not remediation.

A growing body of evidence indicates that many students will enter the 2021-22 school year with a substantial amount of unfinished learning. The tendency of educators may be to use benchmark assessments to determine the extent of unfinished learning and then group students according to where they fall. While benchmark assessments can be helpful, evidence suggests that grouping students by current achievement levels is *not* the approach to use.

A consensus is emerging among well-respected organizations with instructional expertise that schools should instead focus on acceleration and support students to participate in grade-level instruction. Targeted support to help all students reach grade-level goals should be curriculum-specific, and the support itself should focus on the most critical skills and knowledge students need to master by the end of the school year. Researchers and practitioners are focused in particular on the potential of intensive tutoring to address learning losses caused by the Covid-19 pandemic.[150]

Recommendations:

- Articulate the most critical instructional content priorities and benchmarks for grade-level success and focus instruction accordingly.
- Maintain grade-level instruction and use regular assessments to deliver just-in-time acceleration as needed. Teaching at grade level is about keeping up, not catching up, but using frequent formative assessments can identify missing

[150] **From Remy Washington:** Curious about perspectives on enrichment. A lot of the pieces of this document hinge on student concept knowledge, which could indicate that time away from school due to the pandemic limited exposure to content knowledge for students who need it most. However, targeted help only emphasizes tutoring over skill remediation. How does a district limit gaps in exposure that already exist because of socio-economic status, with low-income students missing a full year of opportunities and experiences that their more privileged peers have had? It seems like there is more of a need for enrichment experiences that are co-curricular. I am just concerned that when we say accelerate and keep going, when we know that there are experiences that some of our students missed and other students of more privilege have had, it seems like it perpetuates the mantra that kids from low-income or minority backgrounds have to do more with less. I'm not sure if tutoring covers the exposure/experiential gap, which also impacts outcomes.

skills or content knowledge so that gaps can be addressed at the right moments.

- Extend the school day to provide high-impact, high-dosage tutoring using proven practices. These include student-tutor ratios no greater than 4:1, instruction that complements classroom lessons, ample time to meet at least three times each week, and sustained relationships between students and well-supported, well-trained tutors.

Rationale:

Acceleration

David Steiner and Dan Weisberg write that "'meeting students where they are' and trying to remediate learning deficits often just results in having to meet them even further back next year. It stigmatizes students and reinforces inequities…. Instead of delaying access to grade-level work for students who've fallen behind, we need to accelerate it."[151]

In her book, *Learning in the Fast Lane: 8 Ways to Put ALL Students on the Road to Academic Success*, Suzy Pepper Rollins writes, "Remediation is based on the misconception that for students to learn new information, they must go back and master everything they missed." Rollins goes on to say that while the primary focus of remediation is mastering concepts in the past, acceleration prepares students for success in the present. "Rather than concentrating on a litany of items that students have failed to master, acceleration readies students for new learning. Past concepts and skills are addressed, but always in the purposeful context of future."[152] [153]

When it comes to reading, schools must take care not to rely on assessments, instruction, or remediation that focus primarily on comprehension skills or strategies, nor should they steal instructional time from social studies and science. Students

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[151] *From the editors*: See "Steiner & Weisberg: When Students Go Back to School, Too Many Will Start the Year Behind. Here's How to Catch Them Up — in Real Time" by David Steiner and Daniel Weisberg.

[152] **From Tracy Epp:** While I can understand the merits of this for content-based subjects such as math, science, and social studies, this feels misguided for literacy, particularly for early literacy. Going back to the research base, if students cannot decode, they cannot read; if they cannot decode fluently, they cannot comprehend. If students are reading below grade level, they must receive a research-based intervention, and not one based on what an individual teacher or team of teachers may or may not know about the science of reading.

[153] **From Jared Myracle:** I don't disagree with the quoted passage, but in practice this does feel like somewhat of an oversimplification. For example, if a student missed half of Kindergarten due to COVID and as such missed out on explicit phonics instruction for half of the letter sounds they would normally learn, the assumption is they'll just pick it up later? I'd split the difference and acknowledge the need for some remediation on fundamental/foundational skills or knowledge. We need to make an allowance for addressing missing skills.

should not be tested for their individual "reading levels" and then limited to books at those supposed levels. In schools using ELA curricula that focus on such skills and strategies, it's also unclear what concepts students would be deemed to have missed during the pandemic, given that the same skills and strategies are covered every year.

A number of well-respected organizations, including Student Achievement Partners, Council of the Great City Schools, Achievement Network, the Center for Assessment, the Center for Reinventing Public Education, and TNTP, have provided guidance related to acceleration to address unfinished learning. In all cases, the advice is in support of grade-level instruction for students.

The Evidence Project, a collaborative research effort led by the Center for Reinventing Public Education "to close the gap between research and policy in K-12 responses to COVID," published a paper with this specific advice: "Focus on what's most important for a student to know to engage effectively in the first major unit or two of the instruction."[154] As a teacher moves forward in the curriculum, experts suggest working in grade-level teams to identify the most critical prerequisite skills and background knowledge students will need to access the upcoming content and address this in "real time," as the unit is being taught.[155]

Student Achievement Partners, whose founders are the lead authors of the Common Core State Standards and other college- and career-ready standards, issued a helpful document in the summer of 2020 that identified the priority instructional content in ELA/literacy and mathematics.[156] Publishers have used this document to support teachers in collapsing content that is not as essential to the major work of the grade and pulling in material from units that students missed previously, as needed.

