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Speak UP



FROM CHALKBOARDS TO TABLETS: THE EMERGENCE OF THE K-12 DIGITAL LEARNER

Speak Up 2012 National Findings
K-12 Students // June 2013



Introduction

“We have great schools in America, but our goal should not be to have great schools, but to have the best schools in the world. To do that we need increased access to the Internet, as well as a better understanding of how to use the technology we have today.” (Girl, Grade 12, Alabama)

Ten years ago, Project Tomorrow®, the national education nonprofit organization, had implemented an innovative school based program that provided K-12 teachers in underserved schools in urban and rural communities with in-class coaching, mentoring and support around the use of technology within instruction. At that time, the adoption of digital tools by teachers was still an emerging practice. Our coaches were mostly college students and they helped teachers set up their first email account, do searches for lesson plans online and format class newsletters. At the same time, these college students were tasked to work with students at the schools during their computer lab time and in afterschool programs. We soon learned that the coaches were engaged in a vastly different set of activities with the students than with the teachers. With the students, the coaches were setting up electronic pen pal relationships using instant messaging and social networking sites, conducting web quests with NASA, the Jason Project and National Geographic, and helping the students self-develop HTML and programming skills to create their own websites and multi-media presentations. More importantly than the difference in the sophistication level of the respective activities, however, was the seemingly insatiable appetite that the students had for using technology more effectively within their learning lives.

In 2003, the students knew intrinsically the potential of the emerging technologies of the day, even as primitive as those older technologies seem today, to transform their learning experience. And they felt an intense sense of urgency to have a greater voice in school and community discussions about how to more effectively tap into the vast array of digital tools and resources to meet their learning needs, both in school and out of school. As a high school girl from Rosedale, Mississippi explained, “Technology is the door to our future. Why don’t our teachers understand that?” The Speak Up National Research Project was born that year to give K-12 students a voice in these critical conversations, and to hopefully provide their parents, teachers and administrators with new insights about the expectations and aspirations of these newly minted digital learners.

Now in its tenth year, the annual Speak Up National Research Project and the resulting trends analysis provides a birds’ eye view of the changing environment for digital learning, both in and out of school. The goals of the Speak Up project are to stimulate new discussions around how technology tools and services can transform education, and to provide a context to help education, parent, policy and business leaders think beyond today and envision tomorrow. With this year’s national report on the authentic, unfiltered views of 364,240 K-12 students representing over 8,000 schools and 2,400 districts nationwide, we focus the findings on how today’s digital tools and resources are enabling, engaging and empowering students to become self-directed learners. We have learned from previous Speak Up findings that digital learners wish that their school based education experiences more closely replicated how they are using technology outside of school. And so in this year’s report, we first discuss the level of access that students have to digital tools and resources, and examine how these enabling technologies such as mobile devices, social media, digital content and online courses are empowering the digital learner, both in school and out school. Increasingly, even students without Internet connectivity at home are getting online from the palm of their hand through a mobile device. This new capacity for ubiquitous 24/7 learning yields both new opportunities as well as sticky challenges, especially for our school leaders. And while the devices may have changed dramatically since 2003, in many ways,



the institutional obstacles or barriers to school usage of technology have remained a constant force. Finally, we hold up the wishing glass and ask K-12 students to put aside what they know about their school's financial problems, or the age of the computers in their tech lab, and talk to us about their vision for digital learning. If they were in charge, what would today's school look like? Those unvarnished insights provide an exclusive glimpse into the expectations and aspirations of today's digital learner for technology use within the school day. And they provide our school and district leaders with a student approved roadmap for the future of learning. This student-facing report is an excellent complement, therefore to the national report documenting the Speak Up 2012 findings from over 102,000 educators and 39,000 parents of school-aged children, "*From Chalkboards to Tablets: The Digital Conversion of the K-12 Classroom.*" Whereas that report chronicles the emergence of "digital conversions" that are happening in classrooms and communities nationwide, this student report provides the validation of the ongoing development and emergence of the K-12 "digital learner" who has their own unique set of expectations for those digital conversions.

The third graders who participated in the first Speak Up survey in 2003 and shared with us their vision of digital learning are graduating from high school this spring. Over the past ten years, those students have been on the frontlines of the digital conversions of our classrooms and schools. They have been to some extent guinea pigs in the process as their teachers learned how to use the technology tools such as interactive white boards, mobile devices and online content, and then brought new strategies for technology integration back to the classroom. At the same time, however, the third graders who were so excited about playing educational games and getting their first email account in 2003 have developed and refined their own digital learning profile outside of school. This generation not only adopted Facebook as their social network, but also adapted Facebook to serve as a highly effective tool for school project collaborations. The Class of 2013 demonstrated to us that Internet access that was tethered to a home computer or a computer in a school lab was not sufficient to meet their thirst for anytime, anywhere access to knowledge, and subsequently they have paved the way for mobile learning at school where every student has Internet access in their pocket. These students have also opened our eyes to understand that using technology is not just about engagement and fun, but it is also about developing college and career ready information literacy skills and personalizing the learning process for all students. In short, those third graders in 2003 have emerged as digital learners.

