# Living for today or planning for tomorrow with digital learning investments

How E-rate funding supports K-12 school district capacity building as well as connectivity

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# E-rate funding for digital learning initiatives

For the past 15 years, Project Tomorrow, a national education nonprofit organization, has been investigating the role of digital tools, content and resources within schools and classrooms through the Speak Up Research Project. Since 2003, over 5.7 million K-12 students, parents, teachers and administrators have shared their firsthand perspectives and ideas on the role of technology in education. Reflecting the priorities and concerns of school and district leaders, the research has also focused on the challenges associated with technology usage, including how to fund the necessary investments in infrastructure and tools. The findings provide the foundation for why this discussion is so important today.

Despite strong emphasis today on the importance of student-centered learning and the role of education in preparing students for future success, the topic most likely to keep school and district leaders up at night is education funding — is there adequate funding to support the needs of our teachers and students?

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> The transformation of the American classroom is already underway, aiming to ensure that every student is well-prepared to compete in the global economy.

District administrators have identified inadequate school funding as their number one issue for the last 12 years on the annual Speak Up surveys. The discussion about how schools are funded, however, is a complicated conversation. Despite what many believe, federal funding is a very small component of the funding recipe for schools today, averaging only about 8 percent of the total funding for K-12 education.[1] Federal funding programs (Title funds, IDEA) are most often based upon student need. The vast majority of the funds needed to operate our nation's schools is derived from a combination of state, local and private sources, which often include regulations dictating how, where and on whom those dollars can be spent.
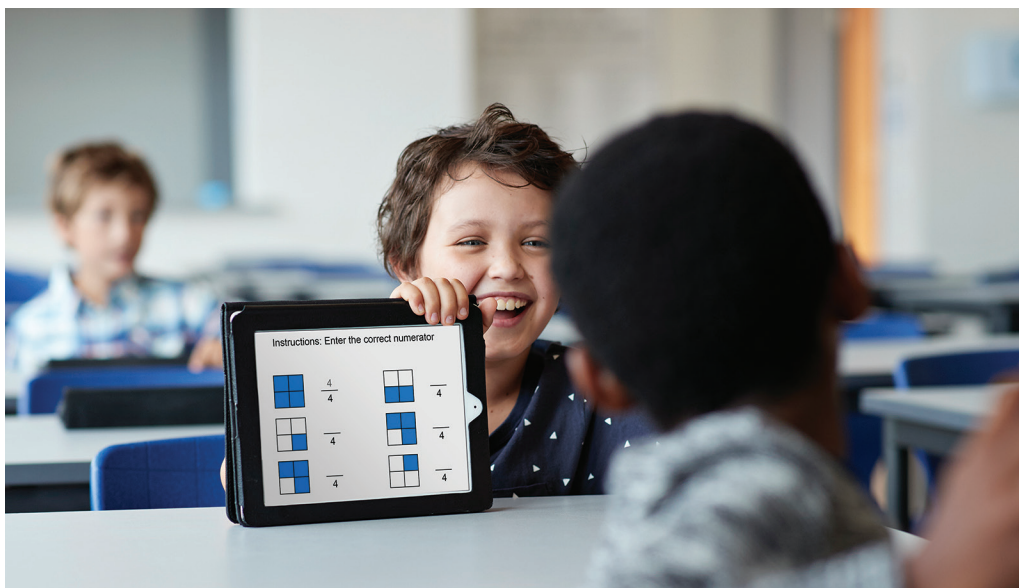
States often use complicated formulas to allocate funds using factors such as district enrollment, student characteristics and community wealth. About half of district funding comes from local revenue sources. Questions often arise if locally sourced funding such as property taxes, bond measures or even the proceeds from the PTA fall carnival are being distributed equitably or if antiquated funding mechanisms are inadvertently creating unequal learning environments for students. And yet despite widespread agreement that current K-12 school funding formulas need updating, many state legislatures have been slow to respond even when faced with teacher strikes or parents and business leaders voicing concerns about school funding inequities.

