Transforming Education into a Learning System

Reflections on the Pandemic

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The COVID-19 pandemic forced dramatic, immediate shifts in our PK–12 education system. It also highlighted — and exacerbated — preexisting insufficiencies and inequities. The sudden transition to virtual instruction required leaders throughout the system to make a series of quick decisions (ideally, still informed by data and evidence). While some leaders then continuously improved on their decisions in response to additional information, others simply did not have the structures, processes, and mindsets to do so. The learning system approach, characterized by continuous, evidence-based improvement and innovation, is unfortunately still uncommon in education, but it is essential for our success in recovering from COVID-19 and making the long-term changes we desperately need.

In 2019, we made the case for why we need to adopt a learning system approach in education and articulated a model for what such a system should look like. (See page 2 for a summary.) In collaboration with Carnegie Corporation of New York, we then published a second paper in December 2020 focused on *how* we might begin to make and accelerate these shifts. In the current brief, we argue that the pandemic has strengthened the case for a learning system approach at all levels of education. Such an approach depends on both culture and design to support the everyday use of data, evidence, experience, and judgment to innovate and improve all aspects of the education sector in pursuit of excellence and equity.

Given the lessons of the past year, and in light of how high the stakes are now, it is essential to pause and reflect before continuing with change efforts conceived before the pandemic. In that spirit, in this brief, we consider how our learning system framework applies to schools' and districts' recent experiences and responses to the pandemic. How relevant are the ideas expressed in the framework to schools' reality? In what ways did educators draw on learning system approaches in navigating the challenges of the past year? To what extent did limitations in the learning system culture or infrastructure in education hold us back? How has the status quo changed?

Through our review of schools' and systems' responses to the pandemic, we found both *gaps* — missed opportunities and systemic shortcomings that deepened the challenges our schools faced — and *bright spots* — existing and new efforts where learning system approaches supported more effective responses to challenges. Below, we discuss gaps and bright spots in the three main learning system infrastructures in our framework — data, research and development (R&D), and continuous improvement. Each section includes examples and resources that may be useful to those interested in strengthening learning systems in their own contexts.[1]

Across all three sections, it is clear that the presence or absence of a learning culture was a critical factor in the pandemic response. The leaders and systems that responded most effectively were comfortable adjusting their approaches in light of new information. They also ensured that their team members felt supported as they tried and failed and tried again, and they maintained a learning posture to capture lessons from every step and misstep. In closing, we offer some initial thoughts about the role learning system investments can play in the work ahead, both in the immediate recovery phase and as part of longer-term efforts to build back better.