Scott Marion of the Center for Assessment argues that off-the-shelf assessment products are disconnected from the instruction they intend to measure.[157] A better

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[154] *From the editors:* See "Learning as We Go: Principles for Effective Assessment During the COVID-19 Pandemic" by The Evidence Project.

[155] **From John Davis**: While I agree with this, it's easier said than done. The most critical prerequisite skills assume that there are other skills not quite as critical. Similarly, for grade-level content, what parts are not as critical and can be lessened so that the "real time" teaching of the most critical skills can occur. For whatever reason, academic folks are loathe to shorten the breadth of a curricula, which is somewhat assumed here but not really called it. It should be. And it's tricky. What exactly should be lessened is a debate, but I know one thing—just saying teach the pre-requisites in "real time" alone isn't sufficient.

[156] *From the editors:* See "2020–21 Priority Instructional Content in English Language Arts/Literacy and Mathematics" by Student Achievement Partners.

[157] **From Tracy Epp:** Agreed, but the misuse here has had more to do with using interims as predictive and practice tools for standardized tests that were assessing knowledge and skills in isolation. Also, this is much more of a relevant point for grades 3-5 rather than K-2, where interims are not so prevalent and where reading inventories should be used.

approach is to select instructional materials that come with aligned assessments baked into them, through both formal assessments and other opportunities throughout the curriculum itself to assess student learning such as exit tickets, written work, or student discussions. As Student Achievement Partners notes, such an approach is a "deliberate alternative to assessment choices that have the potential to serve as a gatekeeper to grade-level content."

The choice of curriculum can help. For example, there is evidence that the kind of writing instruction embodied in The Writing Revolution's method can help compensate for significant gaps in background knowledge and facilitate acceleration. In a high school where many students lacked sufficient preparation for grade-level work, its adoption led to significantly higher graduation rates, AP participation and performance, and other measures of achievement over a three-year period.[158] If such an approach can compensate for 10 years or more of deficient in-class education, it is likely to help with the negative effects from the much shorter period of remote schooling during the pandemic.

Tutoring

An important programmatic feature of any school's acceleration design must be the strategic use of tutoring.[159] Education researcher Robert Slavin, director of the Center on Research and Reform in Education at Johns Hopkins University, has argued that intensive tutoring is, by far, the most effective intervention for students who have fallen behind. Given the scope of the challenge, he said, "it would be malpractice to do anything less than tutoring."[160]

The educational benefits to high-dosage tutoring are immense. A meta-analysis of nearly 200 research studies finds that high-dosage tutoring has a far greater effect on math and reading outcomes than even early childhood interventions. Gold-standard randomized experiments have demonstrated the incredible gains students can make with the help of a tutor; for example, in Chicago, at-risk high school boys rose from the 38th percentile to the 46th percentile of math achievement. Furthermore, tutoring is an intervention with the potential to scale well across contexts; in Houston, high-dosage

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[158] *From the editors:* See "The Writing Revolution" in the *Atlantic*.
[159] **From Bailey Cato Czupryk:** Matt Kraft's new paper provides a really strong framework. (See "A Blueprint for Scaling Tutoring Across Schools.)"
[160] *From the editors:* See "High-Dosage Tutoring Is Effective, but Expensive. Ideas for Making it Work" in *Education Week*.

tutoring models successfully transferred from high-performing charter schools to lower-performing traditional public schools.

In addition to significant learning loss, students have spent the past year feeling increasingly disengaged from their school communities. Tutoring and similar mentoring programs (such as Success Mentors in New York City) have been shown to improve attendance and engagement among students. As reported by Harvard's Center on the Developing Child, students with at least one positive and stable adult relationship are far more capable responding successfully to traumatic events; tutors can fill that need for at-risk students recovering from the pandemic. Tutors can even meet this need in a virtual capacity, as a fully remote tutoring program in Italy significantly improved the psychological well being of students in the spring of 2020.

A new National Student Support Accelerator is being launched with significant philanthropic support to provide high-impact tutoring, particularly to the low-income students who have historically not had access to such services. The organization defines high-impact tutoring as "a form of teaching, one-on-one or in a small group, toward a specific goal" that "leads to substantial learning gains for students by supplementing (but not replacing) students' classroom experiences." Such tutoring "responds to individual needs and complements students' existing curriculum." Importantly, these tutors form meaningful relationships with students and should not serve students on a rotating or drop-in basis.[161] [162]

These characteristics mirror research-based recommended supports for students with disabilities and echo recommendations published by the Institute for Education Sciences in its Practice Guides on Response to Intervention.[163] Specifically, effective tutoring programs should include:

- a minimum of three sessions of at least 30 minutes per week
- sustained and strong relationships between student and tutor
- student-tutor ratios no greater than 4:1
- close monitoring of student knowledge and skills

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[161] **From Michele Caracappa:** Completely agree. This speaks to why effective school schedules are often the unsung hero of tutoring/intervention efforts. (For more, see Kraft and Falken's full working paper. *–eds.)*

[162] *From the editors:* Reviews of tutoring efforts have found limitations to their impact under these conditions. For more, see this RAND Corporation review of No Child Left Behind implementation and this federal report on 21st Century Community Learning Centers.