Against the backdrop of inefficient and inadequate funding mechanisms for K-12 education, the transformation of the American classroom is already underway, aiming to ensure that every student is well-prepared to compete in the global economy. That transformation process is being accelerated by the implementation of online tools, content and resources to empower personalized learning in the classroom. This re-tooling of the traditional classroom requires critical new investments in technology infrastructure, teacher training and digital solutions. Many school

districts are relying upon a mix of different funding sources to support their technology infrastructure investments including Title 1 funds, donations from education foundations, designated set-asides from general funds and E-rate allocations.

The latest Speak Up findings show 50 percent of school districts say they are now using competitive funds from the Federal Communications Commission's (FCC) E-rate program to support their school technology infrastructure. In this report, we investigate the various ways that school districts are funding their digital learning initiatives and examine closely the profile of school districts that are using E-rate funds specifically to support their technology investments. The report also includes a review of the technology that students, teachers and principals would like to see in future schools. These previously unpublished insights provide a snapshot into new infrastructure needs and the anticipated investments that will be necessary to bring the ultimate school vision into reality for our students and educators.

Project Tomorrow and Spectrum Enterprise have developed a series of reports for education leaders leveraging the Speak Up research findings. This report offers new insights around school technology funding, the importance of E-rate support for new digital learning initiatives and what we should expect in the near term for infrastructure needs. This is one in a series of research-based reports to enlighten education leaders about current trends in digital learning and to provide leaders with targeted insights to support new initiatives in their district. Key findings from this examination include:

**1** School districts are funding digital initiatives including infrastructure and bandwidth by leveraging a variety of funding sources. District size and community type often dictate the types of funds.

> Example: Two-thirds of rural school districts (63 percent) report that their primary source of funding for technology infrastructure investments is the FCC's E-rate program.

**2** E-rate funds support the development of a new culture within school districts that emphasizes the value of digital learning and greater adoption of more innovative practices that support student learning.

> Example: 66 percent of school districts using E-rate funds say that they have implemented a program in which their students are assigned a mobile device to use to support learning in the classroom.

**3** Students, teachers and principals have high expectations for the effective use of technology in their ultimate school vision and these expectations are placing new demands on school districts for greater online learning investments in infrastructure, teacher training and digital solutions.

> Example: Over three-quarters of students, teachers and principals agree that putting a mobile computing device in the hands of every student to support learning is a must-have for future schools.

**Finding #1:** School districts are funding digital initiatives including infrastructure and bandwidth by leveraging a variety of funding sources. District size and community type often dictate the types of funds used by school districts

Funding for digital initiatives in school districts most often comprises a salad bar of different revenue sources, cobbled together to help education leaders cover annual technology costs. Too often that salad bar approach focuses on short-term expediency and variety but not necessarily a longer-term strategy. Pursuant to the way budgets are developed in school districts, the focus is generally on the technology costs for the current operating year only without the ability to make multi-year investments or think strategically about addressing replacement costs or unanticipated needs – for example growth in the use of the Internet in classrooms.

The types of revenue sources used by school districts to support digital initiatives vary greatly. Per analysis of the Speak Up Research from over 400 K-12 school districts nationwide, the mix of funding sources depends upon whether the school district is in a rural, urban or suburban community, and if the district is small in size (serving less than 5,000 students), moderate in size (serving between 5,000 and 25,000 students) or large (serving over

## 52%

**52% of district administrators in suburban school districts report the primary way they are funding technology projects is through specific line items on their district budget**

25,000 students). These differences are significant to review since they can indicate both the potential sustainability of the digital learning initiatives implemented in our schools based upon funding, and the vulnerability of those initiatives

especially as it relates to growth and equity of educational opportunity. Within the United States, 30 percent of K-12 students attend schools in urban communities, 34 percent go to school in towns and communities in suburban areas, and 36 percent are enrolled in rural schools.[2] The challenges facing schools in urban, suburban and rural communities are often very different based upon not only the makeup of their student population, but the economic well-being of the communities they serve and their access to additional resources. This is often reflected in the way that they are budgeting their funds to support digital tools, content and resources to support student learning.

