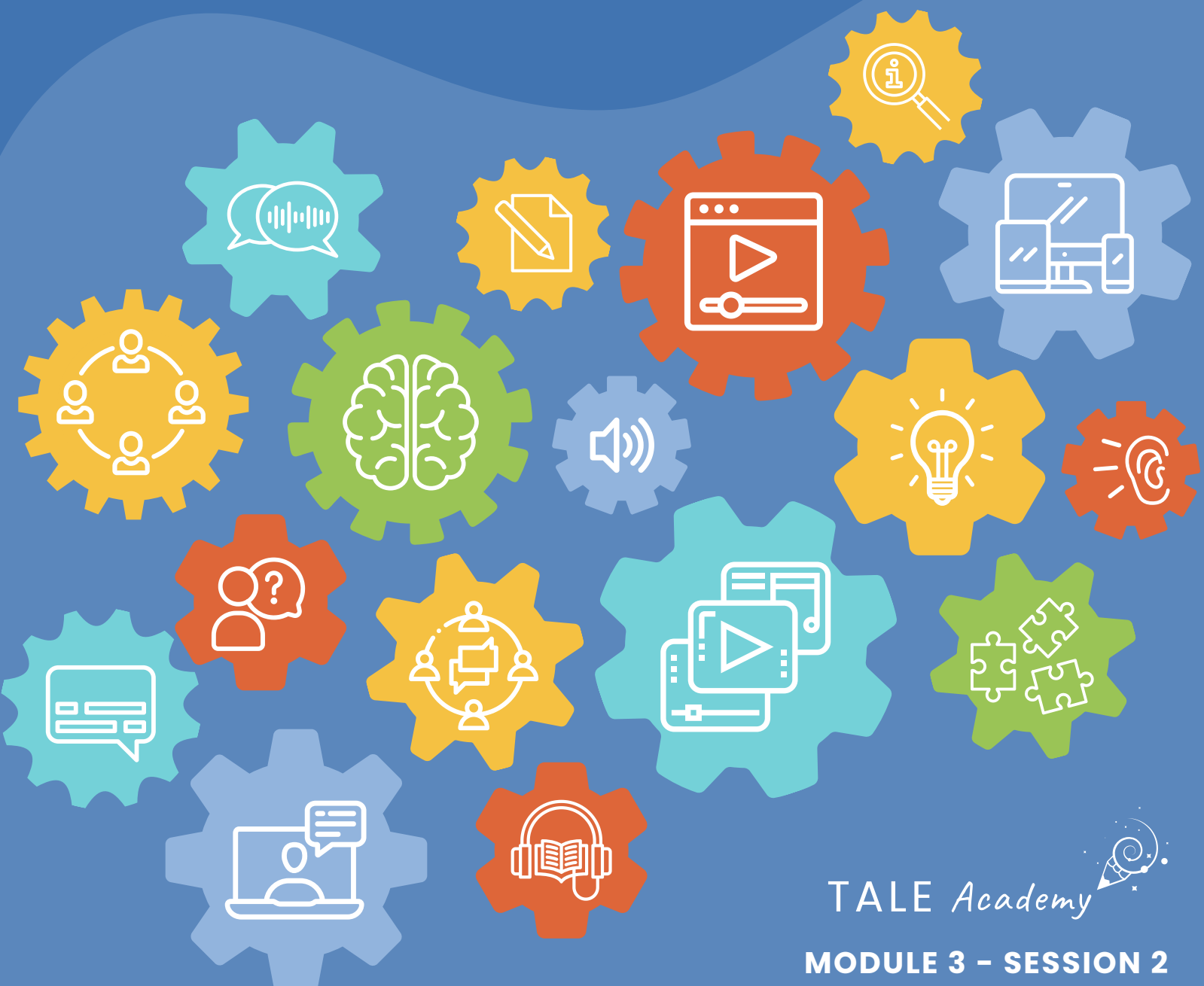# UNIVERSAL DESIGN *for*

Learner Variability

Across Learning Environments

TALE *Academy*

MODULE 3 – SESSION 2

FROM BARRIER TO ACCESS *TO INCLUSION*

1970

In 1970, U.S. schools educated only one in five children with disabilities, and many states had laws excluding certain students, including children who were deaf, blind, emotionally disturbed or who had an intellectual disability.

