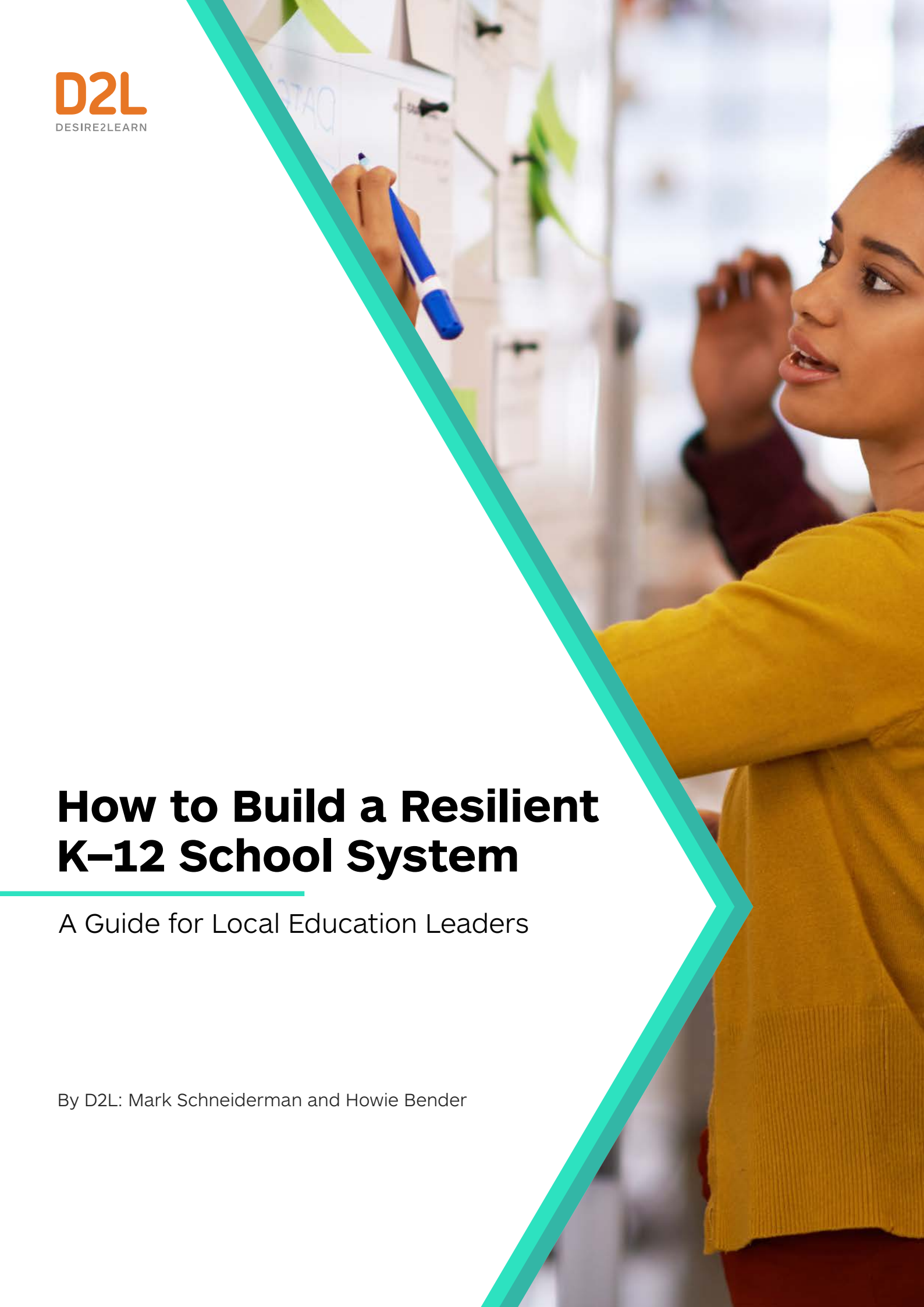


How to Build a Resilient K–12 School System

A Guide for Local Education Leaders

By D2L: Mark Schneiderman and Howie Bender



Abstract

Local K–12 school system effectiveness requires building resilience to not only extreme events like a pandemic but also to other foreseeable disturbances—from severe weather and other natural disasters to economic and technological change. The framework and actionable tools in this guide provide a playbook of recommended practices and actions for local K–12 systems—notably school districts and boards—to investigate, design, and execute a customized plan for implementing practices that increase their resilience. Resilience is about more than the ability to react and recover. Resilience also recognizes change on the horizon and the need to build systems and practices that proactively mitigate a disturbance to safeguard continuity of quality learning for all students. Resilience is also a pathway to reimagine the future of teaching and learning toward excellence and equity for any high-performing school system.

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ATTACHMENTS:

- **Workbook:** Interactive spreadsheet to evaluate and prioritize recommended practices of resilience
- **Toolkit:** Step-by-step change management playbook for leading a continuous, integrated cycle to increase resilience at both the system and practice levels

How to Use This Guide:

- **Start with Part I** if your first step is to understand resilience and determine whether it is a priority for you and your local school system.
- **Consider skipping ahead to Part II** (and toolkit/workbook) if you already recognize the importance of resilience and are now focused on how to change your local practices.

Why Resilience?

COVID-19 shined a spotlight on the fragility of our K–12 education system. While our educators and students have been personally resilient, even the highest-performing local school systems struggled when faced with this prolonged and profound disruption. The pandemic impacted all students in different ways, including through lost learning opportunities and social-emotional distress, and it further exposed and exacerbated equity gaps.

At first glance the pandemic may seem like a stand-alone anomaly. Instead, it is one extreme example of the accelerating pace of change and disruption impacting our communities and our schools, caused by forces from abrupt natural disasters to ongoing technological innovation. The question now is whether a local K–12 system can be effective if it does not enhance its practices to better support teachers, students, and families upon the arrival of future disturbances that could similarly impact learning access and quality (i.e., if it is not more resilient).

The pandemic therefore provides a catalyst, and a responsibility, to build a system more resilient to foreseeable disturbances.

The push to resilience can also be a further catalyst to reimagine the future of teaching and learning. School practices that enable resilience support effectiveness and equity and are necessary to building a high-performing system.

Why This Guide?

The pandemic required an emergency response to support continuity of learning, and the K–12 education sector is now turning to consider what comes next. What steps are needed to recover—as well as to be ready for—the next such emergency? Many recognize that returning to the pre-pandemic status quo is neither possible nor preferred, and that modernizing and future-proofing our local K–12 systems is critical.¹

The pandemic provides a catalyst and a responsibility to education leaders to build a more resilient school system to ensure continuity of quality learning for all students through future foreseeable disturbances.

At the same time, we understand that fatigue is real and that resilience planning is a relatively new concept in the K–12 sector. In response, this guide aims to inform and support the action of K–12 leaders in this important and timely work.

Informed by research and best practices, this guide serves as a road map by which local K–12 leaders can investigate, create, and implement a shared pathway forward toward a more resilient system. This resource is designed for K–12 local system leaders, including superintendents, cabinet members, and elected school board members. We hope other stakeholders such as state agencies and technical assistance providers will also find value toward their support for increasing K–12 system resilience.

How to Use This Guide

This guide and associated tools provide a suite of resources to inform and enable a local K–12 system toward enhanced resilience. These resources include a framework of principles and recommended practices, an interactive workbook, and a change management toolkit. These resources are not intended as just a one-time read but rather as a playbook to be activated along your multi-year journey toward resilience.

Start with [Part I](#) of this guide if your first step is to understand resilience and determine whether it is a priority for you and your local school system, OR

Consider skipping ahead to [Part II](#) of this guide (and the toolkit/workbook) if you already recognize the importance of resilience and are now focused on how to change your local practices.

In general, we suggest the following steps:

- 1. Review this guide** to build your understanding of resilience, the principles and practices of a resilient system, and the steps you can take to enhance your system’s resilience.
- 2. Open the toolkit** to start thinking about the steps needed to identify, pilot, and scale practices that increase resilience through a change management process, with initial focus on toolkit steps 1 and/or 2.
- 3. Engage your leadership team** by sharing the guide, toolkit, and workbook for their review.
- 4. Fully activate the toolkit and workbook** once you have a basic understanding of resilience and your goals, and then return to toolkit Step 1. Recognize that building resilience is an ongoing process enabled by this guide as a reference, the workbook to evaluate priorities, and the toolkit to guide organizational change.

DEFINITION OF LOCAL K–12 SYSTEMS

For purposes of this guide, we define a *local K–12 system* as a local education agency or school district as most often defined in the United States and a local school board as most often defined in Canada. We expect that this guide will also be applicable across other regions and education systems, and can apply to charter schools and charter networks, autonomous school zones, private schools, and a range of networks of schools.



Building K–12 Resilience, Part I: What and Why

Defining Resilience for Local K–12 School Systems

Resilience is traditionally viewed as an aspirational, personal character trait. For example, resilience often refers to students and their determination and persistence as learners.

Yet increasingly, resilience is being applied at an organization or systems level as well. Amid an ever-more-complex and dynamic environment and the accompanying disturbances, the enterprise or system requires resilience to mitigate risks and ensure continuity of services.

By definition, resilience means “an ability to recover from or adjust easily to misfortune or change,” and comes from the Latin root *resilire*, to jump back or recoil.²

But it is not enough to simply recover from a disturbance after its negative impact. Instead, a resilient system must have processes to effectively identify, respond to, and persist through a disturbance.³ Further, a truly resilient system should not only detect and react but should also anticipate and proactively plan.⁴

The K–12 imperative is therefore to not simply respond to a disturbance after its arrival, but more importantly to also preemptively implement contingency plans so that a disturbance does not become a disruption to the continuity of quality education for all students.