For example, district administrators in suburban school districts (52 percent) report the primary way they are funding technology projects is through specific line items on their district budget (Table 1).
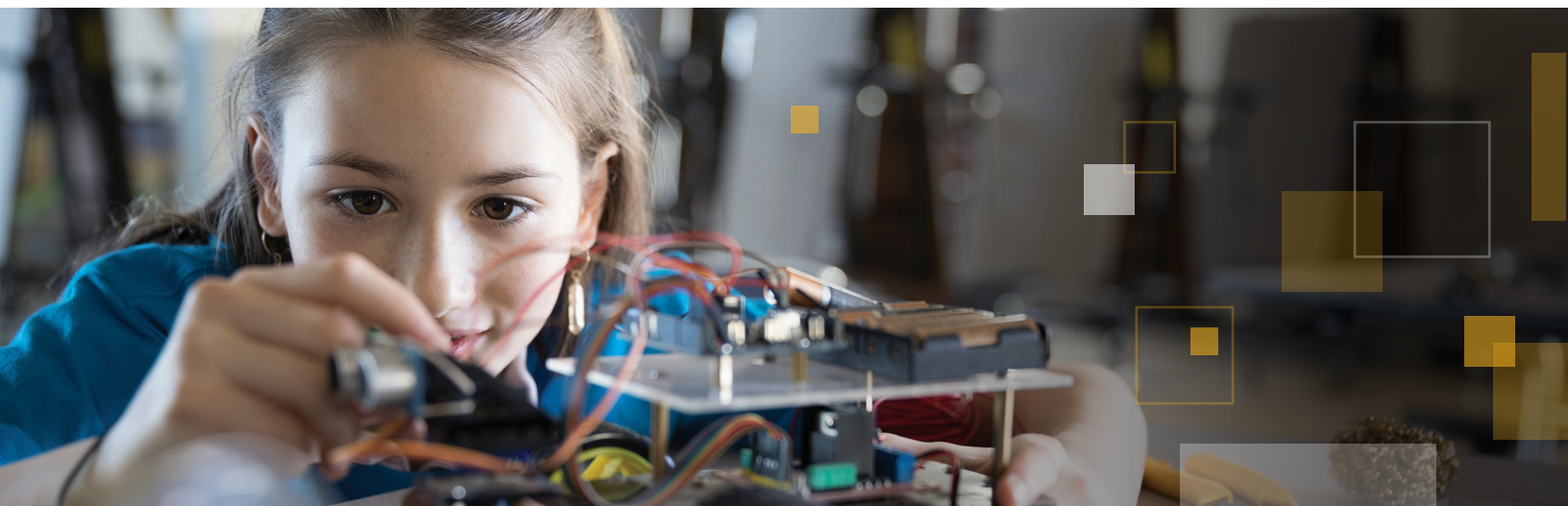
This approach to budgeting for technology requires not only the availability of sufficient district funds but also a heightened awareness of and commitment to the importance of technology within students' learning environments. Line item budgeting such as this is often immune to the vagaries common in school district funding.

Education technology associations such as ISTE and CoSN have long advocated for school districts to create digital learning line items in their budgets to sustain those efforts without having to do battle each year for new funding. Suburban school districts are leading this trend but increasingly it is becoming more apparent in urban school districts as well. Other significant funding sources for school districts in suburban communities (40 percent) include grants from local education foundations and state and federal competitive grants.

**28%**

**28% of urban districts are tapping into funds from the E-rate program or state and federal competitive grants to support their digital learning initiatives**

Given that urban schools serve the highest percentage of students living in poverty,[3] it makes sense that those districts (43 percent) are relying more heavily on programs from the federal government that specifically address the unique needs of disadvantaged children to support their technology investments.[4] Programs such as Title I provide financial assistance to schools and districts with high numbers or high percentages of children from low-income families.

