CENTER FOR DIGITAL EDUCATION

TOP 30 TECHNOLOGISTS TRANSFORMERS & TRAILBLAZERS 2014

Ann Flynn,
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FLICKR/KATHY CASSIDY

TOP

COVER PHOTO BY DAVID KIDD

TECHNOLOGISTS TRANSFORMERS & TRAILBLAZERS

EACH YEAR, THE CENTER FOR DIGITAL EDUCATION (CDE) recognizes K-20 education leaders who are transforming learning through the innovative use of technology. This publication honors CDE's *Top 30 technologists, transformers and trailblazers* across the country — true pioneers who are reshaping education by thoughtfully harnessing the power of technology.

The future of America is in the hands of its educators and CDE is honored to recognize those leaders who have a common interest in meeting the individual needs of students while supporting 21st-century learning tools. This publication highlights the most recent initiatives and programs spearheaded by the 2014 award winners.

New ideas, collaborative initiatives and a willingness to embrace the unknown are what are revolutionizing the classroom — in whatever format it may be. We know there are thousands of education leaders working to improve the future of America each day — the following education pioneers are just a sampling of those leaders.

Congratulations to the 2014 CDE Top 30 award winners!

Alan Cox, Senior Vice President,
Center for Digital Education

Elizabeth Hoover, Ph.D.

Chief Technology Officer
Alexandria Public Schools, Virginia

AS A FORMER ELEMENTARY SCHOOL TEACHER, Dr. Hoover never expected to find herself serving as the chief technology officer for a school district. However, the evolution of technology and education led her away from the classroom and into school administration.

Beginning in 2007, Hoover worked with Alexandria Public Schools to launch online curriculum and courses for its high school students. Having implemented a 1:1 initiative in 2003 and eventually going completely wireless, the district and its students weren't strangers to bringing technology into the classroom. Hoover is particularly passionate about online learning. "One of the reasons I fell in love with technology is that it really makes your thinking visible in ways that it never has been before," says Hoover. Currently, the district has 500 to 600 students enrolled in online courses, which allows the district to distribute advanced diplomas, prevent dropouts and remedy credit shortcomings.

Hoover is currently in the process of launching a tablet initiative at the high school level, which she hopes will create a more personalized learning environment for the students and increase accessibility to online courses. "I feel like technology is finally being developed for the K-12 environment," she says. "We had been adapting technology from the business world or personal use in schools, but now I think we're at a turning point where it's actually being developed specifically for schools with an easier implementation." With a significant low-income and transient population in the district, having tablets available ensures each student has access to the same educational opportunities. Additionally, transitioning to a tablet platform should also help teachers push out informal assessments and allow for more flexibility in classroom management.

In addition to the district's online learning program and new tablets, Hoover is in the process of launching a student-managed technology help desk. When the district was using primarily laptops, a student-run help desk seemed like a far-off dream as there were several security and network issues to overcome. However, with the release of the new tablets, Hoover's dream of a student technology help desk will come true. Recognizing that involving students in the decision-making and learning process is key, Hoover works with a few interns each summer. This year, the students are helping to prepare for the launch of both the tablets and the help desk. "It's assumed the kids know technology, and they often do, but it's usually used for entertainment and not necessarily for their education — to learn, connect, collaborate and construct," says Hoover.

Looking back, Hoover believes it was the adoption of an online learning management system that encouraged the district to incorporate technology into the classroom in a meaningful way. As technology took root in the district, serving as one of the primary vehicles for content delivery, Hoover and her district began working with technology integration specialists, who are also licensed teachers. These specialists work to support teachers — they collaborate over planning, co-teach and model technology.

While Hoover's influence can be seen across the district, she keeps the purpose of technology in education top of mind. "Districts need curriculum that is tied into technology and that technology needs to make sure the delivery of the curriculum is different than it would be without it," says Hoover.

Cody Grindle

Director of Software Development
IDEA Public Schools, Texas

AFTER HIS CHARTER NETWORK was awarded a $31 million Race to the Top grant, Grindle was faced with a choice: Continue serving as the IT director, or transition into building a new software development department. Having served as a classroom teacher and then IT director, Grindle embraced the challenge and embarked on a journey to create a data analytics platform for use at the district level.

Though the analytics platform is still in development — it's slated as a three-year project — Grindle believes that it will help teachers and students alike. When completed, the platform will funnel all data into a centralized warehouse where an internal team will work with research and analysis partners to determine key insights that drive learning and instruction. "We acknowledge that our teachers don't have the time to sit down and pore over data for two to three hours every night — we know the anxiety and anguish that can bring to teachers, especially those new to the profession," says Grindle.

At the start of the 2014-2015 school year, Grindle will roll out part of the analytics platform to six of the district's academy schools. With pre-determined measurements and markers of success, Grindle will compare the impact of the platform against the non-piloted schools. With real-time insights, he hopes to encourage personalized learning among students and instill confidence

Jim Jorstad

Director of IT-Academic Technologies
University of Wisconsin — La Crosse

DAVID KIDD

FOR JORSTAD, succeeding as an educational technology leader requires the same strategic thinking as winning a game of chess: When making decisions, you have to connect the dots and think three moves in advance.

Jorstad, a 30-year technology innovator and award-winning media producer, loves chess, but it isn't his only passion — he is also keenly interested in, and fervently works toward, improving digital literacy; bringing authenticity and relevance to the classroom through social media; promoting and measuring technology use and effectiveness; creating innovative learning environments; and mentoring students, faculty and staff.

He accomplishes these things through various programs and initiatives, each marked by creativity, innovation and, of course, passion. For example, to better mentor students and bring relevancy to the classroom, Jorstad helped spur a digital storytelling program when he was asked to teach a three-month seminar course for incoming freshmen.

Building on the practice of digital storytelling, Jorstad started helping faculty and students sign up as CNN iReporters. He not only helped his own campus get started, but actively assisted other Midwestern campuses with the concept. An award-winning iReporter himself, Jorstad began writing for CNN during the 2010 political upheaval in Wisconsin, and later turned to other issues such as homelessness, the 2012 U.S. drought and human interest stories. His stories have had nearly 1 million views. Fast forward to today and Jorstad says students' stories are being vetted by CNN producers and presented as news, with one student's story that details his caring for a brother with a rare neurological disease receiving more than 72,000 views.

As another example, when violence erupted in Eastern Europe, a former University of Wisconsin — La Crosse student from Ukraine Skyped with Jorstad to tell the story. Later, CNN contacted the student. "I was watching CNN national news and our student is being quoted in the same line or paragraph as NATO, Vladamir Putin and the prime ministers of Ukraine and Russia," says Jorstad. "There's no better teaching opportunity than that. Making teaching relevant and authentic helps students connect with their world. It also helps faculty become even more immersed in the learning process."

But the impact didn't stop there. Later, the same student was offered a position at the U.S. Embassy in Ukraine. "You would never think this would all come together, but you have to connect the dots," says Jorstad. "You may not realize the initial fruits of your investment, but if you take students with great skills and put them in the position to be successful, you will reap great benefits."

As part of his passion for mentoring, Jorstad's department provides robust professional development for faculty and staff, with workshops designed to draw crowds and get educators interested in technology. The department's creative way of naming sessions such as "Tech4U," "HOT" (Hands-On Technology) and "Passport to Technology" have been hugely successful. Jorstad is careful to measure that success by conducting surveys with faculty and staff to ensure professional development is on point. "When we can survey faculty and receive nearly 200 responses for specific technology training, we know we are on the right track," says Jorstad. These innovative sessions have gained national attention.

Jorstad stresses the importance of teamwork and communicating your team's successes. "Even though I don't have a large team, I pick employees who are passionate about what they do and are creative thinkers," he says. "It's always good to have someone on your team that understands servers, routers and bandwidth, but the key is the ability to see the big picture and think with creative solutions.".

Jorstad says to be successful today, leaders need to make investments in technology, but also investments in students, faculty and staff. Like chess, many times the successful moves you make won't be realized until later in the game, but Jorstad says that makes the payoff that much sweeter. "When students and faculty come back and say you made a big difference, it makes it all worthwhile. It all starts with that first strategic move."

in teachers. "We want teachers to have confidence and a sense of empowerment so that the decisions they're making for individual students are the right ones to be making at that time, which will help get those students to where they need to be," says Grindle.

Grindle has helped revolutionize the way his district views data. Previously, IDEA Public Schools had developed technology labs that served as blended learning spaces. The issue with these spaces was that none of the data gathered made it back to the teachers. Grindle's new platform will help to ensure teachers have access to real-time data. With this data, teachers will be better prepared to provide individualized learning experiences for each student. Thus far, most schools and teachers seem to be embracing this technological shift. "In terms of adoption, my experience is that teachers and principals are very excited," says Grindle. "They're excited for the opportunity to use something that is real. We've all had experiences where the world is promised in one technology, but it's not very useful and actionable."

Grindle recognizes that his district is making a huge investment in him, his work and his department, but that doesn't keep him from being a bit of a risk taker. "You have to have a tolerance for risk. That's one of the things that excites me most about working for IDEA Public Schools," says Grindle. "As a district, our success and our growth is due in part to our high tolerance for risk when it comes to technology." With high expectations, IDEA Public Schools acknowledges small wins along the way to new technology initiatives. With the district's mission in mind, Grindle keeps long-term student success and achievement as his priority. Like many in education, Grindle is passionate about his work and hopes that it prepares each student for college and life after K-12.

Robbie Melton

Associate Vice Chancellor of Mobilization & Emerging Technology
Tennessee Board of Regents

APP-OL-O-GIST: A PERSON WHO studies and researches mobile apps for the purposes of education and workforce training. You may not have heard of this term, and that's because it was originated to describe exactly what Melton does for a living. Melton was hired in 2000 to start the Tennessee Board of Regents' (TBR) statewide collaborative for online programs and services (Regents Online Degree Programs or RODP). This was no simple undertaking, considering TBR is the sixth-largest system in the nation, consisting of Tennessee's 6 state universities, 13 community colleges and 26 technology centers.