To bring new insights and context to this digital learning metamorphosis, this year's Speak Up national report examines the current views of students from Kindergarten through 12th grade with a special look at digital learners in third, sixth, ninth and twelfth grades. Where appropriate we compare the ideas of this year's digital learners with their predecessors over the past ten years. Most importantly, in honor of the over 2.5 million K-12 students who have shared their hopes and dreams for digital learning through the Speak Up project over the past ten years, we address these critical questions with this new report:

- *What is the students' vision for digital learning today and how has that vision evolved over the past ten years?*
- *How well are we meeting the current aspirations and expectations of our students, Kindergarten through 12th Grade, for using emerging technologies to personalize their learning process?*
- *What can we learn from the emergence of the digital learner that can impact the future of education?*



Enabling Technologies: what tools and resources are digital learners using?

“I would suggest that education needs to catch up with our technology. Our teachers are so caught up in the 1987s that they don’t understand how important this is to us. They need to give our ideas a chance.”

(Girl, Grade 8, Texas)

In 2003, the phrase “digital natives” was just gaining recognition as a short hand for describing the new techno-savvy generation of students. According to the theory, digital natives were more likely to embrace technology tools than their parents or teachers who did not grow up immersed in technology. While the terms seem passé now, the difference in the view of today’s learners who have grown up with almost ubiquitous Internet access when compared to the traditional students of the past still has merit. In the pre-Internet world, school was the bastion of all world information and students came to school to not only gain access to that knowledge, but to also experience the world through their teachers. For students that have access to the Internet today, however, that scenario is no longer valid. Today, students can have access to a wide range of information and knowledge whenever they go online, and they come to school already equipped with many experiences and perceptions about the world gained through online interactions. The old school view was predicated on students as simple consumers of information; today’s students place a higher premium on the learning experience of creating content, and sharing their discoveries, masterpieces and manuscripts with the world. The school’s monopoly on information, knowledge and world experiences is long gone and yet unfortunately, some education leaders still cling to this old paradigm as it represents their ideal of education. The digital learners have different expectations for school today and quite often the heart of that expectation is centered around their use of technology tools and resources to self-direct and self-monitor their learning experiences. The disconnect between adults and students on the role of digital tools is played out every day in classrooms when students are forbidden to use their smartphones as learning tools for example. Many education leaders are valiantly trying to determine the new world order in the modern classroom where students can with a few clicks on a mobile device have access to more information and expertise about any possible topic than their teacher or the school library ever will. This migration to a new world order, what some called a digital conversion of our classrooms, is not for the faint hearted.

Within the wide assortment of emerging technologies that are enabling students to become digital learners, four stand out as having the largest impact so far on students’ self-efficacy as self-directed, independent learners. Mobile devices have transformed information gathering from a planned, discrete task to an anytime, anywhere endeavor. The availability of mobile devices in the hands of students has changed the logistics around Internet access and digital divide discussions as well. Social media has provided a contextual motivation and rationale for the ubiquitous access to the Internet. And online learning, both in school and at home, has provided a tangible representation to students and adults alike about a new way to approach learning. To understand the potential of emerging technologies within the learning process, we must first however appreciate the myriad of tools and resources that today’s students have at their disposal.

Mobile devices

The Speak Up surveys have asked students about their access to computers and mobile devices each year since the first survey in 2003. As a reflection of the changing landscape of mobile devices in particular, it is interesting to note that in 2003, we asked students if they had a desktop computer at home, digital camera, cell phone or CD burner.



We did not ask about laptops, smartphones, tablets or digital readers. And way back in 2003, we did not ask students if they could bring their own “mobile computing devices” to school or if their school provided students with these tools to use at school. Rolling carts of laptops and tablets and Bring Your Own Device (BYOD) programs are of course more recent phenomena in our schools. While the mere idea of a CD burner seems quaint now, the bigger story is actually the continuing dizzy pace of change in the landscape of students and their mobile devices as evidenced by changes in the Speak Up statistics over just a few years.

The personal shift from a cellphone that cannot access the Internet to an Internet-enabled smartphone is happening with students as well as adults. In 2008, 77 percent of high school students and 64 percent of middle school students said that they had a non-Internet ready cellphone. This past year, the number of students carrying those kinds of devices had fallen to approximately 59 percent of students in grades 6-12. During that same period, however, the number of students with smartphones rose dramatically. While only approximately a quarter of students in middle (24 percent) and high school (28 percent) noted that they had a smartphone in 2008, today 65 percent of students in grades 6-8 and 80 percent of students in grades 9-12 are smartphone users. Students’ access to digital readers has followed a similar pattern of growth. In just one year, the number of middle school students with a personally acquired, not school provided digital reader more than doubled from 17 percent in 2011 to 39 percent in 2012.

The conversation around mobile devices today is more than just about access, however. Increasingly, schools are either opting to provide their students with mobile devices such as smartphones, tablets or laptops, or starting to allow their students to bring their own devices to use at school. As noted in our national report on the Speak Up 2012 data findings from educators and parents, *“From Chalkboards to Tablets: The Digital Conversion of the K-12 Classroom,”* over one-third of school principals (36 percent) say that it is likely that they would allow students to use their own mobile devices at school this year for academic purposes. In 2010, only 2 out of ten principals were willing to do that. Table 1 further illustrates the changing environment for school provided vs. student owned mobile devices.

