Selected National Findings
Speak Up 2008 for Students, Teachers, Parents and Administrators
March 24, 2009

The New Digital Advance Team—America's K–12 Students
Leading the Way to Transforming Learning with 21st Century Technology Tools

Overview

Since 2003, the Speak Up National Research Project has collected and shared the ideas and views of more than 1.5 million K–12 students, teachers, parents and administrators on education and technology. This dataset provides national education leaders and policy makers with the largest collection of authentic, unfiltered stakeholder feedback to inform annual policy, programs and funding. However, the most significant impact is in the schools and districts that regularly use Speak Up as a guide for planning technology use, investments and implementation strategies within their community. This year, with the historic education stimulus funding, the ideas and views of our K–12 students and use of the Speak Up data is more important than ever.

Through our analysis of the Speak Up data over the last six years, it has become increasingly clear to us that our nation's students are in fact a "Digital Advance Team" illuminating the path for how to leverage emerging technologies effectively for teaching and learning. Today's students are early adopters and adapters of new technologies, creating new uses for a myriad of technology products to meet their sophisticated needs. They serve as technology trend setters for their peers and, increasingly, for their parents and educators. The technologies they use in their personal lives slowly infiltrate their schoolwork, and many of these technologies ultimately have found a home in their school day, even with their teacher. In their role as a Digital Advance Team, they can be predictors or at least harbingers of how technology could be used to transform education. But first we have to listen to their ideas.

Digital Advance Team, leading the way

In 2006, student use of e-mail as a communication tool was at its zenith, yet only 64 percent of teachers reported using e-mail on a regular basis for communications, and most of that use was primarily with colleagues or the district office. Many teachers did not see the educational benefit to communicating via e-mail.

Today, **more than 94 percent** of teachers use e-mail communications regularly. Teachers have embraced e-mail and now see how this tool improves student learning.

With the historic education stimulus funding this year, our nation has a unique opportunity to make significant, strategic investments in technology to transform teaching and learning for our students for years to come. We recommend that as policy makers move forward, we listen to the stakeholders with the most skin in the game—the students themselves. To listen, observe and learn about how they are approaching learning and living every day, their frustration points with their schools, the challenges they face in learning in the 21st century and their aspirations for how schools can be improved so all students will be successful. To use what the students have learned about technology use in learning to guide our path forward; we first must acknowledge and understand the daily frustrations many students have in trying to use technology within schools.

Digital Advance Team sets the pace for:

- mobile learning
- Web 2.0 tools
- online learning
- digital content
- STEM career exploration

The findings illustrate how K–12 students are leading the way in re-thinking education delivery and career exploration. These insights can be used to inform our nation's education leaders in communities all across the United States, as they plan on how to use the stimulus funds for education effectively. Our nation's Digital Advance Team is ready and able to do its part; step one for the rest of us is to listen to our students as they describe their aspirations for 21st century learning.

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These findings present a 360-degree perspective—from students, parents and educators—about today's frustrations and challenges in schools, as well as possibilities and ideas for creating a real 21st century education that will help propel our economy forward as these students graduate.

Speak Up 2008 represents the voices of more than 281,000 K–12 students from schools and communities in all 50 states; their ideas provide unique insights into how we invest these historic stimulus funds in our schools to create our next generation of innovators, leaders and engaged citizens.

So what do students think about their school?

Only one-third of high school students who participated in this year's Speak Up poll think their school is doing a good job preparing them for the jobs of the future (in fact, even fewer numbers of their parents think that). Yet, a majority of school principals (56 percent) say their schools are doing a good job. This disconnect is symptomatic of the larger issue at work here—our students' vision for learning is dramatically different than the environment we are providing. Only one in four high school students in our poll thinks their school cares for them as a person and more than one-half say if they were the principal, they would listen more to students' ideas as a strategy for improving education. So, specifically, how are students using technology within learning?

For most students, technology is an integral part of their toolkit for participating in the world—they use it to communicate, organize their life, collaborate and create content and context for their own learning. We see those themes (communications, collaboration, creation and contribution) played out over and over again in all aspects of the lives of today's students, both in and out of school. Technology has enabled students to be uber-communicators, and more participatory learners. They develop strong teamwork skills (highly valued by employers as one of the most critical 21st century work skills) and view the process of content development as a key part of the new learning process—for many students the process of developing that content is as valuable, or more valuable, than the end result. Thus, the learning process is king today—not just the learning outcome.