[163] *From the editors:* For recommended RTI practices in reading published by the Institute for Education Sciences, see "Assisting Students Struggling with Reading: Response to Intervention (RtI) and Multi-Tier Intervention in the Primary Grades." For recommended RTI practices in math, see "Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools."

- alignment with the school curriculum
- oversight of tutors to assure quality interactions

Matthew Kraft and Grace Falken of Brown University recommend that tutoring be made available to every student and incorporated into the school day, including by extending the school day by 30 minutes. By providing a tutor to every student, schools can decrease the stigma around receiving extra help and eliminate the perception of tutoring as a "punishment" for low performance. Further, incorporating tutoring into a part of the regular school day promotes "regular attendance, better coordination with teachers, and a stronger academic culture."[164] Extended learning time has been shown to be a successful strategy for delivering additional needed instruction; for example, targeted instruction provided to select students over school breaks and weekends at turnaround schools in Massachusetts both improved student achievement and lowered suspension rates.[165] However, given the urgency and wide scale need for additional instruction, extending the school day to allow for tutoring is likely to be a far more implementable and sustainable strategy.

We are impressed by the advice of the National Council of Teachers of Mathematics as it relates to just-in-time support for students due to pandemic-related school interruptions and think it has implications for this tutoring strategy as well.[166] The council advises:

> *"There are better options than using testing at the beginning of the school year to assess a laundry list of prerequisite understandings from previous grades that would consume a significant amount of instructional time. Prerequisite skills or understandings that may have been missed as a result of COVID-19 could be strategically taught right before the connected unit of study or incorporated as spiral review or as part of instructional routines and procedures. Teaching these skills as connected to grade-level or course-level content deepens students' mathematical understanding."*
>
> *"Before each unit of study, teachers should collaboratively identify prerequisite understandings, using sources such as the Mathematics Coherence Map, that will build the foundational understanding for the*

[164] **From Melissa Gutwein:** There's also a reasonable argument to be made that tutors should be moderately trained (which is not possible if we need a tutor for every single kid) and targeted at the lowest performers.
[165] *From the editors:* For more, see this piece by Stephen Sawchuk in *Education Week*.
[166] *From the editors:* See "Moving Forward: Mathematics Learning in the Era of COVID-19" from the National Council of Teachers of Mathematics and the Mathematics Coherence Map published by Student Achievement Partners.

essential learning in each unit of study students are about to enter. They should collaboratively plan how to support students in making connections to previous learning, incorporating tasks and lessons that build conceptual understanding before the unit of study."[167] [168]

Schools and districts can staff tutoring efforts by tapping teacher-preparation programs, paraprofessionals, and trained volunteers. Tutoring should be delivered to students identified by classroom teachers and be closely related to classroom instruction. Tutors might preview upcoming grade-level content or address unfinished learning relevant to upcoming lessons.[169]

An important caveat is that much of the research on tutoring fails to distinguish between different *kinds* of tutoring: math, decoding, or reading comprehension skills and strategies. (There has been little or no tutoring in social studies, science, or any other content area, especially at the elementary level.) A recent meta-analysis observed that "curriculum and other pedagogical characteristics of tutoring interventions remain mostly black-boxed in our review."[170] It also found that in reading, the benefits of tutoring are highest at lower grade levels, after which there's a "pattern of declining returns." A strong possibility is that as grade levels go up, decoding skill becomes less important and background knowledge becomes more important, since more complex texts assume more background knowledge.[171] Reading tutoring in the earlier grades that focuses on decontextualized comprehension "skills" should be avoided, since it will only set students up for failure at higher grade levels, just as with regular classroom instruction. On the other hand, math tutoring tends to be more effective in later grades.

On a final note, nothing in this discussion should be confused with a lack of commitment to addressing diagnosed special learning needs with appropriate Tier II

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[167] *From the editors:* See also the Learning Acceleration Guide from TNTP and Priority Instructional Content guides in reading and math from Student Achievement Partners.

[168] **From Lindsey Smith:** In practical terms, vanishingly few teachers have bandwidth to do this, AND publishers have done it for us decently well, as you rightly point out. Wouldn't teachers be better off using (for example) the flex lessons built into EL or the Equip resources from Great Minds for Eureka than attempting to figure this out themselves?

[169] **From Brian Pick:** The quality of tutoring comes down to WHAT is happening in these sessions (what content, what tasks, what routines). Keep it focused on accessing the core and as simple and high leveraged as possible. The Minnesota Reading Corps is a solid model. They train Americorps members on 11 straightforward, research-based reading routines and have tutored more than 200,000 students.