It started when Melton noticed students using mobile devices to access online classes as well as an increase in students with access to a mobile device. This observation led Melton to research the use of mobile devices and apps for educational tools. "I'm on a mission to prove that these devices and apps can place a new type of interaction and excitement, literally, in the hands of every person," says Melton. Because students were already bringing their preferred personal device to school, Melton determined that as educators, staff could not afford to miss this opportunity. "We must recognize the impact and capabilities of these devices beyond basic communication and playing games. These devices are so powerful, people are using them to diagnose eye diseases and skin cancer, and to access a wealth of resources on demand," says Melton.

When Melton first started researching, studying and making educational apps available to faculty and staff 8 years ago, she had about 30 apps to offer — now she has more than 60,000 for students from pre-K all the way through workforce development. The apps are aligned to more than 80 program areas, which can be found in Melton's online app center, www.Appapedia.org. Due to the growing demand for peer-reviewed mobile and classroom applications, Melton, on behalf of TBR, partnered with an open source online repository for faculty to review mobile apps. Educators now have access to a rubric, standards and professional development to help them incorporate the apps into their teaching.

The use of mobile devices and apps have had a significant impact on education in the state. For instance, Walter State Community College (WSCC), an education institution with a proactive vision for technology, contacted Melton to assist in developing a strategic plan for mobile devices and apps for teaching, learning and operations. WSCC collaborated with Melton to demonstrate the effectiveness of using devices and apps for education at the college level. Starting with one tablet, WSCC developed a campus-wide strategic plan and now has more than 1,500 mobile devices available for faculty and staff. Additionally, the campus deployed student mobile devices and apps aligned to programs, curriculum and outcomes. Faculty members use apps in nearly every subject. Since WSCC started using mobile devices and apps, it has realized a significant increase in student learning and engagement, not to mention innovative teaching practices. Additionally, WSCC has been selected for awards such as the Apple Distinguished Campus Program, which led to the Tennessee College of Applied Technology's (TCAT's) first system-wide mobilization and app initiative for workforce development.

Having been in the education market for more than 48 years, Melton has seen the learning experience evolve — beginning her career during a time when computers didn't

Pat Bush

Director, Technology Resources & Data Development
Delaware Department of Education

AS THE DIRECTOR of technology resources and data development for the Delaware Department of Education, Bush spends a great deal of time fostering collaborative communications within Delaware and across the country with other district and state technology leaders. "I believe that through collaborative, parallel and standardized development efforts we can deliver technology solutions faster and in a more consistent, meaningful way that is both cost effective and sustainable," he says. Striving to meet the needs of educators and improve the quality of instruction for students, Bush advocates clear communications, enterprise architecture and performance data solutions. This approach prioritizes the effective use of educational technology, which is strongly evident in Delaware's Education Insight Dashboard.

Implemented in 2012, the Education Insight Dashboard aggregates data from many existing sources to provide one presentation delivery system for student, class, school and district performance management. It is a powerful tool for administrators and educators to improve instruction based on data-driven decisions and support meaningful discussions during professional learning communities (PLCs) and parent conferences. The dashboard is provided free of charge to all Delaware public school districts and charter schools. It services over 6,700 users and provides performance information for more than 130,000 students.

exist and now serving as a pioneer in educational mobile apps. She uses this experience when training educators who may be in the same boat. "I often familiarize them with apps that may benefit them personally — first on devices they are comfortable with, which is usually their current phone," she says. "And once you show them what their current phone can do to enhance education, it creates a new level of on-demand engagement and interaction."

Melton credits her success for this state- and system-wide achievement to a visionary chancellor and supportive education leaders and staff. "It was our progressive chancellor who saw the impact mobility would have on teaching and learning and knew we needed to take a more formal approach," says Melton. It is because of this forward thinking that the Office of Mobilization and Emerging Technology was born. To this day, Tennessee is the only system of higher education that has established a system-wide office and strategic plan for mobilization and emerging technologies with the sole purpose of focusing on the use of devices and apps as effective teaching, learning and workforce tools.

Steven Zink

Vice Chancellor for Information Technology
Nevada System of Higher Education

WHEN ZINK DESCRIBES the University of Nevada, Reno's (UNR) Mathewson-IGT Knowledge Center, his excitement is contagious. The $105 million facility, a massive 200,000 square feet in total, was the culmination of Zink's time as the vice president of information technology and the dean of university libraries, a position he had served in since 1993. Before this he served as the director of public services for UNR from 1980-1992.

"Eventually I was in charge of almost everything digital, including all of the academic and administrative computing, the networking, libraries, public broadcasting, instructional technology — the true combined digital initiative," says Zink.

This focus on digital is what led the university to consider building a new library and what would become the Mathewson-IGT Knowledge Center. Zink, who says part of the reason he never took a job at another institution was because of the quality of his peers at Nevada, cites willing participants in leadership and collaboration of incredible and creative people as the reason the project was successful.

The Center is a monument to digital and evolving technologies. It was built so that all of the books in the library could be placed in robotic retrieval and the first floor features new media technology, which Zink believes will permeate up through the rest of the facility eventually. "It's a stunning, incredible building and it has changed the face of the campus," says Zink. "It is so in tune with modern students, the digital natives who are coming to campus."

After the completion of the Center, Zink was selected to be vice chancellor for information technology for the Nevada System of Higher Education (NSHE), a position he says is quite different because it focuses on strategic thinking about technology for the system as a whole, which includes all public institutions of higher education in the state.

When he arrived, NSHE was just completing the implementation of a student information system. Zink focused on an extensive business process reengineering project for the system to standardize processes and combine efforts to reduce duplication of effort prior to the selection and implementation of new statewide HR and financial systems.

"Nevada had tremendous growth before the recession, but during the recession there were some huge cutbacks," says Zink. "The opportunity to do business process review is tremendous. If we can combine processes, it releases more money for students and the mission of education and research."

Zink says his biggest piece of advice for education leaders — though it may be cliché — is to hire better people than you already have and hire people that are smarter than you. "A lot of people are threatened by that, but if you do that, you will not come up short."

Beyond the important benefits of presenting standardized metrics and progress for the educational success of students, this project also puts solid management fundamentals into place that enable schools, districts and states to work together to leverage their individual resources. "This approach translates into making larger-scale improvements in our educational information system with more accuracy, speed, better data and lower costs," says Bush.

The Education Insight Dashboard project is built on the foundation of Delaware's robust data systems. Ongoing implementation requires baseline data element definitions, models and metric standards to function in a consistent, meaningful and efficient way. The implementation of the Education Insight Dashboard has been strongly supported by the Delaware Department of Education's participation in the Education Fidelity (Ed-Fi) Alliance, of which Delaware is a founding member. The organization helps to set shared educational data standards for performance dashboard design, development and implementation. It enables deployment of quality solutions in a shared, reusable technical and operational knowledge space. Bush elaborates, "Our use of this standard platform speeds development; leverages the work of other states; and allows Delaware to 'pay it forward' with our own enhancements, metrics and customizations. These can then be used by other states and districts in the alliance to improve the quality of their data systems and dashboards and better service their schools and communities."

Bush strives to create a supportive ecosystem in information system initiatives by keeping stakeholders and focus groups at the forefront of requirements definition, as well as building strong enterprise architecture, governance infrastructure and data quality practices. He says, "The work we do as information system professionals is best when it is collaborative, consistent, aligned and structured in nature."

Sam Brooks

Personal Learning Coordinator, Putnam County Schools
Principal, Putnam County VITAL Program, Tennessee

PRIOR TO 2008, Putnam County Schools had no digital presence to speak of, and teaching models hadn't changed much in decades. That all changed in a big way when district leadership began to build an educational engine that disrupted previous learning models, steered students toward greater achievement and expedited their pathway to college. At the heart of that engine is dual learning for middle school and high school students and a virtual learning program known as VITAL — Virtual Instruction to Accentuate Learning.

Brooks, Putnam County personal learning coordinator and principal of the Putnam County VITAL Program, has been key to the program's success. While it got a healthy start prior to his arrival by partnering with skilled vendors, Brooks, a former high school coach, has taken the ball and run with it.

Entering into a strategic affiliation in 2008 with Florida Virtual School, an online education pioneer, Putnam County hired online instructors from within the district and offered courses at $300 per class through Florida Virtual School. After two years, Putnam was able to model that program on its own. Now, county students access instruction online in a classroom or from home, any time of day or night, synchronously or asynchronously, with facilitators available on-site, via video or by email — all for just $75 per student per class. VITAL gives students the opportunity to make up credits or obtain advanced credits that will ultimately expedite their pathway to college.

Under Brooks' leadership, VITAL has grown and developed exponentially, expanding to include credit recovery, credit advancement, blended learning, distance learning, dual enrollment, technology professional development, a college-oriented high school and a platform for young homeschooled students. All of these elements have gathered momentum, building from one another.

Dual enrollment is the secret sauce behind VITAL. Brooks says, "High-achieving seventh and eighth graders with dual enrollment take high school algebra, geometry, Spanish, personal finance and English in distance learning — allowing them to accrue those high school credits by the time they leave middle school."

Fast forward to 11th or 12th grade, when those same students have general requirements behind them and are eligible for VITAL dual enrollment. They are taught university-level content online by a college professor, accruing college credits. Brooks says, "Now we have students from Putnam County Schools with the ability to earn an associate's degree by the time they graduate high school."

The program continues to deliver benefits as students move through each

Jennifer Sparrow

Director of Online and Innovative Learning
Case Western Reserve University, Ohio

BASEBALL LEGEND Ty Cobb had a .366 career batting average, the highest of anyone to professionally play the game. It's of course an impressive number, shutting out household names like Rogers Hornsby, Joe Jackson and even the Great Bambino.

But as Sparrow points out, even a .366 batting average means you're striking out nearly 7 out of 10 times you walk to the plate. And while that may signal success in baseball, it doesn't fly in education. "We have to swing for the fences every time," says Sparrow. "Success means taking risks, learning from those risks and then finding the next best iteration of the innovation."

Sparrow says her mission is to help students and faculty think about their digital fluency and become creators of content and knowledge rather than just consumers of technology and the content available via the use of technology.

Before joining Case Western, Sparrow was the senior director of networked knowledge ventures and emerging technologies at Virginia Tech. She studied how to bring new technological tools into institutions that typically had limited resources, how those tools could be implemented effectively, and how faculty and staff could be more comfortable using these technologies. Sparrow also looked at increasing accessibility for diverse learners.

