THE NEW DIGITAL LEARNING PLAYBOOK:

Advancing College and Career Ready Skill Development in K-12 Schools

Project Tomorrow

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Speak Up

Speak Up 2013 National Findings from K-12 Educators and Parents

In the near future

Date: **Wednesday, September 3, 2014**
Setting: **Auditorium at Middle School, Anywhere, USA**

One hundred bright-eyed and wiggly seventh grade students file into the school auditorium for the school year's kickoff assembly. The principal welcomes the students back to Middle School and as a set up to her opening remarks about the importance of working hard this school year, she asks the students how many of them want to go to college someday. Of the students in the room, 93 hands go up in the air, some demonstrating enthusiasm for the idea with a quick waving motion and an animated head nod, others a bit more hesitant, but still upraised. At this typical American middle school, 93 of the 100 students have a goal at this point in their young lives to go to college.

Six years later

Date: **Wednesday, June 17, 2020**
Setting: **Football stadium at High School, Anywhere, USA**

In front of proud family and teachers, 70 students from that original seventh grade class are graduating from high school today. Of the Class of 2020, 30 students either have dropped out of school along the way or do not have enough credits to satisfy district or state requirements for a high school diploma. Amongst the 70 newly minted high school graduates, 44 will enroll in the fall in a college or university to continue in post-secondary education. Within this typical American community, 44 of the original 93 students who had a goal to go to college will realize that opportunity.

Four years after that

Date: **Sunday, May 19, 2024**
Setting: **College campuses all across the USA**

Following a long held tradition in this community, the local Anywhere online news site announces that 26 members of the Anywhere High School Class of 2020 are receiving college degrees this month. Of the 93 students in the original seventh grade class who wanted to go to college, only 28 percent of those bright-eyed and promising students will achieve their goal. The local Anywhere online news site does not announce what has happened to the other 74 students from that original seventh grade class.

Introduction

This vignette about Anywhere USA and the disposition of the 100 seventh graders does not necessarily reflect the exact local reality in many U.S. communities today as it is a national composite of statistics from the Educational Policy Improvement Center[1]. Some communities certainly have much higher high school graduation rates; many also have a much lower percentage of their students that graduate with offsetting higher rates of high school dropouts. Some schools are well preparing their students for college and career success and that is reflected in their alumni's college graduation rates or job success. Others are increasingly finding that their "rigorous" academic standards and career technical education programs may not have been enough to ensure college and/or job readiness. Dr. David

[1] https://www.epiconline.org/Issues/college-career-readiness/problem.dot

Conley, a national researcher and thought leader on this topic, warns us that high school competencies does not necessarily equate to college readiness.[2]

Driven by this crisis of inadequate preparedness coupled with increasing demands from companies for better skilled workers and the challenges of the global economy, policy and education leaders have responded with a new call for transforming K-12 education to ensure that *all of today's students* develop college and career ready skills.

While the "why" this is needed is clear, the "how to accomplish" this lofty goal is more murky. New curriculum standards and assessments, including those aligned to the heralded Common Core State Standards and Next Generation Science Standards, are currently driving many state and district level education reform plans. And while much energy is being spent on the strategies for implementing these new standards, simultaneously, many education leaders are specifically exploring how the effective use of digital tools may help to address these same needs. Amongst district administrators, 46 percent who participated in the Speak Up 2013 survey identified the effective implementation of technology tools (such as online learning, digital content and mobile devices) as having the greatest potential to impact student outcomes for college and career readiness. The administrators' views on the connection between technology and college and career readiness is well founded. According to recent 2010 research from the Center on Education and the Workforce at Georgetown University, familiarity with technology and skills using digital tools can increase a worker's income, training opportunities, and career trajectory[3]. As we cannot escape the impact of technology on our economy, workforce needs, relationships and global connectedness, the opportunity exists to also reconsider the role of technology now within education, most notably by thinking about who we are teaching and how they want to learn. Most importantly, this crisis of student preparedness provides us with a unique window to think beyond the simple view of education oriented digital tools as a means for engagement and to consider how to leverage these tools as vehicles for the development of college and workplace skills.

