RETHINKING TEACHING

HOW K-12 AND HIGHER EDUCATION LEADERS CAN FACILITATE COLLABORATIVE LEARNING WITH TECHNOLOGY

K-12 schools, colleges and universities are awash in technology that would have been unthinkable even a decade ago. Interactive tools have transformed online and blended learning from passive experiences to active, engaging environments that allow students to work together on projects tailored to their specific needs and interests.

Next-generation education emphasizes collaboration and interactivity, whether students are in the classroom, learning from outside experts or working on their own time. But they're only as effective as the educators who use them.

This issue brief explores ways in which technology is transforming teaching and learning, and preparing students for the future of work. It also offers suggestions on how district and higher education leaders can help educators innovate.

THE CONNECTED CLASSROOM

The 4Cs — critical thinking, communication, collaboration and creativity — are the cornerstone skills learners of all ages need to be successful in life.[1]

That's why the most transformative use of connected classroom technology, whether in face-to-face learning or online and blended learning models, isn't presenting lectures or material. It's leveraging these resources to help students collaborate and problem solve in new ways.

Collaboration tools such as Cisco Webex blur the lines between synchronous and asynchronous models, making learning a hybrid, continuous experience for all students.

In a connected classroom, technology helps enable:

- **Collaboration.** Students can securely connect and communicate with peers, teachers and experts.
- **Flexibility.** Whether in an online or traditional classroom, tools such as video, whiteboards and lecture capture give students the opportunity to access learning materials when and where they want.
- **Blended learning.** Students use tools like Webex Teams to gather materials and collaborate in class, then return to their projects on their own time.
- **New connections.** Video conferencing can help educators connect with parents in new ways.
- **Bringing the world to the classroom.** Students can speak to experts and collaborate with peers in other classrooms, cities or countries across the globe.

BRINGING IT ALL TOGETHER

The use of digital content and learning management systems (LMSs) is becoming nearly universal in both K-12 and higher education (see "Key Stats" on page 3). Used by educators to create and deliver content, monitor student participation and assess performance, LMS technology is rapidly evolving to provide new functions that can help educators more deeply understand each student's progress and tailor teaching and learning to meet individual needs.

Analytics. Systems integrate student data from multiple sources to help educators better understand the progress of each student, down to specific learning standards. When this is automated to provide actionable information "at the speed of learning," teachers can adjust and personalize instruction, while principals and administrators can track overall trends and identify gaps in curriculum or professional support.

Personalization. Next-generation systems allow students to set their own learning goals and connect them with the resources and assessments to meet and demonstrate mastery of specific skills.

Collaboration. LMSs can help students connect and work with peers on individual projects or expand group efforts to a broader scale — including other classes, schools or systems.

Transparency. Analytics and insights can be presented to different audiences — administrators, parents and community stakeholders — using dashboards, including the ones required by federal policymakers for both K-12 and higher education institutions that tell the story of students' progress.

At Shawnee Mission, 'Genius Hour'

Like many K-12 institutions, Shawnee Mission School District in Kansas has embraced 1:1 technology. But connecting classrooms to the outside world has helped students address real-world problems in new ways.

During a problem-based learning process called "Genius Hour," students identify issues they're interested in exploring and, with the help of their teachers, connect via video with working professionals including engineers, physicians, scientists — even professional athletes. After one classroom of 5th graders at Sunflower Elementary engineered prosthetic tails for injured dolphins, they were able to meet prosthetic developers over video to communicate about their work.

"Students get so excited about these professionals taking the time to speak with them," says Christy Ziegler, the district's assistant superintendent for innovation and performance. "Experiential learning is where the power of the technology ties in."

PREPARING EDUCATORS: SHIFTING THE LENS

To fulfill technology's promise of transforming teaching and learning, educators must learn to leverage these tools to engage students and support their personal growth.

Today's technology-empowered educator must wear more hats to ensure every student has the opportunity to learn in an environment that meets his or her individual needs and abilities (see "The Technology-Empowered Educator" below).

The strategies that can lead to effective online pedagogy have been discussed for more than a decade. Herkimer County Community College Professor William Pelz summarized them in three principles:

- Let students do most of the work — including student-led discussions and online research, peer assistance, etc.
- Emphasize interactivity — students collaborating with one another on projects focused on real-world problem solving.
- Strive for "presence" — through social connections, cognitive connections and active facilitation of student learning.[2]

To support educators in creating this kind of digital learning culture, leaders should start by shifting the lens. Rather than starting with students — who today are digital natives at all ages — focus on the adults who teach them.