Yet, even as students utilize technology at increasing rates to support their personal interests and learning, many students are unable to fully realize the power or the benefits of using these tools at school during the school day. Through Speak Up, students consistently report they are inhibited from effectively using computers or the Internet at school. Besides lack of time at school to use technology, students in 6th through 12th grades report their technology use is impeded by the ever-present school filters or firewalls, which block access to websites they need (43 percent), teachers who limit their technology use (35 percent) and rules that limit their use of technology at school (26 percent). One-third of the 3rd through 12th grade student respondents say their inability to use their own mobile devices (laptops, cell phones, MP3 players) and communicate with their classmates via their personal e-mail accounts or instant messaging accounts (IM) while at school is also a significant obstacle in their learning lives. It is widely accepted by students that arrival at school means "powering down" for a few hours. After leaving school, they resume their technology-infused lives and leverage a wide range of emerging technologies to fine-tune their skills in communicating, collaborating, creating and contributing in ways that are never approached during the school day. It is not surprising; therefore, that when asked about how their schools could make it easier for them to work electronically, the No. 1 response from the students was "let me use my own devices and tools in the school day."

Whether they have access to technology at school or at home, students in all grades report using technology for schoolwork in a variety of ways—from managing the "business of attending school" to personalizing their learning. Most commonly, students in K–12th grades use the Internet for research

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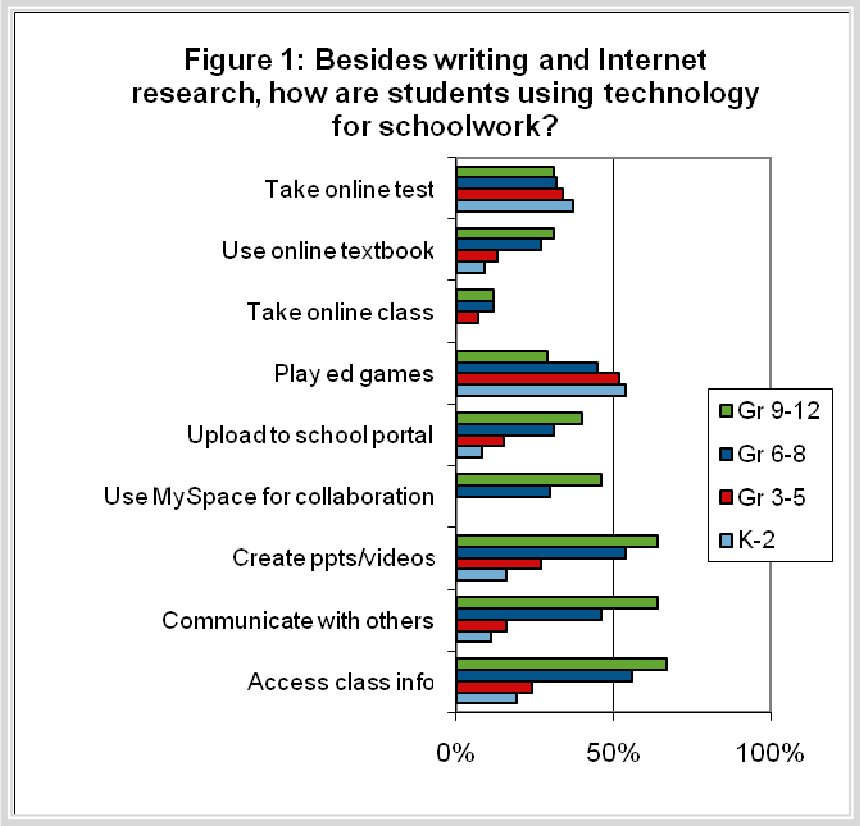
and to complete writing assignments. For schoolwork, we are seeing a difference in the tools students are using at various grades; younger students are playing and creating more than their older counterparts. For example, about one-half of elementary school student respondents are playing educational computer games and one-half of middle school student respondents are creating slide shows and videos to demonstrate their content knowledge proficiency. By comparison, two out of three high school students access class-specific information (e.g. grades, homework assignments) through a class website or school portal. While students easily adapt to using the technology their schools have implemented, they also use tools readily available in their personal lives to support their learning and schoolwork, even if the tools are not available during school hours.