These proactive efforts include both adaptability and elasticity to allow seamless and timely pivots, and more effective, ongoing practices that create resistance such that the arrival of a disturbance requires minimal change to routine.

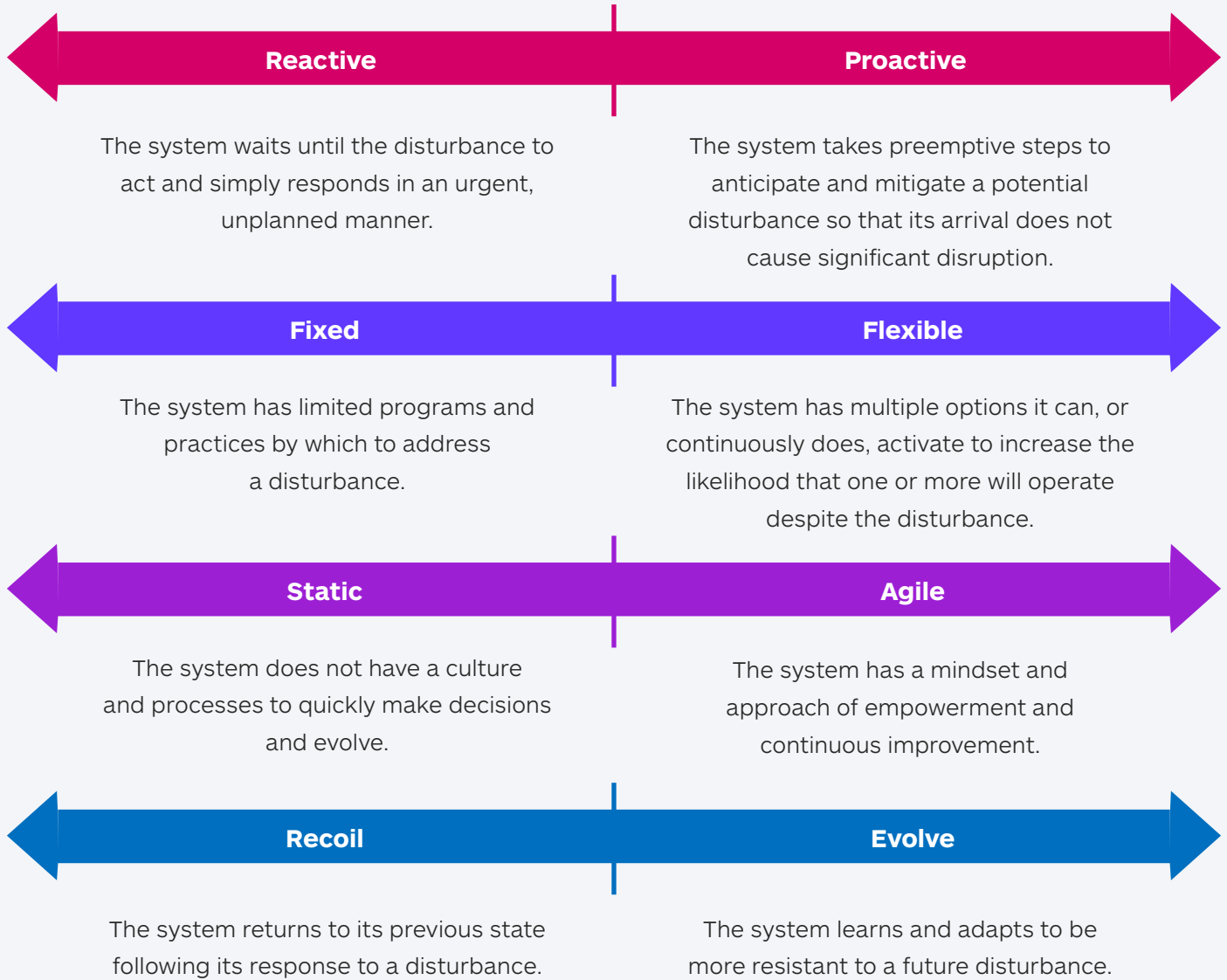
The importance of proactive system resilience has been made clear during the pandemic as K–12 schools struggled to respond and adapt. Continuity of learning was significantly disrupted, creating lost learning opportunity and success, especially for those students already at risk.

Going even a step further, a resilient school system will not simply recoil to its prior state after a disturbance, but will also continue to learn and evolve to be more resistant to the next disturbance.⁵

Finally, a resilient system also has an enabling organizational culture and human capital. As always, leadership is critical. Resilient systems must provide leadership and support its people to themselves be agile, creative, and persistent (i.e., resilient).

A resilient system not only persists through and recovers from a disturbance, it more importantly also implements proactive practices such that the arrival of a disturbance does not significantly disrupt the existing and ongoing routines and services.

We can therefore view K-12 system resilience across several continua, including:



In total, an effective local K-12 education system is one that:

- Anticipates, plans for, detects, and flexibly responds to disturbances to allow continuity of learning
- Proactively mitigates potential disturbances through ongoing use of practices such that the arrival of an actual disturbance requires minimal changes to existing routine
- Does not simply return to the previous status quo but also engages in continuous improvement processes such that future disruptions are increasingly minimized



The Importance of Resilience to a High-Performing Local K–12 System

METHODOLOGY:

Our literature review found limited study of K–12 resilience, especially specific to North American local K–12 systems and prior to the COVID-19 pandemic. We leveraged the available research to inform the predicate of this work, filled gaps, and translated that research into actionable guidance, and further supplemented and validated it through focus groups with local K–12 system leaders. This research process is further documented in the Appendix.

Effectiveness and Equity Are Necessary but Not Sufficient

To understand what we mean by resilience, we need to first describe a high-performing local K–12 system,⁶ which for the purposes of this work we define as one that is **effective** and **equitable**. A high-performing system exhibits high-quality teaching and learning and enables student achievement and enrichment (i.e., effectiveness), and does so for all children, across all subgroups, such that disparities to learning access, opportunity, and achievement are neutralized (i.e., equitable).

Further, high-performing education systems exhibit these qualities of effectiveness and equity across their core functions:⁷

- 1. Resource Allocation:** Manage and disburse capital assets and operational budget, including facilities, technology, staff, curricular resources, etc.
- 2. Governance:** Design and operate structures and processes to facilitate strategic and operational decision making, including at the elected board, superintendent, district administrator, and school staff and teacher levels.
- 3. Education Delivery:** Employ resources (e.g., technology, curricula, educators) to provide instruction and services to support student readiness, wellness, and learning success.

RESILIENCE EXAMPLES FROM OTHER SECTORS

- A coastal restaurant is built on a raised platform with a barrier wall, hurricane shutters, and a dual propane/solar-powered generator enabling it to continue operating after, if not during, a storm. It also stabilizes its food sources, including through multiple supply chains, local sourcing, growing some of its own food, and multiple water supplies.
- An auto manufacturer produces gas, battery, and hybrid cars, and configures an agile plan from marketing to labor training to manufacturing to shift production among those options based on regulation, gas prices, and consumer demand.

In combination, we would therefore traditionally think of a high-performing local K–12 system as one that effectively and equitably allocates resources, governs, and delivers education services.

However, we saw during the pandemic that—despite the committed efforts of educators—even historically high-performing school systems struggled. The pandemic prevented school systems from being consistently excellent and equitable in their resource allocation, governance, or education delivery. Students from low-income communities and families, students of color, students with physical or learning exceptionalities, and English learners were particularly underserved.

Redefining a High-Performing K–12 System as Resilient

Our research has shown that the systems that weathered the pandemic better—more effectively and equitably serving students—have elements of *resilience*. Systems with ongoing resilient practices designed to preemptively mitigate disturbances are best positioned such that the arrival of the pandemic required either less extensive or more practiced and routine changes in order to ensure continuity of quality learning for all students.



Given the likelihood and potential significance of future disturbances, local K–12 school systems should therefore consider resilience as fundamental—along with effectiveness and equity—to being high-performing.

The longer, more frequent, and larger the disturbances, the more likely and significant is the negative impact. A resilient system can provide quality and equity through disturbances by anticipating and blunting the impact, or short of that, by more nimbly responding. Local K–12 school systems should therefore consider resilience across all three functions of resources, governance, and delivery as fundamental to being high performing.

A high-performing system must exhibit all three qualities of effectiveness, equity, and resilience across all three functions of resources, governance, and delivery.



Types of K–12 System Disturbances

Resilience for school systems is not only about preparing for a once-in-a-generation event, like a global pandemic. School systems exist in a dynamic world where skill requirements, technology, and the natural environment are changing at an accelerated pace. These and other natural and human-made disturbances will increasingly stress our current systems and practices, requiring resilience as part of schools’ DNA.

Every region and community has prior experience with disturbance—whether it’s an unexpected leadership change, a hurricane, or the loss of a significant local industry that changes job prospects for local graduates. Local school systems can anticipate these disturbances as an inevitable possibility. Prudence and responsibility therefore suggest that proactive strategies and tactics be taken to minimize their potential negative impact.

For the purposes of this work, we define four types of disturbances across two dimensions of timeline and locus.

As one example of the compounding of disturbances, the pandemic is accelerating the digitization of the economy, which could impact further changes in everything from the local tax base to the demand for skills.

From economic and demographic change to natural disasters and technological innovation, resilience is needed to ensure continuity of learning as inevitable disturbances increasingly test our society and our educational systems.