Table 1: Students’ access to personal and school provided mobile devices

	Grade 3 Students	Grade 6 Students	Grade 9 Students	Grade 12 Students
Personal smartphone	41%	59%	75%	82%
Personal tablet	44%	53%	48%	40%
Personal laptop	61%	68%	69%	73%
School provided smartphone	8%	6%	5%	3%
School provided tablet	16%	18%	14%	17%
School provided laptop	27%	30%	27%	29%

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As evidenced above, the mobile devices that students have access to are generally personally acquired devices, not school provided. The rate of proliferation of those personal devices, most notably tablets, has also been evidenced by the Speak Up data. In fall 2011, 26 percent of students in grades 6-8 said that they had a personal tablet computer. In one year’s time, the percentage of middle school students with tablets jumped to 52 percent, a doubling over the 2011 percentage. Despite this proliferation of mobile devices in the hands of students, schools are still reluctant to allow usage of such personal devices. Amongst high school students with smartphones, only



approximately half say they can use their device at school (36 percent of 9th graders and 42 percent of 12th graders). Only 9 percent of all students say they can use their personal tablets at school. And even with laptops, the usage is minimal compared to the adoption numbers. With 73 percentage of high school seniors saying they had a laptop, one would think that their school would be eager for them to use those devices within instruction, and yet only 18 percent of the Class of 2013 say they are allowed to use their personal laptop at school.

This limited use of the mobile devices actually extends to the school provided tablets and laptops as well. Given the high value students place on Internet access outside of school, it would make sense to allow students, especially those without home access, to use the devices outside of school to go online. However, for schools that are providing their students with tablets, only approximately 6 percent are allowing their K-12 students to take those devices home and only 12 percent of the students who have access to laptops in high school are allowed to use them after hours at home. Today's digital learners are, therefore, caught in the cross hairs of a new mobile device dilemma. If you have a mobile device, you are probably not allowed to use it at school. And if your school provides you with a mobile device, it is likely that you cannot take it home.

Internet access

Despite this new paradoxical situation, increasingly students are using their personal mobile devices as their primary Internet access point outside of school. Amongst secondary school students, 56 percent of students in grades 6-8 and 68 percent of students in grades 9-12 say that they access the Internet right from the palm of their hand using a 3G/4G enabled mobile device. This shift away from hard wired home Internet access is especially poignant for the 6 percent of middle and high school students who may have a home computer but lack Internet connectivity. Amongst that cohort of students, 40 percent of the middle school students and 52 percent of the high school students say that they do regularly access the Internet outside of school and that their access point is a mobile device provided to them by their school. The percentages are roughly equivalent for students in urban as well as rural communities. Given that the percentage of students without home Internet access has remained stagnant since 2006 at 6 percent, the role of the school provided device as a potential gateway to the Internet appears to be more important than ever.

Social media

As noted earlier, social media provides the context for the digital learners to connect, collaborate and create content in ways that are especially meaningful for them. And they are increasingly using a wide range of social media tools to do just that:

- Texting: 71 percent of high school students and 63 percent of middle school students communicate with others via text messages, an increase of 44 percent since 2008.
- Twitter: 3 out of 10 students in grades 6-12 are using Twitter to follow others or to share 140 characters about their daily life on a regular basis.
- Videos: Since 2007 the number of middle school students creating videos and posting them online has doubled from 15 percent to 30 percent today.
- Games: Showing a generational shift, 26 percent of students in grades 6-8 participate in massively multiplayer online games; only 14 percent of their older siblings in grades 9-12 are doing the same.

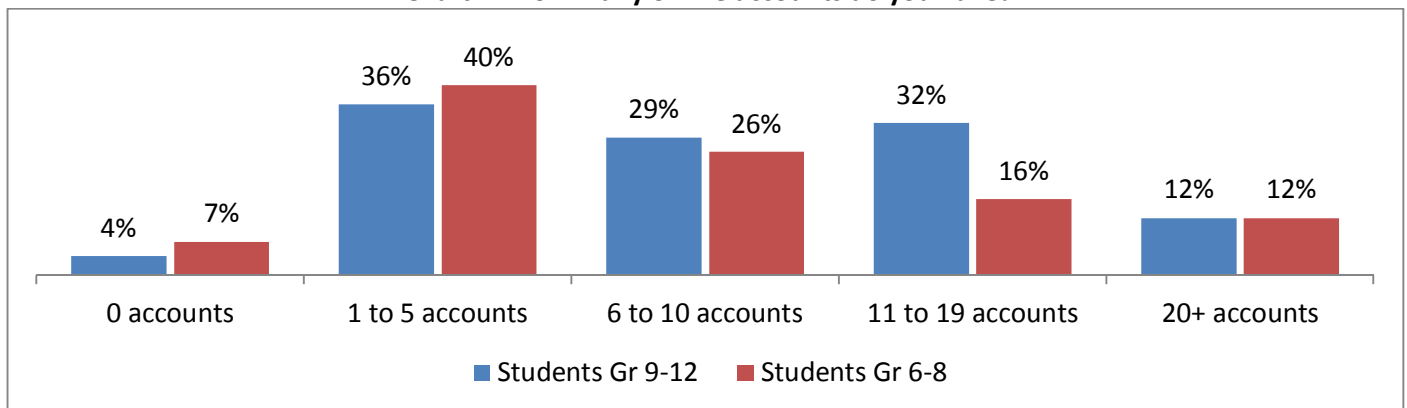


- Facebook: While a majority of high school students (53 percent) continues to maintain a personal social networking site, the number of students that are actively involved with Facebook has decreased 21 percent from its high water mark of 67 percent of high school students in 2007.

