

OCTOBER 2019

# EMPOWERED LEARNER

A PUBLICATION OF THE INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION

## THE POWER OF STORIES

FROM ADVOCACY TO ENGAGED LEARNING,  
TEACHERS AND STUDENTS ARE HARNESSING  
DIGITAL STORYTELLING

## MEASURING WHAT MATTERS

NEW APPROACHES EVALUATE LEARNING THAT  
LIES OUTSIDE OF TRADITIONAL ASSESSMENT

## STANDARDS SPOTLIGHT

LEARNER STANDARD PROVIDES A  
ROAD MAP TO LIFELONG SCHOLARSHIP





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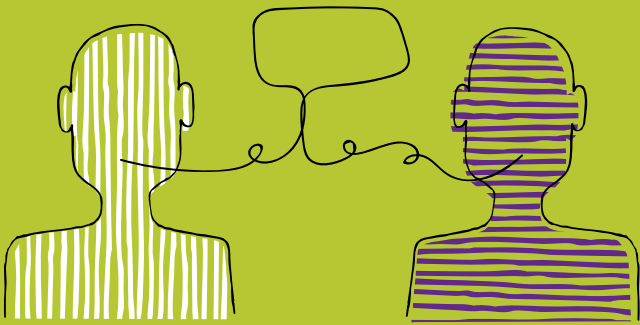
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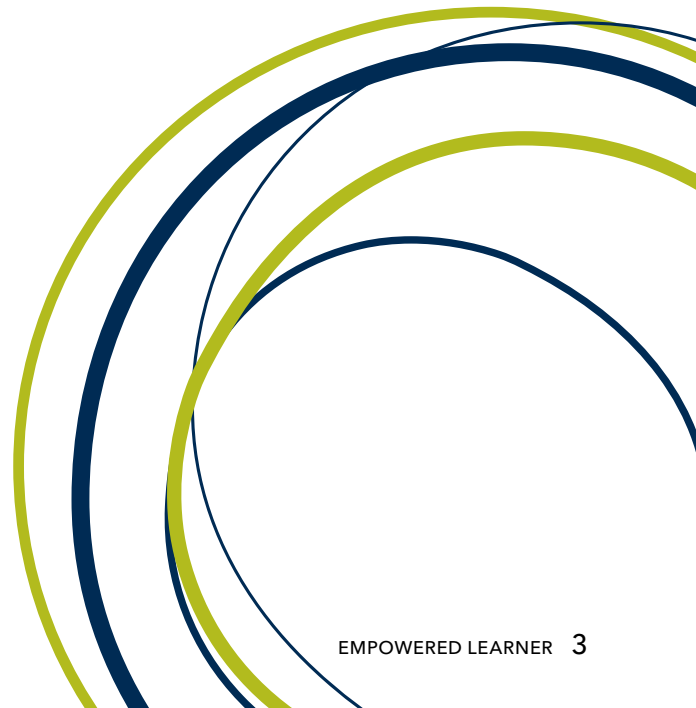
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The International Society for Technology in Education (ISTE) is a nonprofit organization that works with the global education community to accelerate the use of technology to solve tough problems and inspire innovation. Our worldwide network believes in the potential technology holds to transform teaching and learning.

ISTE sets a bold vision for education transformation through the ISTE Standards, a framework for students, educators, administrators, coaches and computer science educators to rethink education and create innovative learning environments. ISTE hosts the annual ISTE Conference & Expo, one of the world's most influential edtech events. The organization's professional learning offerings include online courses, professional networks, year-round academies, peer-reviewed journals and other publications. ISTE is also the leading publisher of books focused on technology in education. For more information or to become an ISTE member, visit [iste.org](http://iste.org). Subscribe to ISTE's YouTube channel and connect with ISTE on Twitter, Facebook and LinkedIn.

**Our vision.** ISTE's vision is that all educators are empowered to harness technology to accelerate innovation in teaching and learning, and inspire learners to reach their greatest potential.

**Our mission.** ISTE inspires educators worldwide to use technology to innovate teaching and learning, accelerate good practice and solve tough problems in education by providing community, knowledge and the ISTE Standards, a framework for rethinking education and empowering learners.

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# Shaping the future is in our DNA

**By Richard Culatta**  
ISTE CEO

I recently came across the T-shirt I was given when I volunteered at the 30th ISTE conference. In case you're wondering, it still fits, as does the role ISTE has played in helping me stay ahead of important innovations in education.

ISTE has always been about seeing the future and helping shape that future in a way that's most helpful for students and teachers.

That's been true for 40 years now, and as we look forward to the next decade, that role will remain unchanged. We're focused on the same critical education issues: equity, supporting teachers, preparing students for the future and improving the quality of digital learning tools.

And while our focus remains the same, how we go about achieving these goals must continue to evolve in our rapidly changing world. As we celebrate ISTE's 40th anniversary, let's take a minute to look at how our work will unfold over the next decade.

### **Championing equity**

ISTE's always been a champion for equity in education. Ten years ago that largely meant

ensuring students and teachers had access to technology. It was about providing that basic connection.

Moving forward, it will be about making sure we're using the tech we have in ways that close achievement gaps, ensure accessibility and teach all students how to be active learners. It's also about ensuring our own ISTE community reflects the diverse range of educator voices and viewpoints.

### **Supporting teachers**

Supporting teachers is another area where our role has been consistent. Over the last decade, that meant creating in-person and virtual networks of early innovators who were among the first to use technology in their schools.

Today and into the future it means making sure every teacher is prepared to thrive in tech-enabled classrooms. That's why we made ISTE Certification for Educators available to all teachers, not just ISTE members. It's also why ISTE is working closely with higher ed institutions to ensure that new teachers arrive fully prepared to use

technology effectively in their classrooms from day one.

### **Preparing students**

When it comes to students, ISTE has always been future focused. Ten years ago that meant making sure students knew how to find and use the great online resources that were available to them.

Over the next 10 years it will be about helping them use tech not to passively receive information but to create, design and solve problems. They'll need to know how to harness AI and computational thinking skills to be workforce-ready. And they'll need to understand how to be effective digital citizens, using tech in a balanced way that positively impacts the world around them.

### **Improving quality of digital tools**

ISTE has long worked with tech developers and solution providers to help them build better tools for learning. In the last decade, that meant creating opportunities for interaction between educators and product developers to ensure educator feedback was




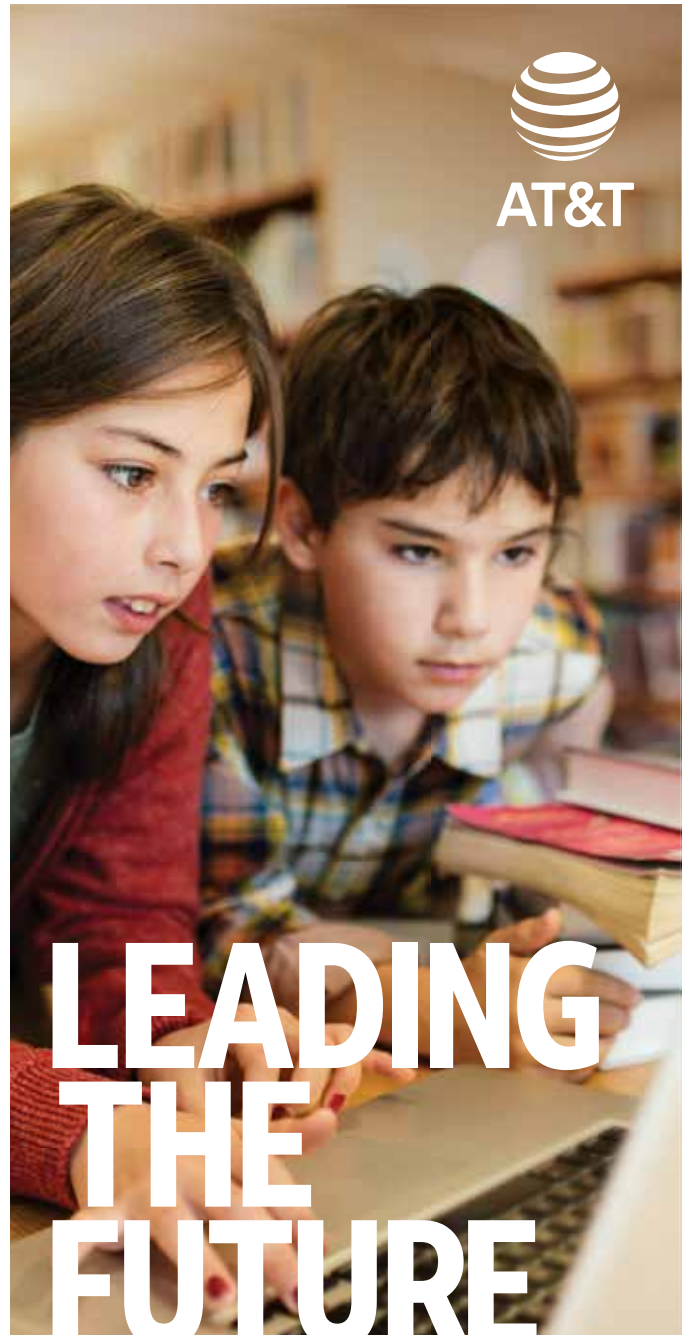
“Over the next 10 years it will be about helping them use tech not to passively receive information but to create, design and solve problems. They’ll need to know how to harness AI and computational thinking skills to be workforce-ready.”

included in product design. It also included creating our Seal of Alignment program to recognize products that are aligned to the ISTE Standards.

In the next 10 years, this focus will be expanded to meet the rising bar for tech tool quality. We’ll be working more closely with solution providers to not only align to the ISTE Standards, but also to embed solid principles of the learning sciences, interoperability and accessibility standards so educators are confident in the quality of tools and app options.

Forty years of work to help shape the future of education is worth celebrating, but our work is far from done. ISTE is evolving and, with the expertise of our passionate members and partners, is working hard to tackle the greatest challenges in education.

Because shaping the future is in our DNA. 



**for students, for educators,  
and in technology.**

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## MEMBER VOICES

*Darryl Joyner shares how the ISTE Standards for Education Leaders can serve as a blueprint for culture change.*



# Leaders must be the change they want to see

**By Darryl Joyner**

Last February, during a meeting with a group of middle school students, I was asked why I chose a career in education.

I shared that there was never a point in my education when I liked school, and that I've dedicated my career to making school more engaging for students like them. To illustrate my point, I asked them a couple of questions. "How many of you love to learn new things?" Every hand went up. I then asked, "How many of you love school?" Every hand went down. I went on to explain that part of my work was to try to make school a place they could love.

It may be uncomfortable to admit, but your school system likely includes a lot of students who hate coming to school. And if your students don't want to be there, you can be certain they're not authentically engaged. That lack of engagement negatively affects their attention, curiosity, passion and optimism.