TYPES OF DISTURBANCES ACROSS TWO DIMENSIONS		Timeline (period preceding disturbance/interval of expectancy)	
		Abrupt (arrives suddenly and with little warning)	Gradual (arrives over an extended period of time with extensive warning and impact increasing over that time)
Locus (point of disturbance origination or manifestation)	Internal (within local system)	<ul style="list-style-type: none"> • Change in district leadership • Local budget cuts 	<ul style="list-style-type: none"> • Wave of teacher retirements • Changes to size and makeup of student enrollment
	External (outside local system)	<ul style="list-style-type: none"> • Pandemic • Natural disaster; weather event • Political/regulatory changes • Technology/power outage 	<ul style="list-style-type: none"> • Technological change • Climate change • Shift in local demographics • Shift in economy and skills needed

Building K–12 Resilience, Part II: How

A Framework for Local K–12 System Resilience

This section outlines a framework that local K–12 leaders and stakeholders can activate to imagine and create a customized pathway to building resilience in their systems. This framework recognizes existing district organizing functions, is structured around several identified fundamental principles, and provides a playbook of practice options mapped to those functions and principles.

Resetting System Mindset for Resilience

Local school systems and educators have demonstrated their creativity, flexibility, and persistence in responding to COVID-19 to support continuity of learning and student wellness. They stood up large technology infrastructures and platforms, formed new partnerships with social service agencies, reconfigured schedules and staffing, and delivered materials and meals—often adjusting along the way.

The same *personal resilience* that has carried us through the pandemic provides the shared experience for building system resilience for the future. This begins with understanding and challenging preexisting mindsets.

Yet many challenges remain, and many systems have understandably struggled to pivot. Educational effectiveness and student equity have been challenged. After all, renovating an airplane while it is flying after just attempting an emergency landing is a difficult task.

As we emerge through the pandemic and look to the future, we have an opportunity and a responsibility to “renovate the airplane” and build resilience before the next emergency. The same personal resilience that has carried us through the crisis provides the shared experience for building system resilience for the future.

Local K–12 school systems can employ many different practice approaches to achieve resilience. Systems must define for themselves their priorities and implementation pathways.

As noted, many systems did exhibit practices of resilience during the pandemic, and they did so long before the pandemic hit. Some practices may therefore already be available. The need now is for a more intentional, comprehensive, and strategic approach to build resilient systems.

This begins with understanding and challenging preexisting mindsets: Where does learning happen? Who is responsible for teaching? How do we assess learning? What does success look like? Looking outside the box of the traditional classroom walls and traditional thinking is a healthy and necessary step.

Principles of a Resilient Local K–12 System

A local K–12 school system exhibits certain principles foundational to its current capacity and future capability to exhibit resilience. These beliefs and behaviors are fundamental preconditions and characteristics.

Our research has found that to be resilient, any local K–12 system should address these five principles:

1. **Tight-Loose Integration:** A resilient system adopts common learning, technical integration, and process standards and requirements, and establishes norms, criteria, and expectations that guide decisions (i.e., tight) while enabling staff to make decisions and choices within that framework (i.e., loose), with a mindset of efficacy over compliance.
2. **Empowered Schools and Staff:** A resilient system empowers schools and staff with flexibility and authority to be creative and make decisions, adopt resources, and implement services in a timely manner that best address their unique campus/population needs, provided they do so within the parameters of the district's standards and requirements.
3. **Adaptable to Change:** A resilient system is adaptable and evolving by continuously expecting change, collecting information to identify and evaluate potential disturbances, and applying new understanding and modifying practices to anticipate, mitigate, and reduce the negative impact of disturbances.
4. **Redundant and Extendible:** A resilient system values and curates multiple options for meeting needs, is boundaryless, and leverages partnerships to build redundant, diversified, and extendible systems so that if one method or modality is not operating effectively or otherwise meeting needs, then other options are available.
5. **Authentic and Accessible Communication and Feedback Loops:** A resilient system has strong two-way communications to meaningfully understand stakeholder needs; build an authentic vision and shared accountability; and deliver clear, candid, accessible, and timely information to create a strong culture and provide voice and agency.

We can think about applying these resilience principles, and related practices, across the three core functions of local K-12 systems:

1. What resources are available and how are they used?
2. What is the governance structure and how are decisions made?
3. How are instruction, curriculum, and student services delivered?

Playbook of Resilient Practices

Resilient systems are enabled by a playbook of practices that align to the five principles of K-12 resilience across the three K-12 system functions and across operations (e.g., technology, staff, leadership, communications).

We have identified more than 40+ practice options by which local K-12 school systems could implement these principles and build toward resilience in the way they spend their resources, modify their governance, and adjust their education delivery. This list is comprehensive but not exhaustive, and school systems are encouraged to identify additional practice ideas to address the five principles across functions.

Multiple practices are needed, but systems would be unlikely to implement them all, and certainly not all at once. Which practices a local K-12 system chooses to prioritize and implement will depend on local circumstances—needs, capabilities, and will. The workbook and toolkit provide support for these decision steps.

SEE THE APPENDIX AND THE WORKBOOK FOR A FULL LIST OF 40+ PRACTICES AND LOCAL SYSTEM CASE STUDIES.

We have included several examples of those practices embedded within case studies of Northeast Denver Innovation Zone (Colorado), Watauga County Schools (North Carolina), Gwinnett County Public Schools (Georgia), Renfrew County District School Board (Ontario), and Garland Independent School District (Texas)

These recommended practices can be characterized and organized in the following ways:

- **Address all function/principle combinations:** Practices are tagged to both principle and function, and address each of those combinations for easy identification of practices aligned to areas of priority. In some cases, practices are similar in purpose but address a given goal differently across functions.
- **Align to school system operations:** Practices address, and are tagged in the workbook to, a wide range of school departments and operations, ranging from staffing to technology to budget. This again enables identification of practices in areas of priority, as well as assignment to appropriate teams.
- **Fundamental or directional:** Some practices, one could argue, are fundamental to a system's resilience at the enterprise-wide and governance levels, often cutting across culture and policies. In other cases, the practice may be more tactical to achieve resilience in a particular manner or situation.

In total, these characteristics can be used to help sort, filter, prioritize, and otherwise determine which practices to implement. These and other tags and filters are available in the workbook

While it may be tempting, we generally recommend not using a specific disturbance as the primary criteria for selecting practices.

First, identifying and predicting specific disturbances may be short-sighted and risky given the unpredictability of many disturbances in terms of if, when, and to what degree they will arrive.

Second, most resilient practices cut across multiple disturbances, and so, while there may be exceptions that warrant specific planning (e.g., a school in frequent flood zone), the identification of disturbance may be most useful for ordering rather than as a fundamental selection factor.

It is therefore recommended to select practices that enable resilience across a range of potential disturbances based on a range of considerations for what provides the greatest overall return.

Resilient systems are enabled by a playbook of practices that align to five principles of K–12 resilience, and are implemented across the three K–12 system functions (resources, governance, education delivery) and across operations (e.g., technology, staff, communications).

Which practices a local K–12 system chooses to prioritize and implement will depend on local circumstances and needs as well as practical capabilities and the will to move forward.

**WATAUGA COUNTY SCHOOLS, NORTH CAROLINA
(SEE APPENDIX FOR CASE STUDY DETAILS)**

PRINCIPLES	FUNCTIONAL CATEGORY
Tight-Loose Integration	Governance
Adaptable to Change	Education Delivery

When COVID-19 led to schools being closed, Watauga County Schools already knew how to dedicate its resources for student success through this dramatic disruption. That’s because Watauga had long before created **a strategic plan that clearly articulates its overall vision, goals, and strategies**. As such, the district was able to make timely decisions within already established priorities. Watauga also entered the pandemic with a **strong mindset of, and commitment to, continuous improvement and agility in education delivery**. The district quickly extended its existing digital learning capabilities and gradually shifted as teachers gained comfort and competency.

NORTHEAST DENVER INNOVATION ZONE, COLORADO
(SEE APPENDIX FOR CASE STUDY DETAILS)

PRINCIPLES	FUNCTIONAL CATEGORY
Authentic and Accessible Communication and Feedback Loops	Education Delivery
Empowered Schools and Staff	Governance
Empowered Schools and Staff	Education Delivery

Northeast Denver Innovation Zone (NDIZ) **regularly gathers and incorporates input from a range of stakeholders**, particularly those whose voices are often undervalued. NDIZ also sets clear goals while **empowering schools to tailor certain practices** to more effectively serve their specific student population. As a result, **schools are more responsive and agile** in the face of disruption. When COVID-19 led to a shutdown of schools, schools were able to **leverage existing partnerships** to help meet understood student/family needs. **School staff also had the flexibility and ability to leverage technology** creatively to teach curriculum that was relevant to the moment.

GWINNETT COUNTY PUBLIC SCHOOLS, GEORGIA
(SEE APPENDIX FOR CASE STUDY DETAILS)

PRINCIPLES	FUNCTIONAL CATEGORY
Tight-Loose Integration	Education Delivery
Adaptable to Change	Resources

When snow forced the closure of campuses in January 2018, Gwinnett County Public Schools (GCPS) shifted to three Digital Learning Days that **preserved the continuity of instruction**. In fact, this relatively seamless shift was a culmination of planning that began years earlier when Gwinnett implemented a **strategic plan** centered around its eCLASS program, including access for all to a common digital learning hub to support synchronous and asynchronous learning. The approach included **aligned and flexible teacher development** for ensuring staff had the mindset and skills to adjust for continuity of instruction. Years later, when the COVID-19 pandemic arrived, GCPS further **scaled the eCLASS systems and experience** it had already implemented on an ongoing basis to quickly adjust to a full and extended remote model.