“If I were the teacher in my AP English 4 Literature and Composition class, I would create online discussion boards for potential essay questions and put online reading materials there also. The discussion boards would be to have the kids collaborate with each other’s ideas on a subject such as literary elements in the poem or novel you may have read for the class.” (Boy, Grade 12, North Carolina)

The establishment of social media as a preferred vehicle for student interaction and knowledge sharing can also be represented by the number of online accounts that students have for websites or social media tools. It may be surprising for many parents and teachers to learn that only 4 percent of high school students and 7 percent of middle school students say that they do not have any online accounts, and 12 percent of their students have more than 20 different online accounts. Chart 1 provides an interesting glimpse, therefore, into the pervasiveness of the online interaction space within the lives of today’s students.

Chart 1: How many online accounts do you have?



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Comparatively in 2003, we asked that first group of Speak Up respondents a similar question using an appropriate scale for that time to identify the depth of online activity. We asked the students how many different email accounts they had, and how many instant messaging screen names. Interestingly, in 2003, 21 percent of high school students were not yet using email, and 30 percent did not have an IM screen name. However, one of the headlines from the 2003 report was that 53 percent of students said that they were more likely to know their friends’ screen names than their home phones. As a sign of our current mobile and social media enhanced society, students might ask us today, “what is a home phone number?”

Online learning

From virtual schools to a flipped classroom, the definition of online learning has broadened to include a wide range of implementation strategies that rely upon online content and delivery mechanisms to provide instruction. Students’ experiences with fully online classes, especially self-study courses, have continued a steady growth progression. Fifteen (15) percent of high school students say they have taken at least one self-study online class for



credit in addition to taking traditional classes in their brick and mortar school, an increase of 50 percent since 2010. An additional 15 percent of high school students and 9 percent of middle school students have participated in an online class led by a teacher. While the numbers are still small in terms of online class participation, the interest in online learning is creating a new supply/demand problem for many schools and districts. Four out of ten students in grades 6-12 that have not taken an online class now say that they would like to do so. Unfortunately, one quarter of district administrators (26 percent) say that they cannot find enough teachers interested or qualified to teach online classes and that is holding up their expansion of online learning opportunities for their students. This heightened interest in online learning by both students and their parents does not appear to be diminishing however. In fact, interest in taking an online class is even stronger amongst elementary students. A majority of students in grades 3-5 (51 percent) say that they might be interested in taking an online class also.

Empowering Opportunities: how are students using digital tools and resources for learning?

“In English class we used our personal tablets and Google Drive to write a short story with a partner. I liked being able to work both at home and at school to edit the story while my partner could see the changes I made within a couple of seconds. Because of this we got our work done faster and the story was better.” (Boy, Grade 8, Virginia)

Given a varied collection of digital tools and resources that can enhance and extend the learning process, students are adapting these tools to address specific learning goals. From mobile devices to social media, the students’ self-identified use of technology to support their schoolwork represents opportunities that are both facilitated by their teacher, as well as self-directed. Additionally, the distribution of those activities across the grades provides new insights into the adoption process and the penetration of these learning strategies in students’ lives today. However, despite the excitement of technology integration painted by these student reflections, there remain significant obstacles, at least in the minds of the students, to effective technology use at school. Year after year, students in our focus groups remind us that their dissatisfaction with using technology at their school is not about the quantity or quality of the equipment or resources; it is about the unsophisticated use of those tools by their teachers, which they believe is holding back their learning potential. The comparison of the students’ perspectives on obstacles to technology use at school from 2003 to 2012 reflects this new reality which some are calling the second level digital divide.

Students’ use of technology for schoolwork

Students’ accessing the Internet to look up information is second nature to these digital learners. Accessing class information such as assignments, grades and teachers’ notes on an online portal is becoming a regular occurrence as well with 74 percent of high school students and 61 percent of middle school students labeling this a regular school activity. Other student activities with technology that are school or teacher facilitated or directed include creating a multi-media presentation (47 percent of high school students), taking online tests (41 percent), accessing an online database (37 percent), using an online textbook (35 percent), watching a video created by the classroom teacher (17 percent), and conducting virtual experiments or simulations (14 percent). What is more interesting is how today’s digital learners are incorporating online tools and resources from their personal lives into their schoolwork activities, and in many cases, self-directing these activities. Table 2 provides a snapshot of some of those translatable tools and



their application in the classroom.

Table 2: Students' use of emerging technologies to self-direct and support schoolwork

	Grade 6 students	Grade 9 students	Grade 12 students
Texting with classmates about assignments	39%	65%	67%
Using Facebook to collaborate with classmates on a school project	19%	35%	40%
Taking photos of school assignments or materials using my mobile device	11%	28%	35%
Watch a video I find online to help with homework	29%	30%	33%
Using Twitter to communicate or to follow others	7%	20%	25%
Communicate with classmates using a webcam, Skype or online chat	20%	29%	26%
Using a mobile app to keep schoolwork organized	15%	24%	25%
Texting with my teacher	7%	11%	20%

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Given that many of these student self-directed activities include the use of mobile devices and social media, we polled students on their knowledge about the school policies on use of these tools. Over 90 percent of middle and high school students say that they are familiar with their school policies, and they know whether access to these tools is allowed or dependent upon the teacher or the context for the use. More disturbing to school administrators may be that 31 percent of high school students who say their school policy prohibit use of mobiles or social media on campus, report finding ways to circumvent those policies and use their tools as needed to support their learning.