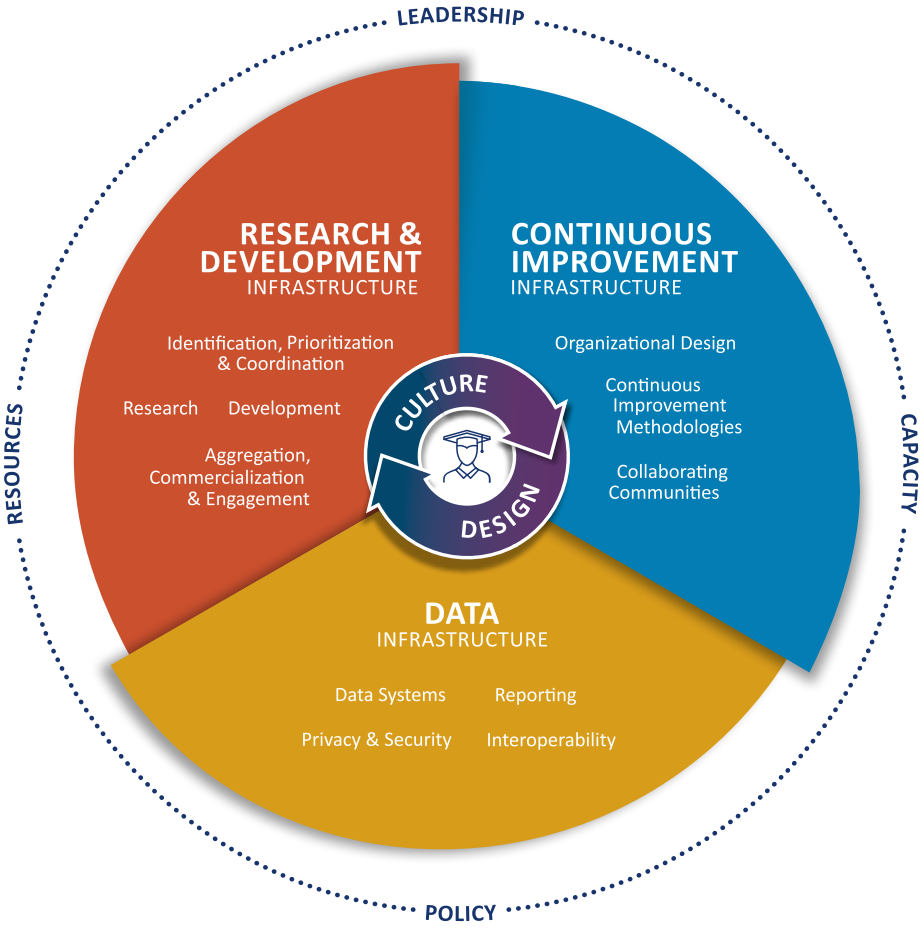
1 Some of the examples we describe relate to multiple parts of the framework. Indeed, some of the most impactful efforts incorporate more than one component, such as research-practice partnerships that exist at the overlap of R&D and continuous improvement infrastructures.

Overview of the Learning System Framework

The shift toward a learning system must take place at all levels — from schools and classrooms to districts, states, and even the federal government. It must take place in research institutions, philanthropic foundations, and educator preparation programs. This transformation will require attention to building a **culture** of continuous learning, as well as the **design** of key system components:

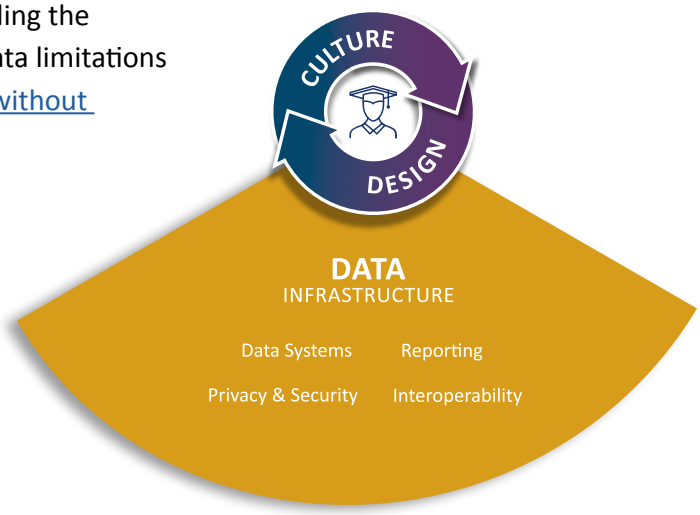
- An **R&D infrastructure** that enables the generation and evaluation of insights, evidence, tools, programs, policies, and practices to support teaching and learning
- A **continuous improvement infrastructure** that supports ongoing, collaborative efforts in policy and practice to implement, refine, and provide feedback on solutions generated by R&D and practitioner-led innovation
- A **data infrastructure** that enables everyone with a stake in education to have the information they need to make sound decisions in their role and context

Working across these interdependent components are four key drivers of a learning system — **human capacity**, **resources**, **leadership**, and **policy and incentives** — that must align with the overall vision.



Data Infrastructure: *Stumbling in the Dark*

Access to rich, timely data was critical to understanding the pandemic's early impacts. Unfortunately, massive data limitations meant school leaders were making many decisions without relevant, reliable information.



These gaps in data infrastructure were perhaps the most visible examples of the insufficiency of our existing learning system infrastructure. Critical questions about our education system's response to COVID-19 were impossible to answer, especially in the immediate wake of spring 2020's school closures. How were students being taught? Were they attending school (and what did "attending" even mean)? Which students lacked devices or internet access? How *much* were students learning?

