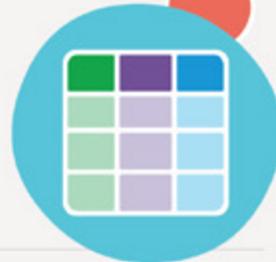




Center on
Inclusive Technology
& Education Systems

CITES Framework Field Guide

Teaching



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Welcome

Welcome to the Center on Inclusive Technology & Education Systems (CITES) Framework Field Guide. This Field Guide is meant to serve as an empowerment tool for districts working to implement inclusive technology practices. It is designed for use by district leaders supporting technology implementation in the areas of assistive technology (AT), educational technology (EdTech), or information technology (InfoTech) and encourages the consideration of additional collaborators as appropriate to meet individual needs.

About CITES

The CITES team, funded by the U.S. Department of Education, Office of Special Education Programs, works to empower school districts to create and sustain inclusive technology ecosystems. These systems foster collaboration between EdTech, AT, and InfoTech to benefit all students, including those with disabilities. The CITES team collaborates with partners and districts to achieve three main goals:

- Build the capacity of school districts to use an evidence-based framework to develop, implement, and refine comprehensive, equitable technology ecosystems that include AT, EdTech, and InfoTech;
- Increase the knowledge of educators of how to apply principles of Universal Design for Learning (UDL) and evidence-based practices to maximize integrated use of technology throughout instruction; and
- Support more effective and inclusive implementation of AT, EdTech, and InfoTech for the benefit of all students, including students with disabilities and their families.

Framework

CITES uses an iterative, design-thinking process to create the Framework over the course of the project (2018-2023). The CITES Framework is based on current research and understanding gained from the project's [Knowledge Development Districts](#). Knowledge Development Districts serve as an exemplar in one or more areas of inclusive technology implementation.

The Center tests and refines the Framework practices in collaboration and co-development with the [Framework Development Districts](#). The Framework Development Districts made a long-term commitment with CITES to test evidence-based practices and provide cyclical feedback on what works to build an inclusive technology ecosystem. What is learned together informs the development of the CITES Framework.

Who should use the CITES Field Guide for Teaching?

- District and Building Administrators
- Assistive Technology Specialists or Special Education Technologists
- Education Technologists or Digital Learning Specialists
- Directors of Teaching and Learning and/or Curriculum Directors
- Teacher Leaders or Instructional Coaches
- Chief Information Technology Officers
- Anyone interested in learning more about inclusive technology systems

How to Use the Field Guide

The CITES Framework Field Guide for Teaching offers a systematic process of creating and sustaining an inclusive technology ecosystem.

The CITES Framework practices can be approached as a step-by-step process or as a “just-in-time” resource that focuses on specific areas most needed in a district. Each Framework practice offers a comprehensive self-assessment and goal-setting tool. Additional supports incorporated into the site are district case stories, resources, and research to empower a district working toward a more inclusive, collaborative technology ecosystem.

Before Getting Started

Creating a culture of inclusion and setting the conditions for innovation and change are essential first steps in developing inclusive technology systems. Consider reviewing the [CITES Framework Field Guide for Leadership](#) as a first step.

CITES Framework Teaching Practices

“Teaching supported by technology connects educators to people, data, content, resources, expertise, and learning experiences that can empower and inspire educators to provide more effective teaching for all learners.” (National Educational Technology Plan, 2017)



The National Educational Technology Plan (NETP) highlights the importance of equitable student access to both high-quality technology and teachers who have the skills to use technology to personalize learning. Teaching with technology can transform not only teachers as educators, but also students as learners.

Building teacher clarity on teaching with technology offers the opportunity to accelerate and improve teaching and learning. Educators who build capacity for their knowledge and skills in technology are more effective in the teaching and learning process. By taking a proactive approach to broadening personal technology skills, educators can more effectively offer explicit instruction and support to help students identify and remove barriers that may exist when learning how to use technology.

Practices educators implement to support inclusive learning when using technology include:

- Develop technology competencies, including how to use accessible and assistive technology to support student progress toward learning goals.
- Use technology to support student-centered learning for all students.
- Take responsibility for developing or enhancing the technology skills needed to support instruction for all students

Develop Technology Competencies

The goal of developing technology competencies is to improve the design and delivery of learning opportunities for all students. Technology competencies are a set of skills educators are expected to acquire. Some districts create or identify their own set of competencies that staff are expected to work toward. There are also broadly used sets of competencies available. Whether using the national lists, district-curated competencies, or the individual competencies identified by an educator, ensuring those competencies include the use of accessible materials and assistive technologies will promote inclusive learning opportunities in a balanced and inclusive technology ecosystem.