Increasingly, school districts are turning to federally funded Title programs to support digital learning as the means to ensure that their students have equitable learning opportunities that support challenging state academic goals.

Despite this focus on Title program funding, only 28 percent of urban districts are tapping into funds from the E-rate program or state and federal competitive grants to support their digital learning initiatives. Whereas the Title programs are primarily formulaic, competitive grant programs such as E-rate and others require the capacity to prepare lengthy grant applications and a skill set in completing grant applications that may be limited in many urban districts. These districts also lack the financial resources to hire a consultant to help with the grant preparation process, which is common in suburban districts.

**Table 1: Primary school district funding sources for technology based upon community type**

| Urban school districts: % of district administrators who report this as a funding source for technology | Suburban school districts: % of district administrators who report this as a funding source for technology | Rural school districts: % of district administrators who report this as a funding source for technology |
|---|---|---|
| 1. Federally funded Title programs (43%) | 1. Specific line items in general funds (52%) | 1. E-rate funds (63%) |
| 2. Specific line items in general funds (42%) | 2. State and federal competitive grants (40%) | 2. Grants from local education foundations (60%) |
| 3. Grants from local education foundations (38%) | 2. Grants from local education foundations (40%) | 3. Specific line items in general funds (51%) |
| 4. E-rate funds (28%) | 3. Federally funded Title programs (34%) | 4. Federally funded Title programs (48%) |
| 4. State and federal competitive grants (28%) | 4. E-rate funds (32%) | 5. Re-allocating funds from other programs within the district budget (41%) |
| 4. Special bond measures or local taxes (28%) | 5. Re-allocating funds from other programs within the district budget (27%) | 6. State and federal competitive grants (32%) |
| 5. Parent support group/PTA funds (21%) | 5. Parent support group/PTA funds (27%) | 7. Parent support group/PTA funds (28%) |
| 6. Re-allocating funds from other programs within the district budget (13%) | 6. Special bond measures or local taxes (16%) | 7. Special bond measures or local taxes (28%) |

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Two-thirds of rural school districts (63 percent) report that their primary source of funding for technology is the FCC's E-rate program. The program provides discounts to assist eligible schools and libraries to obtain affordable Internet access and telecommunications services.[5] In 2017, school and library facilities in the United States requested a total of $4.6 billion in E-rate supported services including $2.5 billion in data and Internet service accounting for more

than half of the overall ask from potential grantees. This reflects the increasing appetite that schools and districts have for increased Internet connectivity to support student learning, especially in rural communities. For example, 70 percent of rural districts report that they offer their students the opportunity to take fully virtual, online classes. Often those virtual classes provide students the ability to take a course not offered at their local school such as Advanced Placement Physics or Art History. In rural communities, it is often difficult for their smaller schools to offer the depth of courses available for students due to a lack of specialized teachers or other resources. Comparatively, only 45 percent of suburban school districts offer their students a regular catalog of online courses, as there is not as pressing a need for alternative educational opportunities. Similarly, rural districts are 27 percent more likely to provide their teachers with online professional development classes than suburban districts for the same reasons. This increased demand within rural schools for more connectivity to address unique circumstances within rural education

appears to be driving an increased dependence on E-rate funding.