Here are some other ways students are using technology to support their learning:

Communicate with others about school projects: About one-half of middle and high school student respondents communicate with others for schoolwork using e-mail, IM or text messages. To a lesser degree, K–2nd students (11 percent) and 3rd–5th grade students also use e-mail, IM or text messages to communicate with others.

Collaborate with others for school: Students use technology to collaborate with their peers for school projects. More than 50 percent of middle school and high school students surveyed report they collaborate with their classmates through their social networking site, a growth of 150 percent from Speak Up 2007 survey results.

Support their learning: A small but growing segment of students are beginning to use technology to have greater control over their learning—they get help from online tutors (10 percent), use online textbooks or other online curricula (20 percent) and listen to podcasts from class (9 percent). Some 20 percent of high school students surveyed report they turn in their reports and essays to a plagiarism-checking website.

Digital Advance Team Sets the Pace

Mobile Learning

Learning today is not limited to time spent in a classroom chair and desk—even if that desk has a computer on it. Student access to mobile electronic devices (cell phones, laptops, MP3 players and

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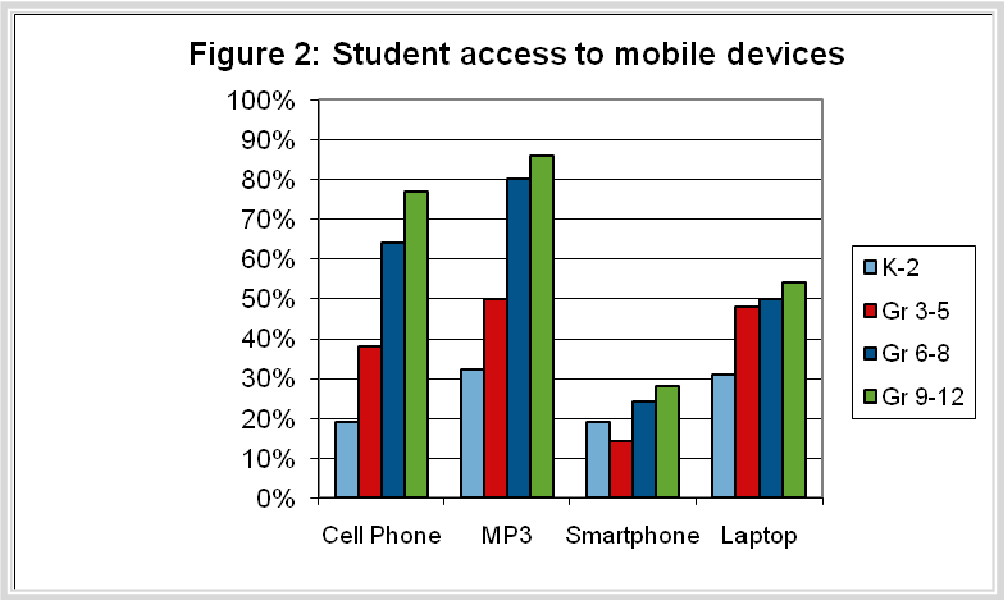
smart phones) has increased dramatically in the past year, and these students are discovering the "computers in their pockets" can play a significant role in all aspects of learning, both in school and out of school.

The greatest increases in access this year were in the middle school years—a 23 percent increase in cell phone access, 61 percent increase in laptop access and an 85 percent increase in access to a smart phone for personal use. Additionally, more than 28 percent of high school students now have personal access to a smart phone.

Paving the way for mobile learning in schools

Mobile devices are permeating our daily lives and schools are struggling with what to do with them—ignore their existence or embrace them. This has resulted in a new national discussion about the potential value of mobile devices to support learning.

How do students want to use their mobile devices to help with schoolwork? If given the opportunity, middle and high school students say they would use their mobile devices to communicate with their classmates (53 percent) or teachers (34 percent) via e-mail, IM or text message; work with classmates on projects (48 percent) at home or school; and play educational games (32 percent). Students also would use their mobile devices to conduct Internet research (53 percent), record lectures to listen to at a later time (32 percent), receive alerts about upcoming homework and tests (51 percent) or access their school's portal (24 percent).



