eSchool News Guides
Resource Guides for Today's Educators

K-12 Digital & Mobile Learning Guide

2019 Edition

Everything You Need to Know. Everyone You Need to Reach.

- A look at what digital & mobile learning are at the district, school, and classroom levels
- Essential components of a mobile classroom
- Closing achievement gaps with digital learning
- Digital learning resources & apps
- Company profiles and resources
- Best practices and examples
- Marketplace update

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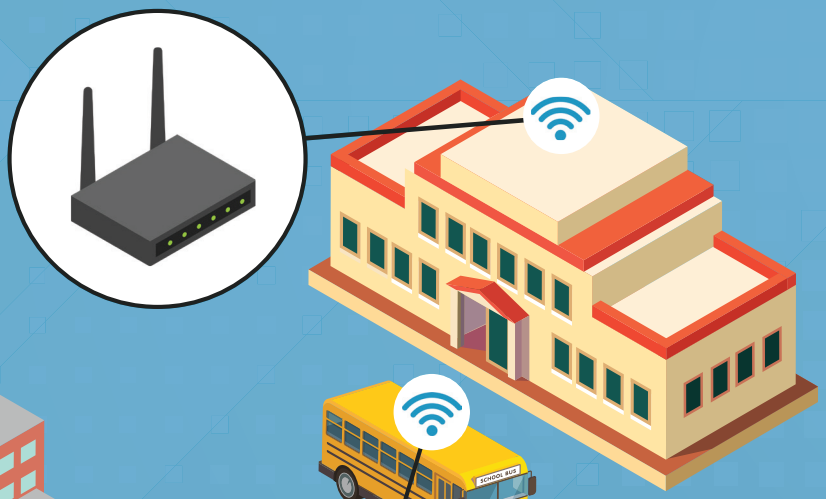

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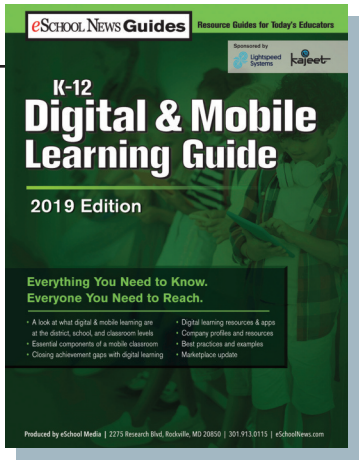

We are excited to bring you the latest in the **eSchool News K-12 Guides** series. **eSchool News K-12 Guides** are full of resources, tips, trends, and insights from industry experts on a variety of topics that are essential to the classroom, school, and district.

The November Guide, the **eSchool News K-12 Digital & Mobile Learning Guide**, offers expert insight on the reasons digital and mobile learning support students' academic achievement and build the skills they'll carry with them into the global economy. In the guide, we take a look at the various factors present in successful digital and mobile learning initiatives. Plus, we're giving you tips to incorporate more digital resources into your instruction.

Have you dreamed of using more digital tools and resources in your district's classrooms, but don't know where to look for those resources? In the **eSchool News K-12 Digital & Mobile Learning Guide**, we've compiled a list of some of the most popular digital learning apps and websites. Do you want educators throughout your district to understand just how much digital equity impacts students? We explore this issue, which is vital to digital and mobile learning.

We highlight examples of how real educators built their mobile learning must-have lists, and we've included a story highlighting the various ways that the federal E-rate program is essential in helping school IT leaders create robust and capable school infrastructure to support the highest quality digital learning initiatives.

You also can find a complete list of digital and mobile learning partners and companies in the guide.

We'll release a new guide at the beginning of each month, and we'll feature content focused around each guide's topic throughout the month. Stay tuned for **eSchool News K-12 Guides** on STEM learning and makerspaces, physical and network safety, online/blended learning, and more. Each guide also offers a comprehensive index of all the companies involved in that month's specific focus area.

We hope you'll share this **eSchool News K-12 Digital & Mobile Learning Guide** with your colleagues and use it to learn a bit more about how every educator can fit digital and mobile learning into their classroom.

Thank you to our sponsors for making this guide possible. We appreciate your support!

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Lightspeed Systems

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Marketplace Update

The digital learning challenge that still vexes schools

Finding real value in edtech is something schools continue to struggle with–here's why.

BY DENNIS PIERCE

The latest Speak Up survey findings from Project Tomorrow reveal how far schools have come in making digital learning available to every student — and how far they still have to go to realize the full value of their edtech investment.

Although the survey indicates that students in a majority of schools are now given a mobile device to use in class, there are mixed signals about the value this adds to their learning. For instance, when asked to identify the benefits of digital learning for students, 86 percent of teachers and 93 percent of principals cited greater engagement as the most significant outcome, instead of stronger indicators of success such as deeper learning or more sophisticated student work.

Julie Evans, CEO of Project Tomorrow, believes schools aren't seeing enough value from digital learning because there are too few transformational uses of technology happening in schools today.

"Too often, classroom technology implementations aim to mirror or replicate traditional learning modalities, such as using a mobile device to take notes or take a class poll," Evans writes in a briefing paper about the survey results. "It's difficult to demonstrate value or justify a return on investment with these substitution-type activities."

In schools where digital learning is most successful, she says, leaders have clearly articulated instructional goals and are focused on using digital devices to support personalized learning, student inquiry, creativity and collaboration, and other uses of technology that are more mature.

Here's a closer look at what the survey reveals about the state of digital learning in U.S. schools, where it falls short — and how one forward-thinking school system is achieving success.

What the survey shows

Nearly three-fifths of administrators who took part in last year's Speak Up survey (57 percent) say their students are given a mobile device for learning in school, and 38 percent say students are allowed to take their device home with them. The type of device varies by grade level, the survey indicates, with the youngest students more likely to use a tablet and older students more likely to use a Chromebook.

In fact, the survey not only shows a sharp rise in mobile learning over the last five years; it also reveals how Chromebooks have replaced laptops as the main device of choice for middle and high schools.

In 2014, 50 percent of middle schoolers said their primary access to technology was in a computer lab. Now, just 25 percent of students in grades 6-8 say their edtech access depends on a visit to the library or computer lab. Sixty-four percent say they use a Chromebook in class — a 138-percent growth in student Chromebook use in just four years, Project Tomorrow says.

With classroom access to a mobile device becoming more prevalent, "we would expect to see frequent usage by students of various online resources," Evans writes. "However, that's not necessarily the case."