2018-2019

Fast forward almost 50 years. In 2018-19, our nation's public schools provided more than 7.5 million children with disabilities with special education and related services designed to meet their individual needs. What's more, 64% of students with disabilities were educated in general education classrooms for 80% or more of their school day.

What changed? The most obvious changes were legislative. In 1975, Congress enacted the Education for All Handicapped Children Act, Public Law 94-142 to support states in protecting the rights of, meeting the individual needs of, and improving the results for infants, toddlers, children, and youth with disabilities and their families. When it was reauthorized in 1990, the name of the law was changed to the Individuals with Disabilities Education Act (IDEA). This law guaranteed a free and appropriate public education (FAPE) for children with disabilities from birth through age 21.

What also changed were our collective mindsets toward meeting the needs of students with disabilities (SWDs). We have moved beyond basic compliance to a focus on quality outcomes, which requires inclusive classrooms for all students, including SWDs.

In other words, both in our laws and our mindsets, educators have gone from breaking down barriers to increasing access to actively including SWDs in public education classrooms.

Educating *ALL* Students Requires Universal Design

In 1973, just two years before Congress passed PL 94-142, an architect in North Carolina advocated for and helped gain passage of the country's first accessibility-focused building code. That architect was Ronald Mace, considered the "father of universal design." At the age of 9, Ronald Mace contracted polio and had to use a wheelchair for the rest of his life. So when he arrived at architectural school, he brought with him a lifetime of experience navigating structural designs that typically did not have him in mind. He approached design – of buildings, products, and learning experiences – from the perspective of removing barriers for access and then, more importantly, redesigning those buildings, products, and learning experiences so that they meet the needs of all individuals, regardless of their ability. **He called this design approach "universal design."**

Ronald Mace

Photo: The Center for Universal Design

By 1984, the Center for Applied Special Technology (CAST) began to apply the concept of universal design to a framework for curriculum reform in education. Based on the work of developmental psychologist Lev Vygotsky, CAST identified three brain networks that serve as prerequisites for learning:

AFFECTIVE NETWORK
Engagement with the learning task

RECOGNITION NETWORK
Recognition of the information to be shared

STRATEGIC NETWORK
Application of strategies to process information

This understanding of the "universal" aspects of learning informed the development of what we now call universal design for learning or UDL. UDL guides the development of flexible learning environments and learning spaces that can accommodate individual learning differences. UDL focuses on three domains that align with the brain networks:

→ **Engagement** - UDL provides multiple means of engagement by recruiting interest, sustaining effort and persistence, and supporting student self-regulation.

→ **Representation** - UDL provides multiple means of representation in terms of perception, language and symbols, and comprehension.

→ **Action and Expression** - UDL provides multiple means of action and expression through physical action, expression and communication, and executive functioning.

Caroline Torres, co-author of UDL for Language Learners, described the change in an interview with EdTech Magazine:

→ **"The most important shift that UDL requires teachers to make is to look for potential barriers and challenges in the curriculum, rather than in the student."**

UDL Guidelines

CAST created the UDL Guidelines to provide educators with a set of concrete suggestions for implementing UDL. The guidelines can be applied to any discipline or domain to ensure that all learners can access and participate in meaningful, challenging learning opportunities.