Road Map for Creating a More Resilient Local K–12 System

Designing, planning, and operationalizing for resilience, like any initiative, can be challenging. This section of the guide and the accompanying resources seek to ease this burden by providing the tools to manage this complex task of changing the practices and behaviors of a system.

Creating a more resilient local K–12 school system requires leaders to:

- Embrace resilience as a system/organizational goal.
- Do the difficult work of implementing practices that create a resilient system.

The good news is that system leaders are not building a resilient system from scratch. Local K–12 school systems likely already have several practices of resilience in place, while others have the systems and processes to create the enabling conditions necessary to drive toward resilience. With the following guidance, local school system leaders will better understand how to leverage existing strengths, identify opportunities for growth, and strategically select where to invest resources to maximize impact.

Accompanying Resources

To support this work, this guide includes two supplemental resources:

Workbook of Local K–12 System Resilience

Practices: A framework that comprehensively maps the principles and practices of resilience. The workbook is interactive; it includes questions that local system leaders should work through to assess the current state of their system vis-a-vis implementing the principles and practices of resilience.

Change Management Toolkit for Local K–12

System Resilience: A step-by-step guide for successfully executing a change management process, regardless of the practice the local school system is implementing. The toolkit includes guided questions and activities tailored to enable a change management process designed to build system resilience.

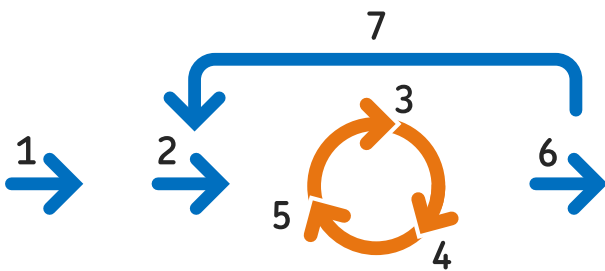
Note that the workbook is integrated with the toolkit, but may also be used independently or first by local school systems to identify and prioritize resilient practices. The toolkit is designed for system leaders who are ready to begin the process to build toward resilience.



Complementary Cycles

The change management process outlined in the toolkit is grounded in two distinct but complementary cycles:

- **In the Building Systems cycle (in blue)**, leaders identify, plan for, and continuously evaluate and improve their local system's overall resilience, including by implementing strategically selected practices of resilience at scale.
- **Through the Piloting Practices cycle (in orange)**, leaders use a rapid testing process to refine and perfect those selected practices of resilience and apply lessons for successful scaling across the system.



These cycles are mutually reinforcing. The Building Systems cycle helps leaders define and drive the necessary change to increase the system's resilience, while the Piloting Practices cycle provides information that leaders need to implement specific elements of that change. These cycles form an integrated change management process of strategic/macro and tactical/micro reform processes to increase resilience.

Systems can best enhance resilience through an integrated and iterative change management process of repeating strategic/macro and tactical/micro reform cycles.

Before local system leaders begin their change management process, two important notes:

- **First, system leaders should consider the toolkit to be a guide, not a recipe.**

As they work through the change management process outlined here, system leaders must be intentional about adapting the steps to best fit their unique contexts. In other words, leaders should use this guidance as a starting point in their journey, but remain true to their culture, goals, and vision.

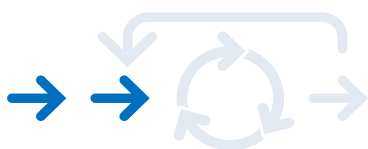
- **Second, this change management process was intentionally designed as a cycle.**

Resilience is relatively new, and building resilience is not a linear process. School systems will need to implement multiple practices of resilience across multiple principles/functions and over time. Therefore, they will need to carry out multiple iterative system and practice change management cycles in order to truly create a resilient system.



NAVIGATING THE TWO CYCLES AND SEVEN STEPS OF RESILIENCE CHANGE MANAGEMENT (SUMMARY)

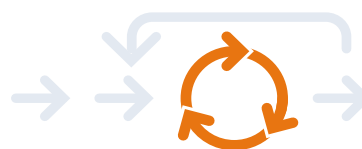
These steps are embedded in the toolkit with further guidance and details intended to support district leaders in navigating through this process. The Building Systems cycle wraps around the Piloting Practices cycle.



Building Systems Cycle, Phase 1 (Steps 1–2)

In these first two steps, local system leaders explore resilience in the context of the system, better understanding how the system would function and behave were it more resilient and identifying what needs to be done in order to make that vision a reality.

- 1. Define resilience in the system's context:** Each local K–12 system is unique. To build resilience, system leaders must clearly define what resilience could look like under their unique circumstances.
- 2. Identify what needs to change:** By completing the workbook and Step 1 of this process, system leaders will have a vision for their resilient system and initial hypotheses regarding how to get there based upon assessments of what needs to change.

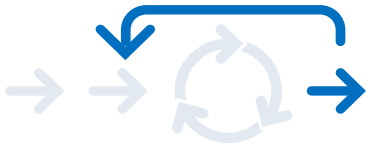


Piloting Practices Cycle (Steps 3–5)

The Piloting Practices cycle exists as a repeating cycle within the Building Systems cycle. In the three steps of the cycle, system leaders use a rapid testing process to assess whether the system should implement the proposed changes at scale and, if so, how the practice should be adjusted or adapted to most effectively increase system resilience. This three-step process would be repeated for each practice of interest over a period of years. The system would likely carry out this pilot cycle for multiple practices simultaneously to accelerate progress toward system resilience.

- 3. Plan and prepare:** To begin testing and piloting the priority list of practices, system leaders must comprehensively plan for how and in what contexts they will do so. At this stage, system leaders will pilot one of the priority practices they identified in the previous step.
- 4. Pilot, adapt, and pilot again:** Leaders should embrace a “fail by design” approach to piloting: From the outset, they should continuously test the practice for ineffective or low-quality issues, quickly identify and execute any adjustments to address the failures, and then test the practice again.
- 5. Pause and reassess:** At this point in the cycle, the practice has been refined and perfected at the pilot level. But that does not mean it is ready for system-wide implementation. Before committing to scaling the practice, system leaders must pause and assess whether the practice is necessary and if/how to scale.





Building Systems Cycle, Phase 2 (Steps 6–7)

At this stage, leaders pull back up to the Building Systems cycle, and they use the information gathered during the Piloting Practices cycle to improve resilience across the system. Decisions made during these last two steps will affect and apply to the system in its entirety.

6. Scale across the system: Systems enter this stage equipped with a practice and implementation plan perfected through piloting, lessons and best practices from those pilots, and the certainty that the practice should be implemented at scale and the readiness to do so.

7. Evaluate the new state of the system:

In this step, system leaders must determine if and to what degree the effort to increase system resilience was successful as a result of implementing the practices to date. Leaders must also determine if and how the new state of the system affects their approach to increasing the system's resilience. This information will inform future efforts to identify if and what other practices are needed to increase resilience.

After this step, system leaders will:

- Return to Step 2 of the change management process.
- Identify what needs to change.
- Begin the change management process again with new information and experiences to drive their priorities, identification of additional new practices, and processes.



Conclusion

The K–12 education system is at an inflection point. The pandemic experience has both highlighted challenges and opened the door to new solutions. While the desire is understandable to return to normal, more compelling is the need and the opportunity to iterate to innovate.

Building local K–12 resilience is not just about the next pandemic; it is needed to mitigate the accelerating pace of disturbances, from the mundane to the extraordinary, and minimize the otherwise foreseeable disruption to the continuity of quality schooling for all students. Resilience is not a totally new concept. Districts have been engaging in this through the pandemic, if not longer. Some practices may already be available. The opportunity and responsibility now is to elevate this work and build toward enhanced resilience in a more intentional, structured, and durable manner.

Building resilience is also about more than just mitigating disturbances and disruption. It is a pathway for reaching goals such as effectiveness and equity via intersecting practices. These can also be opportunities to reimagine, redesign, and enhance practices. In building resilience, local school systems move from emergency response to optimizing and transforming education. Those school systems that have managed well through COVID-19 are those that were already preparing for the future of learning.

Renovating the airplane while it is flying is a complex endeavor. We hope the framework and tools included in this guide will provide local K–12 system leaders and other stakeholders with the guidance needed to imagine, design, and plan forward. Systems likely already have some of the organizational change ingredients and structures that can be harnessed for this initiative. You need not start from scratch nor be overwhelmed. It is your resilience as individuals that will light the way forward to better ensure we meet the needs of current and future generations of students no matter the challenges presented.

Appendix

Principles and Recommended Practices

The table below of identified practices is sorted first by principle and second by functional category.

See the [workbook](#) with additional descriptive information and the ability to further label, sort, and prioritize these practices.