While 83 percent of students in grades 6-12 say they use Google tools on a weekly basis and six in 10 report taking weekly online assessments, students use other types of digital resources less frequently. Only one in five middle school students uses digital primary-source documents, animations, simulations, or virtual labs as part of his or her regular schoolwork — and a majority of students (58 percent) say they rarely or never access these online tools.

"These types of digital content represent learning activities that cannot be easily replicated without the use of technology. For example, students can potentially learn about the Civil War's impact on the families of both Union and Confederate soldiers by reading their textbook. But a more in-depth and relevant learning experience can be gained by accessing primary-source photographs and letters written by soldiers to their families through the National Archives website," Evans observes.

"Similarly, it's becoming increasingly challenging for schools to provide students with authentic science lab experiences. Virtual labs, animations, and simulations provide a unique opportunity for students to experience real-world experiments and bring meaning to abstract concepts that cannot be replicated in the natural world."

Moving beyond engagement

When asked how technology benefits student learning, educators most often mention increased student engagement as the primary value. Although research links student engagement with improved outcomes, teachers and administrators should be focusing instead on how technology can lead to deeper learning, Evans says.

For instance, nearly seven in 10 district administrators cite changes in student engagement as the most effective metric for evaluating their edtech initiatives. Far fewer administrators identify better work (30 percent), depth of student collaboration (38 percent), or students' skill development (38 percent) as the most meaningful measures of digital learning's value.

"The effective integration of digital tools, content, and resources within instruction requires teachers to re-engineer existing lessons and rethink current instructional practices to take advantage of the unique functionalities afforded by technology," Evans notes. "Quite candidly, this is challenging and time-consuming work."

One district that has made strides in reinventing instruction is the Metropolitan School District of Wayne Township, Indiana. In rolling out a digital learning initiative for the district, Chief Technology Officer Pete Just began by involving all stakeholders in creating a vision for using technology to improve teaching and learning.

From this effort, a Digital Learning Blueprint emerged. The blueprint defines what effective teaching and learning with technology should look like in Wayne Township — and what specific outcomes the district is looking for.

"When you walk into classrooms, it's normal to see kids using a blend of learning approaches," Just says. "There is a lot less lecturing and more student creation and collaboration. Students are in charge of their own learning and are working on inquiry-driven tasks. We think the four Cs — communication, collaboration, creativity, and critical thinking — are a good model for what we hope to see."

Success in action

Audrey Taylor, a social studies teacher at Wayne Township's Lynhurst 7th and 8th Grade Center, uses technology to share multiple perspectives with her students that they can't get from a textbook alone.

"We are living in a time when everything you'd care to know is Googleable. I've shifted my focus to teaching my students to think critically about the information they have access to. We are more investigative," she says.

"For a recent lesson on the Boston Tea Party, we looked at four representations of the event: a cartoon, a comic, a History Channel miniseries, and their text. Students had to analyze the similarities and differences, decide why those differences existed, and determine what information was correct. I am able to make their learning more meaningful as they become proficient at 21st-century skills."

Lynhurst Principal Dan Wilson says multidisciplinary teams of teachers work together to plan inquiry-based projects for students to collaborate on. In one such project, students developed proposals for building something on campus that would enhance their learning. The winning proposal included a plan to renovate an old concession stand to turn it into an outdoor classroom, and the high school building trades class implemented the project. "It's very powerful for students to see their ideas come to life," Wilson says.

The key to realizing value in digital learning is to provide support structures that enable teachers and students to use technology in truly transformational ways. Wayne Township employs full-time instructional coaches and gives a stipend to exemplary teachers (dubbed the "iTeam") who help their peers come up with innovative uses of technology to support student learning. Professional development focuses not just on how to use edtech tools but on developing teachers' capacity to transform their practice.

At the school level, Wilson has fostered a culture of risk-taking among faculty and has changed his hiring practices to create a staff of edtech innovators. Above all, he gives teachers shared planning time to co-create lessons.

"The best thing administrators can do is give teachers the gift of time," Taylor says. "When there is professional development that introduces technology, include time for teachers to work with those tools and to figure out how they could best integrate those tools into their lessons. Then, give them time to plan those lessons."

"When I'm visiting classrooms, I'm looking to see: How has instruction actually changed as a result of giving students a mobile device?" Just says. "That's the true test of whether we're seeing a return on our edtech investment."

"The best thing administrators can do is give teachers the gift of time. When there is professional development that introduces technology, include time for teachers to work with those tools and to figure out how they could best integrate those tools into their lessons. Then, give them time to plan those lessons." —Audrey Taylor, social studies teacher, Wayne Township's Lynhurst 7th and 8th Grade Center

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The former editor of eSchool News and eCampus News, Dennis Pierce is now a freelance writer who has been covering education and technology for more than 20 years.

10 awesome digital and mobile learning resources

Students have come to expect learning tools that are engaging and easy to use–here are 10 digital and mobile learning tools to try in your classroom

BY LAURA ASCIONE
Managing Editor, Content Services

Digital and mobile learning can invigorate a dull classroom, boosting student engagement and motivating students to immerse themselves in learning.

As with any tech-based instruction, the technology is just a tool for a highly-qualified teacher to use to augment a lesson and link learning to real life.

We've gathered a handful of popular digital and mobile learning apps, websites, and resources for you or your team of educators to try in the classroom. Some are for student use, others are management tools, but they're all worth a look.

1. The Relay Platform, from Lightspeed Systems, offers cloud-based filtering; delegated management with easy app controls; monitoring to keep learning as the focus; protection tools to flag inappropriate content or cyberbullying; and a function to analyze and drive app ROI, adoption, and compliance.

2. Kajeet's solutions aim to tackle the homework gap with the Kajeet SmartSpot, a filtered Wi-Fi hotspot; the Kajeet SmartBus offering school bus Wi-Fi; and the Kajeet Chromebook, offering a complete student connectivity solution.

3. DIY.org: This DIY community offers a huge library of hands-on projects, how-to videos, and an awesome kid community. Projects offer step-by-step instructions, and a variety of courses are targeted to different skill levels.

4. Educreations: Record your voice and iPad screen to create dynamic video lessons that students and colleagues can access any time, as needed. Post your videos to Educreations and share them with anyone. You can even share videos via email, Facebook, Twitter, Edmodo or YouTube, or download and store them in Dropbox or Google Drive.

5. TED-Ed Lessons: Teachers can build a lesson around any TED-Ed Animation, TED Talk, or YouTube video. Students can create talks on their own or in groups, and educators can even give their own TED-style talks.