For the most part, districts understand student engagement is key. If you read the mission statement or strategic plan of just about any school system these days, you're sure to see terms like transform, future-ready

and growth mindset to describe their vision for teaching and learning. For many districts, these phrases and any associated technology integration represent a sea change in how they approach education.

Often, these efforts are difficult to bring to fruition. Not because they don't believe this shift is best for students. Not because they don't have hardworking teachers who want to meet the needs of their students. And certainly not because students aren't hungry for a school experience that's driven by their needs and interests.

This challenge exists for a simple reason: culture. Simply put, districts cannot expect educators to innovate or transform unless they create a culture that encourages and nurtures change.

The ISTE Standards for Education Leaders provide a clear blueprint to help districts envision, implement and lead a transformative culture.

Shifting the culture of any organization is a multi-step process that should start with asking, "What if." This question often leads to brainstorming about all the things that might go wrong.

But there are also essential “what if” questions that are rarely asked. What if this shift to integrating technology is successful? What if everything we think is going to work actually works even better than we had hoped? What if this success makes us want to expand our vision of technology in teaching and learning?

As described in the Education Leader Standards, a visionary planner understands that it’s essential to prepare for success. This involves knowing how those initial pockets of success will be scaled to other schools as well as how those updated best practices will be integrated into the work and planning of other education leaders.

Visionary planners also recognize they can lead by doing. When a visionary planner engages stakeholders by using a range of technology tools and strategies, they’re sending a message that technology has the power to facilitate greater engagement and more effective collaboration. When they use technology to evaluate progress on a strategic plan, they show that technology has the power to inform intentional planning and course correction.

If teachers are expected to be the day-to-day manifestation of a changing school district, they must be empowered to innovate. An empowering leader knows that if schools are where the rubber meets the road, it’s their responsibility to create that road. Let’s say a district wants to use technology to shift the teaching and learning paradigm. That must then be matched with new measures of success. The questions become: To what degree was technology integrated to facilitate more student choice? Increase collaboration? Boost student engagement?

This change sends a signal that innovation is embedded in the overall DNA of the school system, and that the system values calculated risk-taking and experimentation. It also opens the door for teachers to gain the confidence and competency to implement the ISTE Student Standards and Educator Standards.

For any shift that calls for an increase in technology implementation, the infrastructure forms the backbone. In my district, our Department of Information Services has a philosophy of accommodating whatever a teacher might dream up. Notice I didn’t say “respond to,” but “accommodate.” This means the infrastructure must be aligned not only with the current needs of instruction, but the potential needs of instruction.

A leader who also embraces the role of systems designer ensures the technology infrastructure is robust enough to handle expanding needs and is sustainable in a way that maintains momentum. This sends a message that not only is this change here to stay, but that staff can trust that the infrastructure will continue to support that change.

A systems designer also understands that more technology resources mean more use, and more use creates more data. They put in place sufficient processes to not only manage and protect that data, but to also make that data available as a powerful tool to inform instruction, building a culture that treats student data as one of the most vital resources in the work of teaching and learning.

Education leaders play a critical role in creating and maintaining an environment for innovation and transformation, and that role cannot end with the vision. Leaders must be the change they want to see, and this includes not only a reimagining of their school system, but the role they’ll play within it. ♪

DARRYL JOYNER IS AN EDTECH SPEAKER, PRESENTER AND THOUGHT LEADER WITH OVER 20 YEARS OF EXPERIENCE AS AN EDUCATOR. HE’S CURRENTLY THE INSTRUCTIONAL TECHNOLOGY INTEGRATION ANALYST FOR ARLINGTON PUBLIC SCHOOLS IN ARLINGTON, VIRGINIA, AND THE LIAISON BETWEEN THE DEPARTMENT OF TEACHING AND LEARNING AND THE DEPARTMENT OF INFORMATION SERVICES. FIND HIM ON TWITTER @EDTECHPIONEER.

“An empowering leader knows that if schools are where the rubber meets the road, it’s their responsibility to create that road.”

## INTERVIEW

*Manoush Zomorodi shares her perspective on how technology affects our values, learning and beliefs.*

# MANOUSH ZOMORODI

**MEDIA ENTREPRENEUR SHARES HER VIEWS ON WHERE TECHNOLOGY IS TAKING US, HOW WE CAN MAKE IT A POSITIVE EXPERIENCE**

**By Julie Phillips Randles**

Journalist, author and entrepreneur Manoush Zomorodi says she found her true calling nearly six years ago when she became a podcast host. A former breaking news reporter for the BBC and business and tech reporter for Reuters, Zomorodi describes falling in love with podcasts because they do so much more than deliver facts.

“They deliver emotion, they deliver intimacy. We go shopping together. We go jogging together. We’re buds. I had never had that happen to me before as a broadcaster,” she described in a session on human skills for digital natives at ISTE19.

Starting in 2012 with her podcast “Note to Self,” a tech show about being human, she began to explore how apps, smartphones and social platforms were changing what we value, how we learn and what we believe in.

Three years later, she and her followers ran an experiment to unplug from their devices. Her book, *Bored and Brilliant: How Spacing Out Can Unlock Your Most Productive and Creative Self*, is a result of what they learned. She followed that up in 2018 with “The Privacy Paradox,” a five-part plan to help people take back control over their digital identity.

Yet the questions regarding technology’s influence run deeper than merely rearranging screen time, so in 2018, Zomorodi and co-founder Jen Poyant opened the doors to Stable Genius Productions, a media company with a mission to help people navigate personal and global change. Stable Genius uses podcasts as a lab to test new ways journalists can educate, entertain and inspire through narrative.



**Manoush Zomorodi says that giving ourselves permission to do nothing often leads to working smarter and being more productive.**



Always be asking:  
Is this tool, service,  
platform helping  
or hurting me?  
Is it making my  
life more efficient  
or connected, or  
bogging me down/  
overwhelming me?

Through Stable Genius, Zomorodi is documenting her journey to becoming an ethical entrepreneur as the co-host of the podcast “ZigZag,” and is working to keep the internet weird and wonderful for everyone as host of the podcast “IRL.”

It’s the logical next step for Zomorodi’s media career, which covers 10 years as a reporter and producer with the BBC, including a two-year assignment in Berlin, before she returned to Brooklyn.

Born and raised in Princeton, New Jersey, the daughter of psychiatrists working in private practice and academia, she chose to move farther south on the East Coast to attend Georgetown University, where she studied English and fine arts, graduating cum laude.

When CNN Tech asked Zomorodi for her advice to her 18-year-old self, she quipped, “Take an economics class. And don’t worry too much. It will all come together.”

Indeed, she accepted a modern risk when she launched Stable Genius Productions by banking in part on blockchain.

“It really kind of reminds me of if you got into your covered wagon and you were like, ‘We’re going west and we’re gonna look for gold,’” she said on an episode of “Recode Media with Peter Kafka.” “If there’s gold in the hills, then you could build a homestead, right? And if there’s not, you’re kinda screwed.”

ISTE sat down with Zomorodi to get her detailed view on where technology is taking us and how we can make sure it’s a positive experience for our daily lives.

### **WHAT’S THE BEST ADVICE YOU’VE RECEIVED?**

Don’t bring a problem, bring the solution.

### **WHO ARE SOME OF YOUR ROLE MODELS FOR THE WORK YOU DO?**

Kara Swisher is a lady-tech-journo powerhouse. I also admire Gwyneth Paltrow

for looking beyond her personal career and building a movement (to be clear, I don’t agree with some of the content, just her entrepreneurial acuity).

My kids’ teachers have also been amazing. Resilient and kind.

### **IN YOUR BOOK *BORED AND BRILLIANT* AND IN A TED TALK, YOU DISCUSS HARNESSING THE HIDDEN BENEFITS OF BOREDOM TO BECOME PRODUCTIVE. WHAT TIPS CAN YOU SHARE FOR DOING THAT IN THE CONNECTED, ALWAYS MOVING WORLD WE LIVE IN?**

Don’t feel guilty about doing nothing.

When I did research for my book and better understood how much productivity stems from allowing our brains to take time to process articles, conversations and moments, I was able to give myself (and my readers) permission to be less “on” all the time.

### **YOUR PODCAST, “NOTE TO SELF,” IS DESCRIBED AS “THE TECH SHOW ABOUT BEING HUMAN” WHERE YOU EXPLORE SOCIETY’S RELATIONSHIP TO TECHNOLOGY. WHAT HAVE YOU LEARNED SO FAR ABOUT HOW WE CAN LIVE BETTER WITH TECH?**

Always be asking: Is this tool, service, platform helping or hurting me? Is it making my life more efficient or connected, or bogging me down/overwhelming me?

If you aren’t sure, do some self-experimentation. Take a break and honestly reassess.

### **HOW CAN WE PRESERVE OUR HUMANITY IN THE DIGITAL AGE? HOW DO WE HELP STUDENTS TO THE SAME?**

By remembering to include various human states that technology doesn’t prioritize: face-to-face conversations, having eye contact, taking time to allow our minds to wander and consuming nuanced media like books.

We can’t always put metrics on emotions like empathy, but caring for each other is

what makes societies function and gives our lives meaning.

It's easy to forget in a world that rewards "follows," 10x returns and massive initial public offerings (IPOs).

#### **HOW CAN WE GET KIDS TO CARE ABOUT PRIVACY AND TAKE STEPS TO PROTECT IT?**

This is a complicated question but I think it starts with parents giving their kids some privacy.

I've come to believe that kids can't appreciate privacy until they've experienced it in a relatively safe situation, like walking home from school without being tracked. What does it feel like to be alone? A lot of kids don't even know or are fearful of it.

We need to let kids know it's OK to think uncomfortable, even subversive, thoughts. That's what critical thinking is. You need space to talk to yourself (in private) to figure out what you believe in and then trust yourself to act ethically.

Giving kids some private space now can help them grow up to be adults who understand the value of privacy on a global scale.

#### **STORYTELLING IS AT THE CENTER OF MUCH OF YOUR WORK. HOW DO YOU FEEL ABOUT THE POWER OF STORIES AND WHAT SUGGESTIONS MIGHT YOU HAVE FOR EDUCATORS WHO ARE TRYING TO FIND THEIR VOICE TO TELL THEIR STORIES?**

Start with observing a small moment in your life that struck you or an anecdote that you can then connect to the bigger lesson or the point you want to make.

A small moment is the jumping off point for every good talk. If the audience can't connect with you as a human first, they can't connect with your big idea.

Full disclosure. I gave a TED Talk and used this small moment technique. It's the moment where it doesn't matter if you're Republican or a Democrat, or you're for gun rights or not. All the other things that

divide us. It's a small human moment that happened to you.