Sparrow was instrumental in the creation of a blogging platform at Virginia Tech, as well as a large-scale digital storytelling project, both of which aided her mission of helping students and faculty increase their digital fluency.

"A digital format provides the opportunity for students to become producers and publishers of content," says Sparrow. "It also gives faculty an opportunity to rethink what the learning outcomes are associated with the project. The current learning outcomes can be supplemented with 21st-century digital skills such as multimedia creation, Web publishing and the creation of personal learning networks."

At Case Western, Sparrow has continued to investigate and solve the challenges associated with emerging technologies, but she is also focusing on online learning, a subject she says was an area of emphasis for her in the 1990s — way before it became "cool" with greater attention placed on it after the advent of MOOCs.

"What I think is interesting about combining those two positions here at Case Western is that it allows us to have conversations about teaching and learning regardless of the delivery method,"

phase of education. High school graduates seeking scholarships become more attractive commodities to universities when they can enter college as juniors — meaning that they'll only need scholarship funding for two instead of four years. Alternately, they can deploy the final two years of a four-year scholarship in graduate school.

Next up, Brooks is putting the finishing touches on an online program with financial guru Dave Ramsey and Florida Virtual School, which will offer online personal finance classes for any student in the United States and beyond. Brooks' voice crackles with excitement when he talks about it. Given the enthusiasm and expertise this former coach pours into his work, it's not surprising that Putnam County is held up as a model in Tennessee for what personalized learning can achieve.

"For me to be in a role where I can specifically engage students and make a difference in their lives — that's what's important to me," he says. "I wake up every day motivated to go to my job. And how important is that — for someone to love what they do?"

says Sparrow. "Whether its online, blended or face-to-face learning, we're able to talk about what good teaching and learning looks like, the qualities we need to have in our teaching, the qualities we need to have in our learner and the qualities we need to have in our technology."

Sparrow is also passionate about supporting faculty by equipping them with the tools they are interested in using. She says providing a rapid response to faculty that want to try a new tool or implement a new initiative is critical to retaining interest in technology and selling its benefits.

She also tries to be a loyal partner to faculty who need help using technology to engage students and reaches out to them to suggest technology that might help them meet their needs — a move that is effective, even if they are wary at first. "One of my faculty members said, 'Jennifer pushed me off a cliff,'" says Sparrow. "I like to think of it more that we held hands and jumped together."

Anant Agarwal

CEO
edX

AGARWAL IS THE CEO OF EDX, the open source, nonprofit learning destination that is breaking down barriers to high-quality education, teaching more than 2.95 million students from every country in the world in just two and a half short years. "As an engineer and professor prior to joining edX, I'd only ever dreamed of reaching the number of students that I've now been able to reach. I am humbled and grateful to every student who participates in any edX course, helping my colleagues and me to become better teachers and encouraging our endeavor to provide free education to everyone, everywhere," says Agarwal.

EdX offers more than 300 courses from 57 prestigious colleges, universities, organizations and institutions worldwide, including Harvard, MIT, Caltech, Cornell, the Smithsonian and the Linux Foundation. Recently added new members include the University of Notre Dame, the University of Adelaide, the Birla Institute of Technology and Science (BITS), Pilani, The Hong Kong Polytechnic University, Wageningen University and the Indian Institute of Management Bangalore. "Our work with our member institutions furthers the edX mission to remove barriers to quality education and to inspire and educate our future leaders and innovators," says Agarwal.

He says the technology edX has introduced and continues to develop is crucial to education because it brings access to education to anyone, anywhere with Internet connectivity. Additionally, edX was created to be built upon; as more programs identify the benefits of online courses, edX empowers them to host their courses online and create more game-based learning programs. Since the platform is open source, edX's community of developers is continuing to improve the tools and portal to help deliver the best educational experiences for its learners.

Additionally, edX is finding meaningful insights in the data it is collecting. The data from the first prototype course alone (Circuits & Electronics) is staggering and would fill 110,000 books. EdX recorded every click — all 230 million of them — and discovered the following:

- Half of the students started working on their homework before watching video lectures. It appears students get more excited about learning when they try to puzzle out a problem. Researchers are now looking at whether professors should assign homework before the lecture, instead of after.
- A student who worked offline with someone else in the class or someone who had expertise in the subject would have a predicted score almost three points higher than someone working by himself or herself. Conclusion: Collaboration strengthens learning.
- Frequent questioning translates into better retention, so a physics class was transformed at MIT to include an online e-text with questions embedded in the lessons.

EdX shares research with universities so it can collaborate on learning tools and practices to increase effectiveness in teaching methods, such as peer assessment. Organizations and institutions can learn not only from edX's data and technology, but also ideally from its pedagogy: "We really believe an open source philosophy and focus on people, not profit, inspires teachers and learners, and lends itself to future knowledge sharing," concludes Agarwal.

Dan Majchrzak
Director of Research Computing

Howard Kaplan
Advanced Visualization Specialist

Gilberto Jaimes
Visualization Assistant

Matthew Wedebrock
Visualization Assistant

University of South Florida Advanced Visualization Center

AT THE UNIVERSITY OF SOUTH FLORIDA, biomedical engineering students can 3-D print an actual patient's heart for diagnostics and testing. Paleontology students can take CT scans of fossils and 3-D print replicas of them to study different parts of anatomy and composition of bones. Geology students can take laser scans of entire masses of land or specific areas like volcanoes and deserts.

The capabilities are made possible through the university's Advanced Visualization Center (AVC), created in 2011. Dan Majchrzak, director of research computing at the university, says, "The mission of AVC is to ensure students have access to the cutting-edge technologies they are likely to see in their careers after they leave the university, or in their future research as they further their education."

To support that mission, AVC recently invested in 3-D printers and rapid prototyping, a move Majchrzak and Advanced Visualization Specialist Howard

Mark E. Henderson, Ed.D.

Manager, College Information Systems
Los Angeles Pierce College

HENDERSON STARTED his early educational career at a community college and says he is honored to now service others as the IT manager of Pierce College — a part of the larger Los Angeles Community College District — and help them reach their own academic and educational goals.

"The community college system to me is an important thread in the higher education call for success," says Henderson. "I always try to put the student first because I believe the student is the core of why we are here."

Ensuring his department is tied into the educational mission of the institution is an important goal for Henderson, who believes IT is not just a back-office function, but is an opportunity to help students succeed. For the past two years he has served as the chair of the college's technology committee, where he works to create a more collaborative spirit among IT services and to better communicate IT activities with the rest of the institution. For the latter, Henderson holds IT open houses so educators and administrators can learn about the projects IT is working on and also understand how the IT department can help them use technology. He says it's common for people to be surprised at the work IT is doing.

"We may have thought we were communicating, but when you ask questions you realize people weren't aware or they will say 'I had no idea you guys were doing that,'" he says.

Another goal of Henderson's is to continuously focus on tying IT goals to the overall mission of the enterprise, which is ultimately improving student learning and success. "Sometimes we get bright ideas and become consumed by them, but later you realize it has nothing to do with why you are here," says Henderson. "I always try to make sure that my efforts and the goals of the department are in alignment with the organization's mission — that way you never lose sight of what you are doing."

At the same time, he thinks educational leaders should look to IT for more than "1s and 0s," pointing out that technology professionals are excellent strategic thinkers and can provide additional benefits to the institution. "We have soft skills that people don't think we have. We have the ability and the flexibility to understand every function within our organization and we understand how to maximize and optimize those functions with the use of technology."

Henderson says his department is currently focused on pushing the classroom as close to the student as possible by providing distributed and virtual environments for 24/7 learning. "Learning doesn't just happen from 8 to 5 when a student is on campus," he says. "It could happen at a remote location, at home, on the bus or on the train. We want to make sure our systems can bring the learning experience all the way out to the student."

Kaplan say was needed because of its obvious future impact on manufacturing, research and education — as well as society in general.

"We were already doing 2-D and stereoscopic 3-D visualization at the Center and this seemed like the next step toward a different way of gaining insights from data and research," says Kaplan. "It is also very beneficial in research — even medical research — because producing a final product is often too expensive. It's much easier to print from a computer model and see if it satisfies requirements before you move to full-scale production or the final piece necessary for your research."

However, AVC facilities aren't only for advanced research students — they are freely available to all students and faculty for pedagogical needs. "An open-door policy was very important to us," says Majchrzak. "There are no hurdles to use the facilities and it's a friction-free introduction to these technologies."

Kaplan says visualization improves learning even when students are in introductory classes that are not affiliated with their major or field of study. He points to an introductory geology class where everyone created a visualization or 3-D print. "The understanding of the processes in geology was so much deeper because they were able to use these technologies rather than learning in a traditional way."

But even more important than the technology, Majchrzak says, is the Center's staff — including Kaplan, as well as Gilberto Jaimes and Matthew Wedebrock, who are both visualization assistants. "The group takes great care to help students develop skills and learn how to use the hardware and software," Marjchrzak boasts.

Majchrzak says if AVC didn't have the right people, the hardware wouldn't be as beneficial — staff helps take the pressure off of faculty who have many other concerns and pressures on their time.

"We're very student- and education-centered, but we're also trying to encourage students to go beyond the technology and create new innovations using the technology," says Kaplan. "We want them to not just experience the technology, but use it in their field to enhance what's already there."

Dr. Lyle Ailshie

Superintendent
Kingsport City Schools, Tennessee

KINGSPORT CITY SCHOOLS, serving approximately 7,100 students, comprises 13 learning-centered campuses with state-of-the-art technology and innovative programs. Considered one of the top school systems in Tennessee and the nation, it was a finalist for the Tennessee SCORE Prize, which recognizes exemplary leadership in learning among schools and districts.

Kingsport is overseen by Dr. Ailshie, whose array of honors and achievements would make any education leader proud: Tennessee Superintendent of the Year in 2005; founding member/chair of the Eastern States Consortium for Learning and School System Excellence in 2006; and first and only recipient of the Tennessee Education Technology Association's Honorary Lifetime Member Award in 2008.

But it's his role in creating an "innovation rubric" that is driving real change in the school district these days — a tool that helps administrators, instructors and staff target creativity, focus on goals and aim for a research-based approach to education. The rubric has 10 criteria, among which are elements such as embedded professional development, effective and creative uses of time, strategies for student engagement, and, notably, technology.