6. Coggle: Coggle is an online tool for creating and sharing mindmaps and flow charts. Whether you're taking notes, brainstorming, planning, or doing something awesomely creative, it is super simple to visualize your ideas with Coggle. Share with as many students or colleagues as you like. Changes you make will show up instantly in their browser, wherever they are in the world.

7. Dotstorming: Dotstorming is A real-time group brainstorming and decision making app. Dotstorming takes the process of dot voting online to allow groups of people to collaborate on a topic.

8. Classkick: Teachers add drawings, text, images, audio, links, and videos to provide instruction or create assessments. In 1:1 or small group settings, students input drawings, text, images, or audio in response to teacher-created material. Teachers provide individualized, real-time feedback or allow students to give each other anonymous feedback. Teachers can see who needs help and how students are progressing through the assignment.

9. Photomath: This app doesn't replace learning and knowing mathematical processes, but it can be a big help during homework when students and parents are left scratching their heads. Photomath reads and solves mathematical problems instantly by using the camera of a mobile device. Students can also check their completed work for any printed or handwritten problems.

10. Khan Academy: With Khan Academy, teachers can identify gaps in their students' understanding, tailor instruction, and meet the needs of every student.

3 amazing findings about digital and mobile learning

The classroom connectivity gap is closed, and more students than ever have access to robust digital and mobile learning

BY LAURA ASCIONE
Managing Editor, Content Services

In order to support digital and mobile learning, students in K-12 classrooms need access to sufficient bandwidth, scalable and affordable broadband infrastructure, and robust Wi-Fi.

And for the most part, they have it.

Educators and school IT leaders have worked tirelessly toward this end, and according to the nonprofit EducationSuperHighway, 99 percent of school districts across the nation are now on scalable fiber connections with a "clear path" to supplying enough bandwidth for digital and mobile learning in every classroom.

The 2019 State of the States report is the latest in an annual look at school connectivity, taking stock of school districts' progress toward meeting the digital and mobile learning needs of students and teachers.

Eighty-seven percent of teachers say they use digital and mobile learning in their classroom several times per week, and three-quarters of U.S. schools now have at least one device per students, notes EducationSuperHighway CEO Evan Marwell in the report's introduction. More than 70 percent of educators say high-speed internet connections and Wi-Fi networks are "significantly improving" teaching and learning.

And, as Marwell notes, this is just the beginning–85 percent of teachers, principals, and district leaders support the increased use of digital and mobile learning in their schools.

"This means that state leaders and school districts will need to continue to upgrade classroom internet access so that bandwidth is never a bottleneck to learning," he adds.

Some of the report's major findings include:

1. 46.3 million students and 2.8 million teachers–and 99 percent of schools–are connected to scalable fiber networks. As new fiber-optic connections have become available to more than 22,000 schools, those schools have the broadband infrastructure in place to meet the FCC's 1 Mbps per student internet access standard.

2. Ninety-four percent of schools report digital and mobile learning in at least half of their classrooms.

3. State leaders are using the federal E-rate to close classroom connectivity gaps and help districts upgrade internet access. These leaders can maintain a strong E-rate program, along with helping school districts take advantage of budgets and deals designed to help them reach 1 Mbps, in an effort to avoid a broadband "bottleneck" that could prevent schools from access the connectivity that enables digital and mobile learning.

The nonprofit will wind down its efforts as its overarching goals are met,

"However, this is not the finish line; it's a starting point. Once digital learning enters a school, bandwidth demand continues to rise," according to the report. "Students and teachers find more ways to enhance the learning experience with technology, and other teachers begin using it in their classrooms. Ultimately, digital learning becomes fully integrated into teaching and learning throughout the school as teachers leverage technology in every classroom, every day."

Marwell also notes in the report.

"Now, it is time for EducationSuper Highway to sunset. In August 2020, we complete our mission, but not before we spend one more year helping as many of the last one percent of schools and students get connected to high-speed broadband. As we close our doors, we do so knowing that we have helped open the digital door to educational opportunities for millions of students."

3 essentials in a mobile learning environment

BY GARY LAMBERT, KENDRA LEROY, AND MICHELLE ZAVALETA

Gary Lambert: Wi-fi at home and on the bus

Beekmantown (NY) Central School District, a rural district of 2,070 students, was on a mission to be the most progressive educational institution in the area. When funds were earmarked for school wi-fi, we wanted to harness the internet to provide a world-class education for every student in this district.

Our initiative to address digital equity issues began with the rollout of Kajeet SmartSpots for students who needed home Internet access. In the four years since we had started our 1:1 program, the number of students without Internet has dropped from 30 percent to 10 percent because parents saw the benefit for their kids and made it a priority to get connected. For that 10 percent who still don't have Internet, we had an easy-to-use solution.

Because robust filtering and reporting features come standard with Kajeet, we're now able to ensure that students are using wi-fi for its intended educational purpose. While we have a responsibility to be CIPA-compliant, we also are able to set notifications for when students violate our acceptable use policy by going to sites they shouldn't. We can then determine when it's necessary to intervene.

To address both digital access and the district's commitment to keeping students connected to school, we started looking at wi-fi on buses. Some students spend up to an hour on the bus getting to and from school each day, and school-sponsored athletic events often require a commute of an hour-and-a half-each way. Putting wi-fi on buses was a tangible way to solve a problem and provide mobile learning opportunities for students.

With wi-fi on the buses, drivers immediately reported that students were engaged and working on assignments during their commutes instead of getting into trouble. In fact, when it comes to discipline issues, the bus often represents one of the most challenging environments for many schools, but we have decreased those behavior incidents by 70 percent.

The success is in the numbers. In the past three years, our attendance rates have increased, along with our assessment scores in grades 3 through 8. School is a not a place that students have to go; it's where they want to go. We believe the digital learning initiative has been a foundation for their success.

Kendra LeRoy: Connecting to today's smartphone-toting parents

I work in a group of four teachers who collaborate to teach the different subjects in 5th grade. To keep us all connected, we use the parent-teacher app Bloomz to post announcements and updates to students' parents individually or as a group.

Parents really appreciate the up-to-date posts about what is happening at school on the Bloomz newsfeed, which they can access right on their smartphones. They also like having the calendar to remind them about dress-up days, report cards, and meetings.

We've used the conference scheduling aspect for three years in our grade level to set up time slots for conferences. Parents get instant notifications that conference times are available, as well as the option to cancel or reschedule if something arises. This simplifies our life as teachers because it saves written notes and phone calls. The best part about a parent-teacher communication tool is the fact that we know when a parent has viewed our messages, so we can be aware that he or she has seen the subject at hand.