For the past eleven years, Project Tomorrow's® annual Speak Up National Research Project has provided schools and districts nationwide and throughout the globe with new insights into how today's students want to leverage digital tools for learning based upon the authentic, unfiltered ideas of students themselves. In our first report on the findings from the 2013 Speak Up National Research Project, "*The New Digital Playbook: Understanding the Spectrum of Students' Activities and Aspirations,"* we provided thought-provoking new insights into how today's students are already tapping into digital tools, both in and out of school, to personalize learning and to self-prepare themselves for future college or career success. As a companion to that first report, this report examines how technology is being used in America's classrooms to support college and career skill preparation, and discusses how schools and districts can address key challenges associated with digital learning. The findings discussed in this report are based upon the online Speak Up surveys completed in fall 2013 by 39,986 teachers and librarians and 4,530 school, district and technology administrators representing 9,005 schools and 2,710 districts nationwide. Additionally, as part of the important capacity discussion, we also highlight the views of both parents of school-aged children (32,151) and community members at large (1,346) about the linkages between school, technology, and students' future success.

In this new digital learning playbook, we aim to address four key questions:

1. How do K-12 education stakeholders define college and career ready skills, especially within the context of digital learning?
2. How are classroom teachers using digital tools and resources to support students' development of college and career ready skills?
3. How are schools and districts building up both their capacity for digital learning and meeting the new imperative of preparing students for an uncertain future?

[2] Conley, D. T. (2012). A Complete Definition of College and Career Readiness. Educational Policy Improvement Center.
[3] Carnevale, A. P., Smith, N., & Strohl, J. Help Wanted: Projections of Jobs and Education Requirements Through 2018.

4. How can parents and community members support classroom use of technology and district goals for skill development?

These are important questions for both national as well as local discussions. It is our privilege to share this year's Speak Up national findings to inform these conversations so every child, in every grade, in every community has the same opportunity to dream big and realize their potential on whatever path they choose to success.

Play #1: Defining college and career ready skills

A cottage industry has developed over the past few years around the definition of "college and career readiness". Despite extensive use of the term in policy statements, conference presentations, research papers, and on district websites, no one universal definition is widely accepted. A casual search on the phrase recently elicited over 33 million entries on Google. Differences in the meaning of the phrase are abundant. Many definitions emphasize content knowledge acquisition such as in English and mathematics and identify proficiency as not needing remediation at the college level in these subjects. Other descriptions of readiness put a priority on proficiency in a long list of soft skills such as problem solving, critical thinking and creativity. Other definitions focus on specific vocational skills that are designed to lead to sustained and/or recession proof economic self-sufficiency.

Acknowledging the importance of strong subject area knowledge in English, mathematics, science and history, we asked teachers, administrators, parents and community members to rank the importance of 16 various college and workplace skills that were culled from research on common definitions. The goal with this avenue of questioning on the Speak Up survey was two-fold: first, to gain new understanding as to whether or not these stakeholder groups shared similar priorities; and second, to use that information to explore how digital tools could support the development of these high priority skills. As illustrated in Table 1, the four stakeholder groups shared a relatively similar set of top skills that they considered most important. However, their level of intensity around those skills and their relative priority rankings differed amongst the groups.

Table 1: Most important college and workplace skills for students to acquire

College and Workplace Skills	District Administrators	Teachers	Parents	Community Members
Critical thinking and problem solving skills	**91%**	75%	**85%**	**88%**
Ability to work with a diverse set of people	86%	69%	71%	82%
Teamwork and collaboration skills	83%	66%	69%	79%
Ability to learn independently	82%	**77%**	67%	79%
Technology skills	80%	52%	69%	80%
Effective communications through writing	76%	55%	68%	
Being creative and thinking outside the box	75%	62%	72%	77%
Financial literacy				79%