"I would say that kids should be able to use their phones in middle school. Whenever I'm doing schoolwork at home and I get stuck on a question, I just go on my phone and look it up. We should be allowed to do that in school too." (Girl, Grade 7, Ohio)

Obstacles to technology use at school

It is precisely the digital learners' desire to use mobile devices and social media tools to self-direct their learning that is often waylaid by these school policies as well as other institutional barriers. Again the reflective look at the students' responses in 2003 provide us with new insights into the digital conversions that are already underway in many schools. In 2003, when students were asked to identify the top barriers to using technology at school, their top responses focused on access to the tools that were school provided:

1. Internet access is too slow
2. School filters and firewalls block websites I need
3. Not enough computers for students to use
4. Computers are too old
5. Software is too old or not good enough to use

Students' responses in 2012 include a complaint about school filters and firewalls as well, but the other top responses center on how the school is limiting their access to the digital tools and resources they are using regularly outside of school:

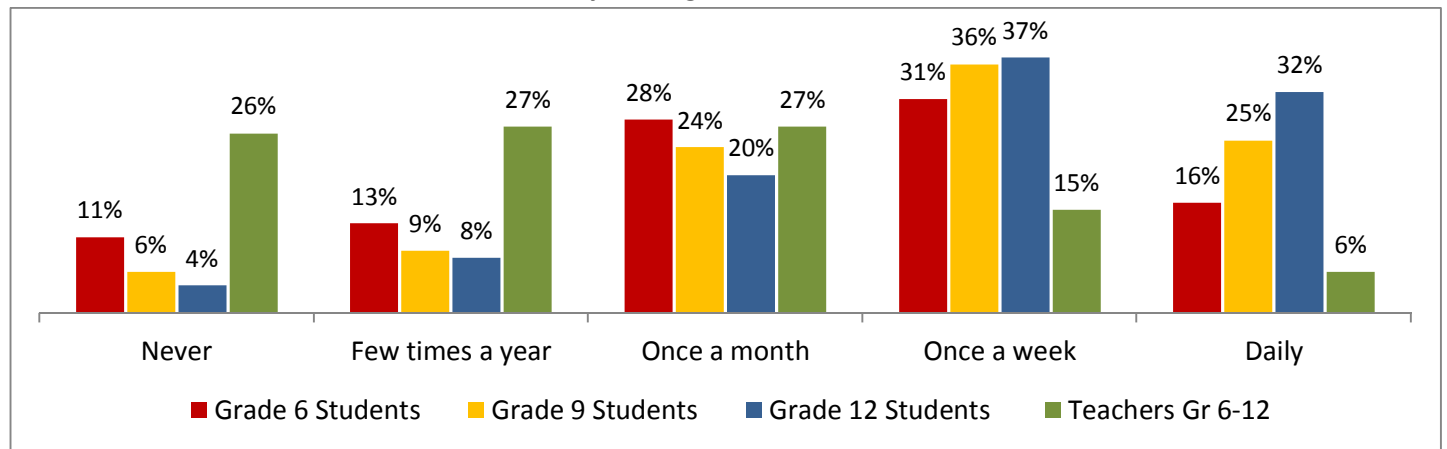


1. School filters and firewalls block website I need
2. I cannot access my social media sites
3. I cannot use my own mobile device
4. There are too many rules about using technology at school
5. I cannot use text messaging

The impact of the teacher in the technology usage equation also appears to have changed. In 2003, 31 percent of seniors in high school said that their teachers' lack of knowledge about how to use technology was a significant barrier to their own use of technology at school. In 2012, only 18 percent of students in grade 12 felt the same way. However, 40 percent of the Class of 2013 say that a major obstacle to using technology at school is that their teachers consciously limit their technology use.

An additional complaint by students is that their teachers are reluctant to assign Internet based homework or assignments. Understandably, the teachers say they are concerned about digital equity concerns for students who may not have access to the Internet outside of school. The students, however, view Internet based homework and assignments as an effective means for developing 21st century college and career ready skills. Chart 2 indicates that a disconnect exists between students and teachers on this issue of using the Internet to support learning.

Chart 2: How often do you assign/use the Internet for homework?



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The contrast between the teacher assignment frequency and the student access frequency is striking. While only 21 percent of secondary school teachers regularly assign Internet based homework or projects on a weekly basis, 47 percent of students in grade 6, 61 percent in grade 9 and 59 percent in grade 12 are regularly tapping into the Internet to self-support their learning. For the majority of teachers in middle schools and high schools (53 percent), Internet based assignments are a rarity during the school year. And while it is true that some students do not have home Internet access (6 percent per this year's Speak Up results), increasingly as noted before, many of those students are going online through a mobile device. Given the importance that students place on using technology tools and resources to connect, collaborate and create content as part of their learning lives, we can understand how this digital disconnect could create the impression that school is not relevant within the highly digital learning lives of today's students.



Engaging Aspirations: What are the expectations of today's students for digital learning?

"If I was a teacher, I would make learning fun with smartphones, tablets, and websites by letting everyone bring their own to school. In my class, we would have textbooks on tablets so there would be no cutting down trees. Kids in my class would have everything on their smartphones, tablets, and they could download apps for science, math and reading. It would be a lot of fun if there were smartphones, tablets, and websites at school. The kids in my class would really love it." (Boy, Grade 5, Pennsylvania)

In addition to asking questions about student access and use of technology for learning, the Speak Up surveys since 2003 have also asked learners about their expectations for using a wide range of digital tools to support their education. The students' responses can provide our schools and districts with a new roadmap for aligning students' aspirations with their own technology plans. So, for example, when asked how their school can make using technology for schoolwork easier, it is not surprising that students want access to academic-oriented websites that are currently blocked, the ability to use their own mobile device in class, and unlimited Internet access campus wide. In short, they want their in-school learning life to look more like their out-of-school digital life. This quest to bridge the digital disconnect between school and home is nothing new however. In 2003, 33 percent of 9th graders told us that they wished that their school would allow them to use email or instant messaging at school. At that time, those tools played a significant role in the students' abilities to connect, communicate and collaborate with others. This year, 43 percent of 9th graders say that they wish they could access their social media tools for the same reasons, to connect, communicate and collaborate. Same issue, different tools, 10 years hence.