Michelle Zavaleta: Uniting the classroom with an audio system

So many pieces are needed to complete the puzzle of a mobile learning environment. Every school has its own unique challenges, and technology plays the important role of helping address those by supporting educators to continue providing superior lessons.

At Tulare (CA) City School District in 2011, we had a cluster of deaf and hard-of-hearing students for the first time in one class. Faced with the challenge of providing the necessary assistance to students who couldn't hear their teachers, we implemented Lightspeed's Redcat classroom audio system. After completing training courses, educators quickly noticed the advantages of using audio in their spaces.

We saw the benefits in our classrooms with our hard-of-hearing students, but through the years, we've also seen the benefits for students who are not hard-of-hearing. In today's mobile learning classrooms, where students are moving around the room rather than sitting at desks, children are able to hear anywhere in the classroom and have displayed an increase in attention span. Having students working on their devices in different areas of the room can create distracting background noise, but an audio system allows teachers to be heard—without raising their voice.

Gary Lambert is the director of 21st Century Learning at Beekmantown Central School District. Follow him on Twitter @Dir21KLearning. Kendra LeRoy is a 5th-grade math teacher in Southern Indiana. Michelle Zavaleta is the director of psychological services in special education at Tulare City School District. To contact her, email Mzavaleta@tcsdk8.org.

6 ways the E-rate supports digital and mobile learning

School internet access is critical to digital learning–here's the latest look at how schools are able to connect and meet bandwidth demands

BY LAURA ASCIONE
Managing Editor, Content Services

Education leaders expect school internet needs to increase over the next several years, highlighting the need for increased bandwidth and resources to support growing digital learning demands on school networks.

The ninth annual E-Rate Trends Report from Funds For Learning shows that the federal E-rate program is still critical in establishing broadband connectivity for schools and libraries. The 2014 E-rate update will expire in 2020, and stakeholders are urged to advocate for the program in order to ensure it can continue to serve schools and libraries and help close connectivity gaps.

"Every year, we read through hundreds of responses that showcase how E-rate is mission critical for schools and libraries," says John Harrington, CEO of Funds For Learning. "It's vital to identify what's working and what improvements must be made, and to deliver that feedback directly to the FCC."

The survey also includes open-ended responses from applicants.

"[E-rate] is a tremendous program that is necessary for the instructional benefit of all students and educators across the United States. Without it, these individuals would suffer immensely and potentially cause our nation a huge disadvantage when it comes to 21st century skills," according to comment number 218.

"As a small rural school district, our options for internet, fiber, etc. are limited. E-rate helps us tremendously with our internet, building-to-building connectivity, and network equipment that are necessary in today's education environment. Since state funded programs… no longer exist, districts must spend more district money [on] projects. It would be difficult for our district to fund everything needed without the benefit of E-rate," says comment number 41.

School internet remains critical to students' success, both academically and in building the schools they'll need to succeed in college and the workforce.

Here are 6 key findings about digital learning and school internet needs:

1. Digital learning continues to explode. 88 percent of applicants expect bandwidth needs of schools and libraries to increase in the next three years.

2. Barriers to internet still exist. 82 percent of applicants agree that insufficient internet access to home of students or library patrons is significant issue in their community.

3. If permitted to share school internet access off-campus at no additional cost to the E-rate program, 83 percent of responding applicants say they would do so.

4. Wi-Fi remains mission-critical. 88 percent of applicants feel Wi-Fi is extremely important in fulfilling their mission. 79 percent of applicants in FY18 cited the same need, showing a consistent trend in Wi-Fi access to support digital learning in schools and libraries.

5. More applicants say school internet should extend to school buses–in 2018's survey, 58 percent of applicants believed school bus internet should qualify for E-rate support. This year, 66 percent of applicants say the same. "Our community would greatly benefit from access to Wi-Fi on buses and school-provided internet at their homes. This would allow for a greater flexibility in the use of online resources and blended learning. Extending the classroom to anywhere our students have a device is key to success in a 21st century learning environment," according to comment number 274.

6. E-rate funding is considered critical to school internet connectivity goals, but not all applicants feel they can depend on the funding each year. Ninety-four percent say E-rate is vital, but only 84 percent say their organization can depend on the funding each year.

Participation in this year's report was a record high, with 1,763 applicants from every state and territory completing the survey, representing about 8 percent of all school and library applicants nationwide.

5 strategies to tackle the homework gap

The homework gap is a troubling barrier to digital equity, but some school districts are leaders in addressing the dilemma

BY LAURA ASCIONE
Managing Editor, Content Services

Despite a brighter spotlight on digital equity, gaps still remain, including the troubling and persistent homework gap–but a newly-relaunched digital equity toolkit aims to highlight the important work districts across the nation are taking to address equity differences.

The 2014 Erate modernization helped a majority of schools meet the FCC's short-term connectivity goal of 100 Mbps per 1,000 students, according to CoSN's relaunched Digital Equity Initiative toolkit. But because classroom use of technology and digital resources is growing, a gap has continued to grow between students who have internet access at home and those who do not.

Because it tends to impact low-income and rural students harder than others, the homework gap can intensify other income or access issues these students and their families face. And even if a family has internet access, students don't necessarily have access to a device–or the right device–with a large enough screen or enough data to complete homework.

CoSN's toolkit is updated with new strategies and examples regarding how to best address the larger implications that come with a lack of home internet access. The toolkit also highlights five strategies districts are leveraging to address those challenges.

There seem to be five steps school districts are taking in an attempt to close the homework gap and help level the playing field for rural and low-income students.

1. Partner with community organizations to create "homework hotspots." As part of the Access4All program, Fairfax County (VA) Public Schools mapped free wi-fi locations for students. Their Community Internet Access maps list sites in neighborhoods within the district, including libraries, community, family, and other resource centers where students can access wi-fi to complete their homework.

2. Promote low-cost broadband offerings. In Chattanooga, Tenn., the city's public utility internet provider, EPB, provides subscribers with up to gigabit speeds. In 2015, EPB began offering the NetBridge Student Discount Program, which provides 100-Mpbs internet service for $26.99 a month to households with students eligible for free or reduced lunch. The Hamilton County (TN) Department of Education disseminates program information along with applications for free and reduced meals and validates student eligibility for the program.