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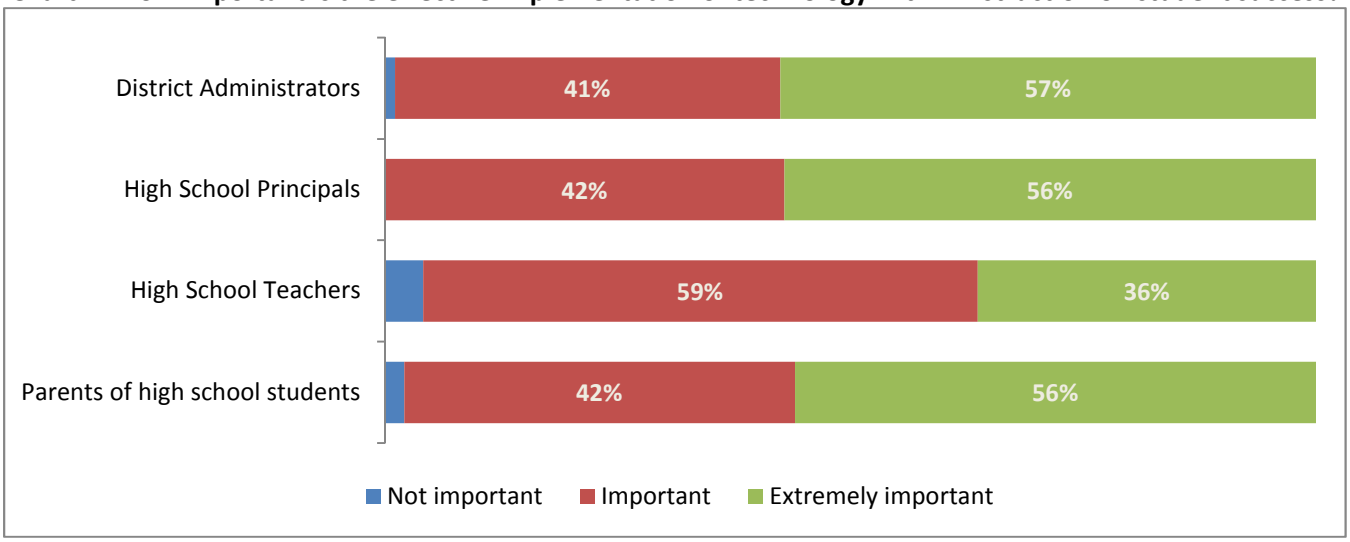
The value placed on critical thinking and problem solving skills cannot be underestimated in today's workplace and the education stakeholder groups all reflected that importance with their ranking of that skills in the number one or two position. Equally cognizant of the global society and importance of cultural awareness, the value of developing an ability to work with and learn from people that may have different backgrounds was also highly valued as were the companion skills of teamwork and collaboration. Despite the lofty aspirations that were placed on these skills,

only 57 percent of students in grades 6-12 felt that their current classes were helping them to develop these skills of critical thinking and problem solving, cultural awareness, and teamwork and collaboration. Moreover, only 41 percent of middle school students said that they were learning effective communications through writing. Even more concerning for community members should be that only one-quarter of high school students said that they were developing financial literacy skills as part of their education.

A disconnect between the rhetoric around college and career ready skill development and actual practice is also apparent in the importance of technology skills and the role digital tools play in school. While all of the key stakeholders value the role of technology in preparing students for future success, a comparative analysis indicates that teachers may not be as supportive of the role of technology as administrators and parents. Chart 1 depicts how the level of importance placed on the effective use of technology within classroom instruction on a student's future success varies within the group of high school stakeholders. As illustrated, approximately 56 percent of high school principals, parents of high school students, and district administrators ranked technology use in this context as *extremely important*. In contrast, only 36 percent of teachers shared that same valuation.

Chart 1: How important is the effective implementation of technology within instruction on student success?



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This difference in valuation around the role of technology (which is likewise represented in comparable analysis with elementary and middle school teams) also manifests itself when administrators identify the challenges associated with planning for new digital learning initiatives. Securing teacher buy-in on new initiatives and then providing appropriate training to support classroom usage are two common hurdles administrators face. Given that 60 percent of parents believe that the best way for students to acquire the college and career ready skills identified in Table 1 is through the effective use of technology within their classes, further examination of how digital tools and resources are being used by a variety of teachers is a logical next play within our digital learning playbook.

Play #2: Inside the classroom – how teachers are using digital tools to support students' development of college and career ready skills

Teaching is a highly personalized art. Teachers within the same grade level and teaching the same content may approach instruction using different resources and teaching strategies. The same is true with the use of technology to support learning. Therefore, to better understand how digital tools can support learning in the classroom we need to investigate different types of teachers in a variety of classroom settings using a diverse set of digital tools.