Ideas for the use of mobiles within the classroom

The students also have very clear ideas as to the value of using mobile devices within the classroom. Because of their out of school usage, many students can already appreciate how having a mobile device like a smartphone or tablet computer can improve their personal school operations and enhance their school achievement. Middle school students say that they would use a personal smartphone or tablet to check their grades (78 percent), take notes in class (69 percent) or access an online textbook (64 percent). Additionally, the students are intrigued with the potential of using these devices to transform the daily learning process in the classroom. They imagine being able to:

- look up information on the Internet whenever they want or need to (73 percent)
- record lectures or labs so that they can review them later for self-remediation (69 percent)
- receive timely reminders and alerts about school assignments, project deadlines and tests (63 percent), and
- use the devices as a gateway to collaborate with peers, both in their classroom and around the world (61 percent).

While this vision of mobile learning may seem farfetched to some, increasingly teachers and administrators who are using mobile devices for their own improved productivity are experimenting with how to create new learner-centric environments that approximate the students' aspirations.

Different academic tasks demand different devices

But what mobile devices do students want to use for academic tasks? And are all devices equally well suited for those tasks? As discussed in previous Speak Up reports, in many ways, today's students are functioning as a digital



advance team for the rest of us. Their perspective therefore on the correlation between academic tasks and appropriate devices is representative of their more sophisticated understanding on the potential value of using technology within learning. For these digital learners, not all devices are created equally and the concept of identifying the “perfect” mobile device to accomplish all academic tasks is a foolhardy exercise. When asked to determine the best device (smartphone, laptop, netbook, tablet or digital reader) to use for various academic tasks, middle school students’ perspective as outlined in Table 3 support the concept that different activities demand different tools.

Table 3: What device would be the best to use for these schoolwork tasks?

Schoolwork Tasks	First Choice	Second Choice
Create a presentation	Laptop (69%)	Tablet (31%)
Communicate with classmates	Smartphone (68%)	Laptop (38%)
Collaborate on a school project	Laptop (59%)	Tablet (34%)
Follow experts on Twitter	Smartphone (54%)	Laptop (42%)
Create a video	Laptop (50%)	Smartphone (40%)
Take notes in class	Laptop (46%)	Tablet (45%)
Read a book or article	Digital reader (44%)	Tablet (41%)

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Students see their backpacks as carrying a collection of mobile tools, each with a differentiated task. Just as we do not assume that students will only access one book for all classes, the idea of using only one mobile tool to meet all assignment needs may be unrealistic. Therefore, if the assignment is to read a scientific journal article for their end of the school year biology project, today’s student will pull out their digital reader or maybe use their tablet as an effective alternative. When they need to connect with a classmate about scheduling time to work on that project, the smartphone is their go-to device, most likely using text messaging or Facebook. Sure, email can work via the laptop as well. And to create the multi-media presentation about the project, the laptop is currently the students’ first choice. As students become more familiar with using a variety of mobile devices for academic tasks, we expect to see a further differentiation within the device-task formula.

Personalizing education through online learning

Just as students want the ability to select the mobile device that best fits their schoolwork needs, they also want their learning process to be individualized or personalized to them. The digital learners increasingly are seeing the benefits of taking an online class as meeting that requirement, even if they have no pre-existing experience with online learning. Table 4 demonstrates the increasing value that high school students associate with online learning as a mechanism for personalizing their education experience by comparing students’ views in 2009 and 2012.



Table 4: Benefits of online learning - 2009 vs. 2012

	Students Grades 9-12:	Students Grades 9-12:
	2009	2012
I would be in control of my learning	40%	57%
I could work at my own pace	51%	56%
It would be easier for me to review course materials as often as I wish	29%	46%
I would have a greater sense of independence	28%	42%
It would be easier for me to be successful in class	28%	35%

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The students' understanding of the operational aspects of online learning is particularly noteworthy in the data. Whereas in 2009, less than one in three high school students could see the ability to self-remediate as a key benefit associated with online learning, by 2012 the number of students that endorsed that particular benefit, "easier to review course materials as often as I wish," had increased to 46 percent. This underscores not only students' interest in online learning, but also their familiarity with how to leverage digital tools to drive their own educational destiny. Likewise, also see the value associated with earning college credit through an online course (52 percent) or taking a class not offered at their school (44 percent).

My ultimate science class experience

Students' aspirations for improving science class are an excellent microcosm of their overarching desire to leverage digital tools and resources to transform the learning process. Whether it is mobile devices, social media, digitally rich content or online learning, the high school students' vision for a more successful learning experience in science class includes all of these emerging technologies.

What would be most effective to help you be more successful in science class?