Only some of these information gaps were filled in the subsequent year. And of course, we have famously struggled to standardize, collect, and use data to answer questions about the safety of in-person learning. Further, because public data systems generally do not speak to each other (i.e., are not interoperable), educators struggled to connect the dots across their own districts' data systems, much less with information from health, child welfare, housing, and other social sectors. When state and local systems did have or collect data, the interfaces were often difficult to use, outdated, or missing the type of information needed to inform action.

Nonetheless, some bright spots emerged over time. Some states adapted their statewide longitudinal data systems to capture newly relevant data. Many nongovernmental organizations and researchers stepped in to help collect, analyze, and disseminate education data during the pandemic, although missing and messy data limited these efforts in various ways.

More recently, the Biden Administration began taking steps to improve federal data collection and use. For example, one of the initial executive orders includes a directive to collect "data necessary to fully understand the impact of the COVID-19 pandemic on students and educators." However, much more will need to be done to make up for lost time and missing data. Ongoing data collection, such as through School Pulse Surveys, is needed to inform stakeholders (including families), support learning acceleration, and advance equitable practices.

Resources & Examples

- To provide data on how students were interacting with schools, the Massachusetts Department of Elementary and Secondary Education developed a Student Learning Time Dashboard. The website reflects point-in-time data for schools across the state on the types of learning models students engaged in (e.g., virtual, in-person, hybrid).

- To communicate COVID-19 data to students and families, the Springfield school district in Illinois created a District 186 COVID-19 Dashboard. Updated daily, this website displays key data points, including data on learning settings and COVID positivity rates among students and staff.

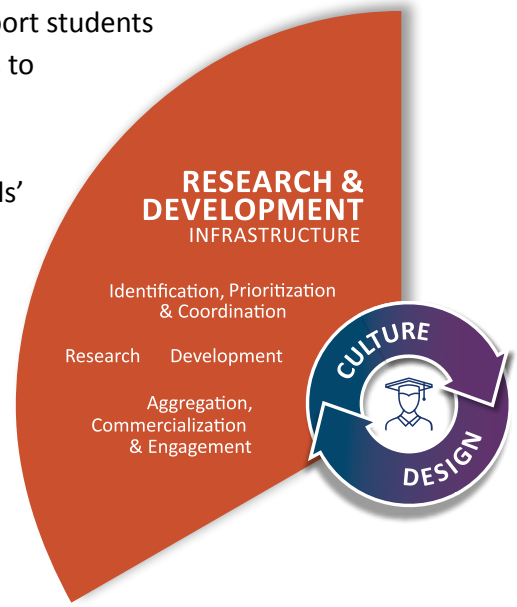
- To establish meaningful data definitions, Attendance Works developed a new attendance framework for monitoring students' engagement with school regardless of their instructional setting.

- To help identify what core conditions supported relatively smooth transitions to virtual teaching and learning amid a national reckoning with systemic racism, Carnegie Corporation of New York synthesized observations from a cross-section of education experts. Among the seven fundamental conditions identified was the ability and willingness to collect an array of data to support frequent feedback cycles.

- To drive improvements in emergency data collection practices, 50CAN published *Measure Everything: Emergency Data Collection in a National Crisis*. The report includes three principles of measurement to guide investments in education data collection, as well as a discussion of how the principles should be applied to different data sources.

R&D Infrastructure: *Peaks and Valleys*

The pandemic raised questions nationwide about how best to support students and staff. The extent to which R&D infrastructures enabled systems to answer these questions varied dramatically.



On one hand, there were significant R&D gaps that hindered schools' ability to respond effectively to the crisis. Schools were forced to pivot to virtual instruction armed with a meager evidence base. Little evidence existed on whether best practices in classroom settings translate to an all-remote or hybrid context, and most educators were unfamiliar with the available research on how to do virtual schooling well. The pandemic also highlighted long-standing gaps in the R&D infrastructure: the disconnect between practitioners' questions and researchers' emerging answers, and a misalignment between the field's quickly changing needs and the longer timelines required for R&D.