"Particularly as resources become more scarce, accountability has become more focused," Ailshie says. "When looking at our system vision, we evaluate our ideas against our new rubric. An important piece of that is the effective use of technology. It should be a part of all that we do, if we're to make teaching and learning as effective as we can."

Though technology has played a big part in Ailshie's career as an education policymaker — he has implemented BYOD and 1:1 initiatives in two school systems and established a digital library of technology resources for Kingsport teachers — he insists that it's not really been about technology in and of itself, it's about educating and learning. "Technology simply makes the teaching and learning process more efficient and engaging, amplifying students' reach and making them more globally competitive," he says.

Ailshie says he is driven by a passion for providing students with the most engaging instruction possible. "I have great faith in teachers," he says. "We must provide teachers the tools and supports needed for them to do their jobs in the most effective and efficient way, based on best practices and research. This is not about doing something cool, it's about being focused on a vision and doing what it takes to accomplish that vision."

In offering advice to schools interested in emulating Kingsport's model, Ailshie advises that being systematic is the best practice: "Start with a vision of what learning should look like based on research and best practices — students taking ownership of their own learning or a collaborative environment. Surround yourself with good people, school leaders and empowered teachers who share your passion, because it takes a synergistic relationship among all educators to be truly successful."

Dr. Jeanine Gendron

Director of Innovative Learning and Arts
Broward County Public Schools, Florida

BROWARD COUNTY PUBLIC SCHOOLS in Florida, like most school districts across the U.S., is charged with the task of addressing college and career readiness for its students — an especially daunting mission for the sixth-largest public school system in the U.S.

The school district's director of innovative learning and arts, Dr. Gendron, says the biggest challenges the school district faces is how to engage students and how to ensure the effectiveness of its learning process.

"Sometimes that's hard for an instructor teaching to a whole group, with the expectation that everybody moves forward at the same pace," Gendron says. "We wanted to address that scenario quite differently, recognizing that students are individuals who learn at different paces, with different styles."

While steering students toward meeting state standards, Gendron says the school district wanted to provide a variety of resources that allowed students to reach standards in a more personalized and individual way.

An ardent champion of integrating technology into learning, Gendron keeps the vision of 21st-century learning at the forefront of the education community, locally and nationally. Gendron is a board member and former president of the Florida Council of Instructional Technology Leaders, serves on Florida's Digital Learning Advisory Board and is a frequent presenter on the topic.

In the last year, she was deeply involved in introducing a new program called "Digital 5: Pathways to Personalized Learning" (D5) with 3,200 5th graders at 27 schools in the district. The program incorporates digital tools, strategies and resources aimed at transitioning from a traditional learning environment to one more personalized for students that is centered on their needs, interests and abilities, and prepares them to live and work in a 21st-century world.

D5 classrooms are designed for group and collaborative learning. Teachers' desks are no longer positioned at the front, and instead of listening to lectures and traditional lesson plans, students are engaged in projects and activities, exploring content through technology or digital curriculum. Each student is permitted to take laptops home and have access to a customized learning management system.

The response has been overwhelmingly positive. "Students are excited and thinking critically about learning occurring in their classroom," Gendron says. "They're learning skills for communication and collaboration, information retrieval and presenting knowledge using multimedia. Students feel they have options for learning in many different ways, and I think technology has brought those options to the forefront."

Broward is expanding its D5 program to 69 schools and has added a new Digital Infusion program for mathematics and English/Language Arts for secondary schools for the 2014-2015 school year as part of its goal to continue to incorporate learning technologies that support student achievement.

Gendron is an active mentor and coach, advising her peers to adapt as quickly as possible to education's new digital learning environment, and to include partners — vendors, parents, businesses and local communities — in the conversation.

"In education, we need to rapidly move forward to a system that is more fluid, egalitarian and student centered," she says. "We must put resources into that kind of vision. Look at students as global citizens who need to be prepared to take on the challenges of a highly complex, hyper-connected world ... and do whatever we can on a district, policy and legislative level to support educators."

Eric Sheninger

Principal
New Milford High School, New Jersey

BY DEBUNKING HIS OWN misperceptions about technology and social media, Sheninger has revolutionized the learning environment at New Milford High School. Just five years ago, Sheninger was an opponent of social media and mobile devices for students. In 2009, he stumbled onto Twitter as a way to enhance communication with stakeholders. However, his role quickly shifted from communicator to learner as he recognized how much he didn't know — there was a whole new world of teaching and learning bypassing New Milford High School. "When I stepped through that doorway, I saw firsthand the possibilities that we could eventually see here at New Milford High School," says Sheninger. "That's when everything changed." Sheninger didn't just embrace technology and social media, he ran with it. In fact, his Twitter feed was recently recognized by *TIME* as one of the best 140 Twitter feeds of 2014.

Sheninger and a handful of teachers had a shared vision — to create a culture that embraced technology as a powerful learning tool. That culture took root and spread from educators to students to stakeholders. "Once we had the culture and support mechanisms in place, we established that shared vision with all stakeholder groups and then empowered those same groups to take ownership and figure out which tools best serve their needs," says Sheninger. Now, New Milford High School has several technology initiatives, including a BYOD program, which is in its fourth year of existence.

Sheninger views technology as a tool to enhance learning, not drive instruction. In fact, New Milford High School's Golden Rule is: Pedagogy first, technology second. He worked with educators and stakeholders to leverage the power of technology to create an environment that students not only felt a part of, but also felt motivated and empowered to learn in. To complement

Fred Cate

Distinguished Professor and C. Ben Dutton Professor of Law, Indiana University
Senior Fellow, Center for Applied Cybersecurity Research

WARNING: LOOKING AT CATE'S RESUMÉ may make even the overachievers among us feel like they have some catching up to do.

Cate is a lawyer by trade and a C. Ben Dutton professor of law at Indiana University (IU). Currently a senior fellow for the Center for Applied Cybersecurity Research (CACR) and previously the founding director of CACR, Cate serves as a policy adviser on multiple private and public security boards in higher education, as well as at the state and federal level. Cate has written various papers and books on privacy and security, appears before Congress on these matters and has been honored with awards, including Who's Who in the World and in the three most recent Computerworld listings of "Best Privacy Advisers."

Cate says he has spent his 24-year career in academia dealing with the advent, expansion and proliferation of digital technologies and their impact on our lives. Cate served for 11 years as the director of CACR, which was created in 2003, in part as a response to the Sept. 11 attacks, but also in part as a response to the notion that higher education as an industry sector has some of the most advanced networks in the world.

CACR is unique because it not only deals with technology's impact on security and privacy, but also the impacts of policy and behavioral issues. "The one thing that's increasingly clear — in fact, I don't believe it's even controversial — is that the biggest challenges we face in cybersecurity aren't technical, they're behavioral," says Cate. "I can build you a better mousetrap, I just can't get you to use it, your institution to buy it or the instructions clear enough so people know how to use it."

Reflecting on his work at the Center, Cate says he thinks what is most important is that he and his colleagues have helped a lot of people — inside of higher education and out — appreciate cybersecurity in a much more practical way. "Security and privacy tend to be issues where people get overwhelmed. It's a 365x24x7 challenge and we use these scary terms like 'asymmetric warfare' and say things like, 'The bad guys only have to win once, but when you're defending you have to win every time.'"

Cate says this kind of rhetoric paralyzes non-experts and what he has tried to do in his career is not only make cybersecurity simpler, but also more manageable. Part of his ability to communicate this effectively goes back to his legal background.

"People might ask, 'What's a lawyer doing in this field?' This isn't a law field and, as far as I know, there isn't a single cybersecurity program in the country that is headed by a lawyer," says Cate. "It's not that I am some sort of unique lawyer, it's just that we need to think about these issues in a different way and need to be able to speak the language of the public, politicians and industry to effectively communicate."

New Milford High School's BYOD program, charging stations were added to all common areas. The school installed additional network access points in the courtyard to complement those already in existence so students can access the network with the same user name and password they've already used throughout the campus.

By empowering both students and teachers to take ownership of their learning experiences, New Milford High School has seen an increase in student engagement and enhanced learning outcomes. Though there are several initiatives at work, graduation rates are at an all-time high of 98 percent, attendance rates are up, AP test scores have increased over the past three years from historical lows, and the most recent round of standardized tests proved some of the highest results in English and language arts the school has ever seen. "The culture we created is a culture that students feel more a part of, or proud of, and they want to be here," says Sheninger. "We not only teach them digital responsibility, but we empower them in an educational setting to use technology to enhance their learning, increase productivity and conduct better research."

As a recently published author, Sheninger follows the pillars of digital leadership outlined in his book, "Digital Leadership: Changing Paradigms for Changing Times." These pillars have not only improved New Milford High School's test scores and student achievement, they've also helped solidify the school's brand. "Our brand sends the message that New Milford is not only a school doing great work, but it's unique," says Sheninger. While Sheninger doesn't believe that technology will ever be the silver bullet for education reform, it is clear that innovative applications of technology can make a world of difference in student achievement.

Larry Plank

Director of STEM
Hillsborough County Public Schools, Florida

WHEN HE'S NOT working with the Museum of Science and Industry, serving on the board of the Florida Aquarium or liaising with post-secondary schools regarding STEM education, Plank is paving the way for technology integration into STEM curriculum for Hillsborough County Public Schools.

One of the most exciting programs Plank is working on involves the district's newly combined K-8 school. Just four years on the job, Plank is working to leverage the power of all of the technology used throughout the school district to create a specialized STEM learning environment. This physical space is called the Innovations Lab. The Innovations Lab, which has enough space to host up to three separate classes at the same time, provides students with an environment similar to those of professional scientists. "Kids can write on the walls, write on their desks and draw out ideas to think like scientists and engineers," Plank says. In addition, the Innovations Lab is complete with a traditional science lab, mobile furniture and a robotics court. Though Plank does not currently have plans to roll the Innovations Lab out to other schools, he recognizes that if it's successful, this could be the model that all STEM programs follow.