[170] *From the editors:* See Nickow, Oreopoulos, and Quan, "The Impressive Effects of Tutoring on PreK-12 Learning : A Systematic Review and Meta-Analysis of the Experimental Evidence," NBER Working Paper, July 2020.

[171] **From Melissa Gutwein:** We should ask if it make more sense to recommend that reading tutoring be targeted at lower ability readers, rather than just lower grades. Specifically, I'm thinking of middle schoolers who may be lacking some decoding skills (not just because of Covid-related school interruptions).

and Tier III instruction. This discussion relates specifically to learning losses attendant to COVID-related school closures, though by extension much of it could also apply to students with learning gaps or unfinished learning due to other circumstances, such as chronic absenteeism, ineffective prior instruction, previously undiagnosed special needs, social-emotional challenges, or lack of exposure to phonics or other essential parts of the curriculum.[172]

Reading List:

Allensworth, E., Schwartz, N. (2020). "School Practices to Address Student Learning Loss." EdResearch for Recovery Project, Brief No. 1.

- This useful and succinct policy brief outlines key rationales for and promising strategies to implement high dosage tutoring programs.

Baye, A., Inns, A., Lake, C., and Slavin, R. (2018). A Synthesis of Quantitative Research on Reading Programs for Secondary Students. *International Literacy Association Reading Research Quarterly*. 54 (2), 133-166.

This review of experimental research identifies categories of programs that show positive outcomes on widely accepted measures of reading, one-to-one and small-group tutoring being among them.

Carlana, M., Ferrara, E. L. (2021). "Apart but connected: Online tutoring and student outcomes during the COVID-19 pandemic." HKS Faculty Research Working Paper Series RWP21-001, February 2021.

- A virtual tutoring program implemented in Italian middle schools during the early months of the Covid-19 pandemic substantially increased academic performance, socio-emotional skills, aspirations, and psychological well being. These effects were greater for children from lower socioeconomic backgrounds and for immigrant children.

Dietrichson, J., Bog, M., Filges, T., Kling Jorgensen, A. (2017). Academic interventions for elementary and middle school students with low socioeconomic status: A systemic review and meta analysis. *Review of Educational Research*, 87(2), 243-282

[172] **From F. Chris Curran:** Yes, and probably worth noting here how these are likely intersectional – the largest COVID learning loss accruing for subgroups of students who were already academically behind their peers.

- This meta-analysis reveals tutoring to be a highly effective educational strategy for low-socioeconomic status students, followed closely by feedback and progress monitoring.

Fryer, R. (2016). "The production of human capital in developed countries: Evidence from 196 randomized field experiments." NBER Working Paper 22130.

- This meta-analysis reviews nearly 200 field experiments to identify the relative impacts of a variety of interventions on educational outcomes. High-dosage tutoring generates the most substantial and consistent academic benefit to students.

Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J. R., & Witzel, B. (2009). "Assisting students struggling with mathematics: Response to Intervention (RtI) for elementary and middle schools.(NCEE 2009-4060)." Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Gersten, R., Compton, D., Connor, C.M., Dimino, J., Santoro, L., Linan-Thompson, S., and Tilly, W.D. (2008). "Assisting students struggling with reading: Response to Intervention and multi-tier intervention for reading in the primary grades. A practice guide. (NCEE 2009-4045)". Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Kidron, Y., and Lindsay, J. (2014). "The effects of increased learning time on student academic and nonacademic outcomes: Findings from a meta-analytic review. (REL 2014-015)." Washington, D.C.: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Appalachia.

Kraft, Matthew A., and Falken, G. (2021). "A Blueprint for Scaling Tutoring Across Public Schools. "(EdWorkingPaper: 21-335).

Lake, R. and Olson, L. (2020). "Learning as We Go: Principles for Effective Assessment During the COVID-19 Pandemic." Center on Reinventing Public Education, University of Washington Bothel.

- Cautions against using assessment results "as a gatekeeper to grade-level content or to track students into low-level content, which may increase the achievement gap and historically have been much more likely for English language learners and students of color." Instead, assessment results should identify students' strengths and "build on those strengths while addressing their needs."

Council of Teachers of Mathematics. (2020). "Moving Forward: Mathematics Learning in the Era of COVID-19."

- NCTM encourages grade-level teams to work, with the support of district leaders, to identify essential learning and focus on the major work of each grade. It points to the Mathematics Coherence Map by Student Achievement Partners to identify prerequisite understandings that can help target supports to students with gaps.

National Scientific Council on the Developing Child. (2015). "Supportive Relationships and Active Skill-Building Strengthen the Foundations of Resilience," Working Paper 13. Center on the Developing Child at Harvard University.

Nickow, A., Oreopoulos, P., Quan, V. "The Impressive Effects of Tutoring on PreK-12 Learning : A Systematic Review and Meta-Analysis of the Experimental Evidence," NBER Working Paper, July 2020

Panero, N. (2016). Progressive mastery through deliberate practice: A promising approach for improving writing. *Improving Schools.* Vol 19(3), 229-245.

Slavin, R. (2018). "New Findings on Tutoring: Four Shockers." *Robert Slavin's Blog*.