Provide multiple means of **ENGAGEMENT**	Provide multiple means of **REPRESENTATION**	Provide multiple means of **ACTION & EXPRESSION**
Affective networks The "WHY" of learning	Recognition networks The "WHAT" of learning	Strategic networks The "HOW" of learning

Access

Provide options for RECRUITING INTEREST
- Optimize individual choice & autonomy
- Optimize relevance, value & authenticity
- Minimize threats & distractions

Provide options for PERCEPTION
- Offer ways of customizing the display of information
- Offer alternatives for auditory information
- Offer alternatives for visual information

Provide options for PHYSICAL ACTION
- Vary the methods for response & navigation
- Optimize access to tools & assistive technologies

Build

Provide options for SUSTAINING EFFORT & PERSISTENCE
- Heighten salience of goals & objectives
- Vary demands & resources to optimize challenge
- Foster collaboration & community
- Increase mastery-oriented feedback

Provide options for LANGUAGE & SYMBOLS
- Clarify vocabulary & symbols
- Clarify syntax & structure
- Support decoding of text, mathematical notation & symbols
- Promote understanding across languages
- Illustrate through multiple media

Provide options for EXPRESSION & COMMUNICATION
- Use multiple media for communication
- Use multiple tools for construction & composition
- Build fluencies with graduated levels of support for practice & performance

Internalize

Provide options for SELF REGULATION
- Promote expectations & beliefs that optimize motivation
- Facilitate personal coping skills & strategies
- Develop self-assessment & reflection

Provide options for COMPREHENSION
- Activate or supply background knowledge
- Highlight patterns, critical features, big ideas & relationships
- Guide information processing & visualization
- Maximize transfer & generalization

Provide options for EXECUTIVE FUNCTIONS
- Guide appropriate goal setting
- Support planning & strategy development
- Facilitate managing information & resources
- Enhance capacity for monitoring progress

Goal

Expert Learners who are...

Purposeful & Motivated	Resourceful & Knowledgeable	Strategic & Goal-Directed

Adapted from https://udlguidelines.cast.org/

MOBILIZING TALE *TO IMPLEMENT UDL*

Understood.org, which partners with CAST, breaks the UDL guidelines down into a series of questions that teachers can ask themselves as they design learning experiences. They also provide some examples of solutions. We adapted their chart to include examples of how teachers can integrate the tools, resources, and strategies of teaching across learning environments (TALE) to address the fundamental design questions.

PROVIDE MULTIPLE MEANS OF ENGAGEMENT		
HOW CAN I ENGAGE ALL STUDENTS IN MY CLASS?	**EXAMPLES**	**SAMPLE TALE STRATEGIES**
- In what ways do I give students choice and autonomy? - How do I make learning relevant to students' needs and wants? - In what ways is my classroom accepting and supportive of all students?	- Survey students about their interests, strengths, and needs. Incorporate the findings into lessons. - Use choice menus for working toward goals. - State learning goals clearly and in a way that feels relevant to students.	- Use online polling tools to survey interests and needs. These can be used in a "flipped" format by having students respond to the polls as part of their homework. - Use online self-assessment tools to help students recognize their interests and needs. This allows students to experience metacognitive learning, which helps them gain ownership and autonomy of their own learning. - Create learning maps that connect the objective of the lesson/activity with choice boards. This provides an opportunity for students to visualize their learning and make choices that are aligned with learning objectives and their interests/needs. - Use apps for students to express engagement, including flash polls and Jamboards. This supports equity-centered, trauma-informed teaching by moving beyond traditional measures of engagement, such as hand-raising and spoken responses.

MOBILIZING TALE *TO IMPLEMENT UDL*

PROVIDE MULTIPLE MEANS OF REPRESENTATION		
HOW CAN I ENGAGE ALL STUDENTS IN MY CLASS?	**EXAMPLES:**	**SAMPLE TALE STRATEGIES:**
- Have I considered options for how printed texts, pictures, and charts are displayed? - What options do I provide for students who need support engaging with texts and/or with auditory learning?	- Make it easy for students to adjust font sizes and background colors through technology. - Provide options for engaging with texts, such as text-to-speech, audiobooks, or partner reading.	- Use Google Classroom to post digital materials that students can access through web browsers that accommodate accessibility needs. This strategy also allows teachers to harness the power of open educational resources (OER) and maintain an organized, central location for learning materials and resources. - In addition to using text-to-speech and audiobooks, link to translated versions of materials (e.g., Spanish-language OER textbooks) and use online translation software to support translingual learning. (Tip: in the OER Commons, use the advanced search option to select specific languages.) - Support at-home learning by assigning partners to work together through video conferencing, discussion boards, voice and/or video threads, and other online tools.