Using technology and a creative classroom layout, Plank created a space where students can explore higher-level thinking and concepts. To help achieve this, he ensured that students have access to probeware to make scientific data measurements, even in primary grades. These devices collect data, which the students can use to generate their own claims. In addition, Plank has ensured that every middle school and high school has an online subscription to simulation models, which are used within the curriculum so the traditional pages of a textbook come to life and can be manipulated by the learner. "Utilizing these software programs helps us in mathematics, alongside our Common Core implementation, to contextualize math in a way that's meaningful," says Plank. Fifty-question worksheets in mathematics classes are now a thing of the past with Plank's approach to technology.

Even in the current culture of high-stakes testing and funding, the use of technology and innovative environments is making school fun for students. "I always say that happy kids make happy teachers, and happy teachers make happy administrators," says Plank. The Innovations Lab helps to ensure that every student has access to STEM technology. With 200,000 students and 250 schools, Plank has to look at creative solutions to ensure all students have access to technology. "We have to think of ways that we can bring STEM to life for all kids, while still being financially responsible to the public," says Plank.

Going into its second year of implementation, Plank believes the Innovations Lab will help STEM learning skyrocket. He has pushed the envelope and worked to improve the perception of STEM. "When we approached technology from an educational perspective of not just being cool, but looking at how it will help kids and instructors be more effective, that is where we got a lot of buy-in," he says. As Plank carries out his vision of STEM for all students, we're sure to see more creative solutions like the Innovations Lab well into the future.

Jay Steele

Chief Academic Officer
Metropolitan Nashville Public Schools, Tennessee

IN A SCHOOL DISTRICT with 5,200 educators and 85,000 students, training each teacher on multiple learning platforms and transitioning to a blended learning environment seemed like a lofty goal. Steele and his team were up for the challenge, however, and set out to leverage the benefits of blended learning and establish specific targets for each school in the district to design and deliver content in a blended learning environment.

John Keller

Director of eLearning
The Metropolitan School District of Warren Township, Indiana

WITH A BACKGROUND in teaching and working on special projects for the Department of Education, Keller was recently hired as the director of eLearning for The Metropolitan School District of Warren Township. Having joined the Warren Township team in 2013, Keller has already tackled some of the district's most complex challenges, including the implementation of the district's Race to the Top grant.

After reviewing the grant proposal, it was obvious that Warren Township needed to integrate technology into its daily curriculum and pedagogy. "We wanted to work in an environment that was truly digitally enhanced, instead of the three, four or five computers in each classroom, which was a typical approach up until the time I came," says Keller. Diving head first into a 1:1 implementation, Keller was part of the team that chose Chromebooks as the device of choice, which he felt would best enable equal access to technology among students. Additionally, the district had migrated to Gmail and Google apps the year prior, making the Chromebook deployment even more relevant.

Recognizing a need for professional development, Keller worked with a team to ensure teachers were trained on the new technology — first covering the basics and eventually moving toward complete integration with classroom curriculum. In the 2015 school year, the professional development focus will be on personalized learning. "We're focusing on infusing student voice and student choice into lesson plans throughout this coming year," says Keller. This move to help teachers loosen the reins on instruction allows students to take control of their education.

Beyond helping to launch a 1:1 initiative and supporting a technology professional development program, Keller also developed a request for proposal to transition traditional curriculum into digital content. With unlimited licenses to digital content, Keller conducted a pilot program for online courses. These classes expanded into summer school options and will be offered for credit at the start of the new school year. "Now that the technology is here, and we're beginning year two, this year is going to be the year we see real changes at the classroom level, both through virtual programs and blended programs," says Keller.

Keller's involvement in changes at Warren Township can be felt across all levels of staff, teachers and students. In an effort to understand the connectivity availability for students at home, Keller distributed a survey among 7th through 12th graders, where students were asked what they liked about the Chromebooks. "One of the themes that came out was the students really loved the access they had to their teachers on a 24/7 basis," says Keller.

"I hope in the coming years, that in addition to having great access to their teachers, students will begin to comment about being more engaged and having more voice and choice," Keller says.

Elementary schools aimed for 30 percent, middle schools aimed for 50 percent and high schools aimed for 70 percent of learning to occur in a blended environment.

Ensuring that all 5,200 educators in the district received the same information from the district office was a bit difficult — Steele knew the district needed a strategic plan to overcome this communication challenge. "There is no way that one person can effectively integrate and conduct professional development with every teacher to the highest level. We knew we had to use our technology to transform teaching and learning and get to every teacher," says Steele. In addition, Steele and his team wanted to address some concerns from the local business community. It became clear their students were not leaving high school with the skills necessary to obtain technology jobs — of which there are about 1,000 in the Nashville, Tenn., area that are often unfilled or outsourced due to a lack of qualified candidates. Steele and his team developed a strategic plan to support a revolutionary change in curriculum design and delivery and overcome some of these challenges.

With a successful implementation of a fully blended elementary, middle and high school — a large part of the strategic plan — it's clear the district is paving the way to ensure student success. Steele didn't just help revolutionize the classroom for Metro Nashville Public Schools, he also helped eliminate classroom walls by launching a virtual school. In order to do so, the district worked to change state law, which at the time did not allow for virtual schools in K-12 education. Now, Steele's district has the most successful virtual school in the state, which both full-time and part-time students attend.

These changes — coupled with the implementation of new learning management systems, the use of social media for education and a professional development program — have led to an increased attendance rate, which is now at about 93 percent. "Qualitatively, I can say that I've gone into our fully integrated high school and I've held focus groups with kids and informally talked to them and they love the approach. They love learning in this environment and they expect their teachers to teach this way," says Steele.

Steele's accomplishments in education and technology are a result of his approach to the learning environment. He believes the classroom environment should reflect the way students want to learn. Taking the student-centered approach instead of the teacher-centered approach allows students to thrive, which is what is causing great success at Metro Nashville Public Schools.

Sam Orth

Chief Technology Officer
Management Council of the Ohio Education Computer Network

ORTH HAS BEEN INNOVATING with technology his entire public sector career — and not just in education, although that has been his main area of focus. He started out as the executive director of the Ohio SchoolNet Commission in 1997 and in his seven years there, SchoolNet invested more than $170 million in standardized network connectivity. In 1999, the average broadband speed for Ohio school districts was 1.5 megabits per second — now more than 80 percent of the schools in Ohio are at 100 megabits per second or above. "This had a huge impact on Ohio in terms of changing the public's expectations of technology's role in education, and has had a tremendous influence on students and educators," says Orth.

Shortly after his time at SchoolNet, Orth became the CIO for the state of Ohio where he led a major statewide cloud computing and IT consolidation initiative. His past experiences and knowledge laid the groundwork for some of the initiatives he is now working on as the chief technology officer for the Management Council of the Ohio Education Computer Network (MC-OECN), a council of governments that supports the efforts of OECN. OECN is a network of information technology providers who offer shared IT services and applications to about 90 percent of public, private and charter schools in Ohio.

Building from his experience as state CIO, one of Orth's first initiatives at MC-OECN was to work with OECN's members to centralize their 21 data centers into a statewide K-12 computing cloud. They are now continuously moving applications into the centralized cloud environment, such as the library information system and the statewide help desk environment, which services all of the core K-12 applications, bringing major efficiencies to the state's education IT infrastructure.

In addition, Orth's focus in the last year at MC-OECN has been working with the Ohio Department of Education to help school districts prepare their IT environments for Common Core online assessments. "We have conducted about 40 outreach sessions with technology coordinators, superintendents, and curriculum and assessment managers around what they need to be doing at the local level to prepare their environment, teachers, students, parents and communities for online assessments," he says.

Most recently, Orth has been working with the Ohio Association of School Business Officials to upgrade the finance and accounting system that most Ohio school districts use — a system that was first developed as a customized piece of software back in 1979. They are implementing a new enterprise resource planning system that will significantly streamline administrative workflows.

Orth points out that even though much of what MC-OECN does is "behind the scenes" when it comes to technology, it has a major impact on the education system in Ohio. "Any time we can maximize efficiencies in providing and delivering education technology services means that we can reinvest those dollars where it matters most — in the classrooms and in student learning," he says. "Our association drives those efficiencies and the schools we serve directly benefit from them."

What drives him? The students themselves. "All you have to do is sit with young students for a few minutes and talk to them about their goals and aspirations for the future — that's what really inspires me," he says. "In an economy that relies on knowledge, our children are our most important and precious resource. We have to invest in them if we want to be successful in the future."

Virginia Padilla-Vigil, Ph.D.

Director
Highlands University — Rio Rancho, New Mexico

DR. PADILLA-VIGIL LOVES technology — not only because it helps her in her own teaching and organization, but because it enables her to be successful in one of her greatest passions: increasing education equity and access to traditionally underserved and minority populations.

Padilla-Vigil, now the Rio Rancho Center director at New Mexico Highlands University, has leveraged technology for years to bring greater educational access and opportunities to New Mexico's often rural and isolated areas. In 2008, after helping implement El Colegio, a virtual college for New Mexico, Padilla-Vigil was hired as the chief academic officer for IDEAL-NM, a statewide K-12 eLearning program. Padilla-Vigil's charge was to develop new courses and significantly increase enrollment. At the time, the nascent initiative only had 12 educators for online teaching and two courses — a New Mexico history and an algebra course. By the end of the first year, IDEAL-NM had developed 40 courses and increased enrollment to between 500 and 700 students per semester. More teachers also joined the program's ranks — by the end of the first year, IDEAL-NM had trained 50 teachers and by the end of the second, 200 teachers were trained and enrollment increased to nearly 1,000 students per semester.

In 2010, when Padilla-Vigil became the executive director of the program, she started to focus on increasing New Mexico schools' use of the statewide learning management system and encouraging them to start their own local-level online learning and blended learning programs. According to Padilla-Vigil, being able to see the program from concept to successful implementation has been both a privilege and a rewarding leadership experience.

"By 2013 we had 50 public schools and 20 charter schools that were utilizing the learning management system for online and blended learning programs," Padilla-Vigil says. "That was what it was all about — empowering them to provide additional opportunities for their students. Working in partnership with the schools was key to the successful implementation of the program."

In its sixth year of operation, in 2013, IDEAL-NM had 7,500 successful course completions with an 85 percent pass rate and more than 70 public and 30 charter schools participating in the virtual school. Initially created to connect rural students to additional resources, the eLearning initiative is used by urban schools as well, so much so that the two largest school districts in the state are also the largest users of IDEAL-NM.