Small school districts face environmental situations similar to rural districts. Based upon statistics from the federal government, 86 percent of school districts qualify as small districts, with populations under 5,000 students.[6] Like rural school districts, small districts (63 percent) also are heavily

## 63%

**63% of rural school districts report that their primary source of funding for technology is the FCC's E-rate program**

dependent upon E-rate funds to support their technology investments. Comparatively, a still sizable but smaller number of medium-sized districts (44 percent) with student populations between 5,000 and 25,000 are leveraging E-rate funds for their digital learning initiatives. Only 1 in 5 large districts (student population over 25,000), however, report using E-rate dollars

for their technology investments. As with rural districts, small districts appear to have environments that are creating a higher demand for online connectivity. For example, 61 percent of district technology leaders in small school districts predict that they will purchase Chromebooks in the next year to support student use of technology in the classroom. Unlike traditional laptops, Chromebooks have no local storage capacity but depend upon Internet connectivity to cloud applications to function. Within medium-sized districts, 43 percent of their district leaders are anticipating buying more Chromebooks at this point. The explosive growth in the use of Chromebooks in classrooms has fueled the need for faster, more reliable Internet connectivity into those classrooms. For smaller and rural school districts, E-rate funds have been their longstanding solution to meet the needs for more bandwidth. Beyond the financial aspects of this, it also appears that the availability of E-rate funding, and the Internet connectivity it provides, ultimately supports greater innovation in the use of technology to support student learning.

**Finding #2:** E-rate funds support the development of a new culture within school districts that emphasizes the value of digital learning and greater adoption of more innovative practices that support student learning

The E-rate program was established in 1996 and has had a significant impact on school connectivity. Three-quarters of school districts report that they have faster Internet connections and more students online as a result of their use of E-rate funds.[7] But how has that increased connectivity supported specifically by the E-rate program impacted the way schools and districts envision digital learning today?

For many school districts the E-rate program has been a stable and institutionalized source of funding for their technology infrastructure. A downstream impact of that stability has been that the access to E-rate funds has supported the development of a new culture around digital learning in those school districts. This E-rate supportive culture has resulted in three tangible outcomes within these districts: 1) a more digitally focused leadership within the district, 2) more technology-enabled learning experiences for students, and 3) greater capacity for re-aligning district budgets to support technology investments.

## More digitally focused leadership in the district

Education leaders in districts that report using E-rate funds to support digital learning are more likely to say that technology use in school is extremely important for their students' future success compared to their peers in districts that do not use E-rate funds to support digital learning initiatives. This enhanced attitude about the efficacy of technology use within learning carries over to the discussion about college, career and workplace preparation. Almost three-quarters (73 percent) of school district leaders in districts with an E-rate culture say that digital learning experiences in school are an effective way to develop essential 21st-century skills such as critical thinking, creativity, collaboration and communications. These leaders (48 percent) also believe that the effective use of technology enabled through high-speed and high-quality Internet connectivity can help to close the achievement gap between students. Only one-third of their peers in districts that are not leveraging the E-rate program feel the same way.

## More technology-enabled learning experiences for students

How the district leaders think about the value of technology for learning translates into the types of programs and initiatives they support in their district. District leaders who are tapping into E-rate funds are more likely to be implementing progressive technology-enabled learning experiences for students compared to districts that are not regularly participating in the E-rate program (Table 2). For example, 66 percent of school districts using E-rate funds say that they have implemented a program where their students are assigned a mobile device to use to support learning in the classroom (a 1:1 program). Comparatively, only 52 percent of districts that have not tapped into E-rate funds report the same program implementation. Similar disparity exists relative to the use of cloud-based collaboration tools for student learning, virtual classes for students and the implementation of blended learning classroom models. The common denominator in all four of these digital learning initiatives is an emphasis or dependence on online learning, which requires stability and fortitude with Internet connectivity. While it is hard to fully explain the differences, it may be that due to their increased confidence in their technology infrastructure, these districts are adopting more advanced digital learning initiatives ahead of typical patterns within other districts.

**Table 2: Digital learning implementations based upon use of E-rate funds to support infrastructure**

| Digital learning initiatives | Percentage of districts that have implemented the digital learning initiative | |
| --- | --- | --- |
| | Districts that are using E-rate funds | Districts that are not using E-rate funds |
| Cloud-based collaboration tools | 78% | 72% |
| 1:1 mobile device program for students | 66% | 52% |
| Virtual classes for students | 64% | 58% |
| Blended learning classrooms | 55% | 44% |

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Additionally, since federal regulations require districts applying for E-rate funding to provide programs that educate students about appropriate online behaviors, a higher percentage of districts using E-rate dollars (64 percent) have implemented digital citizenship training for their students compared to districts that are not part of the E-rate program (49 percent). Not only are these E-rate culture districts providing more robust digital learning experiences for their students, but they are also ensuring that their students know how to be safe online.