MOBILIZING TALE *TO IMPLEMENT UDL*

PROVIDE MULTIPLE MEANS OF ACTION AND EXPRESSION

HOW CAN I ENGAGE ALL STUDENTS IN MY CLASS?	EXAMPLES:	SAMPLE TALE STRATEGIES:
• When can I provide flexibility with timing and pacing? • Have I considered methods aside from paper-and-pencil tasks for students to show what they know? • Am I providing students access to assistive technology (AT)?	• Provide calendars and checklists to help students track the subtasks for meeting a learning goal. • Allow students to show what they know through a variety of formats, such as a poster presentation or a graphic organizer. • Provide students with access to common AT, such as speech-to-text and text-to-speech.	• Set deadlines, reminders, and notifications in your learning management system (LMS) (examples provided for Google Classroom). • Use push notifications that students and families can receive via email or text. • Integrate explicit instructions that students can access throughout a lesson/activity through hyperlinks. Consider providing instructions in multiple modalities (written, video, audio). • Create learning paths for students to follow by sequencing activities in an app or LMS. When a student completes a step in the sequence, the LMS records it as complete. • Use the wide world of learning apps to allow students to express learning in multiple formats. • Allow students to demonstrate what they know in their primary language and use online translation tools to help you review the content to ensure that they've met learning objectives. If you have a co-teacher who is fluent in the primary language, share online access to the assignment so that they can collaborate on the review.

Adapted from *Universal Design for Learning (UDL): A teacher's guide*

Implementing UDL in classrooms requires a significant amount of instructional planning time. However, using a TALE approach can streamline this work over time as you take pre-existing materials (e.g., learning paths in an LMS) and update them with links to new OER materials, new apps, etc. Similarly, you can update explicit instructions in one file that is hyperlinked throughout a lesson/activity. And, if you are able to work with professional learning communities in a PDSA (plan-do-study-act) cycle, you can easily share your materials and samples of student work with your peers for review and then immediately implement improvements the next time you teach the lesson/activity.

From Disability to Learner Variability

While the focus of a teacher's work in UDL is on curricular and instructional design, it begins with understanding our students. In an inclusive classroom, teachers work to gain an understanding of learner variability across their students.

Learner variability describes each student who enters the classroom, bringing with them a unique constellation of abilities and experiences that matter when it comes to learning, spanning cognitive, social, cultural, and emotional learning and much more. Barbara Pape, author of "Learner Variability Is the Rule, Not the Exception," explains:

> [L]earner variability…embraces both students who struggle and those who thrive… Learner variability is the young person who lives in poverty, or is learning to speak English and may not yet have the background knowledge to enable comprehension of a reading passage. Or, the student who already has the skills to excel at a pace beyond the curriculum and is bored because traditional methods of instruction do not engage her or meet her needs. It is the student who has experienced trauma in a single event or on a day-to-day basis. Learner variability is the learner whose learning difference, color, ethnicity, or gender makes them susceptible to stereotype threat and low expectations.

Thinking about learner variability rather than disability reframes the work of teaching in an inclusive classroom. Digital Promise, a nonprofit organization, created a free tool to help teachers understand how different learning factors impact student learning as well as identify specific strategies to address those factors. You can explore the Learner Variability Navigator on the Digital Promise website.

Connection to Prior Learning

In Module 1, Session 5, we compared UDL to the third principle of resilient design for learning (RDL), which is at the heart of teaching across learning environments. The third principle of RDL is redundancy, or providing multiple means to accomplish learning goals. (A metaphor for RDL redundancy is having multiple backups during a power outage, such as a generator, flashlight, and candles.) Redundancy in RDL is, in great part, intended to help maintain instruction when your "Plan A" fails. When coupled with the concept of learner variability and UDL, redundancy (or what CAST describes as multiple means for engagement, representation, action, and expression) also provides different pathways towards common learning goals.