Principles:

Principles	Description
Tight-Loose Integration	System adopts common technical and educational standards and requirements and establishes norms, criteria, and expectations for resource integration that guide decisions (i.e., tight) and that enable autonomy and flexibility in selecting differentiated resources (i.e., loose)
Empowered Schools and Staff	Staff and schools have flexibility and authority to make decisions, adopt resources, and implement services on top of those system-wide, provided they are consistent with system standards, expectations, and criteria
Adaptable to Change	System expects change, collects and evaluates information on an ongoing basis to identify and evaluate potential disruptions, and applies new understanding to modify systems and processes
Redundant and Extendible	System values and curates multiple options for meeting needs and achieves redundancy and diversity, including through external partnerships
Authentic and Accessible Communication and Feedback Loops	System and schools establish clear, accessible communications practices and protocols and commit to authentic and meaningful feedback loops with families, staff, and community

Recommended Practices:

Tight-Loose Integration Recommended Practices	Functional Category
System establishes and communicates clearly defined expectations for student outcomes, grounded in mastery-based demonstration , and provides training and resources to enable schools to implement models and practices for students to more flexibly (in time, pace, and method) learn and demonstrate mastery of content	Education Delivery
Standards-based criteria, processes, and systems are used to select and integrate partnerships with other organizations as an integral component of the district’s educational delivery model and student services (e.g., coursework at community colleges)	Education Delivery
All students and teachers have access to a common digital learning hub for synchronous and asynchronous learning, including course content, instruction, assessment, collaboration, and communication across remote and blended classes	Education Delivery
System has a durable strategic plan with widespread community support that can extend across administrations, includes concrete time-bound goals and benchmarks, reflects feedback and input from families and school communities, and includes resilience goals, steps, and metrics	Governance
System has a fast-track decision-making process that could include decentralization for use in times of disturbance and urgency	Governance
System has clear understanding, plan, and implementation process regarding the source of services and what should be developed/delivered in-house or through partnership organizations, including a filter of unique school or student population factors	Governance
Learning goals, programs, curriculum, and assessments are reviewed and updated as appropriate to meet evolving requirements and expectations for student college, career, and civic readiness	Governance
System provides guidance on supplemental instructional, curriculum, and technology resources , such as a curated list of vetted or available options or selection criteria/standards	Resources
Budgets and spending are intentional in aligning to long-term strategic priorities that include resilience while recognizing that future-proofing can also support current modernization and effectiveness goals	Resources
System prioritizes use of common data format/exchange standards to ease appropriate use of student roster, performance, and other data across systems and applications	Resources

Empowered Schools and Staff Recommended Practices	Functional Category
Schools and instructors have flexibility to select and implement supplemental learning resources , programs, delivery models, technologies, and tools that are aligned with district and common standards and policies (learning, compliance, and technical)	Education Delivery
Schools have flexibility to manage and customize staffing structures (e.g., hiring, assignment, development) to allow them to shift staff responsibilities (such as team teaching, differentiated teaching roles, online training, etc.) and respond to disturbances and changing student needs	Education Delivery
Schools have flexibility, training, and capacity to pilot initiatives (working within system parameters) to modify and improve education delivery and address existing or potential needs	Education Delivery
Spending decisions lean toward flexibility and decentralization within a standards framework , balancing campus and team flexibility with district-level economies of scale and standardization (including compliance with local, state, and federal regulations)	Resources
System and schools are empowered to pursue partnerships with social services and other organizations/agencies to enhance physical and online access to student and family services (e.g., meals, health care, counseling)	Resources

Adaptable to Change Recommended Practices	Functional Category
System continuously defines goals for, evaluates, and improves education delivery to ensure flexibility, resilience, redundancy, etc., and strategically pilots initiatives with “fast fail” processes to meet those goals	Education Delivery
Culture and curriculum emphasize mindset of: (1) student agency, independence, and self-directed learning; and (2) staff resilience, agility, and flexibility in dealing with disruption and change	Education Delivery
Instructional models leverage both synchronous and asynchronous learning , including availability of enabling platforms and resources as well as teacher/student comfort	Education Delivery
System has timely process to <i>quickly</i> shift between education delivery models as appropriate to anticipate or respond to new disturbances and evolving needs	Education Delivery
System has a clearly defined process for measuring effectiveness of system functions (e.g., recruitment and hiring, technology integration) that includes long-term resilience goals and benchmarks	Governance
System progress toward strategic goals is tracked on an ongoing basis, and strategies and approaches are revisited in response to data , including benchmarks for resilience, education delivery, and student outcomes, and with attention to equity across schools and student subgroups	Governance
System board and leadership recognizes disruption both as a constant expected variable and also as an opportunity, and has a regular cadence to identify/monitor potential disturbances and to develop and reset strategic priorities , planning, and mitigation/innovation approaches accordingly	Governance
System assesses returns on spending , policies, and practices based on a range of criteria, including long-term resilience, and adjusts accordingly	Resources
System and schools invest in flexible, high-quality staff/teacher professional development aligned to strategic priorities and student needs for ensuring staff have the mindset and skills to adjust/respond to ensure continuity of instruction and student services during disturbances	Resources
Technology and other education access/delivery systems can scale capacity as needed to meet expanded demand amid disturbances and changes to core and supplemental delivery platforms (physical and digital)	Resources
System identifies and addresses their facility needs to enhance campus physical plant durability and safety in the face of natural disasters and other disturbances, such as through storm-proofing and backup power generation	Resources

Redundant and Extendible Recommended Practices	Functional Category
System establishes and supports multiple delivery options, such as through partnerships or technologies , that can be leveraged to supplement, modify, or shift education location (e.g., alternative buildings, online, and outdoor sites) or source (e.g., community colleges, tutoring and mentoring networks).	Education Delivery
System establishes and supports multiple ongoing delivery modalities through technologies that provide flexibility in the place and time of teaching and learning, including remote, hybrid, and blended learning to meet student needs and preferences	Education Delivery
Curriculum, lesson plans, and activities include alternatives to both mitigate disruption but also support student agency, accessibility, and personalization, such as a digital alternative to an analog assignment or a home-craft alternative for a school lab or art project	Education Delivery
Redundancies are built into system and school leadership teams , and there are clear succession plans in place whereby all parties have the information necessary to successfully execute a succession plan	Governance
All students and staff have anytime, anywhere access to school via technology (i.e., access via devices, connectivity, and a digital platform for curriculum, instruction, and communication)	Resources
Relationships with external organizations are curated at district or school level for service delivery	Resources
System cultivates and builds family capacity as instructional partners by increasing family members' understanding of learning goals and curriculum resources and therefore their ability to help support and guide learning	Resources
System implements a strategy for talent cultivation, recruitment, development, and retention that achieves diversity across multiple dimensions (e.g., staff background, experience, location, organization), including through partnerships	Resources

Authentic and Accessible Communication and Feedback Loops Recommended Practices	Functional Category
System and schools communicate any changes in education delivery in advance, through a range of channels, and with clear milestones for how delivery is changing and when	Education Delivery
Schools communicate proactively, through multiple modes , and use best practices for accessibility (i.e., accommodation for language, disability, etc.), regarding educational opportunities for students both within school contexts and through partnerships	Education Delivery
System regularly collects and responds to feedback from teachers, staff, families, and students regarding experiences and preferences for education delivery , including differentiation to individual student need and pursuing strategies to get feedback from historically underserved populations	Education Delivery
System sets expectations for clear, ongoing communications and providing tools and resources to enable robust district- and school-level communication to all stakeholders (students, families, staff, community, partners, etc.) through multiple channels and with adaptations for accessibility based on language and disability	Governance
System regularly collects and responds to feedback from teachers, staff, families, and students about the effectiveness of resources with criteria regarding their utility in the face of potential disturbances	Resources
System and schools regularly collect and respond to feedback from teachers, staff, families, and students to inform improved practices with the goal of ensuring redundancy and availability in the case of disturbances	Resources

K–12 System Case Studies

GARLAND INDEPENDENT SCHOOL DISTRICT (TEXAS)

Key Principles and practices of resilience:

Principle	Recommended Practices	Functional Category
Authentic and Accessible Communication and Feedback Loops	System sets expectations for clear, ongoing communications and providing tools and resources to enable robust district- and school-level communication to all stakeholders (students, families, staff, community, partners, etc.) through multiple channels and with adaptations for accessibility based on language and disability	Governance
Tight-Loose Integration	System has a fast-track decision-making process that could include decentralization for use in times of disturbance and urgency	Governance

System profile: Located across three cities near Dallas, Texas, Garland ISD enrolls 55,000 students in grades K–12 across 72 campuses. Garland ISD boasts a diverse population that speaks more than 100 languages, as well as technology-driven campuses, magnet programs, and some 200 career and technical education courses.

[System contact: Jovan Wells, Chief Academic Officer]

When COVID-19 hit, the Garland ISD Board of Education granted Superintendent Dr. Ricardo Lopez emergency delegatory authority (EDA) to ensure that the system could respond quickly to needs or challenges that arose. The board had not done so prior. Dr. Lopez used this authority to ensure students and staff were safe and that the district could continue to provide high-quality instruction.

For example, the district needed a new tool that allowed the educators to better instruct students in the virtual environment and track data they needed, specifically related to student attendance and engagement. The emergency delegatory authority allowed Dr. Lopez to purchase a learning management system (LMS) to meet those needs. Having an LMS was a crucial component to Garland effectively educating students during the pandemic. It also gave Garland the opportunity early on to better support and track student engagement in a virtual setting. The board revisited the EDA every month to determine whether it was still necessary, and lifted it in the winter.

One of the key challenges after the pandemic hit was that parents and families lacked information about what was going on. Garland quickly acknowledged and addressed that issue through instituting a range of vertical and lateral communication practices.

Parents and families have access to a COVID-19 page on the district's website. In the days following school closures, the system provided daily updates, along with resources for both students' instruction and students' and families' well-being. There were similar resources and communication for staff.

The system also sought out information from parents, students, and staff to improve its work. Administrators conducted surveys, designed with the assistance of the district's research department, on key elements of operations. For example, the district surveyed parents, teachers, and students, asking for feedback on the implementation of the LMS. In response to that feedback, the district made strategic improvements to fix challenges, such as addressing student login issues and providing additional professional development in smaller segments.