Administrators see the value of incorporating mobile devices into instruction. Three out of four administrators say mobile learning devices are beneficial for increasing student engagement in school and learning and one-half of those surveyed say mobile devices can be used to extend learning beyond the school day. Mobile devices can be used to personalize learning and develop students' critical thinking, communication and collaboration/teamwork skills, according to one in three administrators. One-half of the administrators surveyed also recognize that using mobile devices for instruction would prepare students for the world of work.

What do teachers think about mobile devices within instruction? One-half of the teachers surveyed say mobile learning devices can increase student engagement in school and learning and one-third say mobile devices can extend learning beyond the school day. One in four teacher respondents say mobile devices provide a way to personalize instruction for students and one in five reports that mobile devices could be used to develop students' critical thinking, communications and

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collaboration/teamwork skills. One-third of teachers agree that using mobile devices within instruction prepares students for the world of work.

Teachers view the primary barriers to using mobile devices within the classroom as threefold—ensuring all student have equitable access to devices or software, receiving professional development on how to use these devices effectively within instruction and ongoing technical support.

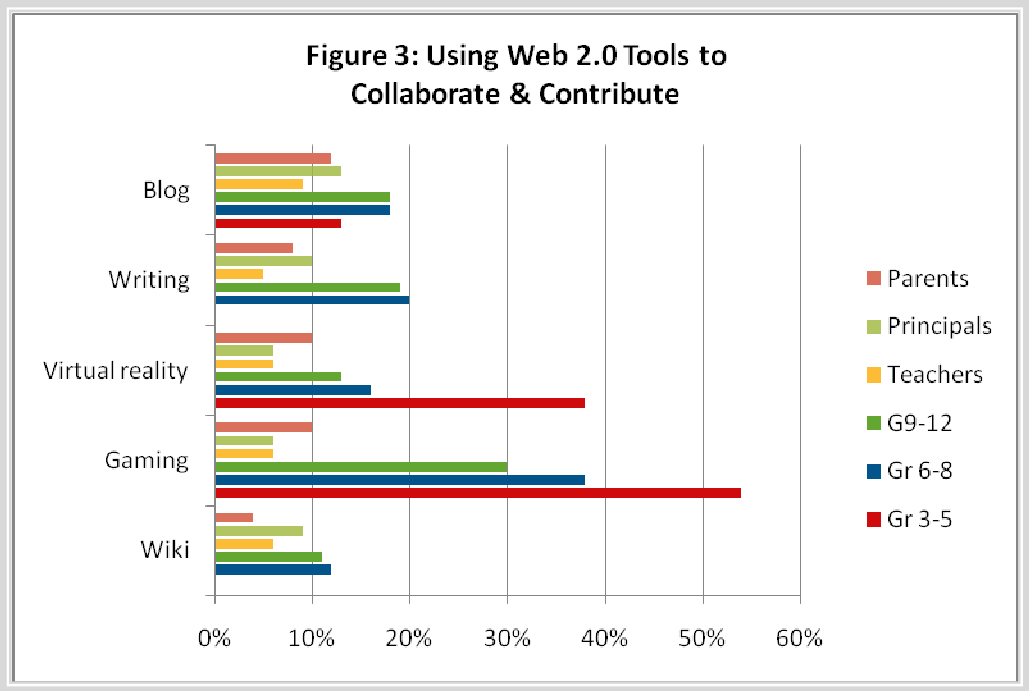
Many schools are starting to look at this problem from a different perspective, however. Using students' own technology devices gives educators an opportunity to leverage their financial investments in technology in other places. Funding can be spent on developing a robust infrastructure to support emerging technologies and training teachers, rather than on purchasing specific devices for each student.

It's a Web 2.0 World Now

More than 45 percent of middle and high school students surveyed say using technology as part of their regular school classes is the best way for them to acquire information and media literacy skills. And yet, while Web 2.0 tools are so prevalent in the students' life out of school, the opportunities for Web 2.0-infused learning are currently limited in the school day. To better understand how today's students are using these tools effectively we need to eavesdrop on their out-of-school lives.