So in my case, I told the story about pushing my child's stroller. This baby was so colicky that he would only sleep if someone was pushing him, and I would try to actually take naps while I was pushing, like I lost my mind. But that moment of tedium and misery, whether you're a parent or not, you know, you can relate to it in some way.

And then you relate to me. And then as I go on to tell you about how that moment radically changed the direction of how I decided to go with my journalism career and the research that I ended up doing and some of the bigger sort of ideas that I've come to. Whether or not you agree with things I've said on this podcast, at least you relate to me as a human and there's empathy between us and we're listening to each other and we can agree to disagree, but we still can treat each other with respect and kindness.



A small moment is the jumping off point for every good talk. If the audience can't connect with you as a human first, they can't connect with your big idea.



PHOTO BY ERIC EVANS



I guess I would first share a mantra I've been saying to myself: You can't do it all. There will always be future opportunities, innovations and projects. Then I would say try to reflect more on what you ARE doing than what you wish you were doing.

**DO YOU VIEW SCREEN TIME USED FOR DIGITAL CREATION AS DIFFERENT THAN SCREEN TIME USED FOR CONSUMPTION WHEN IT COMES TO STUDENTS?**

Absolutely. But we all need fresh air and breaks from “good” screen time, too.

**EDUCATORS ARE CALLED ON TO DO SO MUCH IN THE CLASSROOM AND AFTER THE SCHOOL DAY ENDS. DO YOU HAVE ANY SUGGESTIONS FOR HOW THEY MIGHT GET A GREATER SENSE OF CONTROL OF THEIR DIGITAL OR ANALOG LIVES?**

I have so much gratitude and respect for all the work educators do, in and out of the classroom.

I guess I would first share a mantra I've been saying to myself: You can't do it all. There will always be future opportunities, innovations and projects.

Then I would say try to reflect more on what you ARE doing than what you wish you were doing.

But I'd also share the great news that doing nothing is actually working smarter and being more productive. Give yourself permission to not just turn it off. Relax your mind, relax your body. Maybe go for a walk. Just think and process and reflect on what has happened to you all week long because I think a lot of us confuse being productive with being reflexive or reactive.

We think that when we're doing more or checking more things off our checklist or letting people know what we're working on, where we're at on a project, for example. All of that sometimes keeps us from seeing the big picture about where we can decide to do work that really speaks to the things that matter the most.

I would also just say, as a mom who owns her own business, my new thing that I say to myself is, “You've done as much as you can possibly do today. There will be more opportunities tomorrow.”

**MANY EDUCATORS ARE BECOMING “EDUPRENEURS,” STARTING THEIR OWN BUSINESSES THAT BRING SOME OF THEIR CLASSROOM INNOVATIONS TO A LARGER AUDIENCE. AS AN ENTREPRENEUR, WHAT HAVE YOU LEARNED ABOUT STARTING UP SOMETHING NEW ON TOP OF A DAY JOB THAT MIGHT BE HELPFUL?**

Set your goals early. It's OK to change them down the road, but keep your eye on the prize. Is it money? Pure enjoyment? Self-improvement? No judgment! But whatever you're after, be upfront with yourself.

**YOU MENTIONED IN AN INTERVIEW THAT IF YOU COULD PITCH TO ONE PERSON, IT WOULD BE FORMER SECRETARY OF EDUCATION JOHN KING JR. WHAT DID YOU WANT TO SHARE WITH HIM?**

I'm thinking a lot about how we teach kids to be good digital citizens. I'd love to hear his thoughts on that.

And when I mentioned John, it was at a point where a lot of the things that I was researching about technologies, effects on learning in the classroom, human development and brain plasticity was not really being talked about in classrooms and I felt like it was really important, that it was the secret question that everyone was asking themselves.

Like is it cool that we're like on phones and laptops all the time? It is good to teach kids this, isn't it?

Now those questions are being asked and I think ISTE is leading the way in terms of trying to figure out how do we create structure for teachers who are overwhelmed all the time. How do we turn our students into critical thinkers about technology and to good digital citizens? How do we make sure that our human rights are reflected both offline and online?

At the time I felt like we needed to figure this out. And now we are, so that's exciting. 📌



## GLOBAL FOCUS

Sylvia Fojo shares tips for becoming a connected global educator.

# A world without borders is a boon for educator learning

By Sylvia Fojo

There's never been a more exciting time to be an educator. Thanks to technology, we live in an interconnected world that gives us immediate access to whatever we're looking for. In this "world without borders," educators have a wealth of learning at their fingertips.

We can find lesson plans, interact with peers around the world, enroll in online courses, register for free webinars, watch tutorials and find new tools to deliver lessons in engaging ways.

Since 1982, I've been a K-5 computer science, math, Spanish and social studies teacher at the Uruguayan American School. Although I access many networks, Twitter is the channel that has opened the biggest window of opportunity for me. It's helped me broaden my professional learning network, allowing me to become a global educator and connect with international colleagues, organizations and education media.

In fact, Twitter has become a PD habit for me. In just 10 to 20 minutes a day, I can connect with colleagues and other education experts to learn something new. I found out about ISTE and the ISTE Conference & Expo on Twitter, leading me to become the first Uruguayan teacher to attend the conference where I discovered that, thanks to social media, I already had some amazing connections.

Attending my first ISTE conference was a turning point in my career. I returned to

Uruguay and put what I had learned into practice, and I began to implement the ISTE Standards. I entered contests I heard about at the conference and earned scholarships to learn with other educators in Canada and Hungary.

I became not just an educator, but a global educator who learns from and with the best and brightest educators around the world. You can do this, too. Here's how to get started:

**Jump in.** Identify a project, channel your energy and work toward your goal. Achieving your career dreams starts with a desire to learn more, refresh your practice and do better.

**Leave your comfort zone.** Be willing to face new challenges and listen to others' ideas. Explore alternate paths, and don't be afraid to change your mind about something you thought you knew. That's where the learning happens!

**Ditch your assumptions.** Connect with other educators to hear how they're handling challenges similar to those you're facing in the classroom. Their big ideas might just change your thinking.

**Encourage others.** Share your ideas and your enthusiasm – in your own school, on social media and at in-person events. Even if you make only a single significant connection, it will be the beginning of a great learning adventure!



PHOTO BY STEVE SMITH

Global educators don't just inspire each other. They inspire their students, who are also global learners. Today's students are comfortable with networks and smartphones, and have been adept tech users from an early age. They follow influencers and enjoy the latest internet novelty. But they'll also face huge technology challenges.

Technologies like artificial intelligence will drastically change their work environments. They'll need highly specialized technical skills to qualify for the jobs of the future. That's why teachers from around the globe must work together to stay current and share best practices. ↓

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# Measuring what matters

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## NEW APPROACHES EVALUATE LEARNING THAT LIES OUTSIDE OF TRADITIONAL ASSESSMENT

By Chris Frisella

AS EDUCATORS PURSUE MORE PERSONALIZED, student-driven and inquiry-based approaches to learning, one obstacle that continues to rear its head is the inability of widely used assessment models to successfully measure student learning and growth.

Critics say traditional models simply can't assess the type of learning that schools need to promote. They provide incomplete, inadequate and ill-timed feedback. They advantage some students and disadvantage others. And at their worst, they burden teachers, disrupt classrooms and stress out students.

Like many adults, Kristen Brooks remembers the stress that tests caused her as a child. "I wasn't a great test taker. Even when I knew that I knew the information, I would still get test anxiety," Brooks says. "I remember thinking, 'I wish I could do it a different way.'"

As an instructional technology specialist for the Cherokee County School District in Georgia, Brooks works to make that wish come true as one of the many educators and researchers championing and working to develop new ways of assessing learning.

Take educator Cindy Herren, K-5 technology teacher for Waukee Community School District in Iowa, for example. Like Brooks, she advocates for using widely available creation applications – such as Adobe Spark, FlipGrid, Book Creator and Seesaw – to assess student mastery. Using these tools, students tap academic, technical and problem-solving skills, and ultimately "feel empowered" rather than stressed out, says Herren.

One example Herren cites involved helping a first-year German teacher transform one of her school's long-standing summative writing assessments into a more dynamic creative project. The traditional assignment asked students to keep a three-day diary in which students typically used simple German phrases to recount mundane activities, such as "I got up," "I ate breakfast," "I rode the bus to school." The teacher then would need to review all of those phrases – for each of 100 students.

Herren suggested letting students instead make videos using the Clips app to capture images of them doing an activity, audio of them describing it in German and edited captions demonstrating their writing skills.

"These videos were amazing, and the kids had so much fun," Herren says. What's more, when colleagues saw how successful the new teacher's approach had been, they adopted it in their classrooms, too.

### BRINGING THE LEARNING SCIENCES TO ASSESSMENT

Such project-based assessments are one of the alternatives to traditional testing that combine the learning sciences and technology, a potent blend that offers many approaches to assess and help students retain and use knowledge.

## Measuring what matters

The learning sciences point to three stages of learning: encoding, storage and retrieval, says Patrice Bain, author, educator and consultant. Studies show that last stage – pulling information back out of storage – improves learning and standardized test scores.

“What the learning sciences say is that the best way we can help our students learn is through frequent retrieval, and it is best done as no stakes or low stakes,” Bain says. “Studies also have shown learning and teaching this way directly reduce anxiety in students versus those high-stakes tests.”

Along with retrieval, students need feedback that clarifies what they know and what they don’t know, and increases metacognition, or their understanding of how they learn, Bain says. “When we are able to do that – to teach them how to discriminate and to focus their time on what they don’t know – that really aids learning.”

Two other principles from the learning sciences that technology and new assessment tools can harness are spaced practice and interleaving. Spacing is spreading lessons and retrieval out over time. Interleaving involves mixing skills or topics so that students have to think about the process or concepts involved, Bain explains.

Clearly, human learning is a complex process.



### DEFINING 2 KEY PRINCIPLES

Spacing and interleaving are powerful strategies that boost learning, according to cognitive scientist Pooja Agarwal, a learning science website founder and co-author with Patrice Bain of the book *Powerful Teaching: Unleash the Science of Learning*.

**Spacing** involves taking a given amount of learning time – whether instructional time or study time – and breaking it into multiple sessions spread out over time, Agarwal’s RetrievalPractice.org website explains. By spreading out lessons and retrieval opportunities, students’ knowledge has time to rest and be refreshed.

For example, instead of cramming the night before a Spanish vocabulary exam by trying repeatedly – say, three times – to retrieve the English translation for each word, a student might practice retrieving the translations for the vocabulary words one time on three separate occasions – say, a week before the exam, a few days later and again a few days after that.

The two approaches involve the same amount of learning time but allocate it differently, explains a resource guide on the website.

**Interleaving** is the practice of switching between ideas during a learning session and not focusing on any one idea for too long. It also strengthens understanding and helps students connect different ideas.

According to Agarwal’s RetrievalPractice.org, educators can incorporate these same practices to make cumulative assessments more powerful.