3. Deploy mobile hotspot programs. In the fall of 2017, Oregon's Beaverton School District deployed Sprint hotspots in all of their high schools after receiving a Sprint 1 Million Project grant. The district worked with Sprint specialists, high school teachers, administrators, and counselors to identify students without home internet access. Prior to the hotspot program, teachers in low income schools were hesitant to assign online homework, practice or readings because many of their students did not have home internet access, despite having school-issued laptops. The hotspots have changed the way that teachers deliver instruction.

4. Install wi-fi on school buses. In the Salamanca City (NY) Central School District, located on the lands of the Seneca Nation of Indians, Allegany Indian Territory, in rural western New York State, approximately 40 percent of the district's 1,250 students are Native American. Due to the district's rural location and high poverty rates, many students lack home internet access. After launching a 1:1 mobile device program, the district worked with the Seneca Nation to ensure students could access public wi-fi at the administration building, library, and community center. Additionally, because a high percentage of students participate in athletics and other extra-curricular activities involving long bus rides, the district partnered with its wireless provider to install a cost-effective bus wi-fi solution.

5. Build private LTE networks. Albemarle County (VA) Public Schools is leveraging Educational Broadcast Spectrum (EBS) licenses to provide home connectivity for underserved students through a private 4G LTE network. Spanning 726 square miles at the foothills of the Blue Ridge Mountains, the district is both geographically and socioeconomically diverse, comprised of both urban and rural communities with pockets of poverty and low levels of both broadband adoption and access. According to the National Digital Inclusion Alliance, broadband is not available through either cable or commercial 4G cellular service in many of the district's rural areas. Following an initial pilot that included partnerships with local police and fire agencies and began with mounting antennas on school buildings, the district is expanding the EBS service to cover additional areas. With an eye toward sustainability, its strategy includes partnering with a commercial firm to install towers on school campuses, allowing the district to broadcast signal to wi-fi devices while also leasing space to commercial carriers, generating revenue to support system upkeep.

CoSN also outlines steps school leaders can take to collaborate with local governments and community for a broader take on digital equity and inclusion:

1. Assemble a team and develop a shared vision
2. Assess existing community resources, gaps, and needs
3. Engage stakeholders and partners
4. Develop and execute a project plan

10 things to know about digital learning

A new report outlines digital learning challenges and top priorities for teachers and administrators

BY LAURA ASCIONE
Managing Editor, Content Services

Digital learning itself is expanding in schools, but access to classroom and home technology still remains a major obstacle, according to a new study from Schoology.

The State of Digital Learning report is based on responses from more than 9,200 education professionals and covers challenges, priorities, and student achievement as they relate to digital learning and edtech tools.

The study yields significant findings regarding challenges and priorities, the role and impact of technology, digital citizenship and emerging edtech trends, and professional development and learning communities.

Nearly 42 percent of study participants say lack of student access at home is their biggest obstacle to student learning. More than 50 percent also say their school or district is one-to-one, and more than half of them let students take those devices home.

The study breaks down obstacles to student learning by rural, suburban, and urban. Lack of student access at home is the biggest obstacle for both rural (51 percent) and urban schools (close to 45 percent), while insufficient time to teach individual students who need it most is the top obstacle in suburban schools (42 percent).

K-12 classroom teachers say their top two digital learning challenges are juggling multiple digital tools for teaching and learning and student access to technology. Teachers' top priorities are integrating new edtech tools into the classroom, along with improving assessments, reporting, and data-driven decision making.

Administrators' top challenges are providing relevant and effective professional development, dealing with technological infrastruture such as wi-fi and security, and device management. Top digital learning priorities are providing ongoing professional development, encouraging instructor collaboration, and rolling out new devices or device strategies.

More than 34 percent of respondents cited internet safety as the number one digital citizenship concern, yet an equal number of respondents do not have a digital citizenship program in place or are not encouraged to discuss the topic with students.

About 40 percent of schools allow social media for educational purposes only, while nearly 20 percent have an openly permitted social media policy. These numbers speak to the notion that institutions are increasingly meeting students where they are.

Digital learning needs to extend beyond the K-12 classroom and into teacher PD opportunities. Most PD courses are still conducted via in-person workshops, with 60 percent of schools and districts relying on periodic workshops.

Major findings include:

1. Relevant and effective PD remains a top concern
2. Professional Learning Communities have a positive effect on professional learning
3. More institutions see the value of dedicated instructional technologists
4. Educators are increasingly eager to integrate edtech
5. Most institutions provide differentiated instruction to students
6. Nearly half of respondents report that their institutions are using coding in classrooms
7. Lack of student access to technology at home is a roadblock for student learning
8. Learning Management Systems benefit students, teachers, administrators, and parents
9. Social media is finding its place in the classroom
10. Internet safety is a huge concern

5 new strategies for digital content

Using digital content can save teachers time and bring real-world relevance to classrooms

BY KYLE SCHUTT

For the past decade of my career, I've worked to empower and inspire educators in their use of digital content and technology. From teaching educators in graduate level courses and delivering school level professional development to producing digital learning content and designing educational products and services, my career has had one common purpose: to learn how to best support educators' use of digital content.

This work has been informed by hours interviewing, surveying, observing, and conversing with educators in all roles, grade-levels, and subject areas. Throughout this process, I have observed time and again that when we give educators practical strategies to use digital content, they are more effective at teaching with that content and engaging students in the learning process.

Following are five new strategies educators at any level can use to more effectively use digital content to jumpstart classroom learning.

Try to discover and implement one new instructional strategy per week to grow your teacher toolbox. With so many requirements of teachers, professional learning can sometimes take a back seat. Practical professional learning can be as easy as trying one new idea for sparking conversations, jumpstarting writing, and exploring concepts. One of my favorite strategies, Snowball Fight, asks students to write and reflect on what they learn at intentional pause-points in a video. After writing a fact they learned from the prior segment, students crumble their papers and toss them into the middle of the room (not at each other!). After the next video segment, students pick up a different paper and add another fact related to what they learned. As the process repeats and wraps-up, each paper provides an opportunity for discussion and reflection to correct misunderstandings and dive deeper into the content being learned through multiple perspectives.

Offer students shared learning experiences through virtual field trips that take your students outside of your classroom walls. Speaking of snow, one of my favorite times of the year is when I travel to Churchill, Manitoba for the annual polar bear migration. Each fall, students come along on our journey to virtually to ask

questions of scientists, observe polar bears in their native habitat, and learn how the tundra is connected to their homes. These "event-based virtual field trips create a single point in time where classrooms from around the world connect to form a unique and diverse community that takes a deep-dive on a particular topic or moment in history." I encourage all educators to integrate Virtual Field Trips into their classroom instruction. It is a great way to expand your students' horizons.