- Collaborating with classmates on real world problems (61 percent)
- Using animations and simulations to visualize scientific concepts (41 percent)
- Using a mobile device to video science lessons to review later (37 percent)
- Understanding the context of science through a virtual or augmented reality environment (34 percent)
- Accessing an online textbook through my mobile device (34 percent)
- Texting my teacher during class with my questions (28 percent)
- Taking an online class (24 percent)

"I think students would be more interested in learning if we did some virtual reality work, or simulations, especially in science. I think it would give kids a better idea of some of the work and information that scientists do, and what kind of work they do. That way, students that want to have jobs in the field of science can be encouraged to keep working on their skills." (Girl, Grade 6, Massachusetts)

Creating a shared vision for digital learning

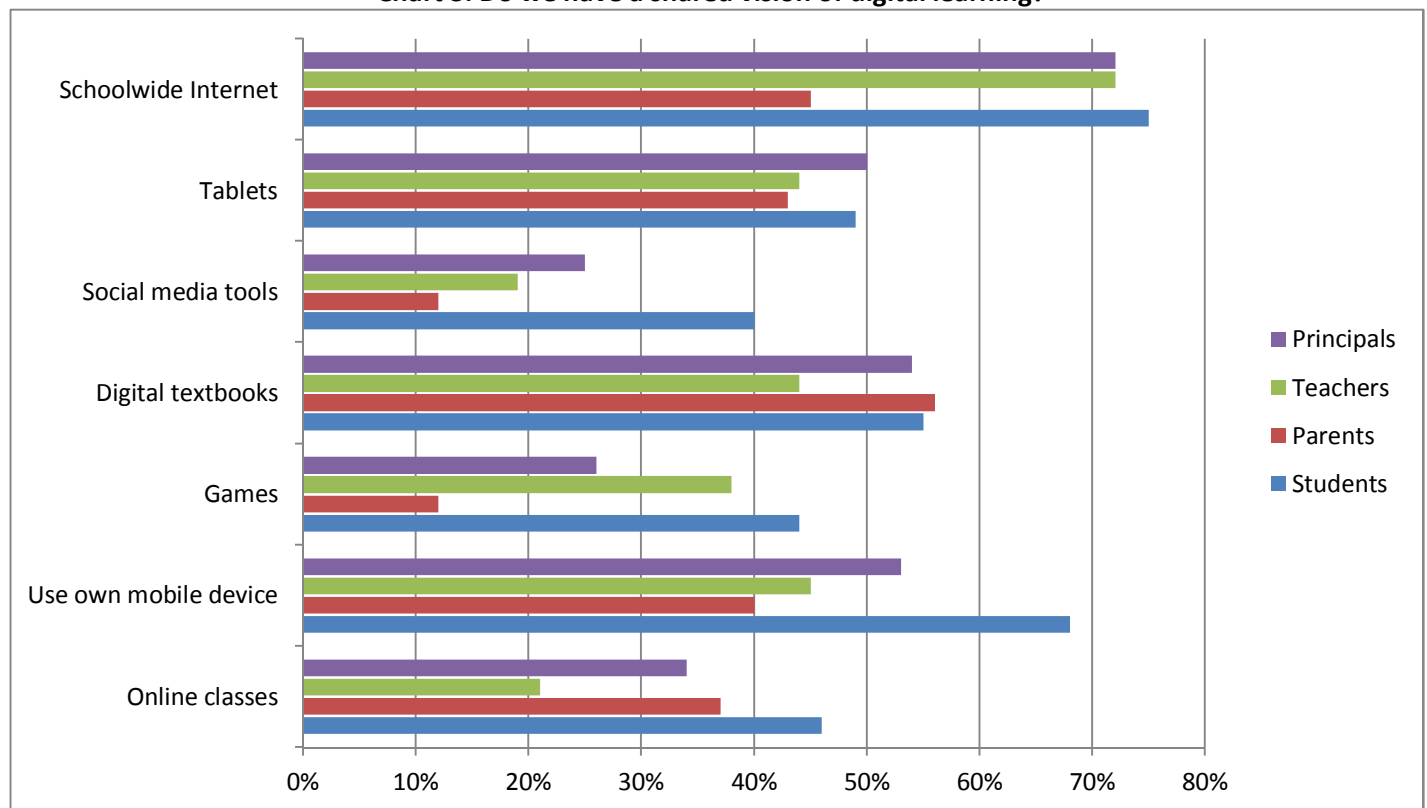
As with the example from science class, students' expectations for digital learning has evolved since the first Speak Up surveys in 2003 to include a wide variety of tools and resources, expertly choreographed to meet specific student



needs for a more personalized learning experience. Ten years ago, the students' wish list for their ultimate school was focused on getting access to technology. Their top three responses in 2003 included laptops to use at school, laptops to take home and having the computer lab stay open after school. With the increasing access that students have to mobile devices outside of school now, their 2012 wish list looks very different from the 2003 list. Digital learners today want their ultimate school to leverage the potential of technology within learning by focusing on how the access and tools are used, and the most appropriate applications to support that usage. And so while the 2012 wish list still includes laptops for students, the lineup also includes classroom chat rooms, games, online textbooks, digital media creation tools, text messaging, mobile applications, and new policies that allow students to use their own mobile devices; all tools that allow students to self-direct their learning and to personalize the classroom experience for themselves.

In 2003, we started the Speak Up project to provide an opportunity for K-12 students to share their ideas on how they would like to use technology more effectively within their learning. The Speak Up project also provides ways for teachers, administrators and parents to weigh in with their thoughts and opinions on digital learning. Most importantly, Speak Up offers a unique and cost effective way for schools, districts and states to evaluate if they have a vision for the future of learning that is shared amongst all of their key stakeholders, including their students. Chart 3 presents a snapshot of a variety of emerging technologies and strategies that are being discussed every day in classrooms, district offices and PTA meetings, and the relative ranking of the importance or value of these different tools to students, parents, teachers and principals.