Using technology to support professional tasks. In general, teachers' assessment of their technology skills follows a similar pattern as administrators and parents with almost two-thirds of teachers (63 percent) identifying their ability to use technology on par with their peers. Within a typical school or district, the teachers that are likely to assess their technology skills as advanced include high school teachers (32 percent), science teachers (36 percent), teachers with four to ten years of teaching experience (34 percent), and teachers who have earned National Board Certification (33 percent). In general though, slightly more than a quarter of all classroom teachers (28 percent) assess their technology skills as advanced compared to their colleagues. Within this general group of teachers with advanced tech skills, we see a pattern of similar activities using technology to support their professional responsibilities including:

- Conducting Internet research to inform a lesson or class activity (90 percent)
- Learning something by watching an online video (74 percent)
- Exchanging text messages with colleagues (67 percent)
- Customizing digital content to meet the needs within their instructional plans (56 percent)
- Participating in an online professional learning community (55 percent)

Furthermore, these teachers are on the vanguard in terms of using technology for formative assessment (38 percent), texting with the parents of their students (30 percent), creating videos to support instruction (27 percent), and maintaining a class blog (25 percent). Additionally, while Twitter is still emerging as a professional development resource, teachers who assess their technology skills as advanced (16 percent) are twice as likely as other teachers (8 percent) to have adopted that behavior already. Not surprisingly, these advanced technology-using teachers are less likely to say that a lack of professional development is holding them back from using technology in the classroom—only 17 percent of which identified training as an obstacle. However, 33 percent of all teachers noted a need for professional development as a barrier to more effective technology use. Of special interest to many teachers today is how to effectively integrate mobile devices such as tablets and laptops into everyday instruction.

Using mobile devices within the classroom. Teachers' views on the benefits of using laptops, tablets, smartphones and other mobile devices within instruction is best understood by listening to the experiences of the 38 percent of teachers who say that their students have regular access to these tools to use in class. These types of one-to-one classrooms include students that are using their own devices, students that are assigned personal devices for use at school and students with school assigned devices that they can use both at school and at home. Considering that the effective implementation of mobile devices within instruction necessitates changes in a teacher's practice, it is interesting to learn about the benefits that these teachers see around the use of mobiles, especially as to how it applies to students' 21st century skill development. Table 2 identifies the top benefits that teachers in one-to-one classrooms ascribe to the use of mobile devices within instruction.

Table 2: Benefits of mobile devices – views of teachers in one-to-one classrooms

Benefits	Teachers in 1:1 Classrooms
Increases student engagement in school and learning	74%
Provides access to online textbooks	68%
Provides a way for instruction to be personalized for each student	57%
Provides a way for students to review class materials as often as needed	56%
Facilitates greater student ownership of the learning process	55%
Helps to extend learning beyond the school day	54%
Supports development of students' critical thinking and problem solving skills	46%
Supports development of students teamwork skills	42%
Supports development of students' communications skills	36%