Brazosport's Story

Brazosport Independent School District has prioritized implementing Universal Design for Learning to ensure teaching with technology supports student-centered learning. The district credits their collaborative approach for the widespread adoption of accessible instructional materials, and teachers now view supporting digital tools as integral to their teaching practices.

[Download and read Brazosport ISD's story](#) | Clute, TX

Learn more by visiting the [Develop Technology Competencies](#) page on the CITES website.

Family Engagement

Classroom educators can use communication technologies and education technologies to reinforce family engagement. Before families can engage in using technology, however, they need to know what technologies to use and when and how to use those technologies. To bridge support from school to home, districts can consider using structures like parent-teacher conferences to discuss how technology is being used by students in the classroom and how parents and caregivers can use the technology at home to bridge support across multiple settings for students. Families have an intimate knowledge of their student(s) and can provide invaluable information about their strengths and learning preferences. Purposeful collaborations among families and educators allow for intentionally designing and integrating accessible educational materials and technologies that enable students with disabilities to make progress toward their learning goals.



Actions educators can take to develop technology competencies for inclusive learning include:

- Work toward technology competencies.
- Use technology to create transformative learning experiences.
- Integrate accessible educational materials and assistive technologies to ensure students with disabilities are able to use and benefit from technology.

Key planning questions for identifying technology competencies are:

- What instructional framework or priority instructional practices has the district committed to that support pedagogical knowledge and skill development? Don't have one? Consider adopting the [Universal Design for Learning Framework](#) by using the UDL Guidelines ([CAST](#), 2021).
- Has the district identified technology knowledge and skills to focus on and commit to that support educators through implementation? Consider adopting or adapting the [Teacher Educator Technology Competencies](#).
- How do district pedagogical and technology expectations address the use of accessible materials and technologies, and assistive technologies?

Notes on identifying technology competencies

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New York City's Story

New York City Department of Education (New York, NY)

The New York City Department of Education (NYC DOE) is the largest school district in the United States, serving approximately 1,126,000 students. Prior to the COVID-19 school building closures, NYC DOE focused on ensuring equity across the district with a vision for universal 1:1 technology access, as well as building the key supports needed to make such an undertaking work (e.g., teacher capacity, student digital citizenship skills). Given the challenge of bringing 1:1 device access to over a million students while ensuring equity and accessibility for all students, NYC DOE took a team-based approach, involving representation from a variety of departments to address system-wide technology capacity. NYC DOE's Center for Assistive Technology prioritized strengthening the capacity of teachers, supervisors, related service providers, and school psychologists who know how to consider AT and conduct AT assessments. The Center for Assistive Technology



historically provided various levels of support, including district-wide professional development (the Beyond Access Forum), on-demand support for districts and schools, and individualized support for students on specific pieces of AT. The goal of capacity building was to support, inform, and train school-based teams on Universal Design for Learning, instructional technology, and AT. These school-based teams were then charged with providing training and on-the-ground coaching for educators to use and integrate accessible and AT tools throughout instructional activities.

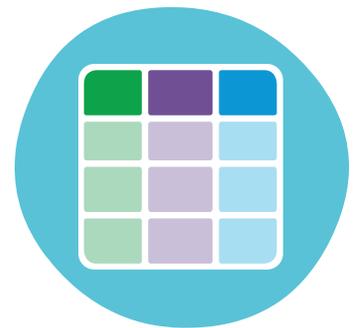
The rapid shift to online learning in spring 2020 accelerated this initiative, as the district noted: “The city had a crash course on accessibility ... the impact of accessibility on students and their learning environments raised awareness and skills ... COVID-19 resulted in a light-speed fast forward jump in the plan.”

Further, the NYC DOE Center for Assistive Technology team noted that prior planning and collaboration helped lay the groundwork for rapidly building educator capacity. For example, in the yearly Beyond Access Forum, hundreds of teachers, administrators, service providers, students, advocates, and families attended dozens of workshops and AT demonstrations to build AT competencies at multiple levels of the educational system.



Support Student-Centered Learning

The Universal Design for Learning (UDL) framework, developed at CAST, encourages educators to embrace the idea of learner variability as an asset in pursuit of student-centered learning opportunities. Starting from a place of acceptance of learner variability enables educators to use UDL principles to design ways for all students to engage, understand, and respond to learning in more meaningful ways. Considering learner variability at the outset of instructional design can enhance a teacher’s ability to proactively recognize and lower barriers present in the learning environment in order to provide student-centered learning with technology for all.