In her current role at New Mexico Highlands University, Padilla-Vigil tries to influence the higher education community to embrace online learning and

advocates for personalized and learner-centric approaches to learning. She works with faculty to implement virtual learning opportunities that enrich students' learning experiences. Padilla-Vigil teaches a blended assessment and evaluation course at Highlands University as well as a fully online course for the University of the Southwest to continually perfect her craft. Additionally, she writes a blog that targets K-20 educators and beyond to entice them to give online and blended learning a try, a move she says enables educators to learn a lot about who they are as teachers and prompts growth.

"Technology is a powerful tool," says Padilla-Vigil. "It does not replace teachers, but just like any tool, if it's used effectively and meaningfully, it can enhance teaching and learning. I think students that experience online classes develop powerful 21st-century skills that better prepare them for college and the workforce. They have to be in the driver's seat and they're empowered to develop skills they wouldn't be able to if they were allowed to be passive learners in traditional classrooms."

Lenny Schad

CIO
Houston Independent School District, Texas

SCHAD, WHO IS CURRENTLY the CIO at Houston Independent School District (HISD) — the nation's seventh-largest school district — has been in the technology field for 25 years. His career has allowed him to establish a very successful leadership and management track record. For the past 11 years, Schad has been deeply involved in the digital transformation of his city's school system — an effort he considers to be less about incorporating devices and more about changing the way teaching and learning happens in classrooms. A veteran CIO from the oil and gas industry who now pours his passion for technology into education, Schad brought to his second career many of the practices and innovations of the private sector.

That forward-looking attitude has served him well through BYOD and 1:1 implementations — and Schad says he's noticed a real groundswell in such endeavors.

"When digital conversions were relatively new, we had to invent the wheel as we went along," he says. "It's been really exciting over the past two to three years to see the momentum picking up, making this just part of the way we educate our kids now."

Schad's successes have enabled him to offer the benefit of his experience to other school districts hoping to implement their own technology initiatives. The "lessons learned" shared by other school districts eventually took the form of a book Schad authored, called "Bring Your Own Learning."

"It documents what we've done in our implementations, what worked well, what didn't," he says. "The whole reason I wrote the book was so people would have a starting point and wouldn't have to make the same mistakes I did."

Schad's epiphany around technology in the classroom came from watching his own children's enthusiastic use of devices. "It was a critical way to interact," he says. "I thought, we've struggled as an education system with engagement — trying to get students excited about learning. If we were to bring in the tools they use in the outside world, we stand a good chance of changing the landscape."

In a stroke of innovation, Schad and his team rolled out mobile phones to fifth graders on different campuses and saw remarkable results, fueling the fire to deploy the BYOD and 1:1 initiatives that followed.

Schad felt strongly that for such initiatives to succeed, they first had to educate parents — most of whom were used to traditional instruction methods. He says, "Even in the households that had technology, parents didn't understand the relevance it had for their kids' lives. It didn't matter the demographic — I felt the 'digital divide' would continue to get bigger. I wanted parents to know these weren't toys, they were important tools for the way their kids were going to live and operate the rest of their lives."

The "changed landscape" Schad had envisioned has come to pass. For peers wanting to conduct their own digital transformation, he advises, "Remember that this isn't a technology initiative — it's a district initiative made up of many departments and led by the superintendent, all of whom have a definite role to play in making this a success."

He adds, "It's our job to figure out how we can enable technology to make people's lives better and easier, with better results. It's one of the things I love about technology — we have the ability to make such a positive impact."

Due to Schad's leadership and innovative vision for education, he has been honored with multiple awards from the National School Boards Association (NSBA), the Consortium of School Networking (CoSN) and the CIO Leadership Forum.

Schad is a recognized leader whose innovative and process-oriented management styles has led to highly effective IT efforts, which can be seen in his initiatives at HISD.

Anne Margulies

CIO
Harvard University, Massachusetts

"YOU NEED TO be willing to take risks. This is not a field for the timid," says Margulies while discussing technology and higher education.

Margulies knows a lot about taking risks. A self-described "heat-seeker," she has routinely taken on roles throughout her career where she had the opportunity to create monumental positive change, but that also had a fair amount of uncertainty.

Margulies was the founding director of MIT OpenCourseWare, MIT's internationally acclaimed initiative to publish the teaching materials for their entire curriculum openly and freely over the Internet.

"Going to MIT OpenCourseWare

Ann Flynn

Director of Education Technology
National School Boards Association

DAVID KIDD

was a huge risk because I was the first and only person that was hired to execute this exciting vision — and the clock was ticking," says Margulies. "MIT had already made a public commitment to deliver the first courses in the fall and I was hired in May."

However, the risk was worth it, and Margulies points to the MIT OpenCourseWare program as a great source of pride. "It was an incredibly bold and exciting experiment that came from the MIT faculty. It was one of those once-in-a-lifetime opportunities to work on something that would have a huge impact on learners all over the world. I think it's fair to say it's a foundation for a lot of what is going on now in education with MOOCs and other online learning programs."

Margulies is passionate about the importance of building communities and collaboration. A mission of MIT OpenCourseWare was to create the program in a way that others could emulate — Margulies worked with hundreds of universities to help them create their own programs.

At Harvard, she is working on a partnership with MIT called edX, which offers free online classes and MOOCs from top universities. Margulies says the venture is exciting because it's making a real difference by not only improving education on the Harvard campus, but by expanding access to education.

Margulies also served a key role in the creation of the Massachusetts Green High Performance Computing Center, which is another strategic partnership that includes four other universities and the Commonwealth of Massachusetts. Margulies says the Center, located in the western part of the state, enables Harvard to support university research at half the cost it would take to do it on campus. That support for research is helping lead to scientific breakthroughs — including the announcement in March 2014 that scientists had the first direct evidence that the universe expanded in the split seconds after the Big Bang. It was a theory first proposed by Albert Einstein, but one that had never been proven.

"It was an amazing feat," says Margulies. "It took like 5 million hours of computing, 3 million of which were at this new facility. This was a huge scientific breakthrough that we were able to support through this strategic partnership."

Margulies sees this as an exciting time in higher education and plans to continue focusing on building communities and increasing collaboration. "The CIO's role is evolving from delivering a service to the institution to becoming a real strategic partner in advancing its core mission."

TO SAY THAT FLYNN and the National School Boards Association (NSBA) have had a far-reaching impact on the use of technology in schools across the country would be an understatement.

NSBA represents state school board associations and more than 90,000 local school board members who serve the nation's 14,000 school districts. Its efforts in the education technology space have brought innovation straight to school boards and education leaders for almost three decades. Flynn herself has been with NSBA for nearly as long in her 23-year career.

Flynn and her colleagues at NSBA showcase models of education technology success in several ways, including through the popular "20 to Watch" recognition program, which has identified more than 180 emerging education technology leaders over the years; district site visits where participants can observe technology in use (Flynn has conducted more than 75 of these); and most recently, the introduction of the Technology Innovation Showcase implemented two years ago.

The Technology Innovation Showcase in particular has been an extremely successful and well-received program. "We started the showcase to introduce emerging technology companies to school leadership and school board members to inspire them to think differently about old practices," says Flynn. Through the program, NSBA chooses six companies each year, which are highlighted at its annual conference. In the special session that Flynn facilitates with the companies and school leaders, it has been standing room only. "This really says to me to me that we have leaders who are looking for and are interested in new solutions. They aren't just happy with the status quo anymore," she says.

It is Flynn's mission to help district leaders create a shared vision and align resources from the boardroom to the classroom, while recognizing how the intersection of policy and practice impacts an organization's ability to introduce and sustain innovation in education. "Successful technology use in K-12 is a team sport. Systemic change can't just happen from the top down; and no matter how innovative some teachers are, they can't bubble it up enough to make a major impact without support from the top," she says. What drives her is when members share their "Aha!" moments — when they can pinpoint a time at an NSBA event when they recognized that education is changing, that they want their district to change and they set out and did just that.

In the end, however, all of Flynn's efforts and passion over the years have gone to help districts and leaders create a real culture of innovation and an environment where people are willing to take risks and are comfortable trying new technologies. Because, as she says, "It is an evolution, not a revolution. There will never be an end-all, be-all device, but you can choose the best solution for the present time, which is certainly better than not having any technology at all."

Laura Patterson

CIO
University of Michigan

PATTERSON'S TIES TO innovating with technology started back in the mid-1990s, when she took over leadership of the University of Michigan's ERP system implementation. So it was a natural fit when the university decided to consolidate the administrative information services and central IT teams and appoint Patterson as CIO. Soon after, Patterson and the newly consolidated IT department launched an initiative that promised to bring major IT transformations: NextGen Michigan.

Launched in 2009, the goal of NextGen Michigan is to create shared services, consolidate commodity information technology and build a shared infrastructure so the university can invest more in emerging technologies that advance teaching, learning and research.

With the leadership of Patterson, the IT providers across the entire campus have since made great strides in achieving the goals of NextGen Michigan. They have already consolidated 44 email systems running across campus, end-user computing in central administration, network and storage services. The team is now working across the 19 schools and colleges to consolidate commodity services. "We already have a hard documented savings of $11 million annually and we will be saving more than that in this next year when we consolidate across the academic units," says Patterson.

While the consolidation was under way, university leadership identified four domains of the university's mission — research, teaching and learning, knowledge (digital content) and patient care — to develop a vision for what each of these domain areas will look like 5 to 10 years down the road with the help of technology. This vision turned into a university-wide IT strategic plan already in its second iteration and an investment roadmap for the adoption of next-generation technologies. There are some notable next-generation achievements, along with many faculty-driven efforts, that central IT will assist in improving so more campus community members can leverage the innovations moving forward. A few examples are:

- Cloud-based collaboration platform: The IT team moved the university from siloed email services to a consolidated, cloud-based email and collaboration platform. "When you think about teaching and research that occurs on a global scale, a cloud-based service makes more sense because it removes the barriers to collaboration," says Patterson. "This collaboration platform is a very significant piece of our future teaching and learning environment."