## Greater capacity for realigning district budgets to support technology investments

As discussed earlier, funding for schools in general and education technology in particular requires agility by district leaders to mix and match different funding sources to meet educational needs. School districts that have leveraged E-rate funds are most likely to report positive student learning impacts from their digital initiatives. Given their positive experiences with the benefits of E-rate funding, it is not surprising that school district administrators are more likely to look inward rather than outward to external funding sources when it is necessary to expand current initiatives or develop new types of learning experiences. For example, districts that are using E-rate funds are more likely to create specific line items in their budget for digital learning (55 percent) than other districts (46 percent). Additionally, over one-third of districts using E-rate funds say they are re-allocating current budget line items such as textbook funds to support more digital investments. Only 28 percent of other districts have adopted similar budgeting strategies to support digital learning. In this way, the districts that have benefited from E-rate funds are building additional capacity for future investments in digital learning.



> School districts that have leveraged E-rate funds are most likely to report positive student learning impacts from their digital initiatives.

**Finding #3:** Students, teachers and principals have high expectations for the effective use of technology in their ultimate school vision and these expectations are placing new demands on school districts for greater online learning investments in infrastructure, teacher training and digital solutions

Educators say that the use of digital tools, content and resources is like potato chips; after you have one, you want to have more. As classroom teachers and principals are realizing more and more the benefits of using technology in their classroom to support student learning, their expectations for access to a broader set of digital tools today is rising faster than it has ever before. Their students have long wanted to replicate the rich online learning experiences they are having outside of school within their classroom. Correspondingly, students (and their parents also) expect greater access to high-quality technology resources in the classroom that personalize the learning process and create new experiences

to support college and career preparation. These rising new expectations inherently point to the need for ongoing new investments in technology infrastructure, teacher training and digital solutions in most districts. Given the dynamics in the adoption and adaptation of digital learning in our K-12 schools today, no school district can afford to sit back and assume that they have the tools in place today to support the needs of their teachers and students tomorrow.

Each year, the Speak Up Research captures the expectations of K-12 stakeholders for enhanced digital learning by posing the following question: *Imagine you are designing the ultimate school for today's students. What digital

tools, content or resources do you think hold the greatest potential for increasing student achievement and success?* Respondents are provided with a list of technologies to choose, such as digital media creation tools, game-based learning experiences and virtual reality environments. The results from this question provide several interesting insights for education, policy and business leaders.