Typical cumulative exams assess learning of all content covered throughout the semester or school year, the website notes. While students may re-study material learned months earlier, they may simply cram, which fails to reap spacing’s full benefit to learning. Similarly, cumulative exams may fail to take advantage of interleaving. That’s because, while course topics on a cumulative exam are likely to be related (e.g., covering key concepts from earth science), they may not require discrimination (e.g., the atmosphere vs. plate tectonics), the site explains.

Agarwal’s website recommends encouraging even more spacing and discouraging cramming with cumulative mini-quizzes throughout the semester, not just as an end-of-semester exam, and ensuring that cumulative mini-quizzes, activities and exams include similar concepts that require careful discrimination from students, not simply related topics.

## CAPTURING STUDENTS' THOUGHT PROCESS

Every learning activity draws on and has the potential to affect identity, social and emotional capacities, cognitive capacities including executive function and metacognition, and even physical and mental wellness, explains Bror Saxberg, vice president of learning science at the Chan Zuckerberg Initiative (CZI), citing work by CZI colleague Brooke Stafford-Brizard on the comprehensive student development framework.

“There’s just no way to separate these things,” says Saxberg. “Inside a real brain, you can’t just pull out the math processor and tinker with it on a bench and upgrade it and then reinstall it.”

One of the best ways technology can improve assessment and evidence-gathering is to capture more of the student’s thought process toward a solution, Saxberg says. “We need better formative assessments – and not just assessments of did you get the practice example right or wrong, but actual evaluations and evidence-gathering around the students’ process.”

Instead of simply handing in a finished essay, a student could work in a tool, for example PowerNotes, that lets them start with an outline, access references and resources from within it, then revise their outline, craft introductions and conclusions, and finalize their essay.

“The technology can start to capture that and maybe even scaffold that,” Saxberg says. “It can see that process and compare it with others” – possibly using machine learning.

Andreas Oranje, general manager for research at Educational Testing Service (ETS), agrees. He says technology-based curriculum activities can produce and analyze a wealth of process data and other information to help the student and teacher make decisions about what to learn next. That data can help ETS and others figure out the cognitive processes underlying a student’s learning and thinking, identify possible student mistakes and misconceptions, then anticipate and prevent them, or determine how to intervene in a targeted way if they happen.

Process data also could inform a fuller picture of student performance that augments end-of-year standardized testing, Oranje says.

Artificial intelligence (AI) similarly could mine process data to match peers and near peers to enhance collaborative learning, says ISTE Chief Learning Officer Joseph South. “Imagine a system that understands that Student A has a particular misconception that Student B just mastered a couple of days ago,” he says. “We can use that system to match Student A to Student B and have Student B tutor Student A and help them find the same mastery they just achieved.”

“Just knowing where you are can make a big difference in the motivation to improve.”



Another important way researchers believe technology can better gauge and support learning is by providing real-time feedback. “If we can shorten the gap between when a student performs and when a student gets feedback on that performance, then we can be making course corrections sooner, which can allow the student to improve that much quicker,” South says. “We don’t want to underestimate the visibility these tools can provide to the students and the parents.

“Just knowing where you are can make a big difference in the motivation to improve,” he says. “That’s why we carry around FitBits. When we know how many steps we’ve taken, suddenly we’re motivated to take the extra 2,000 to get us to our 10,000-a-day goal. Kids are the same way.”

## IMPROVING DATA STEPS

Technology can also improve how assessment data are gathered, analyzed and presented.

By rolling assessment data up into an actionable dashboard, it can give an educator “a 360-degree view” of a student’s schoolwide performance and how to help them, South says. Similarly, some new assessment tools not only tell parents sooner about their student’s areas of need, but provide recommendations about how to help the student at home.

## Measuring what matters

“Through technology, they could build bridges out of simulated steel and buildings out of simulated materials. Then you could simulate an earthquake and see if their structures can withstand those forces. It’s a whole other level of learning and understanding and a whole other level of fidelity to the real world.”

At Northwest Evaluation Association’s (NWEA) Product Innovation Center, Senior Director Mike Nesterak and his team are looking for better feedback tools for teachers, students and parents. “We want to make sure that the language and method of providing information is appropriate for each stakeholder,” Nesterak says.

One tool NWEA is exploring is a website prototype where parents can enter one of their child’s assessment scores and then view an automatically generated video discussing how their child did relative to past scores and the scores of other students, and get predictions about growth.

Another innovation center project involves inquiry-based reporting, mining NWEA’s comprehensive reporting system to produce reports answering principals’ top questions about assessment data. Principals, teachers and administrators have particular information needs at any particular point in time, Nesterak says. The problem is NWEA has so much data in its system that it can be difficult to know what, when and how to extract relevant information. So, the



innovation center surveyed middle school principals, asking for the 10 most important pieces of information they needed from NWEA's assessment data. Researchers then used that feedback to shape a 20-page "insight report" answering those key questions for principals in text, graphs and tables. Now, researchers are prototyping a similar report for district-level administrators, and they plan to develop reports for teachers and parents, too.

Technology also makes through-year testing a more manageable proposition.

NWEA has been piloting a through-year model for Louisiana that would assess students over two days four times a year on materials related to a just-completed instructional unit. To make the tests more fair, the "cold reads" used in most assessments are replaced with a "hot read" that allows students to refer to the text during the test, a "warm read" involving material that's new but related to the topic they've been studying, and a final section that asks them to analyze and synthesize information from both passages and draw conclusions.

The data from all four assessments will be aggregated into an English language arts score. "We assess knowledge, as opposed to just skills," Nesterak says. "We've eliminated the end-of-year assessment, and we've embedded that assessment into the instructional assessment."

## TECHNOLOGY AND FORMATIVE ASSESSMENT

The Louisiana pilot model underscores another broad benefit of technology. "If you use technology for the formative assessments right, then you can get the same or most of the same information you would gather in summative assessments along the way," South says. "It doesn't mean we don't need some sort of summative assessment, but the summative assessments should be the cherry on top."

Philadelphia educator Chris Lehmann also stresses the interplay between technology and formative assessment. "Because of its levels and speed of communication, technology allows us to make formative assessment far more often," says Lehmann, founding principal at Science Leadership Academy, which emphasizes inquiry-driven, project-based learning.

For inquiry-based models, immersive technology holds great promise. It can make teaching and assessing science much more vivid, clear, efficient, accessible and safe, Oranje says. "There are certain things ... you just cannot do in the classroom," he says. "You cannot zoom in to the molecular level in a classroom. You cannot do experiments that require a lot of time – for example, if you want to explain something about fossils."

**"We've eliminated the end-of-year assessment, and we've embedded that assessment into the instructional assessment."**



Virtual laboratories and dialogic systems let students work through an experiment or practice complex skills or behaviors, learning from their mistakes without real-world consequences.

"For a long time, we've had students build toothpick or Popsicle stick bridges to understand basic principles of engineering," South says. "Through technology, they could build bridges out of simulated steel and buildings out of simulated materials. Then you could simulate an earthquake and see if their structures can withstand those forces. It's a whole other level of learning and understanding and a whole other level of fidelity to the real world."

There's tremendous power in that ability to layer onto tasks additional complexity and texture, such as time constraints and distractions, when real-time data shows that the student is ready for it, CZI's Saxberg says.

At NWEA's Product Innovation Center, where researchers have built an augmented reality science lab prototype that allows students to conduct three experiments anywhere in a room, Nesterak sees the immersive technology as a way to level the playing field for schools that lack lab space, equipment and materials. It also boosts engagement. "Students love it," he says, adding that researchers are still evaluating how it affects student performance.

## Measuring what matters

Nesterak sees possibility for augmented reality in other areas, including English language arts, where it might allow a character to “come to life” while the student reads.

Another promising emerging technology is conversational computing, Nesterak says. At NWEA, researchers have built a prototype that would allow teachers to converse with Amazon’s Alexa to retrieve information about their students’ math assessment performance. To move past prototype, the tool would need to be FERPA compliant. NWEA researchers also are exploring whether they can develop an assessment that’s given through a conversational avatar or conversational entity like Alexa.

The device could follow a student’s approach to solving a problem by tracking the questions that the child poses to it. That data, in turn, could provide a fuller picture of student performance and help improve assessments, perhaps even tailoring future tests to an individual student’s problem-solving approach.

Nesterak also sees AI as a tremendous opportunity not only for scoring assessments, where it’s already built a good track record, but also for big data analysis. NWEA already is using AI to analyze its extensive database of individual assessment scores

for patterns of performance and find a more empirical learning progression.

Finally, technology can help eliminate some of traditional assessment’s blind spots. “There are things that are important to a student’s success that are difficult to measure on a piece of paper,” South says, pointing to things like social and emotional learning and creative or collaborative problem-solving. “Technology can really be an important tool in helping us do that. ... It opens up many more avenues for expression that can help us understand a more nuanced array of their abilities.”

### ENGAGING EDUCATORS

So, what needs to happen to realize technology’s potential to reshape learning and assessment?

First, solution providers need to engage educators throughout the development process to ensure they’re creating a tool that meets their needs and makes their lives easier, not harder, South says. Then, educators need to be aware of what’s out there and be willing to learn and use those tools. Finally, school leaders need to support





competency-based approaches, which may require more than just flexibility in how and when testing takes place, he says.

It may take changes to classroom procedures and culture, teacher education, and student autonomy and responsibility.

“The best thing that teachers and policymakers and purchasers and school district people and principals can do is make sure they’re paying attention to learning first,” Saxberg says. “You’ve got to think about what is it that my learners really need to improve their performance and then ask how can technology help make that happen.”

## THE PURSUIT OF EQUITY

Alicia Johal agrees putting learning first is key, and she sees improving equity as part of that. Before becoming assistant director of the Center for Innovation and Entrepreneurial Thinking at the San Diego Jewish Academy, Johal taught middle school science, biotechnology and marine biology for seven years. Many of the children in the south San Diego public schools where she taught came from low-income households, and most were English language learners.

Johal soon realized that the traditional assessments she was giving her students failed to show how much they actually knew about science because the tests imposed barriers for them. Those barriers, or biases, can present in different ways. Does the assessment accurately measure what it’s meant to measure? Does its content give one student subgroup an advantage over another? Do test questions assume background knowledge or shared experiences that one subgroup is less likely to possess?

For example, one gender, cultural or ethnic group may be at a disadvantage answering a word problem about velocity and acceleration based on a particular competitive sport. The question may be a barrier for students who have never played the sport. “On top of trying to solve this velocity problem, they have no idea why a football is being thrown in a spiral toward the end zone. What if they don’t even know what the end zone is?” Johal says. “There’s so many ways to write this stuff that you’re not singling out students based on the experiences that they have.”

To improve equity and outcomes, Johal made a cultural shift, changing how she assessed, graded and taught her students.