- GradeCraft: This faculty-developed gamification tool allows students to drive their own engagement. Using analytics, students can conduct what-if analyses on how an increase in their level of engagement in various aspects of the course will impact their grade. GradeCraft and the following four tools (all faculty-developed) described are being piloted in a limited number of classrooms with the intent of implementing them university-wide in the near future.

- e-Coach: As a personalized messaging system, e-Coach holds past and present data about a student's performance and sends tailored messages alerting students of what they can do to improve. It is especially targeted to students at risk.

- Student Explorer: Similar to e-Coach, Student Explorer is a system that will send a red, yellow or green alert showing a student how much his or her performance is deviating from the class average. In addition to early warning features, Student Explorer provides academic advisers with detailed information on the history and performance of individual students.

- Academic Reporting Toolkit: Based on 10 years of collected data, the toolkit uses predictive analytics to determine the success of students in university science classes. Before a student even starts a class, it tells professors who has the best chance for success and who will potentially struggle, enabling an instructor to proactively put the proper support structures in place.

- Lecture Tools: Lecture Tools allows professors to completely flip the classroom experience for students, so lectures are available on-demand for students to view before class and class time is spent on what would typically be considered homework. Students access the system via their

mobile devices in class and it allows them to take notes on the material being covered. Professors can also see students' notes and poll students to determine areas of struggle so they can update the lecture in real time and assist students during class.

The other initiative that Patterson is excited about is the university's involvement in the newly formed consortium called Unizin. "Unizin is a consortium of universities that have come together to create a next-generation learning ecosystem at scale," she says. "This is critical if higher education is going to meet the demand for global learning and cost containment." The ecosystem will have three significant components: 1) an online content repository of learning materials and resources; 2) a learning analytics platform with the potential to make student data available to all universities in the consortium; and 3) a learning management system that acts as the delivery mechanism. All of this will be based on open standards, as the consortium believes that is the only way forward in the future.

After many years in education, Patterson is most excited about the transformation currently taking place: "I do believe that education is in a period of disruptive change. There's no question about it," she says. "As an industry, we need to respond appropriately and come through this thriving and reinventing education. I don't see my role so much as a leader of technology, but as a leader of change — trying to help, facilitate, encourage and lead change in my university and in the industry as a whole."

Kelvin Thompson, Ed.D.

Associate Director, Center for Distributed Learning
University of Central Florida

IN 1996, the Center for Distributed Learning (CDL) took on a facilitative role to prepare faculty and coordinate all forms of online and blended learning course and program development for the University of Central Florida (UCF). Thompson came on board in 1998 and has been instrumental in expanding online and blended learning at UCF and worldwide.

Online and blended learning has been a strategic initiative at UCF with enrollment growth rates outpacing traditional, face-to-face growth. "Last year was the first year that our face-to-face enrollments actually dipped while online and blended enrollments continued to increase," says Thompson. More than 75 percent of the UCF student body took at least one online course last year and over one-third of semester credit hour production came from an online modality. In addition, withdrawal rates for online courses are far below the national average at less than 5 percent. This is no small feat considering UCF is the second-largest public university in the country, serving about 60,000 students. "We made an early investment to support faculty and course development when it comes to online and blended learning, and these investments have paid off," Thompson says.

Outside of these successes, Thompson highlights two recent initiatives, for which he has been responsible, that have had a major impact on expanding learning models at UCF and around the world. Two years ago, with funding from the Next Generation Learning Challenges (NGLC) program, UCF, in partnership with the American Association of State Colleges and Universities (AASCU), put together a central website for blended learning resources, blendedlearningtoolkit.org. A subsection of that site, which Thompson developed, is open courseware — all Creative Commons licensed — targeted toward faculty, course developers and instructional designers looking to build and teach blended courses.

But the most exciting development is the MOOC Thompson and the CDL team created based on this open courseware. Now in its third iteration, UCF partnered with EDUCAUSE to offer a credential for people who completed the course. Course completers paid a nominal fee of $89 and submitted a portfolio to a formal review team. More than 2,800 people from around the world registered for the course. Of the 6 percent who completed the course, about half pursued the credential and of those, 92 percent passed — walking away as "certified blended learning designers" with a certificate and a digital badge to place on their websites or online portfolios.

A second initiative Thompson is working on is the Teaching Online Pedagogical Repository (TOPR), a Web-based compendium of online and blended learning teaching practices. "The great thing about it is that it is completely open to the public — anybody can go through and take advantage of the resources or receive credentials to add to it. It is truly a crowd-sourced resource," he says. The site has received more than 100,000 visits. In fall 2013, TOPR was recognized with a Sloan Consortium Effective Practices award for its reusability and contribution to the online and blended learning space.

Thompson believes that open and accessible resources are the way to truly spread innovation in education. "I think we are smarter together. When we can connect people and ideas around effective online and blended learning practices, it benefits everyone," he says.

Kathy Tsamasiros

Senior IT Governance Officer
Division of Instructional and Information Technology (DIIT),
New York City Department of Education (NYCDOE)

NYCDOE COMPRISES more than 1 million students and 75,000 teachers in 1,800 schools — one of the largest public networks in the country — and at any given time, Tsamasiros helps manage more than 60 IT projects, playing an integral role in considering, building and implementing instructional and informational technologies for K-12.

As senior IT governance officer, one of her highest priorities is to continue refinement of the Department's Enterprise Architecture, an initiative she collaboratively worked on from its inception to enable better IT service delivery. This multi-phase initiative enables DIIT's managers at all levels to plan for how to best deliver technology services to support schools and central offices.

In 2008-2009, Tsamasiros helped create NYC iSchool, retooling the prototype for 21st-century learning by positioning technology as a tool for enabling individualized, collaborative education. That model has since deeply changed small school design in New York City and beyond. She also established IT governance teams so that key stakeholders can talk to each other across formerly discrete departments and silos to partner in smarter IT implementations.

"I'm inspired by challenging projects that show promise in influencing the growth and maturity of the New York City Department of Education with regard to technologies that will make a difference to teachers and students," she says.

Tsamasiros' contributions have helped define better communication and partnership strategies among those making decisions about the technologies in which the DOE invests. Her influence has also effected positive change in how IT and educators interact for prospective IT initiatives. IT staff now proactively ask leaders and instructors what they want to do, and how DIIT can best help them achieve it.

The best practices she deploys include thinking about IT implementation first and foremost through the eyes of students and teachers. "We often lose sight of the fact that what we build will be used by real students and teachers in challenging school environments," she says. "They constantly have to be in our viewfinder."

In Tsamasiros' estimation, large IT initiatives often fail because they are too grand, not adequately thought through and the timeline was unrealistic. She believes that keeping things simple can be transformational. "It's all about staying focused and accomplishing specific goals," she says. "Don't try to reinvent the wheel or start from scratch. There are others either looking at the same thing at the same time you are, and/or there is a framework or best practice you can follow to get you there quicker and better. You need to know who to ask and where to look." Because of the relationships she has developed, Tsamasiros regularly works with education departments in Chicago, Los Angeles, Broward and Houston to discuss ideas and provide feedback on initiatives. Oftentimes, consulting departments and Tsamasiros are pursuing or considering similar projects — they are constantly learning from each other.

Tsamasiros is an advocate of taking in the pros and cons — then taking risks and trying new things in partnership with the best people she can find who share her enthusiasm for innovation.

"Have the courage and sense to dream of what can be with smart people around you," she says. "No one can do this work alone. Think first about what you want to do in the eyes of students and teachers. Then find the best people you can within your organization and externally. Share your passion with them, then partner to get it done."

Sandra Paul

Chief Technology Officer
Sayreville Public Schools, New Jersey

WITH VISIONS OF a global classroom and a mobile device for every student and teacher, Paul embarked on a journey to advance education through technology. She's instituted programs such as BYOD, a teacher technology academy and global collaboration projects with schools across the world. Currently, she is working to move the district to a new email and learning application platform while training both teachers and students.

As a result of the district's recent participation in the Partnership for Assessment of Readiness for College and Careers (PARCC), Paul helped deploy a fleet of Chromebooks, which have been instrumental in changing the student learning experience. "The students were amazing. They took to the Chromebooks like I've never seen students take to a technology before," says Paul in regard to the recent PARCC pilot program. The Chromebooks and other mobile devices are used to supplement the district's BYOD program, which is available in 6th through 12th grade. However, Paul hopes to expand the program to more teachers and grade levels this coming year. "We thought that BYOD would be a great solution to put more technology into the hands of the students so that students would have more opportunities to use technology within the regular instructional process," says Paul. Additionally, she recognized that students leaving for college or entering the career world would soon be faced with similar BYOD environments, making the shift even more relevant.

To ensure teachers have the professional development and training they need to successfully deploy technology in the classroom, Paul initiated the Sayreville Technology Academy, which is based on a teachers-teaching-teachers model. Paul identifies teachers who have a strong grasp of a particular technology, or who are implementing technology in an innovative way, and asks them to train other teachers on the same topic. Additionally, Paul hosts some trainings herself on a variety of basic and advanced topics. "We're trying to do teacher training to get teachers to understand that using technology is not an additional aspect of the instructional process, it's just a change in classroom management and pedagogy within the classroom," says Paul. After training teachers on technologies such as Web-based videoconferencing, teachers across the district began using it to talk to kindergartners in Philadelphia about art, or to discuss books with authors during the middle school book club meeting. Most recently, Paul has been working with a few teachers to host a collaborative project on World War II with a school in Hong Kong.

Paul believes this shift in technology is making the global landscape more accessible. "We're no longer going to be stationed in one country facing our own small communities," says Paul. "The classroom walls are now broken down, and because of that we have the opportunity of a lifetime — something that's never before existed. We can reach all parts of the globe and communicate with the ability to understand other cultures and ways of thinking."

According to Paul, both teachers and students have embraced the new classroom technology — whether it be a mobile device, interactive whiteboard, educational app or collaborative project. "The teacher response is amazing — to be honest, they are blowing me away," says Paul. Moving forward, Paul hopes the classroom walls continue to break down as more mobile devices and cloud services are introduced into education. "I see kids taking ownership of their own learning and moving through the system at their own pace — whether it be accelerated or delayed, whatever works for them, and taking ownership of their own learning process, allowing them to do amazing things that I never in my wildest dreams thought possible. I am looking forward to it."