First, the findings identify the pending demand for digital learning. With that information in hand, district leaders can develop plans and strategies for addressing those expectations, including how to fund these new learning experiences. Second, based upon the selections made by the different
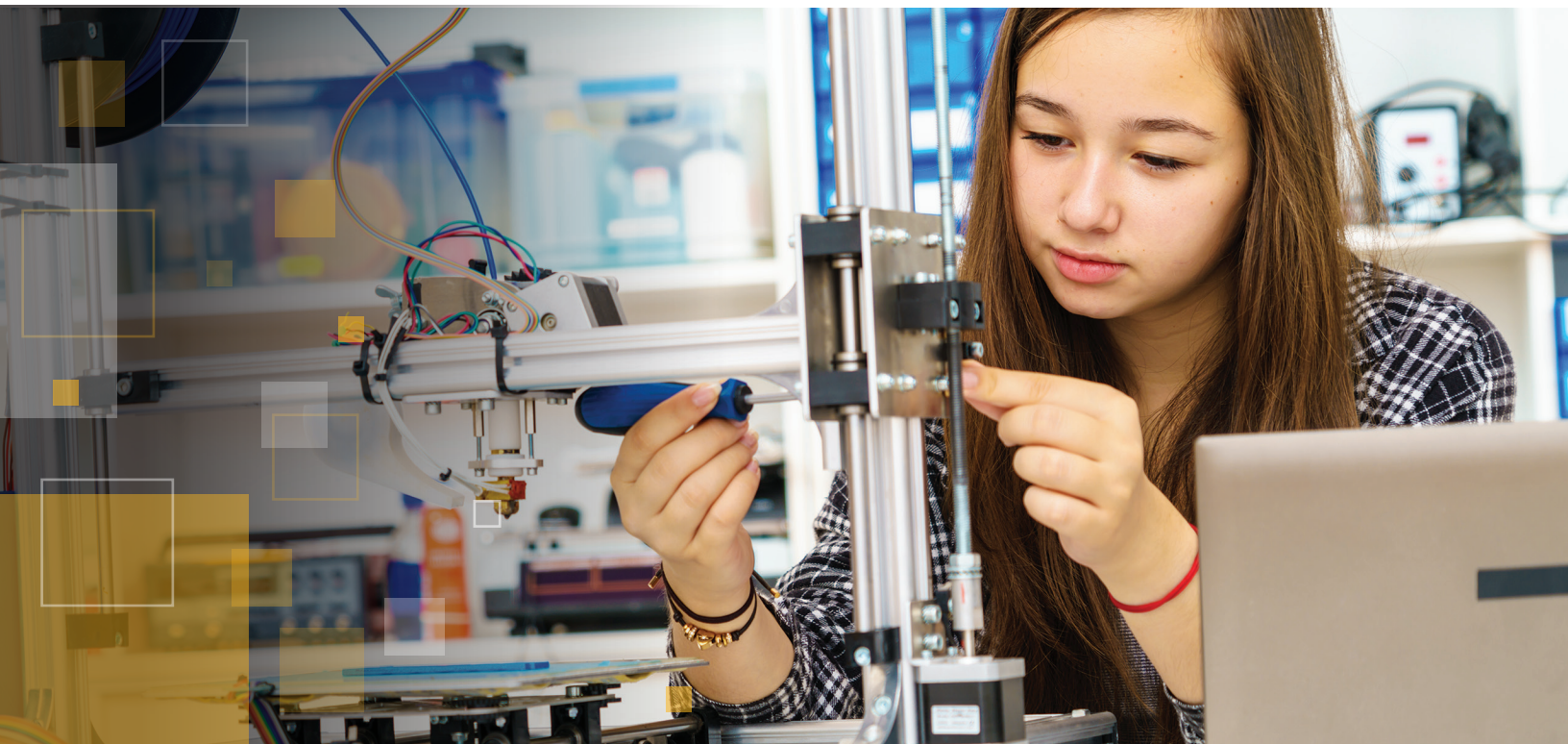
stakeholders, district leaders can evaluate the comparative priorities of their diverse constituents. While students, for example, may place a high premium on virtual reality sets, teachers may not be ready for those innovative technologies and may signal that by not choosing the same for their ultimate school vision. Third, given the increased emphasis on mobile apps and cloud applications within digital learning, this wish list enables district leaders to also effectively evaluate their readiness for enhanced bandwidth needs desired by their stakeholders and weigh that against their current capacities. These findings can provide a foundation for new discussions within the school district as well as with the school board and greater community about how to financially support this ultimate school vision and what investments need to be made to bring that vision to reality. To inform such discussions, Table 3 provides a national Ultimate School Snapshot based upon the views of middle school students, teachers and principals from this year's Speak Up Research.