- One finding is that tutoring by paraprofessionals was at least as effective as tutoring by teachers. Slavin postulates that among the reasons tutoring works is that, in addition to individualization, it provides nurturing and attention

EXPANDED MENTAL-HEALTH SUPPORTS

Rather than responding in crisis, expanded mental health supports guide and nurture students and staff to process trauma, restore their equilibrium within the school community, and participate fully in teaching and learning.

It has been said time and again that the students who re-enter our schools in September 2021 are very different from those who left in March 2020. The same is true for teachers, staff, and families.

As schools move to fully reopen, our first inclination may be to focus on the learning gaps that students have developed during the pandemic. But the psychological and emotional well being of all members of a school community must also remain in the foreground. Establishing school as a space that is both physically and emotionally safe is essential.[173] All students and teachers have experienced unprecedented disruption to normal patterns of interaction, and many have had to cope with uncertainty or substantial hardship. They will need support as they transition back into a full-time academic environment. In addition, many students will be managing grief, anxiety, or other emotional responses to recent events that will require long-term monitoring and an ongoing response.

Amid the instability of the 2020-21 school year, school leaders identified students' mental health as one of their top concerns. However, most educators do not feel confident in their ability to identify students who might require additional mental health supports.[174] Furthermore, many schools lack a clear, coherent system for addressing students' mental health needs—roughly 40 percent reported that they currently address concerns on a "case by case basis."

The time for ad hoc responses is over. Having a distinct plan in place as students and educators reacclimate to the classroom environment will be an integral component in ensuring the well being of students.

[173] *From the editors:* For more on this, see the Safe and Supportive School Climate section.
[174] *From the editors:* See this white paper by LearnWell for more.

Recommendations:

Our recommendations fall into four major types of action:

- *Triage:* Perform formal or informal triage to identify what students need to support their learning, and establish a referral system to connect students with school- and community-based mental health resources.
- *Trauma-informed practices:* Expect students to have difficulty with the transition back into classrooms. Establish generalized supports that can benefit all students, specifically trauma-informed relational practices and a robust framework for social and emotional learning that promotes emotional well being and social connectedness.
- *Targeted intervention:* Monitor for behaviors that indicate a need for targeted intervention. Support school-based mental health professionals in implementing an evidence-based mental health program, such as Cognitive Behavioral Intervention for Trauma in Schools (CBITS), for students who have experienced significant trauma or who have been diagnosed with serious mood, anxiety, or other behavioral disorders.
- *Faculty support:* Attend to the mental health needs of faculty and staff by providing appropriate resources, developing a culture of emotional openness and vulnerability, building structures to support social engagement, and helping individuals develop their self-care practice.

Rationale:

Triage

Students have experienced the pandemic in different ways. While some students may not have weathered significant anxiety or personal hardship, others have experienced traumatic personal events. This is most common among low-income students and students from racial and ethnic minorities, whose families are far more likely to have suffered economic hardship, illness, and death.

Students who have been physically separated from their school or community may feel isolated or neglected, including those who are vulnerable in their homes as a result of the volatility or abusive behavior of a family member. Many students, and particularly Black students, may also be contending with anxiety, fear, or confusion in a climate of anti-Black racism and police violence.

Knowing the state of any one student's emotional well-being is difficult, unless they voluntarily disclose that information or, perhaps more likely, exhibit stress-induced behaviors like misbehaving (externalizing) or shutting down (internalizing). And educators must be ready to support all students, without treating them all the same.

EXPANDED MENTAL-HEALTH SUPPORTS

Mary Walsh, a professor of counseling and developmental psychology at Boston College, has estimated that even among students who have experienced trauma during the period of the closure, only about one-third are likely to develop serious issues, such as PTSD.[175] Monitoring students for behavior changes will be important, but Walsh cautions against pathologizing students, suggesting that "If we put the right protective factors in place, kids have enormous resilience."

The American School Counselors Association and the National Association of School Psychologists recommend collecting data to inform a psychological "triage" approach, to allow schools and districts to identify students who need mental-health supports most. That includes students who have lost someone close to them, whose families have experienced financial distress or dislocation, who have previous mental-health concerns, and who have a history of trauma, including membership in a community with previous history of educational disruption (such as natural disasters or mass casualties).[176]

The next step is to connect students to appropriate services. Selecting those services should not be done on a case-by-case basis—rather, staff need to have a clear understanding of what is available to best respond to student needs well in advance of any incident. A clear process for referrals can make this step more efficient and maximize the impact of this response.

Project Aware Ohio has detailed a comprehensive referral protocol to help schools and districts identify gaps in current procedures:[177]

1. **Establish a problem-solving team for referrals.** If there is no pre-existing team with capacity to manage referrals, team members will need to be established and the team's purpose, responsibilities, routines, and evaluation procedures articulated.
2. **Determine a procedure for managing referral flow.** Adopt a standard referral form, determine a process for submission, and communicate this process with the school community. If referrals will be made to community agencies, identify key contacts.