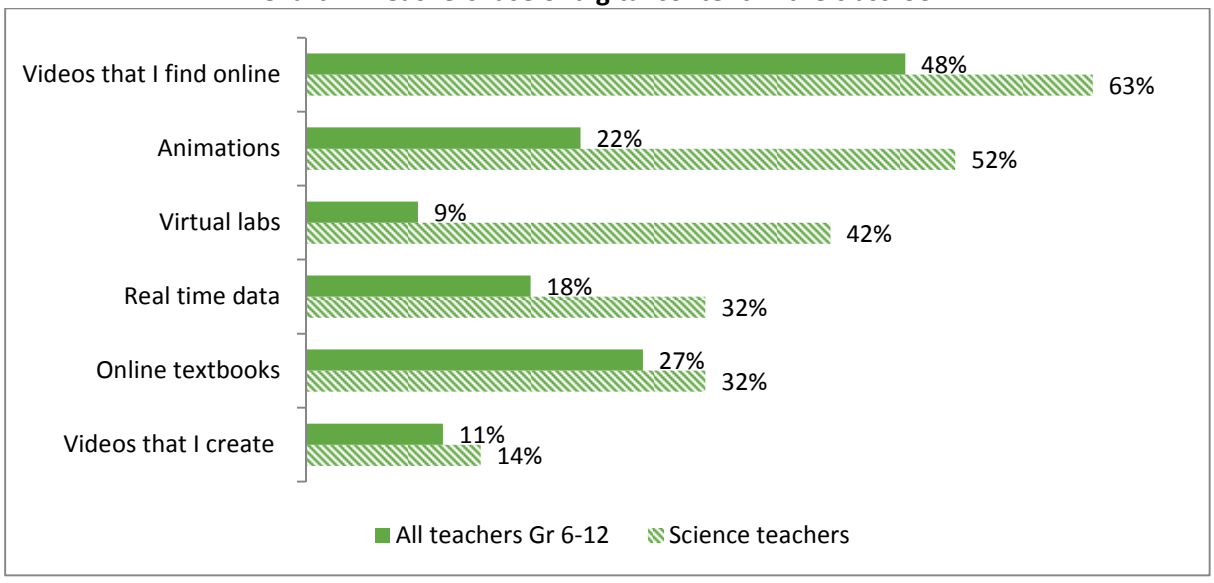
Interestingly, 50 percent of the teachers also saw the inclusion of mobile devices in the classroom as a catalyst for teachers to improve their own technology skills. This may seem counterintuitive to many districts who believe that teachers need technology training prior to the adoption of a one-to-one model in the classroom. Speak Up national data findings have repeatedly documented a linkage between teachers' development of a personal value proposition with digital tools and their subsequent greater interest in using those tools in the classroom. Based upon the views of the teachers who are on the front lines of mobile learning within their classroom, it may make sense for teachers to learn how to use these devices within instruction alongside their students, rather than in a formalized learning environment that is beyond the classroom context.

"Students need to know how to use technology as a 21st century skill. They need to know how to appropriately participate in social media, and teachers must be able to set the clear expectations for a successful implementation. The tools that hold the greatest promise for teachers would be knowing how to utilize student-owned devices as part of the instructional plan as well as knowing how to allow students to explore and learn more on their own by using their device. Teachers must first be able to participate, so they know what the students will be expected to use."

Assistant Principal, Huron Valley Schools (MI)

Using digital content within the classroom. School site principals say that the inclusion of digital content including tools such as animations, real time data, videos and e-textbooks in the classroom can help teachers develop their technology skill muscles as well. Moreover, that the use of these highly relevant resources can help students develop workplace ready skills. To that point, science teachers are leading the pack in terms of their use of digital content in their classrooms. Their use of digital content in several key categories exceeds that of their non-science teaching colleagues as depicted in Chart 2. While it is understandable that they might use more animations or virtual labs within their science curriculum, the gap in the usage in other categories however may speak more to science teachers' comfort with using these digital tools.

Chart 2: Teachers' use of digital content in the classroom



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The science teachers' use of more digital content than their peers is also reflected in their assessment of the value of these tools on students' skills. Close to a majority of science teachers (47 percent) said that the use of technology in their classroom was helping their students develop critical thinking and problem solving skills, whereas only 40 percent of their middle school and high school teaching peers had the same evaluation.

While science teachers may be leading the pack in the use of some types of digital content, elementary teachers are at the forefront of incorporating game-based environments within their instruction. One-third of elementary teachers (32 percent) now report using games in their classroom. The elementary teachers who have implemented a game-based program in their classrooms identify the following key benefits for using games within instruction:

Increases student engagement in learning (79 percent)

- Provides way for teachers to address different learning styles in the classroom (72 percent)
- Provides a way for teachers to differentiate instruction (55 percent)
- Allows students to practice skills (52 percent) and reinforces understanding of concepts (53 percent)
- Helps students develop critical thinking and problem solving skills (32 percent)

Interestingly, students in grades 3-5 also endorse the idea of games as a tool for developing important skills that they will need later in their schooling career. Over one-third of these students (39 percent) said that the primary benefit of playing games with educational content is that the games help them become better thinkers and problem solvers.

Impact of technology use on student success. Traditionally, measures on the impact of technology use have focused on the relationship between the engaging elements of the digital tools and students' potentially increased interest in class content. While student interest and engagement remain valid indicators of achievement, policy and education leaders are increasingly looking for new types of outcomes that indicate that a student has the college and career ready skills they need to be successful. To that goal, understanding the perspective of teachers in very specific digitally-rich learning environments can provide new insights into not only the impact of technology use on student success, but how to think differently about evaluating impact. Table 3 illustrates how teachers in three environments – online classes, classes that use digital content regularly and one-to-one mobile classrooms – assess the impact of technology on students' workplace skills.