In addition to writing more of her own questions to reduce barriers, Johal adopted two-part standards that separated skill from content.

Johal also began providing a rubric at the bottom of each assessment. Using student-friendly terms, the rubric spelled out the skill and content criteria required to earn a grade of “Mastery.” The only other grading option was “Work in Progress,” and Johal allowed students to fix mistakes and resubmit an assessment until



they achieved Mastery. “It became part of the culture of the class,” Johal says.

Johal found another way to make some assessments more accessible and learning-supportive: student videos. For example, instead of requiring her students to write a traditional lab report, she first had them use the Explain Everything app to narrate a video lab report complemented by photos, data tables and text. “A lot of language learners are really good at speaking to you about science and telling you what they know, but when you ask them to write it, that’s more difficult,” Johal says. “It’s easier for them to write if they can speak about their knowledge first.”

Johal used the videos as a scaffold for written reports. “It was a way for me to use technology to support language learning, and it was a game-changer with every class,” she says.

Like Johal, NWEA’s Nesterak and others, Oranje at ETS emphasizes the pursuit of equity.

“It’s great to come up with new things, but we have to make sure it’s fair and accessible,” Oranje says. “It needs to be affordable. It has to be culturally unbiased or cross-biased. And it needs to work for students with a range of needs.

“It’s a moral imperative: That’s what we need to do.”

CHRIS FRISELLA IS A FREELANCE WRITER WHO EXPLORES EDUCATIONAL TECHNOLOGY AND ITS POWER TO RESHAPE LEARNING AND LIVES.

## WHAT WORKS

A glimpse at some edtech success stories.

# Sketchnoting engages students while building comprehension

By Jerry Fingal

Laura Steinbrink works hard to engage her students.

So it distressed her when two bright students in her high school literature class in Plato, Missouri, copped bad attitudes about having to study *The Hobbit*.

"They were very willing to share their negative comments with me," Steinbrink said.

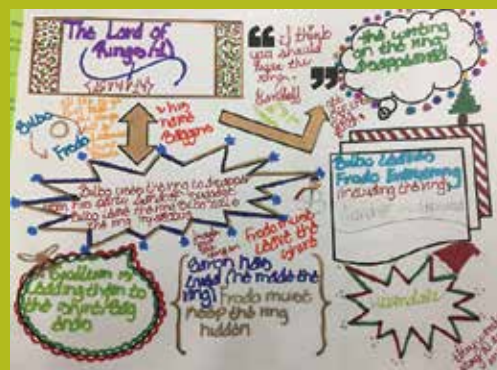
She endured their complaints but saw the two were making the mythology unit – one of her personal favorites – miserable for her and the rest of the class. Finally, she snapped back at the complainers: "We know. Everybody knows. It's dumb. You hate it. We KNOW."

That episode set in motion Steinbrink's efforts to make *The Hobbit* more engaging. To develop a strategy, she drew on her knowledge of learning sciences.

The sketchnoting movement had recently caught her attention, and it resonated with her knowledge of dual coding. Both involve tying together text and images so our brains have two ways to remember and learn content.

With her class, she introduced the strategy in an analog way. She used Google Drawings to create a printout with shapes and callouts that provided a framework for students to take notes and draw images. She explained dual coding and taught them the basics of taking notes using both text and drawings.

The class then embarked on taking notes of the film version of *The Hobbit*. As motivation, Steinbrink offered to allow students to use their sketchnotes on an upcoming quiz. Also, the notes would not be graded. The point was to highlight important parts of the story with both text and images.




PHOTOS BY LAURA STEINBRINK

It started slowly, but Steinbrink could feel a ripple of engagement. Students asked about characters' names and wanted the movie paused so they could ask questions. At the end of class, students offered that the exercise wasn't terrible and maybe the story was actually, maybe, not boring.

The experiment was a turning point for the class. It created engagement and helped students retain the material, which laid the groundwork for deeper learning.

Steinbrink subsequently introduced ways for students to do sketchnoting on their Chromebooks.



She found that it was easier to begin with a word-processing program like Google Docs so students could take notes quickly and then use a graphic program to add images. Steinbrink gives students a choice of programs – Google Drawings, Google Slides, Canva, Adobe Spark Post and Buncee – and allows them to use the one they feel most comfortable with.

Students can take notes first then go back and add images.

Once they have the concept down, she allows them to do sketchnoting the way that best suits them, whether that's digital or on paper.

### **Why does it work?**

#### **It's rooted in brain science.**

Steinbrink's interest in the subject allowed her to see how sketchnoting incorporated the theory of dual coding, which postulates that humans perceive verbal and visual information via separate channels. Processing information both ways facilitates retrieval and enhances memory.

She explains the science behind the practice to students.

"I tell them that this is not just something you do just for an assignment, but you could do this in any class in college," she said. "Or if you're at a job and you're struggling to learn something you have to know, you can use it there as well."

#### **It's engaging.**

It's novel and once students discover that it works, most embrace it, Steinbrink said. At the high school level, students aren't doing a lot of drawing and coloring.

"It was super fun," she said. "I didn't know how it would go. Every class is different, and some love it more than others. But I make sure everyone knows it. And I tell them that this is something they can use in college."


#### **It can force them out of their comfort zone.**

Some students are reluctant because they think they lack artistic skills. Steinbrink understands that.

"Hey, I draw stick people," she said. "It doesn't matter. I tell students that they're the only ones who have to know what it means. Literally, nobody else has to get it."

She has also learned that it's best to teach sketchnoting separate from content, so students aren't learning two things at once.

Start with something nonthreatening that will never be on a test, she said.

"It becomes a tool in their toolbox," she said. "They're not going to use it for everything, just like you don't need a wrench for every repair." 

*Learn more about how sketchnoting can help students retain new material, articulate empathy and build connections to larger concepts with the ISTE book Sketchnoting in the Classroom: A Practical Guide to Deepen Student Learning. [iste.org/sketchnoting](https://iste.org/sketchnoting)*

JERRY FINGAL IS A FREELANCE WRITER AND EDITOR SPECIALIZING IN EDUCATION, BUSINESS AND FINANCE.



# The power of storytelling

From advocacy to engaged learning, teachers and students are harnessing digital storytelling

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By Nicole Krueger

The diagnosis hit hard. After a series of car accidents, Luis Perez discovered he had a visual impairment that could eventually leave him blind.

While losing the light was painful enough, it was the loss of the identity he had forged for himself that took him to a dark place.

“It was difficult to come to terms with the fact that now I have to change a lot about myself and the way I do things,” says Perez, a technical assistance specialist for the National Center on Accessible Educational Materials at CAST and past president of the ISTE Inclusive Learning Network.

He was tempted to give up. Instead, he started telling his story.

He wrote poetry. He learned photography and started posting his images on Instagram. He wrote a book. Then another. He created a TED Talk and began delivering it in front of audiences.

As he told the story of himself, an educator living between worlds – between light and dark, between sighted and blind – his new identity began to coalesce.

“Part of telling my story was processing through some of those feelings,” he says. “The more I told it, the easier it became and the more comfortable I became in my own skin.”

But something else happened when Perez shared his story. It grew bigger than him. What started as one person’s lived experience became a much larger story about how assistive technology can change lives and unleash voices.

Perez is one of thousands of educators worldwide who are rediscovering the power of storytelling for learning and teaching. With the help of digital tools that have smashed through traditional barriers to creating and sharing stories, a growing number of teachers are stepping into their role as what educational philosopher Kieran Egan calls “the tellers of our culture’s tales.”

As more educators of all backgrounds start stretching their voices – and encouraging students to stretch their own – they’re beginning to shift the narratives both inside and outside the classroom that have kept education locked in stagnation for decades.

“There’s a maxim that if you don’t tell your story, someone else will tell it for you. That’s happening a lot in education,” says Jennie Magiera, chief program officer for EdTech Team. “Educators need to tell the story of the work they’re doing, the positive bright spots around what’s happening in the classroom. Teachers need to help make sure the narrative is full and robust.”

## A reason for learning

In Japanese, the term *ikigai* refers to a person’s reason for being – the thing that propels them out of bed every morning. It indicates not only the source of meaning in one’s life, but also the mental and spiritual state that allows people to feel their lives have value.

*National Geographic* reporter Dan Buettner hypothesizes that *ikigai* is the reason Okinawa residents have such long lives.

Author and educator Bernajean Porter teases out learners’ *ikigai* by asking them to write a story about their future. It’s a simple exercise that, in some cases, has altered the course of their lives.

## The power of storytelling

Storytelling can serve as the thread connecting the content they need to learn with their intrinsic reasons for learning it.

There was the student who insisted the exercise was stupid because it was impossible to predict the future. He sat on the floor and refused to write – until Porter asked a pointed question.

“I said, ‘Your life is blank screen right now. Do you want someone else writing the story of what you’re going to do, or do you want to write that blank space for yourself?’ The next day, he came in with seven pages he’d written that night,” she says.

Then there was the student from an immigrant family who could only envision herself in the same jobs as her relatives, waiting tables or working in a nursing home. When Porter started asking about the things that made her light up, she invented a story about working onstage. That summer, she got a job painting scenery for a local theater.

“Now she’s on her way,” says Porter, who travels the globe to facilitate effective digital storytelling. “That’s the power of storytelling. If you don’t like the life you’re in, start making a new story for yourself.”

Education leaders and policymakers often latch on to the tangible and measurable aspects of teaching, such as test scores, standards and curriculum content. In the process, they risk discarding the more nebulous but vital aspects of human learning – like the role of *ikigai* in propelling students to succeed. Storytelling can serve as the thread connecting the content they need to learn with their intrinsic reasons for learning it.

“Storytelling is part of our humanity and part of what makes our culture and society beautiful,” Magiera says. “We’re trying to raise children to become the best versions



of themselves and amplify their humanity, and to do that we need to leverage the stories in their lives to help them gain mastery of the content we're being charged to deliver."

Long before schools ever existed, humans taught each other through stories. Not only is storytelling the oldest form of teaching, but there's plenty of research to show it's also the "stickiest, most portable form communication," she says. When used as an instructional tool, it can boost both long-term retention and understanding.

As co-leaders of ISTE's Digital Storytelling Network, educators Gwynn Moore and Julie Jaeger are working to bust the myth that storytelling belongs only in language arts classrooms. They cite examples of educators using storytelling across a variety of content areas, including science and math.

To introduce students to the lifecycle of water, for example, one teacher wrote a story from the point of view of a water molecule as it evaporated into the clouds and then condensed back into liquid form. To help students wrap their brains around the concept of X, a math teacher told a story about how X was having an identity crisis because its value varied from day to day.

Listening to the teacher tell a story offers a host of benefits to students. It lights up the brain, engages empathy and allows educators to "reach students both emotionally and biochemically, increasing the potential for rich learning experiences," says social entrepreneur Kimberly Weichel, author of *Our Voices Matter: Wisdom, Hope and Action for Our Time*.