Kathy Moffitt

Program Administrator
Matanuska-Susitna Borough School District, Alaska

MOFFITT BELIEVES IN the right to choose — the students' right to choose their educational opportunities, that is. Just one of the programs Moffitt spearheaded to support this was the development of an online learning platform. Now in its third year of implementation, Moffitt's school district provides accredited online classes and a "cyber center" located at each high school where students can take a variety of classes — even those that aren't offered in a face-to-face environment. During the first year of deployment, most decision-makers thought the platform would be used to aid in credit recovery. While it has been used for this, it has also provided students with limitless possibilities. For example, one student at a small school wanted to take a physics class. However, due to the size of the school and available resources, there weren't any qualified instructors available to teach physics. With Moffitt's help and the online platform, the student was able to participate in the online class of her choice.

The online classes have shifted the learning experience to ensure students have control over their choices and classes. "Kids can progress at their own pace in their own place — they get to be their own driver," says Moffitt. While not every student has taken advantage of the online courses, students have noted they are more engaged with the online courses.

Additionally, the online offerings are enabling students to make up courses they may have failed in the past, or increase their GPA over the summer to ensure they meet the requirements to play sports. "It's not about making it easier or reducing rigor, it's just another way of learning," says Moffitt. Beyond positive feedback from students, Moffitt has seen an increase in graduation rates. In fact, because of the new platform, she's been able to work with students at the last minute before graduation to ensure they have all of the tools they need to graduate.

Roger Cook

Superintendent
Taylor County Schools, Kentucky

COOK WOULD be the first to tell you he is an unlikely educational leader. Though now a "20 to Watch" honoree of the National School Boards Association's Technology Leadership Network, he was once slated for expulsion from high school. A self-described troubled student whose 10 siblings nearly all dropped out of school, he was taken under the wing of a high school coach who channeled his proclivity for fistfights into football. He found he liked it, eventually pursuing a college degree and coaching career himself following graduation and a stint in the military. As a coach, teacher, principal and now a school superintendent, his motivation has been to find ways to engage the "Roger Cooks" in his classes — students who are bored and in danger of dropping out.

Cook says, "Students today learn differently than they used to. They don't like to sit all the time, and they learn with technology. You can't stand and deliver and be the sage on the stage anymore. And if public education doesn't change to accommodate this, it will die." His own response to this evolution was development of an instructional delivery system that has drawn national attention for its innovation and success: performance-based education.

Imagine a six-spoke wheel, where each spoke is a different type of instructional format. Each fits an individual student's preferred learning style, whether traditional lecturing, flipped classroom, virtual learning, group or project-based studies, or teacherless, self-directed learning. Performance-based education urges students to achieve based on their own academic interests, learning style and pace — and enabling it all is technology that pushes students further and facilitates their quest for knowledge through personalized, 24/7 learning.

"It's the art of allowing students to move through their educational process at a rate commensurate with their mental ability, not their chronological age," Cook says. "If you're in the third grade and read at the fifth-grade level, when it comes to reading you go to fifth grade. We have fifth graders taking high school algebra for high school credit because they can."

Students engaged in performance-based education are rigorously assessed for placement in each subject, and must be considerably self-motivated. A shuttle bus runs all day long to transport elementary school students to middle

Recognizing that teachers had taken on the role of content creator, Moffitt wanted to shift the role back to facilitator. "It frees one up to be creative as the facilitator instead of the deliverer," says Moffitt. Her school district isn't interested in defining curriculum, rather it is concerned with the way it is delivered. It's important to use data and delivery to drive the learning experience, but Moffitt knows the success of a technology really comes down to the basic art of teaching. "I think it's really critical that we embrace technology and not fight it," says Moffitt.

Moffitt is constantly looking for ways to improve the learning process: "I'm always climbing the mountain of learning. Because we didn't have the 'how to,' we started and have continued refining and listening to our clientele — students, parents and the larger learning community — and that's what students want today."

school classes and middle school students to high school classes. This leap forward means that many high school students are ready for graduation by mid-term junior year — most of whom then begin college classes while in high school. An agreement Cook established with a local college resulted in affordable tuition for higher education: $50 per hour versus $350-$400 per hour. Cook notes that many seniors graduate high school as mid-term college sophomores, and that parents saved approximately $268,000 in college tuition last year because of this arrangement.

In a long career of successes, Cook is proudest of the fact that in most of the last decade, his schools have had zero high school dropouts.

"I don't allow it," Cook says. "When those kids come in to see me who want to drop out, what I really see sitting across my desk are my own siblings. And I say, 'No.' I don't let them do it. But I have to have a solution — an alternative to give them. We have been a proficient school district in our state and we've left no child behind. You know how we did it? With technology. We make it fun."

Dr. Scott Muri

Deputy Superintendent of Academics
Fulton County Schools, Georgia

PROVIDING A PERSONALIZED learning environment for each of the 96,000 students in Fulton County Schools seems nearly impossible; however, Dr. Muri is making it a reality. With a graduation rate of 70 percent and a lack of college- and career-readiness, Muri saw a need to make changes within the district. "While we were successful with many of our students, we weren't successful with all of our students," says Muri. "I knew the only way we could reach all students was by personalizing the learning experience." With the goal of providing personalized and competency-based education for each student, the district began investing in infrastructure needs to make this shift.

Muri and his team began updating and preparing the district's infrastructure two years ago to handle both technological and staff changes to support the personalized learning environment. "We put lots of professional development opportunities in front of the teachers, really personalizing the professional development," Muri says. "Teachers have virtual, job-embedded, large group, conference-style and coaching professional development opportunities." The district also spent a significant amount of time updating each school's technological infrastructure. "We have 100 schools at Fulton and each of those schools are wireless. We have a wireless environment that supports two devices for each of our users and 10 megabits of information can be sent to each of those two devices," he says.

The district currently supports a "bring your own technology" (BYOT) environment, but will be implementing a 1:1 initiative in high schools and middle schools soon. Mobile devices and laptops help support the personalized learning environment Muri envisions. Digital curriculum resources can be accessed through each student's and teacher's technology of choice. The district created a wealth of digital learning objects, which can be utilized by each teacher as he or she sees fit. "We feel the best decision-maker in the classroom is the teacher — we want to give the teacher a variety of different tools to use in a marketplace environment," says Muri. "Rather than being prescriptive in telling teachers what they must use, we want to give them great tools and allow them to use what they think is best for their students."

Though the district is only two years into its five-year plan for personalized learning, Muri is already seeing significant changes. "Our graduation rate is now at 75.5 percent, and we have seen improvements in a variety of academic areas. We've certainly made the right investments and we are confident that we will continue to see the right results," Muri says. Additionally, the district has seen improvements in ACT and SAT scores, as well as career-readiness data.

Even with the positive results, Muri hopes to see greater achievements as the district continues its journey. "We're seeing improvements in each of the three buckets we're measuring so we're excited about that," he says. "However, we understand that the pace of change has to be faster so we're working to have greater improvements as we move forward."

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—Stephen Smyth, CEO, Amplify Access

Dr. Elizabeth Hoover is the Chief Technology Officer at the Alexandria City Public Schools. She has spent her career at the intersection of technology and primary education, with hands-on experience both as a leader of technology initiatives and as a teacher. She received her Ph.D. in Instructional Technology at George Mason University.

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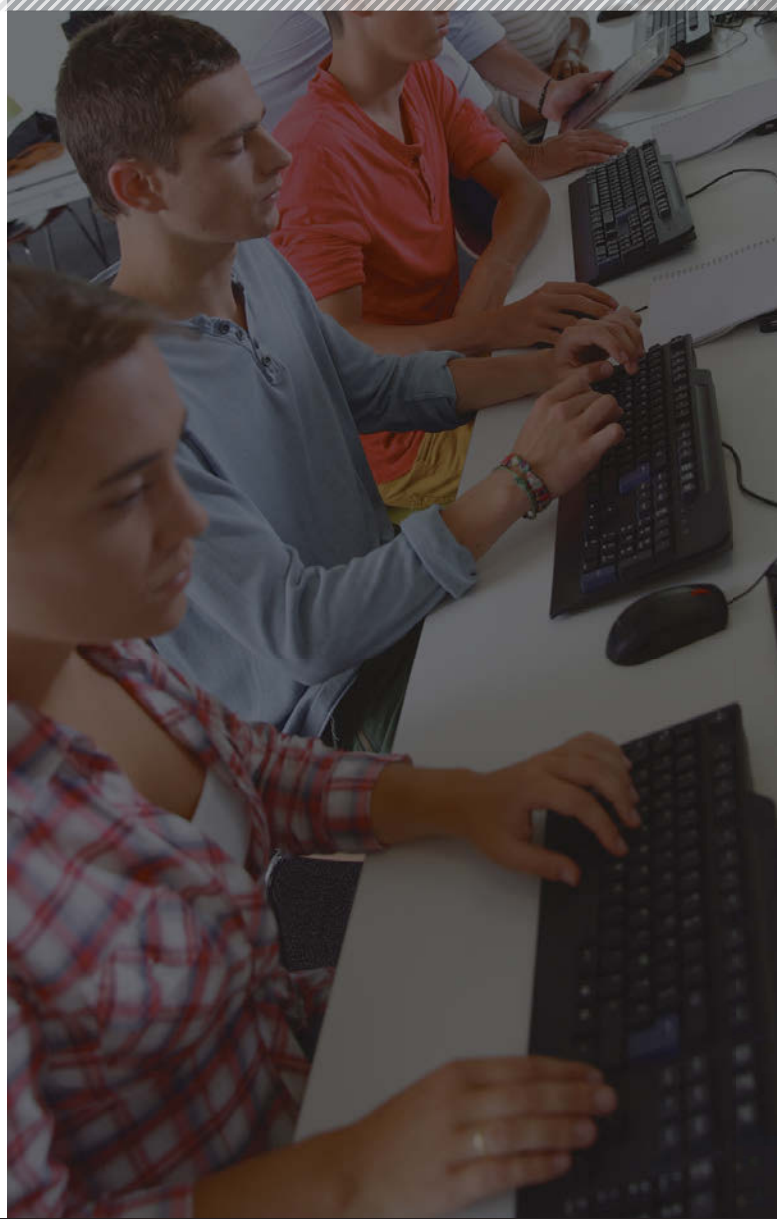

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