On the other hand, some existing R&D entities pivoted quickly to meet the moment, and innovative new R&D infrastructures emerged to fill the gaps. Research-practice partnerships leveraged their relationships to understand and navigate new challenges. At the federal level, the Institute of Education Sciences (IES) published a rapid evidence review of best practices for distance learning as part of the What Works Clearinghouse. The U.S. Department of Education also released two volumes of evidence-based strategies to support reopening and recovery. Additionally, the Regional Educational Laboratories collaboratively developed evidence-based resources and guidance on various topics to support schools' pandemic responses.[2] Similar rapid research approaches received support from philanthropic organizations. Meanwhile, developers, especially in the education technology sector, worked to improve their digital learning platforms to better meet students' and educators' needs identified through ongoing R&D cycles. And across the nation, field-generated innovations emerged, evolved, and, perhaps for some, took lasting root.

Resources & Examples

- To provide rapid, evidence-based responses to real-time challenges, the Annenberg Institute at Brown University and Results for America launched EdResearch for Recovery. Drawing on the expertise and concerns of practitioners and researchers nationwide, the project has yielded evidence-based briefs on topics such as student learning, school climate, and teachers and leaders.

2 IES was also apportioned $100 million in new funds from the American Rescue Plan Act "to carry out research related to addressing learning loss caused by the coronavirus," with particular attention to student groups that were disproportionately impacted by the pandemic and "to disseminate such findings to State educational agencies and local educational agencies and other appropriate entities."

- To help education leaders and community members make informed decisions related to COVID-19 and education, the Duke University School of Medicine and the Duke Clinical Research Institute launched the ABC Science Collaborative. This cross-sector research-practice partnership helps school leaders understand the most recent medical information and community-specific data and use that information to make informed decisions about safety precautions.

- To study the impact of the COVID-19 pandemic, the Virginia Department of Education has partnered with the University of Virginia's EdPolicyWorks Research Center. A joint three-year research study will analyze pre- and post-pandemic trends, with particular attention to issues including absenteeism, grade-level retention, teacher retention, the identification of students with disabilities and English learners, and the effectiveness of school districts' reopening and recovery plans.

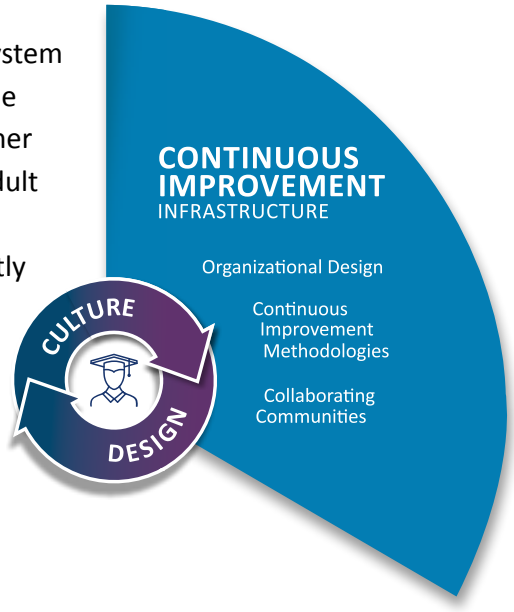
- To disseminate best practices for the return to school, CAO Central launched an open-source evidence-based, frequently updated set of resources on accelerating unfinished learning.

- To highlight exemplar approaches to remote and hybrid learning, Transcend curated a library of resources sortable by setting (hybrid or remote), school element (e.g., curriculum and instruction, logistics and operations), grade band, and class size. These resources are intended to help districts learn from one another and eliminate the need for them to continuously reinvent the wheel in their pandemic responses.

- To close the gap between research and practice, the Center on Reinventing Public Education created the Evidence Project. The project has brought together over 150 researchers to coordinate, aggregate, connect, and disseminate rapid research efforts to respond to practitioners' needs and inform their ongoing decision-making.