The district also ensured that the board and administrators had the information they needed to make decisions. Board members receive a weekly Board Insight newsletter. Each of the district departments gives updates, uploaded to a shared document file and shared with the board as the information becomes available, rather than waiting for the next called board meeting. Dr. Lopez documented his decisions made under EDA in this

way, ensuring the board understood what was done and why, and building transparency and trust.

The district also regularly shared administrative packets. The leadership team compiled memos, announcements, and guidance that school leaders and teachers needed. Any questions that teachers and school leaders asked of the district were rolled up into an FAQs page. All of the must-know information for teachers and school leaders was in one easy-to-access place, allowing them to focus on providing excellent instruction and caring for their students. This practice was in place pre-pandemic, and thus enabled an efficient and timely channel for sharing new resources, such as a guidebook on COVID-19 instructional practices and protocols.

Each of these strategies leveraged technology in order to effectively communicate with families, and crucially, the technology allowed communication content to be co-created and regularly updated. Unlike an email or weekly newsletter, different people could contribute content and could provide new information all in one place, making it easier for the right stakeholders to access the information they needed when they needed it.

GWINNETT COUNTY PUBLIC SCHOOLS (GEORGIA)

Key Principles and practices of resilience:

Principle	Recommended Practices	Functional Category
Adaptable to Change	System and schools invest in flexible, high-quality staff/teacher development aligned to strategic priorities and student needs for ensuring staff have the mindset and skills to adjust/respond to ensure continuity of instruction and student services during disturbances	Resources
Adaptable to Change	Continuously evaluate and improve education delivery to ensure flexibility, resilience, redundancy, etc., and strategically pilot initiatives and “fast fail” processes to meet those goals	Education Delivery
Adaptable to Change	Technology and other education access/delivery systems can scale capacity as needed to meet expanded demand amid disturbances and changes to core and supplemental delivery platforms (physical and digital)	Resources
Tight-Loose Integration	All students and teachers have access to a common digital learning hub for synchronous and asynchronous learning, including course content, instruction, assessment, collaboration, and communication across remote and blended classes	Education Delivery

System profile: Located in Gwinnett County, Georgia, in the metro Atlanta area, Gwinnett County Public Schools (GCPS) is the state’s largest school system, enrolling 188,000 students in grades K–12 in 2020–21. GCPS has a very diverse population, with students coming from more than 180 countries and speaking 100 different languages. [System contact: Tricia Kennedy, Executive Director, Instructional Development and Support]

Strategic Planning/Technology-Enabled Capabilities

When snow forced the closure of campuses in January 2018, GCPS had already exhausted its inclement weather days and shifted to three Digital Learning Days (DLDs) that preserved the continuity of instruction. In fact, this relatively seamless shift was a culmination of planning that began years earlier when Gwinnett implemented a strategic plan centered around its eCLASS blended learning program. Years later, when the COVID-19 pandemic arrived, GCPS leveraged the eCLASS systems and experience it had already implemented on an ongoing basis to quickly adjust to a full and extended remote model.

GCPS embarked on its strategic initiative in 2009 by first identifying priorities through engaging all stakeholders, including community and business leaders, higher education leaders, teachers, students, and parents. Administrators identified a host of priorities under 10 distinct categories representing all key components of the school district. Central to many of these priorities was technology. This included what became the eCLASS initiative to transform instruction and learning inside and outside of its classrooms. The **eCLASS system's LMS provides a one-stop shop** for digital content, learning, assessment, support, and communication now in use by every classroom, teacher, and student in GCPS as an extension of their collective learning space.

“When we looked at the priorities, many of them were dependent on the expected use of technology – even those that didn’t explicitly dictate technology. In addition, many of our priorities evolved around transforming teaching and learning. We wanted teachers to be able to differentiate instruction based on student personal needs, allow students to personalize learning options, and expand beyond the classroom to make learning accessible from home,” explains Tricia Kennedy, executive director for eCLASS transformation at Gwinnett County Public Schools.

While classroom teaching will continue to be the main method for learning delivery across Gwinnett’s 141 schools, eCLASS supplements and supports work performed by teachers and students in the classroom environment with a range of learning resources that can be accessed 24/7.

Continuous Improvement/Staff Development

In the first phase of the eCLASS implementation, 33 schools were selected in 2011 for the pilot. Over the next three years, additional schools self-selected to adopt eCLASS. Some master teachers developed sample course content pages, while others embedded in the schools provided ongoing coaching and training in a way most meaningful to their individual schools. When the need for Digital Learning Days arrived, Gwinnett’s eCLASS was already adopted in every school and classroom as an extension of their collective learning space.

Another key indicator of success from the eCLASS implementation is a matrix developed for school leaders to help them self-assess their progress when it comes to digital learning using a scale ranging from “planning” to “transforming.”

“We told them all that it was absolutely okay if they were not all the way to the right [transforming], as long as they understood where they were on the chart and had a plan for moving to the right,” says Kennedy. “We have seen significant progress on the matrix over the past year. It is helping schools track their progress and gives them a framework to know what expectations they should be building within their school.”

Building Resilience

Digital Learning Days proved to be an opportunity to build teacher capacity in transformational instruction while leveraging technology to engage student learning. Those days forced students and teachers into a fully online environment from one that is web-enhanced (i.e., blended), which can cause some uneasiness with students, teachers, and parents. After the first day in 2018, teachers made—and continue to make—adjustments, and the comfort level increases on an ongoing basis for all.

Teachers address issues of access as well. For example, they know which students may be struggling to access technology in their homes, such as ones in which numerous siblings are vying for computer time. Teachers can choose to give assignments that don't require the student to be in front of a machine the whole day, but rather submit it later, when the students have computer access.

“The most important thing is that we preserve the continuity of instruction and prevent overage hours from interfering with student, teacher, and family schedules,” said Matt Waymack, director of eCLASS development, Gwinnett County Public Schools.

Ongoing Journey to Enhance Resilience

Fast-forward to the pandemic, and Gwinnett was able to leverage both Digital Learning Days and its blended learning to scale to support 100% remote learning enabled by the ongoing success of eCLASS and availability of learning content and instructional tools. Scalability was critical as well, and DLDs had provided district technology leaders with a blueprint for what that meant and what was needed.

Gwinnett continued to improve the model and teacher preparation ahead of the fall 2020 semester. About half of families chose to remain fully virtual even after students were allowed to return to campus. As shared with the community: “Lessons learned during the spring [2020] are helping to transform [each] DLD into a ‘virtual school day’ as GCPS students return to school digitally on Aug. 12.” Teachers provided both live (synchronous) and recorded (asynchronous) lessons and independent work. Students were also provided multiple avenues to provide feedback, ask questions, and interact with their teacher, individually or during class.

In fact, Gwinnett had already been operating a fully online program since 1999 through its Gwinnett County Online Campus (GOC), providing more than 179 courses and supports for students in grades four through 12. Enrollment increased during the pandemic, and GCPS imported GOC content into the eCLASS system to provide additional teaching and learning resources.

As Gwinnett emerges from the pandemic, it plans to meet evolving student and family expectations and teacher support for digital learning. Among other steps, they will expand the regular availability of digital learning whereby students can engage in a fully modified digital learning option intended to minimize the need for teachers to concurrently teach students in the classroom and at home, online.

NORTHEAST DENVER INNOVATION ZONE (COLORADO)

Key Principles and practices of resilience:

Principle	Recommended Practices	Functional Category
Authentic and Accessible Communication and Feedback Loops	System regularly collects and responds to feedback from teachers, staff, families, and students regarding experiences and preferences for education delivery, including differentiation to individual students' needs and pursuing strategies to get feedback from historically underserved populations	Education Delivery
Empowered Schools and Staff	System sets clear parameters around which level of system (district, school, or classroom) can make which decisions, empowering decision-making closer to the school/classroom as appropriate to provide a more agile approach	Governance
Empowered Schools and Staff	Schools have flexibility, training, and capacity to pilot initiatives (working within system parameters) to modify and improve education delivery and address existing or potential needs	Education Delivery

System profile: Located in Denver, Colorado, Northeast Denver Innovation Zone (NDIZ) is a system of six PK–12 schools that are a subset of Denver Public Schools. NDIZ educated 4,700 students in grades PK–12 in 2020–21. NDIZ is governed by a nonprofit board, led by an independent executive director, and in some ways functions as a smaller semiautonomous school system of interdependent schools.
 [System contact: Vernon Jones, Jr., Executive Director]

NDIZ's structure and operations are grounded in liberatory design. Liberatory design is a human-centered design process worked through the lens of equitable practices intended to ensure that equity drives who is engaged in the design process. In addition to co-creation during design, NDIZ's leadership also strongly believes in co-delivery and co-accountability.

In practice, NDIZ's leadership teams gather and incorporate input from a range of stakeholders, particularly those whose voices are often undervalued in standard decision-making processes, such as teachers, students, and parents. Doing so ensures that NDIZ's decisions reflect the experiences of the people whom they will affect.

The liberatory design also means that NDIZ empowers people to make decisions and deliver solutions as a collective. "We are best when people have the freedom to self-determine," says Executive Director Vernon Jones, Jr. "We have boundaries to our freedom but not to the detriment of our creativity to co-create solutions." NDIZ sets clear goals, while acknowledging there are multiple approaches to achieving those goals. School leaders and their teams have freedom to explore how to get there, specific to the students they serve. It isn't without challenge, however, as NDIZ is still connected to the traditional educational infrastructure.