But it's when students start telling their own stories that the real magic happens.

"There's an elevation of thought process kids have to go through to create a story, then find images that enhance the story and help the audience understand the emotional content," says Moore, an instructional media and technology teacher at Aurora Frontier



P-8 in Colorado. "It totally takes their learning to a higher level, and it stays there."

### **Amplifying student voices**

Whenever the news vans rolled into the South Shore neighborhood in Chicago, they never asked about the great things that happened there. They only showed up to report on the gun violence and drug activity that had earned the community monikers such as "Terror Town" and "Chiraq."

Seeing their lives reduced to a one-dimensional story about violence made students at Bradwell School of Excellence feel frustrated and angry.

With the help of fifth grade teacher Linsey Rose Robinson, they took to social media to start building a new narrative for their neighborhood. Titled "This Isn't Chiraq," their narrative portrayed a neighborhood filled with love and humanity, where people go to church, kids shoot hoops and students dream of going to college.

They emailed their story to news outlets across Chicago, and every single one picked it up. As the students spoke out, the world began to see another side of Terror Town, that of a tight-knit community where people look out for one another.

When teachers encourage students to tell their stories, what they're really doing is helping kids find their voices and orient

When teachers encourage students to tell their stories, what they're really doing is helping kids find their voices and orient themselves within the world.

## The power of storytelling

themselves within the world. Digital storytelling empowered the South Shore students to take back the narrative of their neighborhood, and it's empowering young people across the globe to become lifelong self-advocates. It can also help them emotionally process the personal traumas that often get in the way of learning.

"Storytelling gives students a chance to test out their voice," says Diana Rendina, a media specialist and teacher-librarian at

Tampa Preparatory School in Florida. "It allows them to see that others care to listen to what they have to say. I think that it's important for us to create space for students to tell their stories. The classroom environment can be perfect for this because it's a place that feels safe for students, where they don't have to worry about being judged."

There's no reason those stories need to stay within the classroom, however. Today's students have the digital tools to not only discover their voices but to share them with an authentic audience.

"The power of the tools we have now is that there used to be a lot of gatekeepers who decided how you could tell your story, whether through the news or through publishing," Perez says. "Now I have a green screen in my house and I can get in front of my iPhone, create something and share it with the world. You can tell your story without asking for permission."

Using a broad range of online tools, students can tell their stories through blogs, videos, podcasts and memes. From Flipgrid and PowerPoint to social media and video editing software, just about any app can become a storytelling vehicle in the hands of a creative student. Some of the more popular classroom tools, such as Storybird, allow students to easily create professional-looking visual stories or comics, taking technical skills out of the equation so they can focus on content.

Of course, teachers need to be careful about where and how students share their stories. The ease of digital sharing raises complex privacy issues, particularly when it comes to children, and it's crucial for students, parents and teachers to think carefully about how much kids share online. Finding and vetting credible apps to ensure their privacy policies align with current child privacy laws is a key element of bringing storytelling to the classroom.

Ultimately, it's not the tools that make a storyteller, Jaeger emphasizes. Creating





a digital report, slideshow or multimedia presentation isn't storytelling unless it contains the necessary elements of a story: a problem, a resolution, an emotional hook and an underlying meaning.

"I think the biggest thing about storytelling with students is that their story can be told in so many different ways, and they need to find the one that best fits their voice and their comfort level," says Sherry Gick, director of innovative learning for Five-Star Technology Solutions. "They need a lot of exposure, because it's important to be able to try different formats and write in different ways without the fear of failure. There needs to be some freedom and creativity to find that comfort zone."

### Shattering the single story

A few years after the Chicago students wrested back control of their neighborhood's narrative, Magiera shared their story with thousands of educators at ISTE 2017. Her goal was to showcase how teachers can amplify student voices and use technology to shatter the single story – the one-sided narrative that reduces complex human beings into flat stereotypes.

Keynoting at the conference was thrilling and terrifying. A tearful Magiera exited the stage to a standing ovation. Nothing in her life to that point could compare with that moment.

Then came a barrage of comments that pricked her bubble.

"People kept saying to me, 'Did they pick you because you're a woman of color?' It immediately devalued my voice," she says. "Whether they meant to be condescending or not, the implication was that I was not picked for my expertise but because I checked a box."

In warning against the danger of the single story, Magiera had suddenly found herself trapped inside one. So she took her own advice and set about shattering it.



## Tools for digital storytelling

With a little creativity and an entire ecosystem of digital tools at their fingertips, teachers can find endless ways to bring storytelling into the classroom. Below are just a few to get you started.

**Written narrative:** Any word-processing app can get students started, but many educators prefer cloud-based tools such as Google Docs for collaborative writing. There are also a variety of tools to support the writing process. Popplet helps students organize their thoughts. SentenceBuilder helps younger writers learn grammatical structure, while StoryBuilder focuses on story structure and the logical flow of ideas.

**Video:** When students make videos, they're combining both audio and visual elements to tell stories. With the cloud-based app WeVideo, they can collaborate, save their work to the cloud and resume it later on any device. Sock Puppets lets them create and share lip-synced videos. Or they can animate their own drawings using Toontastic 3D.

**Podcasting:** Podcasts offer a literal way for students to exercise their voices while practicing the art of oral storytelling without visual distractions. Creating a podcast can be as simple as recording a Google Hangout for live broadcast. Tools like Audacity and GarageBand allow easy editing for a more polished product.

**Comics and visual stories:** Visual stories require students to think about their content in a different way as they choose images that reflect the emotional tone of the piece. Apps like Storybird curate existing artwork students can use to quickly tell stories. Bubblr lets them create comics by adding speech bubbles to Flickr photos.

## The power of storytelling



Digging deeper, she found that the questions typically stemmed from a lack of exposure; people simply hadn't seen many practicing educators of color delivering keynotes at major conferences.

"We lack equity and access for educators of color to share their stories," she says.

In response, she founded Our Voice Academy, a program that helps educators of color refine their stories for the big stage. To date, some 60 educators have completed the program, and almost all have gone on to deliver keynotes or spotlight talks.

Many of the educators who attended the academy have also participated in TED Masterclass, an online course that helps educators cultivate their own TED Talks. Through ISTE's partnership with TED, over 2,000 educators from different backgrounds are learning the art of storytelling, and many have begun sharing their stories at the ISTE conference.

Education consultant Cheyenne Batista, founder and CEO of Firefly Worldwide Inc., is one of them. During her keynote at the conference last August, she encouraged other educators to follow her example.

"A key point in my talk is that you have a voice and it will be heard," she says. "I hope everyone embraces the concept that each of us has something to say and we never hold ourselves back from grabbing the mic and sharing ideas that inspire people."

Some educators are already experiencing firsthand how a well-told story can help serve as a powerful advocacy tool, helping transformation spread.

"When teachers or students tell about the difference something made in their life, that one story can hold the metaphor for all the accomplishments that might be within a program," Porter says. Statistical evidence of a program's success may appeal to the numerically minded, but the emotional component of a good story has far more potential to win the hearts of parents, school board members and policymakers, empowering educators to build support and secure funding for their initiatives.

It's not just individual teachers who need to share their perspectives, either. Schools and districts also have a story to tell.

"To transform education, it has to be those schools telling their own stories," says Gick, who works with schools to help them do exactly that. "If they don't, oftentimes the story is not an accurate or complete one. So many people in education are doing great things. Change comes through the sharing and other people growing through those ideas." ❖

NICOLE KRUEGER IS A FREELANCE WRITER AND JOURNALIST WITH A PASSION FOR FINDING OUT WHAT MAKES LEARNERS TICK.



# Learner standard provides a road map to lifelong scholarship

By Helen Crompton

Like most educators, I'm a learner first. I want to know all there is to know about teaching to best meet the needs of my students. That's why I went to college for 15 years to gain my teaching qualifications, including a master's degree and a Ph.D. in educational technology and mathematics education. I'm now a tenured professor, but I can honestly say that I'm only part way through my learning journey.

Even after 16 years in PK-12 classrooms, I still reflect on some of the same questions that nagged at me as a new teacher:

- Is this the best activity for students to understand the content?
- Are there better strategies for learning?
- Why do students have these misconceptions?
- How do I help students get this into long-term memory?

It can be easy for educators like me to keep teaching the same way we've always taught. The problem with doing that is that it doesn't allow us to learn new strategies and emerging tools, or stay current with research-based best practices.

Fortunately, when it comes to strategically embedding technology in learning, the ISTE Standards for Educators ([iste.org/standards/for-educators](http://iste.org/standards/for-educators)) provide a road map to reach your goals. The indicators under the standards provide concrete examples of what each standard looks like. And the Learner standard gets at the heart of what we should be doing every day. It states: *Educators continually improve their practice by*

*learning from and with others and exploring proven and promising practices that leverage technology to improve student learning.*

I really like the two-pronged statement: We try out things that have evidence showing they work, but we also explore other promising ideas. We want to improve our practice (our art) by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning.

Let me unpack each indicator of the Learner standard to give you an idea what they look like in practice.

*1.a. Educators set professional learning goals to explore and apply pedagogical approaches made possible by technology and reflect on their effectiveness.*

This indicator is all about being intentional in what you want to accomplish. Some goals may be short-term and others might take longer, but they must be attainable. My advice is to select one or two areas to focus on at a time.

For example, you might set a goal to address the ISTE Standards for Students. But it's too overwhelming to work on all seven standards at once. A better approach is to start with one specific problem and figure out how to address it by applying the standards.

In my class, I wanted to figure out how to get students to participate in class discussions. I wanted to focus on students being Creative Communicators (Standard 6 of the ISTE Standards for Students). My previous



## STANDARDS SPOTLIGHT

I often polled the students for their opinions to ensure I was giving them a voice.



method for getting students to share their thoughts and opinions was to just ask for a show of hands in response to my prompts. I found this produced answers from the same people each time, and additional responses just repeated what students had already said.

I learned with my students as we examined new tools such as Flipgrid, Twitter, Backchannel Chat, social networks and other tools connected to our Blackboard learning management system. When we discovered that some were not very effective, we switched to different tools and strategies.

I often polled the students for their opinions to ensure I was giving them a voice. One time I thought a class hated using the Backchannel Chat tool because they didn't respond when I asked aloud what they thought of it. In a private poll, however, I found out that students absolutely loved it and said it gave them a voice when they were shy.

*1.b. Pursue professional interests by creating and actively participating in local and global learning networks.*

I like to attend face-to-face conferences, and the ISTE conference is my favorite professional development experience. But to continue my learning year-round, I turn to technology to connect with and learn from others.

Twitter is my favorite tool for connecting with other educators. In the past, I would email a couple of edtech friends if I had a technology question. Now I post a quick question on Twitter to request help. I might get multiple responses to help me solve a problem or find what I'm looking for.