REDUNDANCY
Have substitutes, reserves, and alternatives in case things don't work out the way we planned.

LEARNER VARIABILITY, UDL, AND TEACHING
Across Learning Environments (TALE)

UDL moves beyond "differentiation" for individual students to benefit all students. Consider the learner variability of three students, Jamal, Sydney, and Caleb, and how addressing their learner variability through UDL can benefit all students.

Learner Variability: Jamal's Story

Jamal likes working in groups and is a collaborative and flexible peer partner. He has strong visual memory skills and is very good at completing hands-on activities. He receives supports and services in the areas of reading fluency, comprehension, and writing skills. Jamal's teachers know that he benefits from direct, explicit instruction.

Differentiation

Jamal's teachers use engagement activities such as Think-Pair-Share during a lesson. Jamal uses his verbal strengths to express ideas with a partner to reinforce the learning. Jamal also has access to a partially filled concept map of ideas as a scaffold to make connections and build meaning as he listens to and engages with new content. Jamal has access to assistive tech, a text-to-speech tool to quickly record his thoughts for brief activities such as exit tickets.

UDL in Remote Learning

In synchronous online learning, Jamal's teachers provide students with a choice of audiobook or reading partner as a way of consuming new content. The class participates in small-group collaborative learning in breakout rooms to support verbal sharing. The class uses Whittle it Down, a scaffolded comprehension strategy, as a way to learn to summarize key ideas through a series of sequenced and active steps.

In asynchronous online learning, Jamal's teachers use Flip to support students' self-paced video responses to instructional prompts. Jamal's classmates frequently participate in digital gallery walks, which gives the teacher an opportunity to scaffold question prompts for student response.

UDL in TALE

Jamal's teachers use a flipped classroom model in which students engage in think-pair-share processes outside of class time via Flip as homework. Students are prompted to use the think-aloud technique to verbalize their thought processes to make them explicit in their videos. Students reflect on what they learned from the video discussion in a live Think-Pair-Share during class that extends and deepens their learning experiences. Students use prompts from the See-Think-Wonder protocol as a scaffolded prompt to organize their thinking during their share. To summarize learning, students are provided with choices on how to share, including a visual storyboard, podcast-style audio, or TED talk-style presentation.

Learner Variability: Sydney's Story

Sydney is a strong reader and has exceptional math skills. She shows unusually deep interest in very specific topics in both science and social studies. She shies away from group activities, and most social interaction creates anxiety. She receives support and accommodations to manage transitions and interruptions to her typical routine. She thrives with predictability in her schedule. A social worker has been assigned to assist Sydney with managing anxiety and social interaction.

Differentiation

Sydney uses a self-regulated strategy development (SRSD) plan designed jointly by her and her teachers to self-monitor her behavior during times she feels anxious. SRSD includes six steps that gradually shift the practice of the strategy from teacher-led to students practicing it independently. Sydney has an individualized visual schedule to know her schedule for the day and so she can be aware of changes in advance.

Sydney's teachers use social stories to illustrate successful social interactions. Each story includes decision points to actively engage Sydney in the scenario and promote generalization of decisions in real-life scenarios.

UDL in Remote Learning

In synchronous online learning, Sydney's teachers allow choice of independent and group activities for breakout sessions. Teachers and aides circulate through the classroom to provide students one-on-one and small-group support. During synchronous learning, Sydney's class uses the silent digital chalk talk strategy as a way to make connections between ideas without having to engage in spoken group conversation, which gives Sydney a less challenging way to engage with a small group.

In asynchronous online learning, Sydney's teachers provide multiple modes for learning content, including independent reading. Students and teachers access Nearpod to request support and provide feedback. Sydney's class uses Kahoot in challenge mode for asynchronous formative assessment and independent practice. The engaging format allows all students to practice content independently while working alongside and in friendly competition with classmates.