Continuous Improvement Infrastructure: *Building a Plane While Flying It*

Of the three major infrastructures that are essential to a learning system approach, the continuous improvement infrastructure is perhaps the least developed and the hardest to create on the fly. More than either data or R&D, continuous improvement depends on hard-to-build adult capacities, harder-to-establish improvement routines, and a hardest-to-create learning culture. As a result, systems and schools mostly had to rely on the infrastructures they already had in place. Furthermore, due to the gaps in data and R&D discussed above, many schools lacked essential inputs upon which improvement cycles depend — for example, research-based approaches to test and iterate on and reliable student engagement data. Making time for improvement work is always a challenge but doing so in a crisis was often impossible.



That said, school systems did make major changes incredibly quickly, especially in spring 2020, when many switched to virtual learning models overnight. This forced schools to adopt more of a learning system approach, even if they had not embraced such an approach in the past. Indeed, most systems adjusted their approaches over time in response to feedback and formative data, regardless of whether they used formal improvement methodologies to do so. Those that adapted best both understood the nature of the challenges they faced and strengthened the enabling conditions to support improvement over time. The 2021 Carnegie Foundation Summit on Improvement in Education featured more than a dozen examples of schools, districts, and networks relying on and adapting their improvement routines to navigate the pandemic and improve supports for students and educators. In some contexts, the pandemic democratized decision-making, broke down organizational silos, and even brought long-overlooked stakeholders — especially students' families — into improvement processes.

Resources & Examples

- To leverage continuous improvement methods to strengthen teaching and learning in the new virtual environment, City Year and partners at Johns Hopkins University launched the Action Community, which helped a network of schools across the nation implement a "change package" of evidence-based strategies through Plan-Do-Study-Act (PDSA) cycles and aligned measurement tools.

- To empower teacher leadership, Distinctive Schools outlined four strategies for schools and districts to help build a learning culture even amid the pandemic.

- To illustrate the role of collaboration in continuous improvement, educators from Steubenville Public Schools discussed how they came together and adapted (and readapted as needed) an in-person curriculum to support virtual and hybrid learning.

- To exemplify the power of continuous improvement, the director of continuous improvement at the WHEELS school in New York City described how the school's existing continuous improvement foundation supported a more effective response to the unexpected challenges of the pandemic.

- To better support networked improvement communities, Carnegie Foundation for the Advancement of Teaching adapted its virtual platform to improve collaboration and support continuous improvement among networked improvement communities during the pandemic.

- To adapt continuous improvement routines to the changing circumstances, the Networks for School Improvement initiative created a "COVID consulting wallet" to provide its intermediary organizations with flexible, customized, just-in-time technical assistance as they shifted their continuous improvement routines to the virtual setting, modified measures of success, and adjusted and reprioritized change ideas.

Conclusion: Building Back Better

As schools and districts responded to the COVID-19 pandemic, some benefited from learning system approaches, while others struggled to adapt. Although schools will not always be operating under crisis conditions, their experiences offer valuable lessons for both near-term recovery efforts and longer-term efforts to create an education system that supports each and every student to realize their full potential.

In the near term, educators and system leaders will benefit from a learning and improvement stance as they work to meet students' academic, social, and emotional needs. Systems must understand their challenges and assets, consider what works for similar students under similar circumstances, implement plans well, adjust along the way, and continually reflect on what they learn to inform their next steps. Each component of a learning system is essential to doing this hard but essential work.

In the longer term, investing in learning system design and culture should be prioritized at every level to create more excellent and equitable education systems. Among post-pandemic priorities, the shift toward learning systems is unique in that it is not about spreading a particular approach but about changing the nature of the system itself. Leaders and stakeholders in every corner of the education ecosystem should take advantage of this unprecedented opportunity – and the American Rescue Plan Act's unprecedented resources – to reorient our systems toward a learning system approach.

Share your thoughts: We welcome readers to share examples of bright spots where a learning culture or R&D, data, and continuous improvement infrastructures helped education systems navigate the past year — or where gaps in these infrastructures presented challenges.

Use this form to share your examples: https://tinyurl.com/LearningSystemExs