**Table 3: Ultimate School Snapshot – the digital expectations of students, teachers and principals**

| Digital tools | Percentage of respondents who chose this digital tool for their ultimate school | | |
|---|---|---|---|
| | Students in Grades 6-8 | Classroom Teachers | School Principals |
| 1:1 program where every student is assigned a mobile device | 80% | 77% | 76% |
| Online games for learning | 64% | 46% | 35% |
| Mobile apps for learning | 63% | 41% | 46% |
| Online videos for classroom use | 62% | 41% | 35% |
| Digital content including animations and simulations | 59% | 53% | 57% |
| Online tools to help students organize schoolwork | 59% | 39% | 50% |
| Digital media creation tools for students | 52% | 38% | 43% |
| Virtual reality environment | 51% | 25% | 32% |

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As evident by the Snapshot, the digital expectations of students, teachers and principals vary. Twice as many middle school students (51 percent) believe in the potential of virtual reality, for example, to positively impact student learning as their teachers (25 percent). More teachers (46 percent) envision online games in their ultimate school than school principals (35 percent). But over three-quarters of students, teachers and principals agree that putting a mobile computing device in the hands of students to support learning is a must-have for the ultimate school. Beyond the differences in opinion on the value of online videos or mobile apps, school district leaders can take away from this Snapshot one clear message: your stakeholders are envisioning future schools that are rich with a variety of online tools, content and resources to support student learning and teacher effectiveness. Given that reality, how are you going to pay for that?

# Let's keep this important discussion going

As evidenced by the Speak Up Research findings, E-rate funds play a significant role, particularly in small districts and districts in rural communities, in financing digital learning initiatives. An important finding within the research is how the school districts that participate in the E-rate program appear to have developed a different culture around digital learning than districts that are not using E-rate dollars. Having greater security and confidence about their Internet bandwidth, districts with an E-rate culture have more digitally focused leadership, are implementing more technology-enabled learning experiences for students and demonstrate a greater capacity for mindful growth by realigning district budgets to support future technology investments. Given the high expectations of students, teachers and principals for more digital learning in the future, it appears that these districts are well positioned to not only meet those expectations especially for increased Internet connectivity, but to have plans and strategies in place to support those visions financially.

We're hopeful that education leaders will use our research-based observations as a catalyst for new local discussions about how to ensure schools have the right technology infrastructure to support current and future needs, and to ultimately address the digital learning visions of your stakeholders. To help with those discussions within K-12 school districts, we have developed a short list of thought-provoking questions that would be appropriate for an internal planning meeting, a brainstorming conversation with your school board, or to engage your greater community in developing new solutions and plans.

- Do you develop your district learning plans based upon available revenue or do you start with a vision based upon student outcomes and then find ways to fund that vision?

- Are you effectively leveraging all available funding resources to support digital learning in your district? If not, why not?

- How can your district's digital learning funding strategy be leveraged more effectively to impact student achievement and enhanced teacher effectiveness?

- What should learning look like in your classrooms in 2024? What are you doing today to ensure that you have the financial resources and technology infrastructure in place to not only meet those expectations in 2024 but make them a reality sooner?

## About Project Tomorrow

Project Tomorrow's nonprofit mission is to support the effective implementation of research-based learning experiences for students in K-12 schools. Project Tomorrow is particularly interested in the role of digital tools, content and resources in supporting students' development of college- and career-ready skills. For the past 15 years, the organization has focused efforts on national research projects and the design and implementation of evaluation, efficacy and feedback studies examining the impact of digital tools or technology-enabled learning models in the classroom. Learn more about our research activities including our globally recognized Speak Up Research Project at www.tomorrow.org.

## About Spectrum Enterprise

Spectrum Enterprise, a part of Charter Communications, Inc., is a national provider of scalable, fiber technology solutions serving America's largest businesses and communications service providers. The broad Spectrum Enterprise portfolio includes networking and managed services solutions: Internet access, Ethernet access and networks, and Voice and TV solutions. Spectrum Enterprise's industry-leading team of experts works closely with clients to achieve greater business success by providing solutions designed to meet their evolving needs. More information about Spectrum Enterprise can be found at enterprise.spectrum.com/education.

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