UDL in TALE

Sydney's teachers use choice boards for learning content that encompass multiple modalities, including reading. They also use choice boards for learning activities that include independent and group options. The choice boards, which are available to all students, are provided with explicit instruction on Google Classroom, where adults who support students, such as Sydney's social worker, can be granted access to support their work. They continue to use Nearpod to request support and provide feedback. The choice board allows her to alternate between highly desired and less desired activities.

Sydney's class uses the placemat strategy, a scaffolded comprehension support which provides structured ways for all students to work in groups, even those students with limited social interaction skills. Sydney's class uses peer-led groups, which allows her teachers to take a strengths-based approach, leveraging her deep interests in specific topics and giving her meaningful opportunities to engage and be a leader among her peers.

LEARNING VARIABILITY, UDL, AND TEACHING
Across Learning Environments (TALE)

Learner Variability: Caleb's Story

Caleb has a lot of energy and is always on the move. He is the first to shout out an answer and the first to jump out of his seat to line up before the bell rings. He receives supports and services to support him in prioritizing information when he takes notes, organizing his materials, and planning long-term tasks.

Differentiation

Caleb has been instructed in the use of the Cornell note-taking system to help him with information organization and retrieval. Caleb sets individualized goals, uses an individualized self-assessment checklist, and then reflects to build self-awareness around his organization and work habits. Caleb uses digital tools to visualize and categorize concepts to support his growth in organizing information in notes.

UDL in Remote Learning

In synchronous online learning, Caleb's teachers record live instruction for students to review later. This allows Caleb to pause the recording and complete the written "Record" portion of the notes column. In synchronous online learning, students use a digital whiteboard to participate in frequent checks for understanding which helps students build self-awareness and improve metacognition.

In asynchronous online learning, Caleb uses Quizlet, where he clicks through "Cue Cards" and recites what he has learned. In asynchronous online learning, students have access to a Pomodoro timer on their dashboard to manage focus and break time.

UDL in TALE

Caleb's teachers use online discussion boards where students post their summary of their class notes related to a specific lesson. Caleb posts his summaries and reviews those of his classmates to deepen his own understanding of the subject matter.

The daily class schedule is set up to include both movement and mindfulness breaks and to regularly practice self-awareness strategies.

Your Turn!

Next, you will have opportunities to practice what you learned in this session about UDL and learner variability across learning environments.

Here's a preview of the session activities ahead!

Learner Variability in Action
Just as we reflected on the learner variability of Jamal, Sydney, and Caleb in this session, you will consider a select sample of your students and their strengths, learning barriers, and the supports that assist them in meaningfully and fully engaging in your classroom instruction.

Anticipating Learner Variability in Lesson Planning
Finally, for those learners pursuing a micro-credential, you will revise an existing lesson or plan a new lesson using the principles of learner variability and UDL!

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About Us

The TALE Academy

The TALE Academy is a series of virtual learning experiences available to all New York State educators and offers a rich array of resources on topics related to teaching across learning environments (TALE). The TALE Academy is built upon the work New York State educators carried out during emergency remote teaching (ERT) throughout the COVID-19 pandemic and extends it toward the future. TALE invites educators to think beyond online learning to consider a broader perspective on teaching and learning that encompasses teaching across multiple environments (in-person, remote, and hybrid).

The Teaching in Remote/Hybrid Learning Environments (TRLE) Project

The TALE Academy is part of a broader New York State Education Department (NYSED) initiative known as Teaching in Remote/Hybrid Learning Environments (TRLE). In July 2020, NYSED was awarded funding through the United States Department of Education's Education Stabilization Fund-Rethink K-12 Education Models Grant to implement TRLE – a three-year project to build the capacity of teachers and educational leaders to effectively implement remote/hybrid learning for all students. Launched in the depths of the pandemic, the first phase of the TRLE project focused on getting resources to the field through partnerships with Boards of Cooperative Educational Services (BOCES) and school districts across the state. The second phase, which began in February 2022, focused on aggregating lessons learned and emerging teaching and learning strategies to address a broader field of practice: teaching across learning environments.

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