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[175] *From the editors:* For more, see "Triaging for Trauma During COVID-19" in *Education Week*.
[176] *From the editors:* See *Best Practices in Universal Social, Emotional, and Behavioral Screening: An Implementation Guide* for a comprehensive overview of considerations involved in selecting and implementing a screening program.
[177] *From the editors:* For more on this, see the full Project Ohio report.

3. **Develop a system for the team to gather student background information.** Establish norms for collecting data from triage screenings, behavioral observations, and interviews with family and school personnel.
4. **Establish a secure record-management system.** Determine where data will be stored and ensure that access is limited to appropriate team members.
5. **Map available resources and interventions.** Create a database of school- and community-based resources and available interventions. Establish community partnerships, when appropriate, to fill gaps and discuss how the referral time will address barriers to access.
6. **Create decision rules to determine appropriate interventions based on this information.** Establish guidelines on how students will be identified for the different tiers of intervention that are available and a plan for evaluating whether interventions are effective or should be discontinued.
7. **Develop a system to monitor and evaluate intervention effectiveness.** The team should establish procedures for tracking whether interventions are occurring, whether they are effective, and how to request and share information and feedback between the involved parties (such as students, families, school personnel, and community partners)

Trauma-Informed Practices

Trauma is a psychological or emotional response to "an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening."[178] Many students and families have personally experienced trauma related to health and economic consequences of the pandemic. In addition, the period of disruption itself may have been traumatic for some. Viewing these events as presenting multiple potential traumas can help guide school policies, practices, and interactions among staff and students.

The adoption of trauma-informed practices in schools has steadily gained steam over the past several years. Dr. Howard Bath, a clinical psychologist and expert in developmental trauma, has identified three key pillars of trauma-informed care.[179] They are:

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[178] *From the editors:* For more, see this report from the Substance Abuse and Mental Health Services Administration.
[179] *From the editors:* For more, see "The Three Pillars of Trauma-Informed Care."

1. safety
2. connection
3. managing emotional impulses

Ensuring students feel **safe** is essential. Even in the absence of a distinct threat, the brains of traumatized children tend to remain in a state of alarm, with energy focused on ensuring safety rather than engaging in growth-promoting activities. Creating consistent, reliable, and predictable environments in which students feel they have a degree of power and choice can help establish school as a safe place where they can relax their guard and trust the adults that they interact with regularly.

Trust and the perception of safety cannot occur without the second pillar, **connection**. Positive relationships with caring adults have great therapeutic value and may help to counteract negative associations from past experiences. Educators can foster such relationships by attending to, validating, and creating space for the strengths that students bring to the classroom. This also supports students' seeing themselves as competent, worthwhile individuals.

Maintaining compassionate connections is complicated, however, by the difficulty traumatized individuals often have in self-regulation and **managing emotional impulses**. Responses to trauma are frequently observed as behavior responses. In a school environment, where establishing strong routines and behavior norms is a necessary part of creating a physically and emotionally safe space, trauma may prevent students from complying with all expectations for behavior right away. Students will need time to adjust, and disobedience may simply be a function of students' challenges to regulate themselves.

Educators need to keep this in mind, rather than categorizing behavior as willful disobedience. Rather than assuming negative classroom behaviors (such as outbursts, defiance, or shutting down) are intentional and responding in a punitive fashion, trauma-sensitive educators help students "co-regulate" by modeling and explicitly teaching students how to manage their emotional impulses. Connectedness with peers is also an important protective factor, both for students dealing with trauma and those with other mental health conditions. Explicit social and emotional learning instruction can help facilitate these relationships.

Targeted Intervention:

While adopting trauma-informed practices as generalized supports is beneficial, for some students, that won't be sufficient support. A subset of students will have had direct traumatic experiences or be suffering from mental health conditions. They will need intensive interventions above and beyond generalized trauma-informed care in order to be ready to learn.

School leaders cannot assume these students will receive appropriate treatment outside of school, since approximately one-third of all adolescents who receive mental health care are served *only* in the setting of their school. This is particularly true for students who identify as members of a racial or ethnic minority or who come from a low-income household.[180] Responding appropriately to these students' needs will take the involvement of all staff members with mental-health training, including school counselors, psychologists, social workers, and nurses. Schools with enough specialized staff can offer individual and group-based interventions such as Cognitive Behavior Intervention for Trauma in Schools (CBITS). Multiple studies have demonstrated that students who participate in a CBITS program experience significant improvement in self-reported symptoms of post-traumatic stress compared to a control group.[181] For schools with fewer trained staff members, establishing care plans and scheduling frequent check-ins with at-risk students and their families can also support students with mental health needs, according to the Suicide Prevention Resource Center.

Regardless of the intervention approach, it is important to ensure that administration and instructional staff all have a shared understanding regarding the importance of these interventions. And it is critical to remember that there will always be some students whose needs are too urgent or intensive to be served within the school setting. Intensive interventions should be handled in collaboration with external partners.

Attend to Staff Needs

No mental healthcare plan would be complete without considering the needs of the adults in the building, especially those in student-facing roles. The past year—full of sleepless nights, radical changes to instruction, long hours, unexpected childcare duties, and worries about safety for their students and themselves—has taken a toll on educators. A Louisiana study found that the prevalence of clinically significant symptoms of depression had nearly doubled among early childhood educators, and in another study, approximately 85 percent of teachers reported that their mental health had declined compared to the previous year.