Students harness the power of Web 2.0 tools – by communicating, collaborating and contributing

*Students **communicate** with others outside of school using Web 2.0 tools.* Students continue to use e-mail, IM and text messaging tools for communications, with almost one-half of students in grades 6th–12th and one-quarter of students in grades 3rd–5th using these tools regularly. Increasingly, students in 3rd–12th grades also are communicating with others through discussion boards, social networking sites, chat or online communities. High school (40 percent), middle school (35 percent) and 3rd–5th grade students (28 percent) update their profile regularly on a social network site such as MySpace, Facebook, or Friendster.



*Students **collaborate** outside of school using Web 2.0 tools.* Students in grades 6th–12th collaborate with others in a variety of ways. They use Web tools to write collaboratively with others (20 percent),

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create a list of resources to share or remember (16 percent) or notify them of things they are interested in (22 percent).

Online games and virtual reality environments provide another opportunity for students to collaborate outside of school. Elementary students (3rd–5th) report the highest use of online games (54 percent) and virtual reality environments (38 percent) compared with older students. Middle school and high school student respondents play online games (34 percent) and participate in virtual reality environments, like "2nd Life" (15 percent).

*Students **create and contribute** outside of school using Web 2.0 tools*. Outside of school, technology and the Internet provide a wealth of opportunities for students to explore their ideas and express their creativity. Middle school and high school students say they share photos, videos or music (38 percent); create new videos, music, audio or animation (32 percent); or even repackage different pieces (Mash Up) to create something entirely different (23 percent). Students are increasingly contributing to blogs (18 percent) or wikis (11 percent).

Younger students (3rd–5th grade) also are taking advantage of the tools available to them; they share videos, podcasts or photos via the Internet (32 percent) and also contribute to blogs, quite often associated with the virtual reality environments (13 percent).

This participatory or social learning that is being practiced through the students' use of Web 2.0 tools outside of school is beginning to emerge in some classrooms. And as we have seen with other emerging technologies, the students, in their role as the Digital Advance Team, are paving a new path for the rest of us to follow with blogging, virtual reality and online gaming in particular.

I'll take that class "to go" – the power to re-engage students

As students are becoming more familiar with online learning, student interest in taking an online class is on the rise. While high school student interest in taking an online class rose 21 percent from 2007 to 2008, the big increase was actually among middle school students—a 46 percent increase. It is important to understand that high school and middle school students have dramatically different reasons for their interest in online learning. High school students report to us they want to take an online class to earn college credit (47 percent), to work at their own pace (43 percent) and to take a class not offered at their school (40 percent). These motivations support the conventional wisdom about why schools offer online classes in the first place. However, for the second year, we have uncovered a new trend in online learning. Middle school students tell us their primary reason for taking an online class is to get extra help in a subject (44 percent) in which they are struggling, thus viewing online learning as a tool for their own self-directed remediation.

About one-half of high school students wish their classes could be more interesting; students tell us that online learning makes school more interesting because they can be in control of their own learning (43 percent). Online classes make it easier for students to succeed because they are more comfortable asking questions and can review class materials as many times as they want or need, according to one-third of respondents in grades 6th through 12th. Some 20 percent of middle school students say taking an online class would make them feel more connected to their school.

And while students in grades 3rd–12th (41 percent) envision online classes in their ultimate school, only one in four middle and high school students agree/strongly agree they should be required to take an online class before graduating from high school. Interestingly, more than one-third of parents and

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administrators surveyed are in favor of establishing online courses as a high school graduation requirement.

The Ultimate Digital Textbook

There are many reasons that students, parents, administrators and teachers are intrigued with the idea of the ultimate digital textbook. Currently, 29 percent of middle school and high school students say they are using some kind of online textbook or online curriculum as part of their regular schoolwork. The topic has picked up greater interest in the past year as districts and states have evaluated how to use digital resources more efficiently and effectively within the classroom. Additionally, parental support appears to be a new impetus for the discussion. On our parent survey, only 5 percent of parents nationwide dislike the idea of online textbooks. Many of today's print textbooks are heavy, costly and difficult to transport between home and school. And for many students, the idea of using a hard copy textbook that is out of date as soon as it is printed is as archaic in today's world as the abacus in a math class. So, we asked students in grades K–12th to envision the ultimate digital textbook and to share with us the kinds of electronic features and functionality they would like to be able to use in this new kind of "textbook."