Chart 3: Do we have a shared vision of digital learning?



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As we can see from this snapshot, in some areas we do have a shared vision around the value of the digital tools. Principals, teachers, parents and students are excited about the potential of using tablet computers within instruction and thus, all four groups are endorsing that approach with comparative percentages of support for their ultimate school. However, when discussing other emerging technologies such as social media tools or educational games, we can detect a difference of opinion. For example, while students are particularly interested as noted in this report in the use of social media such as Twitter and Facebook as academic tools for knowledge sharing and collaboration, it appears that parents and educators may need some additional experiences with these tools before agreeing to classroom usage. Understanding the perspective of all of the stakeholders is a good first step to not only constructing a vision for the future of digital learning, but also developing implementation strategies that ensure success and sustainability. Just as we learned with our reflection on the 2003 data results from students, we cannot expect this environment to remain static. As our K-12 digital learners continue to connect, collaborate and create content outside of school using the latest emerging technologies, they will also continue to raise new expectations and aspirations for more effective and sophisticated use of these digital tools within their learning environments. How we address the students' expectations today as delineated in this year's Speak Up report may very well define the future of learning over the next ten years.

Ending thoughts

As the digital learner has emerged over the past ten years, we have noticed a significant shift in the student perspective on using technology for learning. In 2003, the students' focus was on getting access to the Internet and the tools that would facilitate that access. Learning how to circumvent or mitigate the obstacles in their school that limited that access was also an important goal. Today, while access is still not universal for all students, for the majority of the students across all grades, their attention is on how to use a wide range of digital tools and resources to enable a highly personalized learning experience. This self-initiated evolution from access to personalization provides an interesting model for thinking about the adoption and adaption of emerging technologies within our school also. We see that currently being played out with mobile devices, for example. Step one in the process has been providing students with access to laptops and tablets in school; step two is more focused on how we are effectively using those devices to transform learning at the individual student level. Of course, as usual, our digital learners have already transcended us with their thinking on mobile learning as evidenced by their differentiated use of various types of mobile devices based upon different academic tasks.

The third graders from 2003 are now off to college or the workplace, and their experiences with using technology for learning over the last ten years will continue to influence their success in the future. We wish them well and thank them for being pioneers in digital learning. At the same time, the digital learners in our K-12 classrooms today are already shaping their future through their self-directed, interest-driven use of technology, both in and out of school. And just as their older siblings and peers have done, this new class of digital learners will present their teachers, principals and parents with their own creative and maybe even startling ideas on how digital tools and resources can improve their educational experience. Speak Up will continue to provide a way for students' voices to be heard. Let's make sure that we are all listening.



About the Speak Up National Research Project and Speak Up 2012

Speak Up is a national initiative of Project Tomorrow®, the nation's leading education nonprofit organization dedicated to the empowerment of student voices in education. Each year, the Speak Up National Research Project polls K-12 students, parents and educators about the role of technology for learning in and out of school. This survey represents the largest collection of authentic, unfiltered stakeholder voices on digital learning. Since fall 2003, over 3 million K-12 students, parents, teachers, librarians, principals, technology leaders and district administrators have shared their views and ideas through Speak Up. K-12 educators, higher education faculty, business and policy leaders report that they regularly use the Speak Up data to inform federal, state and local education programs.

In fall 2012, Project Tomorrow surveyed 364,240 K-12 students, 39,713 parents, 53,947 teachers, 2,399 librarians, 1,564 district administrators, 3,947 school administrators, and 500 technology leaders representing 8,020 public and private schools from 2,431 districts. Schools from urban (30 percent), suburban (27 percent) and rural (43 percent) communities are represented. Over one-half of the schools that participated in Speak Up 2012 are Title I eligible schools (an indicator of student population poverty). The Speak Up 2012 surveys were available online for input between October 3rd and December 21st 2012.

The Speak Up surveys included foundation questions about the use of technology for learning, 21st century skills and schools of the future, as well as emerging technologies (online learning, mobile devices and digital content), science instruction and STEM career exploration. In addition, educators shared the challenges they encounter integrating technology into classroom instruction, and how budget challenges have affected these decisions. The data is collected from a convenience sample; schools and districts self-select to participate and facilitate the survey-taking process for their students, educators and parents. Any school or school district in the United States is eligible to participate in Speak Up. In preparation for data analysis, the survey results are matched with school level demographic information, such as Title I status, school locale (urban, rural and suburban), and ethnicity selected from the Core of Common Data compiled by the National Center for Education Statistics (<http://nces.ed.gov/>). Speak Up data is cross-consulted with NCES statistics to ensure that data represent nation-wide school demographics. The data are analyzed using standard cross-tab analysis.

For additional information on the Speak Up methodology, please contact the Project Tomorrow research team.

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Project Tomorrow® is the nation's leading education nonprofit organization dedicated to the empowerment of student voices in education. With 17 years experience in the K-12 education sector, Project Tomorrow regularly provides consulting and research support about key trends in K-12 science, math and technology education to school districts, government agencies, business and higher education.

The Speak Up National Research Project annually polls K-12 students, parents and educators about the role of technology for learning in and out of school and represents the largest collection of authentic, unfiltered stakeholder voice on digital learning. Since 2003, over 3 million K-12 students, parents, teachers, librarians, principals, technology leaders and district administrators have shared their views and ideas through Speak Up.

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