The recovery period already threatens to be a pressure-cooker for teachers. They are burdened with the expectation to make up for months of lost learning while also accommodating students' heightened social and emotional needs. Proactive planning

[180] *From the editors:* For more, see this article from the *Journal of School Health*.
[181] *From the editors:* For more on CBITS, see this website.

can help educators feel supported in their work and decrease instances of burnout that may lead to turnover and/or ineffective instructional environments.[182]

Developing an organizational culture in which frank and open conversations can occur about staff emotions and mental health takes time, but schools and districts can nonetheless teach strategies and create structures that lay the groundwork for a healthy and open workplace.

First and foremost, schools should ensure that staff members have appropriate access to mental health care, such as counselors or therapists. Adequate coverage must be available so that staff have the ability to take the time they need to address their healthcare and personal needs. These basic supports can be bolstered by building in intentional opportunities for staff to connect with each other, whether by having periodic "check-ins," developing mentorship relationships, or creating opportunities to socialize or decompress with other adults in the school community. To ensure educators take advantage of these supports, it can be productive for leaders to model emotional vulnerability and help-seeking behaviors. That helps staff to view these practices as indicators of strength rather than weakness.

It is also important to encourage stress-management strategies, such as healthy eating, exercise, adequate sleep, and relaxation techniques, including by weaving them into school culture. In particular, mindfulness practices have been shown to be effective in helping teachers manage occupational stress. There are a variety of models and resources that organizations can adopt depending on their unique circumstances. The Cultivating Awareness and Resilience in Education (CARE) professional-development program, which teaches mindfulness techniques, has been shown to improve teacher well being, efficacy, burnout, and stress.[183] Freely available resources such as Diana Tikasz's excellent Pause-Reset-Nourish framework can also be helpful.

Above and beyond these practices, leadership should pay particular attention to staff members who seem to have difficulty coping with the challenges of their role and offer support as needed. Educators working in areas of high poverty or high trauma may be at risk of developing secondary traumatic stress (STS), in which they experience trauma due to hearing about the traumatic experiences of their students.[184] While

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[182] *From the editors:* According to The World Health Organization, burnout refers to the feelings of exhaustion, negativity or cynicism, and reduced professional efficacy that may result from insufficiently managed and/or chronic workplace stress.
[183] *From the editors:* See the full study here.
[184] *From the editors:* This definition and details are based on the work of Support for Teachers Affected by Trauma. For more on secondary traumatic stress, see the STAT website.

similar to burnout in terms of its external expression, STS is often not alleviated by a change in occupational environment. Particular educators may be more susceptible, including those who have experienced trauma themselves, are highly empathetic or inexperienced, or who work in communities that have experienced elevated levels of poverty, crime, or tragic events. The organization Support for Teachers Affected by Trauma offers a free training program to help educators recognize symptoms and engage in protective strategies.

As the adage goes, you need to put on your own oxygen mask first before helping others. Once we've done that, we're better equipped to get through this turbulence together.

Reading list:

American School Counselor Association and National Association of School Psychologists. (2020). "School Reentry Considerations: Supporting Student Social and Emotional Learning and Mental and Behavioral Health Amidst COVID-19."

Baicker, K. (2020). The Impact of Secondary Trauma on Educators. *Stress-Busting Strategies for Educators, 15*(13).

Bath, H. (2008). The Three Pillars of Trauma-Informed Care. *Reclaiming Children and Youth*, 17(3), 17-21.

Dinnen, H., Cody, M., Jordan, E., & Meehan, C. "Referral Pathways Protocol for Mental Health Supports." Project AWARE Ohio, Ohio Department of Education.

Langley, A. K., Nadeem, E., Kataoka, S. H., Stein, B. D., & Jaycox, L. H. (2010). Evidence-based mental health programs in schools: Barriers and facilitators of successful implementation. *School Mental Health, 2*(3), 105-113.

LearnWell (2020). "Addressing K–12 Students' Emerging Mental Health Needs."

Minahan, J. (October 2019). Trauma-Informed Teaching Strategies. *Educational Leadership, 77*(2), 30-35.

Naff, D.B., Williams, S., Furman, J., & Lees, M. (2020). "Supporting Student Mental Health During and After COVID-19." Richmond, VA: Metropolitan Educational Research Consortium.

Romer, N., von der Embse, N., Eklund, K., Kilgus, S., Perales, K., Splett, J. W., Sudlo, S., Wheeler, D., (2020). "Best Practices in Social, Emotional, and Behavioral Screening: An Implementation Guide. Version 2.0." School Mental Health Collaborative.

Stiegler, K., and Lever, N. (2008). "Summary of Recognized Evidence-Based Programs Implemented by Expanded School Mental Health (ESMH) Programs." Center for School Mental Health, University of Maryland School of Medicine.

Substance Abuse and Mental Health Services Administration. (2014). "SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach." HHS Publication No. (SMA) 14-4884. Rockville, MD: Substance Abuse and Mental Health Services Administration.