I really enjoy the limitation on words and that I don't have to read lengthy emails or documents to get to what I need. People on Twitter offer bite-sized chunks of information.

I might be looking for something in particular, such as a specific learning tool or strategy. Or I might be speed browsing and come across a tweet about how an educator transformed their teaching using a new approach to learning. Either way, I always come away with ideas I can use.

A couple of months ago, I stumbled upon a tweet about Renderforest, an online video, logo and website maker. At the time, I wasn't specifically looking for such a tool, but as soon as I read the short description, I immediately realized it was an ideal tool for my students to make videos and animations.

Twitter allows you to collaborate with others, too.

You can take part in regular edchats by following a particular hashtag at a designated time. Using a hashtag directs your question to those who can best support you.

I also use various social networks, including ISTE Professional Learning Networks, to help me connect with friends and colleagues across the globe who have become collaborative partners on grants and projects.

Interacting with other educators online has allowed me to have learning discussions that challenge my thinking and help me work through problems with others that extend what I understand about teaching. It's like having hundreds of supportive friends.

*1.c. Stay current with research that supports improved student learning outcomes, including findings from the learning sciences.*

Let's face it, all fields including education change over time. A strategy that we used to think was effective may turn out to be quite the opposite with new research. That's why it's so important to stay abreast of current learning sciences research.

Here are a few ways to ensure that your teaching practices align with the learning sciences, but also support ongoing research:

### **Search Google Scholar ([scholar.google.com](https://scholar.google.com))**

Sorting through evidence-based information on the internet can be daunting and time-consuming. One way to find meaningful and reliable sources of information is to use Google Scholar, which allows you to search across many disciplines and sources to find articles, theses, books, abstracts and court opinions from academic publishers, professional societies, online repositories, universities and other sites.

### **Follow Course of Mind ([courseofmind.org](https://courseofmind.org))**

Course of Mind is an ISTE initiative designed to help educators and education leaders leverage learning sciences and edtech to improve student learning. Through publications, podcasts, model policy and online courses, Course of Mind seeks to empower educators and leaders to embed learning sciences in teaching.

### **Partner with local universities on research projects**

Partnerships with universities can put you on the fast track to understanding up-to-date research findings that can be used in your school to improve systems, planning and practice.

To partner with a university, contact the dean or a department chair of the education department and ask if they're interested in

a partnership with you and the school. It's worth checking in with your school administration in case they have a prior connection. Once you partner, the university may have meetings and other initiatives you can participate in to help you stay abreast of the learning sciences and research in this area.

Invite researchers into your classroom. Teaming up with universities to tackle some of the big questions that come up in your classroom is one way to support improved learning outcomes. Researchers are always looking for questions that need to be examined further and a classroom they can test the ideas in.

To invite researchers in your classroom, scan the list of education department faculty to find those doing research in an area you're interested in. For example, my directory information can be found at [odu.edu/directory/people/c/crompton](https://odu.edu/directory/people/c/crompton) and shows that I focus on technology in education. You can send an email with your ideas, or even ask for a meeting so you can talk through them. When you chat with the researcher, remember that they're looking to see if you

**Invite researchers into your classroom. Teaming up with universities to tackle some of the big questions that come up in your classroom is one way to support improved learning outcomes.**



## STANDARDS SPOTLIGHT

I often hear teachers saying to students, “The more you put in, the more you get out.” It also works for adult learners. Education is a wonderful and very impactful profession. We need to become learners to ensure we’re doing the best that we can today for our students.


propose something they’d be interested in studying further. You should be doing the same. Here are some helpful questions to ask:

- What prior studies have you conducted similar to this topic?
- Is there some helpful literature I can read to learn more about this topic?
- What research methods do you use and what will it look like for me and my students?
- What ethics review procedures will you put in place to ensure the well-being of students being studied?
- How will they share the research findings with you?

You and the researcher may find that they’re not a good fit for the questions you’re seeking answers to, but they should be able to connect you with other researchers who are better suited.

As you work with good researchers, you’ll get advice and answers as the data come in. As a teacher, I had researchers in my class on a regular basis. They introduced

me to questions I hadn’t even thought about. I found the research and learning so exciting, it inspired me to become a professor.

I often hear teachers saying to students, “The more you put in, the more you get out.” It also works for adult learners. Education is a wonderful and very impactful profession. We need to become learners to ensure we’re doing the best that we can today for our students. 

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## MEMBER PROFILE

*Sean Arnold combines game-based and project-based learning to create layered instruction that engages all learners.*

# Sean Arnold

## Drawing from an eclectic work history, he meets the needs of diverse learners

**By Nicole Krueger**

Early in his career as a special education teacher, Sean Arnold was told there were certain things his students couldn't learn.

His response: "Let's try."

In more than a decade as a teacher and STEM coach for New York City's District 75 citywide special needs program, Arnold has tried everything he could think of to empower his learners. Part scientist, part engineer and part creative improviser, he's become adept at devising new ideas, testing them out in the classroom and adjusting them on the fly.

"Bold and broad, my goal is to share my passion for hands-on, engaging, fun, motivating, meaningful, wholly accessible learning," he says. "I want to improve as many students' lives in classrooms as I can."

One day he might be working to raise funds (more than \$1.5 million so far) for technologies such as augmentative and alternative communication tools. Another day he's running to the Dollar Store at lunchtime to buy gloves and socks he can mark with Ls and Rs to help students with cognitive impairments play Musical Note Twister, a game he adapted to teach music notation.

"There's no easy guidebook for what works," he says. "I try to familiarize myself with as many tools and technologies – whether digital or analog – as possible, throw them all into a blender, and put them together into something that meets the needs of whatever individual students I have."

Through a combination of game-based and project-based learning, Arnold designs layered instruction that engages students with a diverse range of abilities, from gifted learners who need help expressing themselves to struggling students who need an easy entry point into the content. To that end, there's not much he won't try – except maybe lecturing.

"It's a challenge. You can't stand in a room and talk at kids and expect anything to happen. If you're working with kids with autism spectrum disorder, for example, that's not going to go over well and things will quickly go downhill," he says. "I tried anything and everything I could to find success."

If you'd told Arnold 20 years ago that he'd end up back in the classroom, he wouldn't have believed it. Although both his parents were teachers,





Part scientist, part engineer and part creative improviser, Sean Arnold is adept at devising new ideas, testing them in the classroom and adjusting them on the fly to meet students' needs.

## MEMBER PROFILE



**“Bold and broad, my goal is to share my passion for hands-on, engaging, fun, motivating, meaningful, wholly accessible learning. I want to improve as many students’ lives in classrooms as I can.”**

he resolutely avoided following in their footsteps, opting instead to pursue a variety of careers that left him feeling unfulfilled – producing newscasts for CBS, working on Wall Street and even dabbling in construction and theater.

It wasn’t until he realized he was more comfortable around kids than adults that he decided to give teaching a try. Growing up with a learning disability and a younger brother who participated in the Special Olympics, he knew he wanted to work in District 75. He got his master’s degree in education from Queens College and wrote his thesis on how atonal music can alleviate stimming behavior in kids with autism.

Then his real work began.

To meet the needs of his students from day to day, Arnold draws upon both his diverse work experience and his hobby as an improvisational musician. He uses his construction knowledge to build things for class, his video production skills to put on student film festivals and his musical abilities to engage students through sound. He spends his daily subway commute listening to podcasts and scouring the web for ideas.

He’s not afraid to experiment, and brings his students in as experts who can provide early feedback.

“Some ideas I’ve had, I tested out on them first. I ask them, do you guys understand this? Is this fun for you? Is this interesting?”

He’s also not content with making a difference for only the kids he sees every day. While far from comfortable on a soapbox, he’s become a vocal advocate for students with special needs – from blogging to presenting at conferences to working on New York City’s first digital accessibility summit.

“Disability is the largest category of minority. At some point, everybody who lives long enough will probably have some form or manner of disability,” he says. “I think there are a lot of tools available, but the awareness is not fully there. I still have to express to teachers that technology itself is not cheating. Speech to text is not cheating.

“It’s getting people to recognize it’s not about that specific task but empowering kids to express themselves, their voices, and letting them be as independent as possible.” ❖

NICOLE KRUEGER IS A FREELANCE WRITER AND JOURNALIST WITH A PASSION FOR FINDING OUT WHAT MAKES LEARNERS TICK.



## Make equity, diversity part of advocacy efforts

By **Karen Richardson, Ph.D.**

VSTE Executive Director

When someone talks about advocacy, what do you think about? You may imagine ISTE members walking the halls of Congress or writing letters to their state legislators, sharing their values. These activities are important as they connect us to those who make policy and approve funding. We must raise our voices and tell our stories in the halls of power.

But, advocacy shouldn't be limited to an isolated visit or a single letter. The Virginia Society for Technology in Education (VSTE) is re-imagining advocacy, seeing it as part of an ongoing foundation of our organization and striving to demonstrate commitment to our values through our public work. We're taking an intentional approach to this advocacy work in two ways: through external partnerships and internal capacity building.

VSTE is part of the K-12 Learning Infrastructure Program (KLIP), a partnership between the Office of the Governor, the Virginia Department of Education (VDOE) and EducationSuper-Highway. KLIP supports increased access to affordable high-speed internet in every classroom in Virginia.

This work led to a larger discussion of how to ensure access to students at home as well, closing what we are calling the Learning@Home Gap. Representatives from VDOE, universities, libraries and VSTE formed a planning committee that resulted in a Digital Equity Summit, a gathering of Virginia's instructional and technological leaders to explore challenges and opportunities in the quest for digital equity.

But we all know that digital equity won't be solved by one summit. The summit ended with a design jam where attendees worked together to brainstorm potential solutions to their shared

challenges. VSTE plans to continue offering face-to-face and virtual opportunities for division and state leaders to share and collaborate, highlighting innovative approaches to getting all students the access they need to succeed in the digital age.

Internally, VSTE has identified diversity and inclusion as integral elements of who we are as an organization. When we realized that our board elections favored candidates in urban and suburban areas, we changed our bylaws to ensure that the board represented all regions of the state. After each election, we will update our map and determine if members need to be appointed from underrepresented areas.

VSTE has made strides in promoting diversity in its leadership both on the board of directors and conference committee. But in a state in which only 17 percent of teachers are nonwhite, encouraging and ensuring diversity must always be a priority to avoid losing ground.

Last spring, we formed a diversity and inclusion task force, inviting volunteers from across the organization to come together for discussion, education and action. We're in the early stages of the work, making plans for the 2019-20 school year and imagining how we might contribute to positive change in our state.