Shopping List: Ultimate Digital Textbook

a sampling of ideas from students in grades 6th–12th about desired features and functionality:

- Ability to personalize their book with electronic highlights and notes (63 percent);
- Ability to take quizzes and tests on their own to assess their own content proficiency (62 percent) or use self-paced tutorials (46 percent);
- Access links to such real-time data as NASA and Google Earth (52 percent);
- Tap into the expertise of an online tutor whenever necessary (53 percent);
- Link to PowerPoints of class lectures that supported the textbook content (55 percent);
- Explore concepts through games (57percent) or animations and simulations (55 percent);
- Access content outside of school through links to videoconferences (30 percent) or podcasts from subject experts (34percent); and
- Watch video clips about topics they are studying (51 percent) and create podcasts or videos to support their own learning (48 percent).

As illustrated in the "*Shopping List: Ultimate Digital Textbook*," students are very interested in leveraging a wide range of capabilities for this new kind of textbook—and would like it to mimic the way they are approaching learning in general, with heavy emphasis on communications, collaboration, creating content and overall taking control of the learning process themselves.

The 21st Century Way to Explore STEM Careers

Students and parents affirm the importance of science and science careers. More than 40 percent of students in grades 3rd–12th say science is important to them because they may have a job in the future that uses science. Half of middle school and high school student respondents say learning science is important to get into college. One-third of students say science helps them develop critical thinking and problem-solving skills and will help them make informed decisions in the future. More than one-half of parents say they will be likely or very likely to encourage their child to pursue a career in a science, technology, engineering or math (STEM) field.

Despite these affirmations about science and STEM careers from both students and parents, only 17 percent of middle school students and 21 percent of high school students say they are very interested in pursuing a career in a STEM field. However, an additional cohort of middle and high school students say they might be interested in a STEM career if they knew more about it, according to one-third of the student respondents. We can learn a great deal about how most students want to explore careers by examining the ideas of these "maybe, somewhat" interested students.

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Interestingly, the way these students want to explore careers closely tracks how they approach learning in general today. These students want to learn about potential future jobs and careers by talking to professionals in the fields (46 percent), gaining on-the-job experience through part-time jobs (46 percent), downloading "day in the life" videos and podcasts to their mobile devices (29 percent) and using authentic tools to solve real-world problems with their peers (26 percent). This once again, illustrates students' approach to their learning through communication, collaboration, creation and contribution.

Education Stimulus Investments—the students' ideas for the ultimate school

Alvin Toffler has said "the illiterate of the 21st century won't be those that cannot read or write, but those that cannot learn, unlearn and relearn." The world demands that students possess a new set of learning skills and, consciously or unconsciously, today's students are creating their own learning paradigms to develop these new skills and are fully leveraging 21st century technology tools and services to do so. In our quest, therefore, to see through the haze and find a new direction for American schools, we should continue to eavesdrop on these students—both in school and outside of school—to see how they are developing these new learning skills, and use those observations to reframe the discussion about 21st century education.

Just as Toffler is a futurist, our students today have proven their vision for a technology-enabled learning environment also is futuristic in its approach. As we have seen with other emerging technologies, this "Digital Advance Team" has the uncanny ability not only to predict the future, but to serve as a pioneer that lays the groundwork for fellow students, parents and teachers to follow. So, if we are interested in making stimulus investments with longer-term payoffs, it is advisable to tap into the digital native-ness of our students and see where they are headed with their use of technology today. We know teachers and administrators will catch up eventually.

Recommendations for investments, per the Digital Advance Team of America's K–12 students:

1. Un-tether learning and leverage mobile devices to extend learning beyond the school day and meet all learners in their own world.
2. Create new interactive, participatory learning spaces using such tools as online classes, gaming and simulations, online tutors and virtual reality environments.
3. Incorporate Web 2.0 tools into daily instruction, especially those that develop collaborative or social-based learning and provide unique opportunities for students to be content developers.
4. Expand digital resources in the classroom to add context and relevancy to learning experiences through new media tools.
5. Get beyond the classroom walls and make learning truly experiential, such as using high-tech science instrumentation and creating podcasts with content experts.

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