NDIZ's approach addresses two barriers to resilience. First, it allows NDIZ to be more equitable, a necessary precondition for a resilient system. Schools can tailor their practices to more effectively serve their specific student population, even if those practices look different across schools. It is a deviation from the one-size-fits-all operating procedure of many school districts. In that type of environment, the system creates expectations for operations and schools comply with those expectations.

“In most systems, schools can only operate in one way—but 80% of the people we need to serve need to be served *outside* of this way,” says Jones. “We are liberated to innovate to meet lives where they are so they can go to where they dream.”

Second, because NDIZ believes in the power of school leaders and their teams, schools are more responsive and agile in the face of disruption, as was clear when COVID-19 led to a shutdown of schools in March 2020. During that time, schools were able to meet the real needs of families by leveraging strong existing relationships. They were able to engage with community partners to ensure food, rental assistance, health care needs, transportation, and technology. School staff also created new ways to engage students through virtual clubs and family meet and greets. School staff also had the flexibility to teach curriculum that was relevant to the moment.

School leaders were intentionally creative with the technology available to them and leveraged it to ensure, as much as possible, that students and families were safe and secure, students received high-quality and relevant learning opportunities, and the school culture could remain strong despite the disruption and virtual environment.

NDIZ's design—and the inclusive, decentralized approach to decision-making that it creates—allows the system to implement practices that are key to building resilience.

RENFREW COUNTY DISTRICT SCHOOL BOARD (ONTARIO)

Key Principles and practices of resilience:

Principle	Recommended Practices	Functional Category
Tight-Loose Integration	Learning goals, programs, curriculum, and assessments are reviewed and updated as appropriate to meet evolving requirements and expectations for student college, career, and civic readiness	Governance
Tight-Loose Integration	Standards-based criteria, processes, and systems are used to select and integrate partnerships with other organizations as an integral component of the district’s educational delivery model and student services (e.g., coursework at community colleges)	Education Delivery
Redundant and Extendible	System establishes and supports multiple delivery options, such as through partnerships or technologies , that can be leveraged to supplement, modify, or shift education location (e.g., alternative buildings, online, and outdoor sites) and source (e.g., community colleges, tutoring and mentoring networks).	Education Delivery
Redundant and Extendible	Curriculum, lesson plans, and activities include alternatives to both mitigate against disruption but also support student agency, accessibility, and personalization, such as a digital alternative to an analog assignment or a home-craft alternative for a school lab or art project	Education Delivery

System profile: Renfrew County District School Board (RCDSB) is located in the heart of the Ottawa Valley in Eastern Ontario province, just west of Canada’s capitol. RCDSB serves 10,000 students in 28 JK–12 schools, and four adult and continuing education centers.
 [System contact: Pino Buffone, Director of Education]

RCDSB has long-recognized the importance of flexibility to meet student learning goals and needs. While the board may not have framed their work as resilience, they have in fact been proactively responding in an ongoing manner to gradual disturbances of technological change, a shift in the economy and workforce skills, and student interests and preferences. That ongoing resilience eased the response upon the more dramatic occurrence of the COVID-19 pandemic.

“We live in a time of great technological, social and cultural change... Our students will need the skills to navigate and understand the implications of these changes...” ([RCDSB Inspired Learning](#))

Fundamental is the Inspired Learning framework (complemented by Pathways to Thrive for well-being), which has served as a foundation for the curriculum, school effectiveness, and professional learning. Based on Ontario provincial learning expectations, the framework is implemented by the district, and then enables thoughtful and informed professional judgment by teachers. The essential elements—core skills, emerging global competencies, and a foundation in big ideas of the curriculum—form a dynamic interplay to empower students and staff toward success. An approach of equity, inclusion, and community then engages students to explore and discover their own pathways to success. Learning that is “inspired” provides opportunities and experiences that are authentic, relevant, and innovative.

Teaching and learning environments extend to the natural, digital, and real world to provide multidimensional spaces that allow students quiet space for reflection and active spaces to explore, discover, and collaborate. Proximity to naturally rich outdoor spaces extends and promotes new learning beyond the classroom walls.

RCDSB classrooms have ongoing partnerships, including among educators as well as with the community. These partnerships have goals and expectations that are transparent and help reframe learning by connecting learners to authentic opportunities. Educators embrace their new role in this culture of collaboration and curiosity by establishing meaningful connections and partnerships.

Digital technologies are used to make new and personal connections beyond the walls of the classroom and to accelerate, facilitate, and deepen learning, all while establishing equity of opportunity for all learners. Digital tools and platforms, including D2L's LMS, Brightspace, and productivity suite, provide an authentic, engaging, meaningful, and modern way to redefine learning tasks and connect the classroom in ways that would not otherwise be possible.

The framework is designed for differentiated utilization across curricula and in any grade or mode of learning. As such, it was utilized in the shift from in-person learning to at-home learning during the pandemic. Teachers demonstrated tremendous ingenuity, perseverance, and resourcefulness in developing tasks for students that are meaningful and experiential in the context of their very homes during the provincial stay-at-home orders...modeling firsthand creativity and imagination, curiosity, and innovation in the teaching and learning context. In the LMS, for instance, teachers at the elementary level integrate the utilization of open educational resources (such as video clips that explain mathematical concepts) to support students' learning, synchronously and asynchronously.

The Specialist High Skills Major (SHSM) program provides additional resilience to the dynamic educational context and authentic workforce environment in large part through partnerships and cooperative education at the secondary level. **SHSM is a ministry-approved program** that allows students to focus their learning on a specific sector or interest while earning an Ontario Secondary School Diploma. SHSM programs assist students in their transition to apprenticeship training, college, university, or the workplace. Approximately 50% of students in grades 11 and 12 across the district participate in one of the SHSM programs for culinary arts, construction, information technology, landscaping, and transportation, for example.

SHSM allows students to customize their secondary school education to suit their interests and talents; develop specialized knowledge, skills, and certifications; and make informed decisions about their post-secondary destination.⁸ Per the Ministry SHSM structure, RCDSB understands that they cannot provide these opportunities alone without extensions, and so they curate partnerships with local industries to enrich the student experience and provide relevance to labor market trends. The specific details related to program delivery are determined by the district, which empowers schools to target a few partnerships that provide the greatest educational value. Each year RCDSB works with staff and partners to review objectives and adjust if/as necessary in response to student needs to ensure the most relevant student opportunities.

While not designed with a pandemic in mind, when the pandemic arrived, strong partnerships enabled a more seamless shift in many cases. A number of programs shifted online, while in other cases the district worked with partners on adjustments to meet public health guidelines. This allowed secondary school students to continue uninterrupted—where feasible and appropriate—with dual-credit courses (in partnership with the community college), some SHSM programs, and life skills classes (in-person learning for students with special needs) throughout the pandemic period. Some programs were disrupted, so there is need and opportunity to continue improving the model to support RCDSB's continuity and durability even in times of disturbances.

The district continues to establish and update a number of “contingency plans of action” across departments to address areas of concern as proactively as possible ahead of future disturbances. This includes the creation of capacity-building and disaster-recovery plans to enhance staff understanding of matters such as those related to cyber safety, as well as increasing delivery redundancies and modalities to mitigate organizational and instructional risks.

WATAUGA COUNTY SCHOOLS (NORTH CAROLINA)

Key Principles and practices of resilience:

Principle	Recommended Practices	Functional Category
Tight-Loose Integration	System has a durable strategic plan with widespread community support that can extend across administrations, includes concrete time-bound goals and benchmarks, reflects feedback and input from families and school communities, and includes resilience goals, steps, and metrics	Governance
Adaptable to Change	Culture and curriculum emphasize mindset of: (1) student agency, independence, and self-directed learning; and (2) staff resilience, agility, and flexibility in dealing with disruption and change	Education Delivery

System profile: Located in Watauga County in western North Carolina, Watauga County Schools enrolls 4,400 children in grades K–12. [System contact: Scott Elliott, Superintendent]

When the pandemic led to school closures in March 2020, Watauga County Schools already knew how to dedicate its time and resources to see its students successfully through this dramatic disruption. That’s because long before COVID-19 hit, Watauga had created a “[golden circle](#)”: a reworked version of its strategic plan that clearly articulates the system’s overall vision, what it wants to achieve (goals), and how it will do so (strategies).

Watauga’s vision is to be the best place to learn and work in North Carolina. That may seem like an unreasonable goal in the context of COVID-19, but the district continued to strive toward it and identified three enabling conditions that were necessary to do so, despite the disruptions COVID-19 presented.

Specifically, Watauga prioritized:

- Safe physical learning environments
- Supported staff
- High-quality learning opportunities for students

Watauga’s golden circle identifies the goals it needs to meet to achieve its vision and the strategies it must pursue to achieve its goals. These enabling conditions are in service of the golden circle; they are the pieces that must be in place for Watauga to work toward its vision in the unique context of COVID-19. The district made decisions with these priorities in mind.

For example, Watauga prioritized learning opportunities that happen in person. It implemented safety, cleaning, and screening procedures for school buildings that made it as safe as possible for students and teachers, allowing the district to provide some amount of face-to-face instruction.

Watauga did not have the capacity, however, to provide face-to-face instruction for all students. It decided to prioritize students with the greatest needs and first enrolled students with severe disabilities, ensuring these students could attend classes in person on Day One. While Watauga's leadership team would have preferred to start the school year with all students back in person, the only reason this compromise was acceptable was because the system had strong virtual learning practices and systems in place that allowed it to continue effectively educating the other students remotely.