Enable students to remix content and apply what they learn in a digital medium. Content creation and collaboration spaces empower students and teachers to design, build, and share content in creative ways. With high quality content creation tools, students can create a concept map, organize a digital portfolio, record and upload a read-aloud, prepare a scientific explanation, or produce a character analysis. Giving students opportunities to apply their knowledge supports each of the Four C's that are pivotal for student success.

Connect with other educators to learn practical ideas for digital content integration. Whether in-person or online, professional learning networks (PLNs) continue to provide a safe place for educators to collaborate and continue learning. Through our surveys, we continue to hear that educators want to share resources and connect with other like-minded educators. By getting involved in a community like the Discovery Educator Network, you can access ideas, pictures, and videos demonstrating how other teachers use digital content in their classrooms.

Pair high-quality content with effective instructional strategies for instantaneous engagement. I continue to hear how teacher exemplars save planning time and provide thought-starters for content integration and engagement. A great example is grab-and-go lesson activities that can be modified or assigned to students as-is. Covering all grade levels and subject areas, resources like this are practical and flexible. What's more, this is my favorite tip to share with educators because it addresses a common challenge: saving teachers time.

Regardless of grade level, subject area, or instructional model, teachers have limited instructional time, they are working to meet the needs of diverse learners. They want practical professional learning opportunities that lead to relevant and engaging lessons.

Kyle currently serves as Director of Learning Communities and Instructional Innovation at Discovery Education. He holds a master's degree in Classroom Technology, and is an adjunct faculty member at Wilkes University, for whom he designed the Creating a STEM Culture Through Application graduate level course.

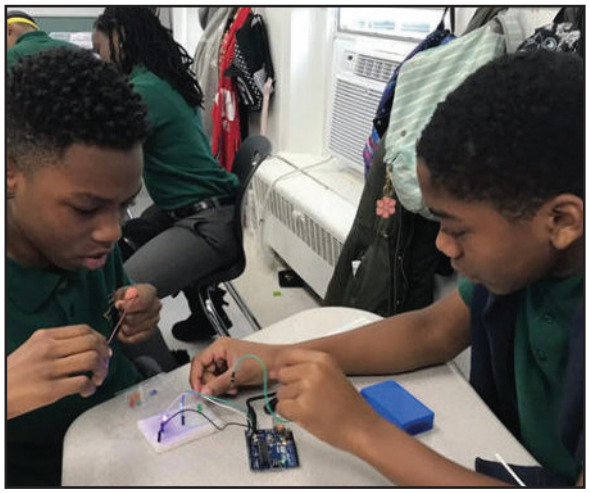
Digital learning is helping this school close achievement gaps

A Q&A with Mashea Ashton, the founder/CEO of a D.C. charter middle school that's bridging the racial achievement gap in tech

BY ESCHOOL NEWS STAFF

There's a widening technology achievement gap for minorities, despite blacks and Hispanics having more interest in learning computer science. So why is the field so dominated by whites?

eSchool News recently spoke with Mashea Ashton, who founded Washington, D.C.'s first computer science middle school last year in a struggling, historically black community to help bridge the technology achievement gap. Today, 99 percent of the students at Digital Pioneers Academy (DPA) are on a free lunch program. Ashton, who previously worked with Senator Cory Booker to create more educational options in Newark, N.J., talked about how innovative educators can help solve the racial achievement gap.



eSN: There are lots of cities with impoverished neighborhoods and poor public school systems, so why did you choose to start DPA in southeast D.C.?

Ashton: My husband's family goes back six generations in southeast D.C. and I taught here early in my career. Southeast Washington, D.C.. is a unique and multifaceted community, where the talent pool is high, but access to transformational educational opportunities is often lacking. I love my community and know that our students can achieve anything they set their minds to accomplish. I saw DPA as a way to bridge the achievement and opportunity gap for scholars east of Washington D.C.'s Anacostia River, and for people of color who are disproportionately underrepresented in the technology field.

eSN: With your first year almost completed, what are some challenges you've encountered this year that you didn't expect when DPA was starting?

Ashton: I've been working in public education for nearly 20 years, so not much surprised me when we opened DPA last year. One component of working with middle school students that continues to push my thinking around the work we are doing is the challenges and obstacles our scholars face outside of school. Some of our students have to carry adult responsibilities or have experienced trauma outside the classroom. I am constantly reminded of the importance of addressing the social-emotional needs of our scholars in an effort to achieve our academic goals.

eSN: How would you grade DPA on integrating computer science (CS) education into the curriculum this year? What makes DPA's CS curriculum unique?

Ashton: Many believe that CS is simply too hard to teach, and believe you need very specific expertise in the field just to teach it at a K-12 level. DPA takes a non-expert-dependent approach to our CS curriculum: Our teachers come in with little to no background in the subject and the curriculum allows teachers to learn skills through projects before scholars. Both students and teachers start learning basic programs like Scratch before diving into the big coding languages like CSS and Javascript.

eSN: As you know, the tech field is largely dominated by men, while women and other demographics are not finding the same success in the field. What are you doing at DPA to include these groups of students?

Ashton: For us, it started with our name. We chose the name Digital Pioneers Academy because "pioneer" doesn't suggest any specific gender or race. Leaders and innovators come from all kinds of backgrounds, just as our students and teachers do. In fact, girls make up more than half of our student body. While our faculty is diverse, we hire based solely on alignment with our mission and values. It's important that our students know that no matter what their skin color or background, they know that if they believe in themselves and put in effective effort they can achieve their goals.

eSN: D.C. has a booming tech sector, with companies like Amazon choosing to move there over other big cities. As DPA expands its grade levels, do you have plans to establish relationships with any of these companies?

Ashton: We're already partnering with Microsoft and Deloitte to give our students opportunities to work with leaders in the tech industry and expose them to the kind of careers they could enter in

a few years after college. We are trying to create more opportunities for our students to take part in "expeditions," where they are exposed to tech careers in which they can apply what they are learning in the classroom. They might get to show off their skills to experts from these companies and then tour the companies' offices to see their work up close. We think it's important for our scholars to experience these environments in person so that the prospect of high achievement after graduation becomes something tangible.

eSN: Where do you hope to see DPA in 20 years? Are you planning any new projects/school startups for the future?