IMPLEMENTATION

Helping students recover from the effects of the COVID pandemic and the other crises of the past year is likely the greatest challenge that most of today's educators will ever face. It will take extensive time, skill, and collaboration between leaders, teachers, staff, and families. And it will look different from community to community—and even from school to school.

Still, this section offers some thoughts on how instructional leaders might sequence the implementation of the recommendations in this plan, and how to bring them into a coherent whole. Also included are sample student and teacher schedules. It is our expectation that significant new federal resources will be available to help with the implementation steps described below.

Recommendations

- **Put the basics in place before adding new elements, especially high-dosage tutoring. Adopting and helping teachers implement a high-quality curriculum is job No. 1.** There's little doubt that many elementary students, especially those in high-poverty schools, will need extra help to recover from the loss of instructional time related to the pandemic. Done right, high-dosage tutoring shows great promise in helping such students return to grade level. But doing it right means integrating tutoring with regular classroom and small-group instruction and using the same high-quality instructional materials in all cases. Successful high-poverty schools that already had evidence-based instructional strategies and high-quality instructional materials in place before the pandemic might be ready to start integrating tutoring into their programs—but other schools have to walk before they can run.
- **Invest in building a positive, supportive school climate**. We can expect many students to return to school with significant mental-health needs given the significant trauma associated with the pandemic, the economic downturn, and America's reckoning with racial injustice. This will surely lead some students to want to act out or shut down at school. A focus on preventing these externalizing or internalizing behaviors, including by building strong relationships, ensuring school policies and practices reflect and engage diverse families, and setting high, common, school-wide expectations for behavior and academic achievement, can help students feel safe and optimistic and keep them focused on learning.
- **Don't bite off more than you can chew**. The only recommendations that will help students thrive are ones implemented thoughtfully, with fidelity, and

with attention to detail. Aim for quality over quantity, and save some steps for later.

- **Make teachers' jobs doable**. Consider asking teachers to team up, with one teaching English language arts and another teaching mathematics, social studies, and science, to both of their classrooms. That may be especially helpful at schools that are implementing new high-quality curriculum, given that each teacher would have fewer subjects to master. Alternatively, schools with several years of experience with high-quality instructional materials might consider "looping," whereby teachers stay with their current students and follow them into the next grade in the fall, in order to maintain strong relationships. In all cases, schools, districts, and networks will want to consider focusing on priority instructional content, as identified by Student Achievement Partners.
- **Embrace external support**. Most schools will benefit from getting help from professional learning organizations with expertise in the high-quality curricula a district or network has chosen. Such curricula come with embedded assessments that produce actionable data; external support organizations can help schools and teachers make good decisions around mid-course corrections.

Additional considerations for school improvement efforts:

- Apply the principles of systems thinking to school improvement work.[185]
- Understand that the technical and social aspects of school improvement work are of equal importance.

[185] *From the editors:* In short, this is the "shift from viewing education as a system in which one teacher provides information to many students toward a system in which there are many information resources accessible by one student, only one of which is the teacher. This shift can accurately be characterized as moving from an emphasis on instruction to an emphasis on learning." For more, see "How Systems Thinking Applies to Education."

Sample Student Schedule

A school's precise schedule will depend on the time requirements for its chosen curriculum, along with various constraints (such as collective bargaining agreements and transportation logistics). Those specifics aside, see below for one example of a schedule that makes room for all of the elements discussed in the Acceleration Imperative plan.

9:00	Arrival/Breakfast	
9:15	Morning Meeting	
9:30 9:45 10:00 10:15 10:30 10:45 11:00 11:15	English Language Arts 120 min	
11:30 11:45	History/Geography 30 min	
12:00 12:15 12:30	Recess/Lunch 45 min	Teachers off duty
12:45 1:00 1:15 1:30	Math 60 min	
1:45 2:00	Science 30 min	
2:15 2:30 2:45	Art, Music, PE, Counseling, Library 45 min	Teachers: Planning, PLC time
3:00 3:15 3:30 3:45	Extended Learning Time - High-dosage tutoring - Enrichment activities	Teachers off duty

Reading List:

Betts, F. (1992). How Systems Thinking Applies to Education. *Educational Leadership*, 50(3), 38-41.

Bryk, A., Gomez, L., Grunow, A., LeMahieu, P. (2105). *Learning to Improve: How America's Schools Can Get Better at Getting Better*. Cambridge, MA: Harvard Education Press.

Bryk, A., Sebring, P., Allensworth, E., Luppescu, S., and Easton, J. (2010). *Organizing Schools for Improvement: Lessons from Chicago.* Chicago and London: The University of Chicago Press.

Deming, W.E. (2018). *The New Economics for Industry, Government, Education (3rd. Ed.).* Cambridge, MA: MIT Press.

Leonard, J. (1996). *The New Philosophy for K-12 Education: A Deming Framework for Transforming America's Schools.* Milwaukee, WI: ASQ Quality Press.

Meadows, D. (2008) *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing Company.

Scholtes, P. (1998). *The Leader's Handbook: Making Things Happen, Getting Things Done.* New York, NY: McGraw-Hill.