To that end, Watauga entered the pandemic with a strong mindset of and commitment to continuous improvement and agility in education delivery. This mindset allowed the district to build on its past work, support staff, and ensure children had access to high-quality learning experiences.

Prior to the pandemic, Watauga had experimented with digital learning but had not yet systematized it. When schools initially closed, the district took lessons from that past work and quickly created a comprehensive model for virtual instruction that could be replicated by every teacher. The system leadership used technology to monitor the effectiveness of the model, conducting conversations with staff on virtual platforms and analyzing student- and classroom-level data. Administrators found that while the initial approach to virtual learning was right—that is, teachers needed a more prescriptive model as a safe place to start their experience with virtual instruction—teachers did not need as consistent a structure for their planning as time went on.

Watauga's culture and approach to education delivery were flexible enough that the district was able to leverage technology to give teachers the supports they needed to serve students effectively virtually, and agilely shift resources elsewhere when necessary.

Methodology/Endnotes

What does the literature say about K–12 system resilience?

Resilience is a promising concept for K–12 systems, but there is relatively little written about it—at least not directly, or in the context of North American K–12 systems.

As part of this work, the authors conducted a review of the research literature to assess how others have considered this concept in the past. Generally speaking, there are two bodies of work: research conducted prior to the pandemic, driven by agencies and actors focused on international contexts, and research focused on domestic contexts, done in response to COVID-19.

Prior to the COVID-19 pandemic, much of the research on K–12 system resilience stemmed from international-focused agencies and actors.⁹ Others, also focused internationally, studied resilience more generally, with clear applications for education systems.¹⁰

This body of research is useful to inform and validate the definitions upon which this work is predicated. Specific definitions vary by actor,¹¹ but shared among them is that resilience is “fundamental to ensuring that learning or well-being outcomes are not unduly compromised in contexts of risk, uncertainty, and adversity.”¹² Agencies’ definitions for disturbances varied, but USAID’s shocks and stressors framework was the most comparable to what North American K–12 systems might experience. Shocks are “short-term, acute deviations from long-term trends that have substantial negative effects,” while stressors “tend to be chronic, long-term trends, pressures, or protracted crises.”¹³ This framework formed the foundation for the gradual/abrupt disturbances framework used here.

In addition to this existing work, the COVID-19 pandemic catalyzed an uptick in research, produced within North America, on topics related to the tenets of K–12 system resilience—even if not framed as such.

- The Center on Reinventing Public Education and the Collaborative for Student Success, for example, analyzed K–12 school district’s 2020 reopening plans using a rubric oriented around practices of resilience, such as effective resource allocation, staff support, and clear communication.¹⁴
- Common Sense Media and Boston Consulting Group focused on closing the “digital divide”—the gap between teachers and students who do and do not have access to adequate technology and connectivity to engage in distance learning—which is a key practice of a resilient system.¹⁵
- The Return to School Roadmap, developed by Opportunity Labs, outlines a path for system and school leaders to take to safely and effectively reopen schools; that path includes key practices of resilience, such as engaging school leaders in resource allocation.¹⁶

This literature forms the foundation of a body of institutional knowledge to support leaders in building system resilience, but it falls short of what is necessary to actually do so. This work is intended to help fill that gap of translating research into actionable guidance.

How do the practices of resilience manifest in K–12 school systems?

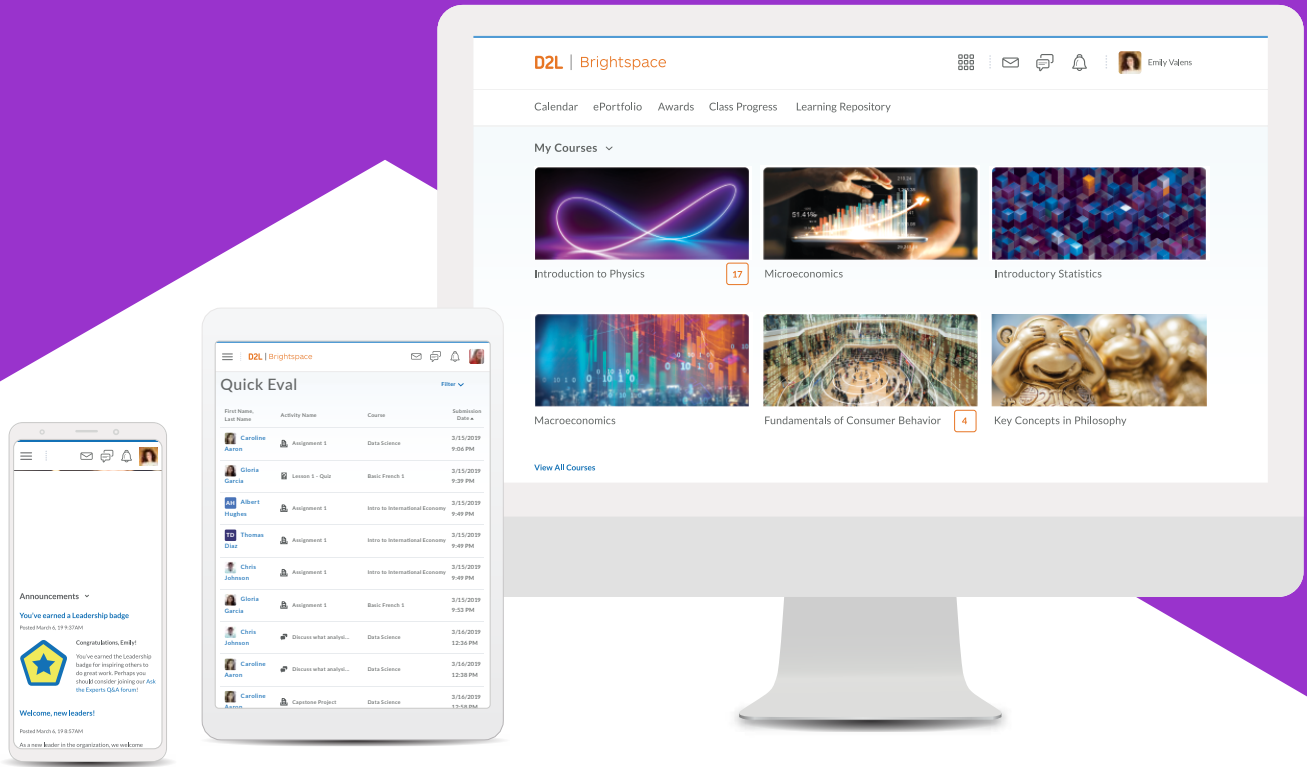
The authors complemented this review of the literature with focus groups with six local K–12 system leaders. The school systems that these leaders represent reflect a diversity of regions, enrollment sizes, system types, and student and community demographics in the U.S. and Canada. These system leaders were selected based on their systems' responses to the COVID-19 pandemic and the thoughtfulness and intentionality that these leaders specifically bring to better supporting their students.

The focus groups added depth and nuance to the authors' understanding of resilience within a K–12 system. In the focus groups, the system leaders explored the principles and practices of resilience, developed by the authors, in the context of their K–12 system. Specifically, the system leaders provided the following high-value information:

- Revisions, additions, deletions, or other modifications to the principles and practices of resilience
- If and how the principles and practices of resilience currently exist in the system's core functions (e.g., resource allocation, governance, education delivery)
- Types of disturbances the system has encountered previously or that the system has prepared for, including positive disturbances
- Specific actions that their system has pursued to mitigate negative consequences, or maximize potential positive consequences, of disturbances
- Challenges their system has encountered with responding to disturbances, implementing principles or practices of resilience, or change management more generally
- Suggestions for the types of tools or resources that would be helpful to implement principles and practices of resilience, and/or that would have made the past work of building a resilient system easier






Endnotes

- 1 https://www.rand.org/pubs/research_reports/RRA956-1.html
- 2 <https://www.merriam-webster.com/dictionary/resilience>
- 3 <https://insights.sei.cmu.edu/blog/system-resilience-what-exactly-is-it/>
- 4 <https://www.gartner.com/en/documents/3981203/2020-strategic-road-map-for-business-continuity-manageme>
- 5 <https://www.managementstudyguide.com/resilient-organizations.htm>
- 6 <https://files.eric.ed.gov/fulltext/ED594795.pdf>
- 7 See for example: (a) <https://gsba.com/wp-content/uploads/2017/11/Education-System-Components.pdf>; and (b) <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/reimagining-a-more-equitable-and-resilient-k-12-education-system>
- 8 www.edu.gov.on.ca/morestudentsuccess/shsm.html
- 9 See, for example, resources produced by the World Bank (http://wbfiles.worldbank.org/documents/hdn/ed/saber/supporting_doc/brief/SABER_EDR_Brief.pdf), USAID (https://www.eccnetwork.net/sites/default/files/media/file/101219%20Resilience%20in%20Education%20White%20Paper%20-%20Final_0.pdf), and the Inter-agency Network for Education in Emergencies (https://inee.org/system/files/resources/UNICEF_Integrating_conflict_and_disaster_risk_reduction_into_education_sector_planning_2011_ENG_0.pdf; <https://inee.org/resources/inee-minimum-standards>)
- 10 See, for example, resources produced by the UN Office for the Coordination of Humanitarian Affairs (<https://cerf.un.org/sites/default/files/resources/OCHA%20Position%20Paper%20Resilience%20FINAL.pdf>) and UK Department for International Development (https://assets.publishing.service.gov.uk/media/57a08955ed915d3cfd0001c8/EoD_Top-ic_Guide_What_is_Resilience_May_2016.pdf)
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