Ashton: Our plan is simple: to be the most innovative school in America. We want to close the achievement and opportunity gap for low-income and working-class students of color.

We hope that DPA equips all our students to enter higher education and eventually the job market, where they can secure in high-paying careers. With more high-quality college-prep schools that prepare students for the digital economy, we believe we can help break the cycle of poverty in areas like southeast D.C. In the coming years, we hope to open up to 25 DPA schools in cities across the country. We are creating an educational model that allows for schools to be tailor-made for their communities and totally replicable in new areas.

When the digital divide hits at school and at home

As it turns out, the digital divide proves tougher for students with fewer electronic devices at home

BY LAURA ASCIONE
Managing Editor, Content Services

The digital divide is proving one of the most pervasive and stubborn challenges in U.S. education, and its effects can follow students from kindergarten through college.

A new study confirms that, despite efforts to close the space, the gap between students who have access to devices and the internet and those who lack it compounds equity problems within U.S. schools.

New research from ACT's Center for Equity in Learning shows that underserved students with access to only one electronic device in their home may find it difficult to complete schoolwork. The homework gap, as it is frequently called, is particularly tough on low-income and rural students. Even when families have one device at home, that device is often a smartphone, which isn't conducive to completing homework or doing research.

The report, "The Digital Divide and Educational Equity," looks at the 14 percent of ACT-tested students who said they had access to only one device at home. It was a follow-up to the report "High School Students' Access to and Use of Technology at Home and in School," which examines overall survey results and results for selected subgroups.

According to the report, among students who have access to only one device at home:

- 85 percent were classified as underserved (low income, first generation in college or minority).
- 28 percent of students who have one device at home say that device is provided by their school–40 percent of those students have a laptop and 31 percent have a smartphone.
- 56 percent of students reporting access to only one device at home say that device is a smartphone.
- American Indian/Alaskan, African American and Hispanic/Latino students had the least amount of access; white and Asian students had the highest. For example, 20 percent of American Indian/Alaskan Native students have access only to a smartphone, compared to only 4 percent of white students.

Naturally, students with access to more than one device at home use those devices more frequently than students with access to only one device at home. Sixty-eight percent of students with access to two or more devices use those devices for homework, while just 48 percent of students with access to only a smartphone use that device for homework.

Of students whose parents have a college degree, the majority have access to more than one device at home; just 7 percent of this group have access to only one device and 3 percent have access only to a smartphone–a disadvantage of 15 percentage points for first-generation college students.

Various reports and research offer a few suggestions as school leaders hope to tackle the digital divide and the homework gap:

1. Expand device and internet access among those who lack them

2. Ensure all students have easy access to the applications they need for school-related activities via mobile technology

3. Look to instructional coaches, who, according to Digital Promise research, can play a key role in closing the gap and advancing equity

4. Look to other districts for examples and best practices

5. Think about unconventional ways to connect students to the internet, such as putting wi-fi on school buses

Disrupting students' opportunity gaps will hinge on networks

Society is passing up entire reservoirs of latent innovation potential in the next generation–here's what can close those opportunity gaps

BY JULIA FREELAND FISHER

Recently, Stanford researcher Raj Chetty came out with yet another new study on the jagged landscape of opportunity facing America. Analyzing the relationship between young people's exposure to innovation and the likelihood that they would go on to become inventors, the study highlights an alarming rate of what the authors dub "lost Einsteins": young people who show promising potential but who, due to lack of exposure to innovation, appear far less likely to pursue careers as inventors. Perhaps unsurprisingly these gaps fall along demographic lines. Children from high-income (top 1 percent) families are 10 times as likely to become inventors as those from below-median income families.

The consequences of Chetty's specific findings are profound. Society is passing up entire reservoirs of latent innovation potential in the next generation.

The findings are also a microcosm of a broader reality facing the education establishment in an age of stark income and geographic inequalities. If Chetty's research tells us something about schools, it's that all the academic interventions in the world may not add up to tackling opportunity gaps that shape students' ability to realize their potential as inventors or otherwise. In recent years, education reformers have focused relentlessly on K-12 achievement gaps and college graduation rates as proxies for leveling the playing field. But Chetty's data suggests that opportunity gaps don't merely spring forth from gaps in achievement or attainment—they are based on exposure. They are also social and geographic in nature.

The study underscores a fundamental truth about opportunity: it depends, at least in part, on our inherited networks. Inherited networks, Chetty's findings suggest, are fundamentally bounded. They can propel some young people into certain careers, but keep others out. Luckily, however, new tools and approaches emerging across K-12 and higher education could begin to disrupt the boundaries of students' inherited networks.

Tools to address opportunity gaps

For the past three years I've been tracking tools and models that expand students' access to relationships that might otherwise be out of reach—because of where they live, their family's networks, or the structures of the schools they attend. These emerging tools and practices offer a small but vibrant beacon lighting the path forward to address the social side of opportunity gaps.

Some include platforms, like CommunityShare or ImBlaze. These tools are aimed at allowing schools to better tap into local community-based opportunities and experts by cutting through the logistical hurdle of coordinating across the school-community interface. Using CommunityShare, teachers can log onto the site to find a community member who can speak to particular topics in their classes or offer a lesson. Schools can use ImBlaze—an effort spawned from Big Picture Learning's longtime model connecting students to internships with local businesses—to recruit and organize internship opportunities for their students throughout their local community. In other words, these tools can help schools address exposure gaps by deliberately connecting students to more local, real-world professionals whom they otherwise might not know.