Professional development has long been a priority in both K-12 and higher education, but preparing educators to use technology in engaging ways requires more than traditional "sit-and-get" training. Educators must have the opportunity to take risks, collaborate with one another and use technology

KEY STATS

K-12 SCHOOL DISTRICTS

Use video **98%**

Provide digital curriculum and other resources **96%**

Leverage technology for personalized learning **90%**

Offer fully online or blended courses **77%**

Have teacher/administrative data dashboards **73%**

HIGHER EDUCATION

Use LMSs **99%**

Faculty use LMSs; 56 percent daily **85%**

Students use LMSs, 56 percent in most or all courses **83%**

STUDENTS

Agree that technology contributes to the successful completion of courses **78%**

Sources: CDE 2017-18 Digital School Districts Survey, University at Buffalo Center for Educational Innovation, CISCO

The Technology-Empowered Educator

According to the International Society for Technology in Education (ISTE), today's technology-empowered educator has many roles, including:

LEARNER learning how to leverage technology as part of continuous improvement

LEADER supporting student empowerment

CITIZEN modeling how to responsibly participate in the digital world

COLLABORATOR working with colleagues and students to improve practice and share resources

DESIGNER creating activities and environments that recognize different learning styles and abilities

FACILITATOR helping students use technology to learn

ANALYST using data to drive instruction and support students' progress toward goals

as tools in the service of creating a personalized learning environment. Among the strategies that have worked:

Provide technical support — but that's just a start. Training teachers on the nuts and bolts of using digital tools — and providing on-site support for when things go wrong — are the foundation on which a digital learning culture can be built. But technical know-how alone won't shift the way educators teach.

Emphasize culture. Technology adoption doesn't occur in a vacuum. It requires both support for risk-taking and experimentation from administrators and a commitment to continuous professional learning and improvement by educators.

"Top down and bottom up — it has to be both," says Christy Ziegler, Shawnee Mission School District's assistant superintendent for innovation and performance.

Go slow to go fast. Whenever possible, encourage educators to adapt at their own pace, so early adopters can set an example and encourage their peers to experiment themselves. Doing so may take longer, but can help shift the culture in more authentic ways.

"It's taken us four years to get to a place where more R&D work is happening at the classroom level," says Ziegler.

Bring people together. Professional development is particularly challenging in high schools and small institutions, where teachers in different subject areas lack the opportunities to collaborate. Using technology to connect them with peers teaching the same subjects on other campuses can help encourage innovation.

Learn as you go. Embedded training and credentialing can encourage educators to build skills as they teach. Educators should have the opportunity to earn badges as they demonstrate how they use tools like Webex Teams in their classrooms in new ways.

Just get started. As with students, educators learn best by doing — so encourage them to integrate digital activities into their day-to-day teaching.

"Regular and persistent use of collaboration or web conferencing technology in the classroom is the best way to create and grow a digital school culture — and thus, a new digital learning environment," says Renee Patton, Cisco's U.S. Public Sector director of education.

WHERE TO START

Technology is only as powerful as the infrastructure — and the people — that drive it. Cisco's Digital Education Platform provides education-focused solutions supported by an efficient, security-focused end-to-end IT platform. Cisco has helped transform more than 14,250 school districts and 9,800 colleges and universities in 127 countries and has committed to impacting 1 billion people by 2025.

Connecting Across Campuses

After Georgia State University merged with Perimeter College, a community college system with campuses throughout metro Atlanta, officials recognized the opportunity to use video technology to offer sought-after classes.

"Georgia State's Perimeter College wanted to provide options in addition to online for students to access a number of courses they need to graduate," says Lee Webster, assistant director of learning environments at Georgia State's Center for Excellence in Teaching and Learning. "Students preferred to have the ability to ask real questions and receive real-time feedback." Faculty, too, "had taught in online environments and wanted to have a more intimate connection with their students," he adds. "We thought this was a situation that was really apt for a video solution."

But Georgia State officials knew they'd have to provide support to ensure that distance learning was as engaging as students and instructors hoped. Along with implementing technology such as advanced whiteboards that allowed lecture capture into the college's LMS, the university provided technical support and coaching to help instructors shift their pedagogy and curriculum to emphasize interactivity and collaboration.

"There needs to be support for faculty members," Webster says. "Once faculty felt comfortable with the technology, we could make them comfortable with new learning strategies."

Keep up with trends on the Cisco Education blog (blogs.cisco.com/education), and learn more about Cisco digital learning at **cisco.com/go/education.**

1. The 4Cs was first coined by the Partnership for 21st Century Skills. http://www.p21.org/
2. https://www.ccri.edu/distancefaculty/pdfs/Online-Pedagogy-Pelz.pdf

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