General educators can serve as content specialists and special educators offer expertise in navigating the natural variability in the classroom. All students can benefit from student-centered learning and collaborative design, especially those students using assistive technologies. Collaboration between special educators and general educators builds the foundation to design cohesive, inclusive, and accessible student-centered learning opportunities.

Commonwealth's Story

Commonwealth Charter Academy (CCA) is a K–12 online school serving students across Pennsylvania. A core focus of instruction at CCA is on personalizing the learning experience for each student. They've accomplished success, in part, by the variety of learning strategies provided and the ongoing support and assistance teachers receive to find and use the right technology tools to help their students meet learning goals.



[Download and read CCA's story](#) | Harrisburg, PA

Learn more by visiting the [Support Student-Centered Learning](#) page on the CITES website.

Actions educators can take with technology to support student-centered learning include:

- Prioritize student-centered learning by using technology supports with personalized learning, UDL, or multiple pathways implementation.
- Collaborate with special or general education in design and planning.
- Address the use of AT for students with disabilities in instructional design and delivery.

Key planning questions to consider when supporting student-centered learning are:

- What structures are in place to support collaboration and planning between general and special educators?
- What opportunities are available for educators to model the use of accessible and assistive technologies during instruction?

Notes on supporting student-centered learning

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Sheldon's Story

Sheldon Independent School District (Houston, Texas)

Sheldon Independent School District (ISD) serves approximately 10,000 students in Houston, Texas. Six years ago, the district started moving toward a personalized, student-centered learning model. For example, the district developed “Compass Schools” at the elementary level, offering families and students choice among two science, technology, engineering, and mathematics schools; two high-tech schools; and two schools focused on performing arts and the visual arts, plus instituting personalized learning pathways at the middle and high school levels. The district made systemic changes to address the needs of unique learners by providing training in the use of Universal Design for Learning (UDL) to all teachers, both general education and special education teachers, as well as instructional staff and district leaders. Sheldon ISD’s mission statement highlights a belief in the importance of personalized learning to ensure all students graduate, attend college, or are career-ready, and embracing technology and UDL principles were key elements in helping meet that vision.

In the last three years, the district launched pre-service professional development activities with a 4-day conference focused on the needs of individual learners and special populations, helping teachers learn how to use and apply accessible technology tools in the general education classroom. Reflecting a district belief that personalized and accessible learning tools should be available to all students, the district used local funds to purchase districtwide licenses for supportive access tools. For example, all teachers in both general and special education have access to a digital repository of UDL strategies and supports, as well as technology tools with built-in accessibility features. In addition, classroom teachers receive student profiles that outline students’ cognitive processing strengths and weaknesses and suggest potential strategies and technology tools to support learning. These profiles are used during professional learning communities and collaborative planning to align technology supports with content and lesson delivery. The district shared that the use of accessible technology supports for all students is woven into its district improvement plan. Teachers are encouraged to reflect on student strengths and learning needs as they plan lessons and integrate technology supports to personalize learning. The district shared that sometimes personalization means a device or technology; other times, it may be a relationship and connection: “Personalization is an attitude of finding the ‘hook’ for each student, whether the environment, the device, or [a] personal connection.”

Enhance Technology Skills to Support All Learners

To support the variability inherent in all learners, including learners with disabilities, professionals must commit to sharpen the tools in their technology toolbox. Districts that have personalized professional development for educators through professional learning communities, coaching supports, webinars, and learning networks enable educators to be fluent users of both AT and EdTech. Once fluent users of technology, educators can grow into creative and collaborative problem-solvers who address the opportunities and challenges encountered during teaching and learning. When considering learning opportunities, ensuring there is an explicit or embedded focus on the use of accessible materials and technologies will ensure all learners can be supported across various learning environments.



Baltimore's Story

Baltimore County Public Schools leaders stress the critical role of collaboration across divisions when creating a more inclusive technology ecosystem. By bringing full faculty teams to look at assessment design and data together, they made strides toward pedagogical shifts needed to support technology integration and design of accessible digital assessments.

[Download and read BCPS's story](#) | Baltimore, MD

Learn more by visiting the [Enhance Technology Skills to Support All Learners](#) page on the CITES website.

Actions educators can take to enhance their technology skills needed to support instruction for all students include:

- Take advantage of opportunities to enhance EdTech and AT technology skills, such as participating in professional learning communities, working with technology coaches, or attending seminars.
- Apply technology skills, including assistive technology skills, across various environments.