But much of Chetty's research

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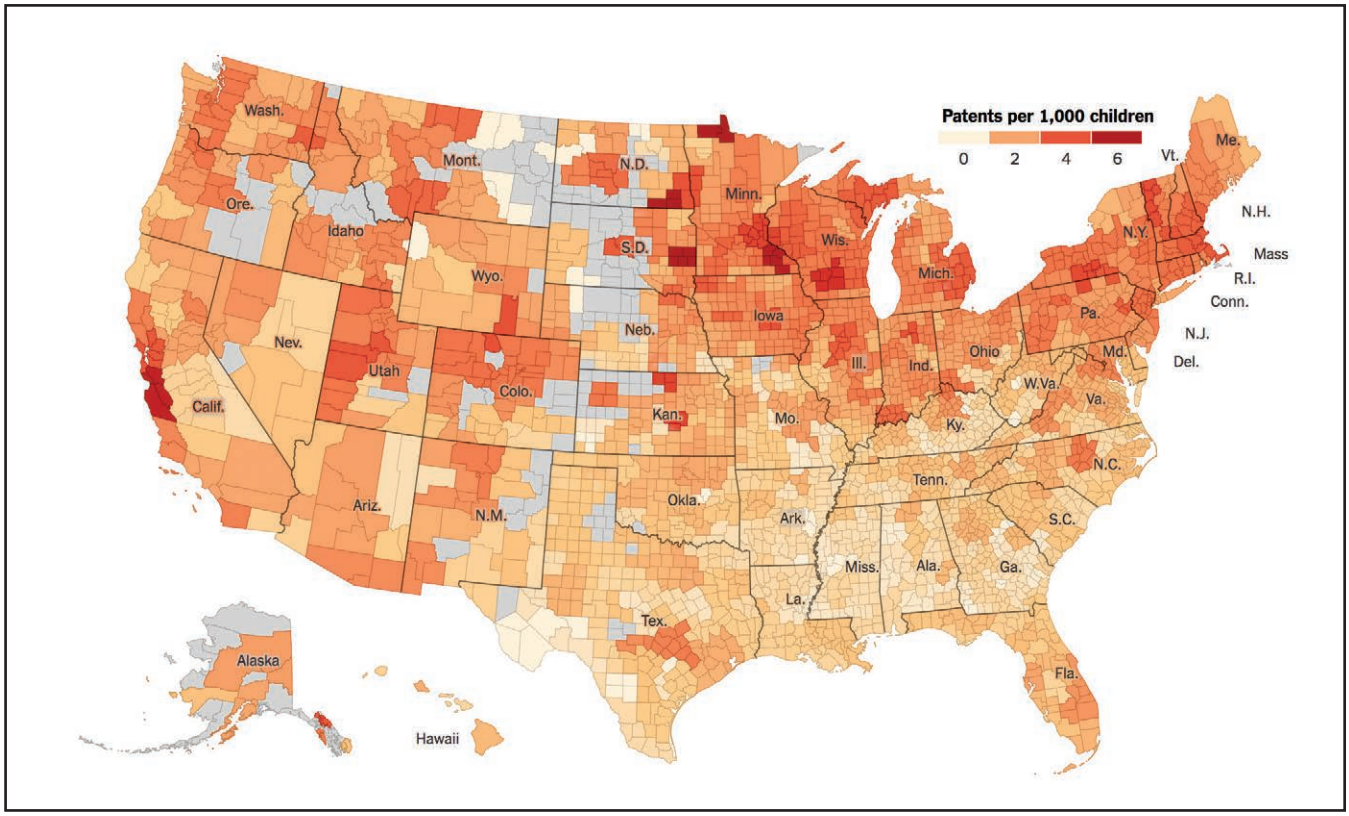

suggests that geography can shape the sorts of opportunities on students' radar. (The map above shows just how unevenly the ratio of patents to children is distributed across the country). What about those geographies where a diverse array of industry experts and mentors are harder to come by? In these cases the most promising innovations may be those that allow students to diversify their connections to experts online. For example, tools like Nepris or Educurious allow educators to port online mentors or experts into classrooms over video. Using these tools, educators can begin to supplement traditional lesson plans and projects with live chats with real people working in the fields that students are studying and industries they might eventually work in.

These tools could help K-12 schools begin to address exposure gaps. Still other innovative approaches—like Braven—aim to help higher education institutions address stubborn opportunity gaps that tend to persist even as older students get closer to entering the workforce. Braven partners with universities to provide an "Accelerator Course" to arm first-generation college students with skills, internship experiences, and networks. The program is delivered through local volunteer near-peer young professionals working in high profile firms the likes of Facebook, Prudential, and Audible. According to its latest impact report, compared with peers nationally, Braven college graduates are more likely to have at least one internship during college. Their cohorts also experienced statistically significant growth in the closeness of friendship networks and advice networks with volunteer professionals.

What schools and colleges can do to surface 'lost Einsteins'

Opportunity is something young people are—or aren't—networked into. Although the notion of "networking" can reek of a shallow exercise at cocktail parties or ad-hoc connections on LinkedIn, Chetty's research suggests that exposure to certain professions has deep, long-lasting consequences. Education institutions can address this reality by exploring emerging tools and approaches designed to reach beyond students' inherited networks and, in some cases, immediate geography. If we don't, countless "lost Einsteins" will be deprived of—and deprive us of—a brighter future.

Julia Freeland Fisher is the director of education research at the Christensen Institute.

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About eSchool News

History

eSchool News covers education technology in all its aspects–from legislation and litigation, to best practices, to lessons learned and new products. First published in March of 1998, **eSchool News** is a monthly print and digital newspaper providing the news and information necessary to help K-20 decision-makers successfully use technology and the internet to transform North America's schools and colleges and achieve their educational goals. The newspaper is read by more than 300,000 school leaders, and a companion web site—**eSchool News Online**—is visited by more than 500,000 unique visitors each month, including over 280,000 registered members.

eSchool News is a marketing solutions company serving the education technology industry. Throughout our 25-year history, we have created the most comprehensive portfolio of products and services in the industry. We offer access to the broadest reach and deepest range of education technology professionals worldwide across the entire technology spectrum: the creators, sellers, and buyers of technology around the world.

Every day, our editorial, sales, and marketing professionals share their content expertise to help our customers grow their businesses. We leverage the immediacy of online, the networking of face-to-face opportunities, the expert interaction of web seminars, and the breadth and depth of print to create compelling, focused media that delivers measurable results.

Mission

eSchool News — helping educators succeed by:

- Providing the latest news, resources and reports on the applications of technology to improve learning
- Providing resources and tools to evaluate the funding, purchasing and the evaluation of technology in the education systems
- Assisting educators in forming collaborative alliances and providing a valuable resource bank for the exchange of information, ideas and best practices.

In order to fulfill our mission, we pledge the following:

- We will treat each member as though the success of our organization depends on that individual alone
- We will continue to increase the value and benefits of our services, programs and products
- We will deliver what we promise
- We will conduct our business in a manner which commands the respect of the public for our industry and for the goals toward which we strive

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February 2020	STEM, STEAM, & Makerspaces
March 2020	IT Solutions: Hardware & Management
April 2020	Online and Personal/Blended Learning
May 2020	Curriculum, SEL and Instructional Tools
June 2020	Library & Media Technology
July 2020	Wireless Products
August 2020	Data Management & Storage
September 2020	Communication Technology
October 2020	Robotics
November 2020	Digital & Mobile Learning

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