We aren't giving up those Capitol Hill visits and those letters, but through our digital equity and diversity and inclusion work, we're advocating with our actions. ♪



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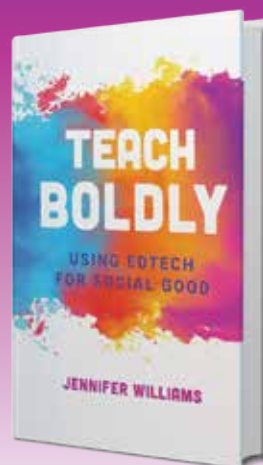
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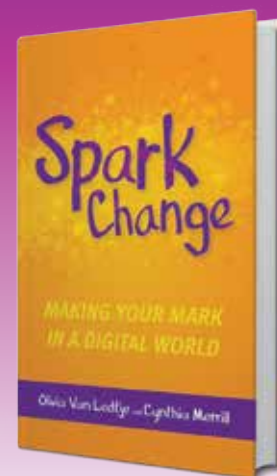
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# ISTE



## COMMUNITY VOICES

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# What are the best tools and resources to support English language learners?

### CommonLit

[commonlit.org/en/texts](http://commonlit.org/en/texts)

CommonLit has translation, TTS and other built-in text support tools. It's also free and doesn't badger you to upgrade like other sites do. It has a solid array of text options and search filters.

*Craig Steenstra, educational technology consultant  
Kent Intermediate School District, Grand Rapids, Michigan*

### BrainPOP ELL

[ell.brainpop.com](http://ell.brainpop.com)

Another great tool is BrainPOP ELL and the accompanying teacher resources.

*Darshell Silva, librarian  
Quidnessett Elementary, North Kingstown, Rhode Island*



### Read&Write

[texthelp.com/en-us/products/read-write/](http://texthelp.com/en-us/products/read-write/)

Read&Write is a tool many teachers in my district like to use to support ELL students.

*Karla Kiper, director of technology integration  
East Baton Rouge Parish Schools, Gonzales, Louisiana*



### Nearpod

[nearpod.com](http://nearpod.com)

Our ELL teacher loves the ELL lessons on Nearpod. Some are free but she now uses the whole set.

*Carmen Lagalante, educational technology specialist  
JSerra Catholic High School, San Juan Capistrano, California*

### Microsoft PowerPoint Presentation Translator

[microsoft.com/en-us/translator/business/powerpoint](http://microsoft.com/en-us/translator/business/powerpoint)



I would suggest the PowerPoint add-in that provides a live transcription in 60-plus languages. (It also can translate the whole presentation!) I choose English for my screen, but there's a QR code at the beginning that allows attendees to choose their language. If someone asks a question, it appears on my screen in English. Helpful for the deaf and ELL communities, and anyone really, since hearing and reading aids in comprehension.

*Karyn Fillhart (@Filibuster3), technology training specialist  
Chino Valley Unified School District, Chino, California*

### Newsela

[newsela.com](http://newsela.com)

We have the paid pro version of Newsela at my school. It's so worth it because you can do so much with student data. The free version also gives you a lot that's great. I used it for a couple years and loved it!

*Luis Oliveira, director of unified arts/ELL teacher  
Middletown High School, Middletown, Rhode Island*



### Speechlogger

[speechlogger.appspot.com/en/](http://speechlogger.appspot.com/en/)

I've always thought Speechlogger would be an amazing tool for parent conferences – on-the-spot translation.

*Nancy Watson, digital learning consultant  
Region 10 ESC, Richardson, Texas*



# Congratulations 2019 ISTE award winners!

## ISTE Impact Award

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**Betsy Corcoran**, co-founder and CEO, EdSurge

**Jennie Magiera**, founder, Our Voice Academy; chief program officer, EdTechTeam

**Sophia Mendoza**, director, Instructional Technology Initiative, Los Angeles Unified School District

## ISTE Distinguished District Award

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**St. Vrain Valley School District**, Longmont, Colorado

**Flagler County Schools**, Palm Coast, Florida

**Middletown City School District**, Middletown, Ohio

## ISTE Professional Learning Network (PLN) Awards

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*Arts and Technology Network Award:* **Cathy Hunt**, creative arts educator, McAuley College

*Computer Science Network Award:* **Alfred Thompson**, computer science teacher, Bishop Guertin High School

*Digital Citizenship Network Award:* **Amy Eakin**, director of technology, Northwest Arctic Borough School District

*Digital Equity Network Award:* **Jason Trinh**, hybrid-teacher digital lead learner, Toronto District School Board

*Early Learning Network Award:* **Analucía Tejada**, ECE technology teacher and technology curriculum lead, *Colegio Interamericano de Guatemala*

*Edtech Coaches Network Award:* **Michelle Palmieri**, technology integration teacher, Pine Plains Central School District

*Education Leaders Network Award for Exemplary Leadership:* **Wiley Brazier, V**, principal on assignment for technology integration, East Baton Rouge Parish School System

*Games and Simulations Network Excellence Award:* **Cynthia Calongne**, professor, Colorado Technical University and CCCS

*Global Collaboration Network Award:* **Tracey Winey**, teacher librarian, Poudre School District

*Inclusive Learning Network Outstanding Educator Award:* **Kendra Grant**, educational consultant

*Independent and International Schools Network Independent School Educator Award:* **Lauren Marold**, educational technology coordinator, Greenhill School

*Independent and International Schools Network International Educator Award:* **Raymond Mitchel Africa**, science and design educator, Manila Xiamen International School

*Interactive Video Conferencing Network Educator Award:* **Nicole Lakusta**, curriculum educational technology facilitator, Parkland School Division #70

*Interactive Video Conferencing Network Informal Educator Award:* **New York State Distance Learning Consortium**

*Librarians Network Primary Award:* **James Allen**, teacher librarian/EDhub director, Eminence Independent Schools

*Librarians Network Secondary Award:* **Tiffany Whitehead**, director of library, Episcopal School of Baton Rouge

*Literacy Network Award:* **Sirhajwan Idek**, teacher, Keningau Vocational College

*Learning Spaces Network Outstanding Learning Space Designer Award:* **Brian Seymour**, director of instructional technology, Pickerington Local School District

*Mobile Learning Network Award:* **Helen Crompton**, associate professor, Old Dominion University

*Online Learning Network Award:* **The Chinook Cyber School Team**, Chinook School Division

*STEM Network STEM Excellence Award:* **Jorge Valenzuela**, educational coach, Lifelong Learning Defined, Inc.

*Technology Coordinators Network Award:* **Fred Laudadio**, executive director of learning services and technology, McHenry Elementary School District 15

*Teacher Education Network Award for Excellence in Teacher Education:* **Tim Green**, professor of educational technology and teacher education, California State University, Fullerton

*Virtual Environments Network Pioneer of the Year Award:* **Valerie Hill**, library director, Community Virtual Library

## Making IT Happen Awards

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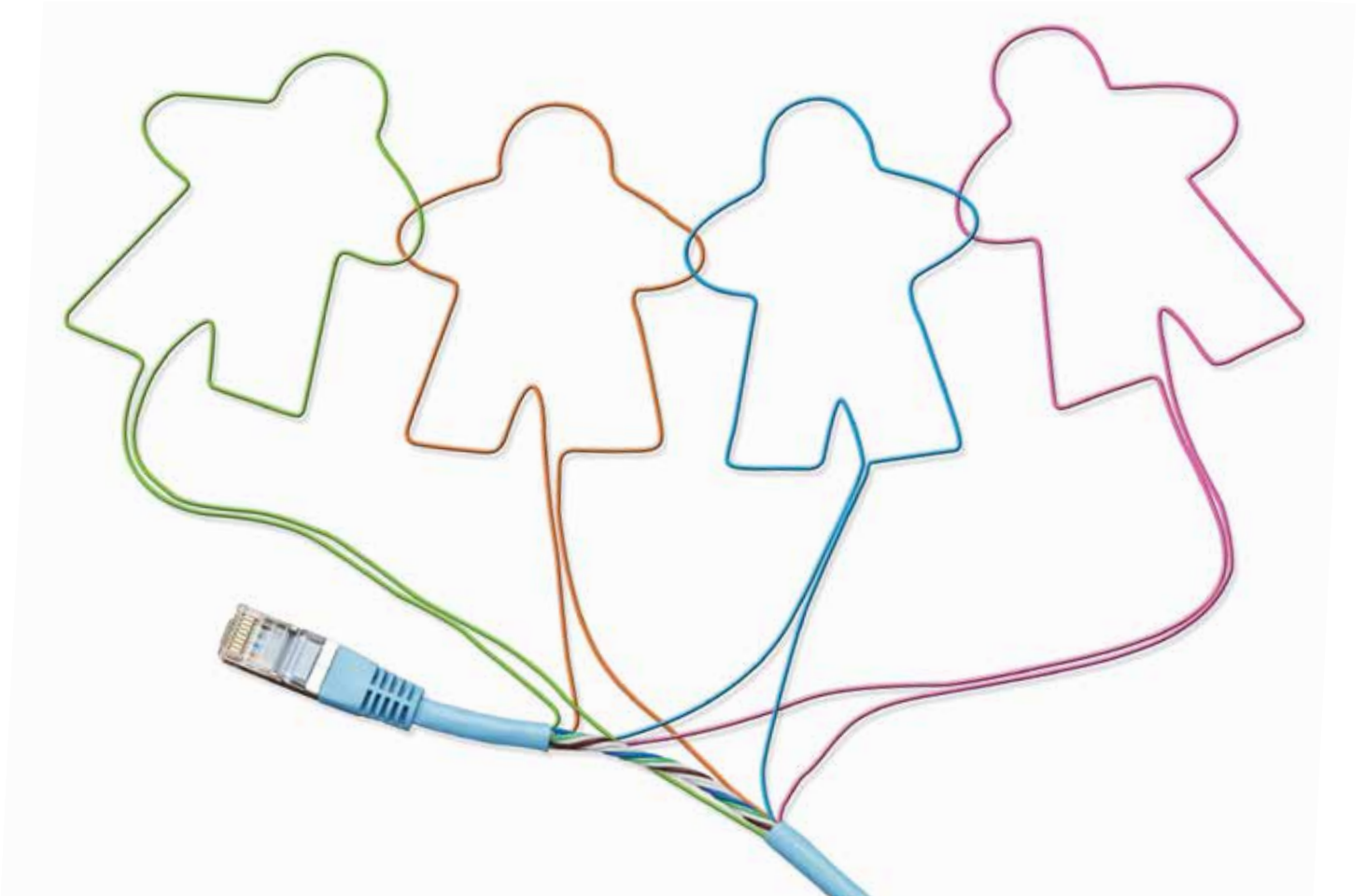
**Doug Casey**, executive director, Commission for Educational Technology, State of Connecticut

**Rachelle Dene Poth**, foreign language and STEAM teacher, Riverview Junior/Senior High

**Nicol Howard**, assistant professor and Master of Arts in Education Learning and Teaching Program coordinator, University of Redlands School of Education

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