Notes on enhancing skills to support all learners

Ysleta's Story

Ysleta Independent School District (El Paso, Texas)

Ysleta Independent School District (ISD) serves approximately 41,000 students in El Paso, Texas. Ysleta ISD is a 1:1 PK–12 district. The district began the process of moving to a 1:1 model prior to the COVID-19 school building closures, but the timeline was accelerated to ensure all students in the district had access to a device. The district's vision for technology implementation was driven by the “power and possibilities” enabled by a 1:1 model to provide support for all students and meet their learning needs. The district began to revamp its professional development model and initiated its “Engage Me” initiative approximately six years ago in Grades 3–5, gradually expanding it outward into higher and lower grade levels. This initiative leveraged personalized professional development options (including micro-credentials), just-in-time coaching, and in-building support.

Ysleta ISD provides multiple options to support teachers in growing their technology skills. Ysleta ISD uses instructional coaches, instructional technology specialists, and library media specialists on every campus to provide in-building coaching support. They implemented a train-the-trainer model to gradually build up capacity on a variety of technology tools. Several years ago, the district began working on implementing a blended learning model. Individual schools applied to become a blended learning pilot campus to receive training and implementation support. Although initial implementation focused on only one grade level, teachers were very interested in the positive changes, so an entire school shifted to a blended learning model by the end of the year. The district team shared that a critical element of building teacher capacity has been to respect teachers and allow them to take ownership of their technology learning. Rather than forcing change on teachers, the district endeavored to model how technology tools can work, show the connections to instruction, and let teachers “buy in” as it applies to their needs and goals. In this way, the district created personalized professional learning opportunities that encouraged educators to grow and learn at their own pace and in ways that best meet their needs in their classrooms.



Connecting to CITES Leadership Practices

Creating impactful digital learning opportunities has become a fundamental factor in the education system. Whether creating opportunities for children, or professionals, the CITES Framework Teaching Practices help education leaders consider how to ensure these digital learning opportunities are accessible, and therefore equitable, to all learners, particularly students with disabilities. Many of these practices and actions will have a direct impact on the practices outlined in the CITES Framework Leadership Practices. Reviewing the leadership and teaching practices will offer opportunities for alignment.

How will actions identified as part of the CITES Teaching Practices align with your leadership goals? What additional considerations will need to be made with regard to those leadership actions?



Notes on connecting teaching practices to leadership practices

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Appendix

Self-Assessment for District Leaders

The purpose of the CITES Self-Assessment and Goal Setting tools is to enable districts to collect data as part of a continuous improvement process. Baseline data established by the self-assessment can be used to inform district goals and to measure progress towards reaching those goals.

[Print the Self-Assessment All-in-One Guide \(PDF\)](#) or the [Self-Assessment All-in-One Guide \(Word version\)](#).

Resources

[Personalizing the Reading Experience](#), Webinar, AEM Center at CAST, 2020

[Personalizing the Writing Experience](#), Webinar, AEM Center at CAST, 2020

[Features in Accessibility: Microsoft's Tools in Practice](#), Webinar, AEM Center at CAST, 2020

[Features in Accessibility: Google's Tools in Practice](#), Webinar, AEM Center at CAST, 2020

[Online Learning Series on Accessible Materials & Technologies](#), self-paced online course, AEM Center at CAST, 2021

[UDL Associate Credential – Level 1](#), Learning Designed, CAST, 2020

[UDL Core Credential – Level 2](#), Learning Designed, CAST, 2020

[5-15-45 Tool](#), TIES Center, 2021

[Designing Online Communities of Practice for Educators for Create Value](#), Office of Educational Technology, U.S. Department of Education

Supporting Research

Jones, B. A., Rudinger, B., Williams, N., & Witcher, S. (2019). Training pre-service general educators in assistive technology competencies for students with visual impairments. *The British Journal of Visual Impairment*, 37(1), 29–39.

Marino, M. T., Sameshima, P., & Beecher, C. C. (2009). Enhancing TPACK with assistive technology: Promoting inclusive practices in preservice teacher education. *Contemporary Issues in Technology and Teacher Education*, 9(2).

Kimm, C. H., Kim, J., Baek, E.-O., & Chen, P. (2020). Pre-service teachers' confidence in their ISTE technology-competency. *Journal of Digital Learning in Teacher Education*, 36(2), 96–110.

King-Sears, M. E., & Johnson, T. M. (2020). Universal Design for Learning chemistry instruction for students with and without learning disabilities. *Remedial and Special Education*, 41(4), 207–218.



Download the [CITES Literature Review: Teaching, Learning, & Assessment Practices for Inclusive Technology Systems](#).