Table 3: How has use of technology in your classroom enhanced student skills and success?

Perceived benefits of technology use for students	Teaching in an online class	Teaching using digital content	Teaching in a 1:1 mobile class
Developing creativity	50%	44%	49%
Developing problem solving and critical thinking skills	57%	44%	45%
Taking ownership of their learning	57%	35%	37%
Learning to work collaboratively	30%	34%	37%
Understanding how to apply academic concepts to real world problems	58%	37%	42%
Increased motivation to learn	50%	60%	55%

While the linkage between the use of digital tools and students' development of critical thinking and problem solving skills is highly articulated within these three sets of learning environments, teachers in general are increasingly making that connection as well. Whereas just four years ago in 2009, only 27 percent of teachers saw a connection between students' use of technology and critical thinking skill development, in 2013, 38 percent of teachers now see the linkage between digital tools and critical thinking. This speaks to not only the increased national, state and local emphasis on college and career readiness skills, but also the emerging sophistication of teachers' use of digital tools to support instruction in the classroom, usage that goes beyond simply engaging students in a sporadic use of technology as a fun activity.

Professional development needs. Some may say that the increased usage of technology within the classroom may also be an indicator of the arrival of a new generation of teachers in the classroom who have lived a more digitally infused life than their older colleagues. However, as we have learned, being able to text or tweet does not necessarily correlate to knowing how to effectively use digital tools within instruction. Seven out of ten teachers with less than 3 years of teaching experience (71 percent) say that their pre-service education in their teacher preparation program adequately prepared them to use digital tools in the classroom. While this may seem to be an encouraging sign for the future, unfortunately, 23 percent of that same class of new teachers with less than 3 years of experience said that their teaching program did not prepare them well for using technologies in the classroom. In general the rookie teachers shared a similar list of professional development needs with their colleagues who had more years of experience. New to the field teachers, however, are more interested than their older colleagues in how to incorporate games into instruction and potential new ways to use social media tools with students and to facilitate enhanced communications with parents. Table 4 identifies the skill-based professional development needs of teachers by years of experience.

Table 4: What is on your wish list for professional development in technology use?

Professional Development Wish List	1st year of teaching	1-3 years of experience	4-10 years of experience	11-15 years of experience	16+ years of experience
How to differentiate instruction using technology	51%	48%	44%	44%	46%
Identifying digital content	39%	33%	33%	34%	35%
Identifying mobile apps	39%	37%	36%	36%	35%
Using games	37%	29%	26%	24%	26%
Using tablets	32%	31%	31%	30%	31%
Implementing a blended classroom	27%	24%	23%	23%	22%
Creating videos	22%	20%	19%	20%	19%
Using social media with parents	22%	18%	15%	13%	12%
Using social media with students	19%	15%	13%	10%	8%

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"Mobile devices and other digital tools will both increase engagement but also better prepare our students for adult life. Our district is using a variety of professional development opportunities to support teachers in the implementation of these devices."

Assistant Principal, Solana Beach School District (CA)

In terms of the preferred modalities for professional development, teachers across the entire spectrum of experience prefer face-to-face conferences (60 percent), school and district based training (48 percent) and peer-to-peer school based study groups (29 percent). First year teachers (35 percent) however were particularly interested in in-school mentoring programs that match them with a more experienced peer as a form of ongoing, just-in-time professional development. As schools and districts develop new digital learning playbooks to support the development of students' college and career ready skills, understanding the need of all of their teachers, both rookie and experienced, for professional development in the use of digital tools is a significant component of capacity building for the future. This direction is further substantiated by 58 percent of district office administrators who say that enhancing teacher effectiveness through professional development and school based professional learning communities will have the greatest impact on student achievement.

Play #3: Building school and district capacity to support college and career ready skill development using digital tools

"The use of modern technology in the classroom will enable students to engage in more challenging tasks that will benefit them in their future careers. As educators, that is our overall goal. We are educating students for a future we are not certain of and need to prepare them to use whatever tools they have available to get the job done."
Instructional Technology Specialist, South San Antonio Independent School District (TX)

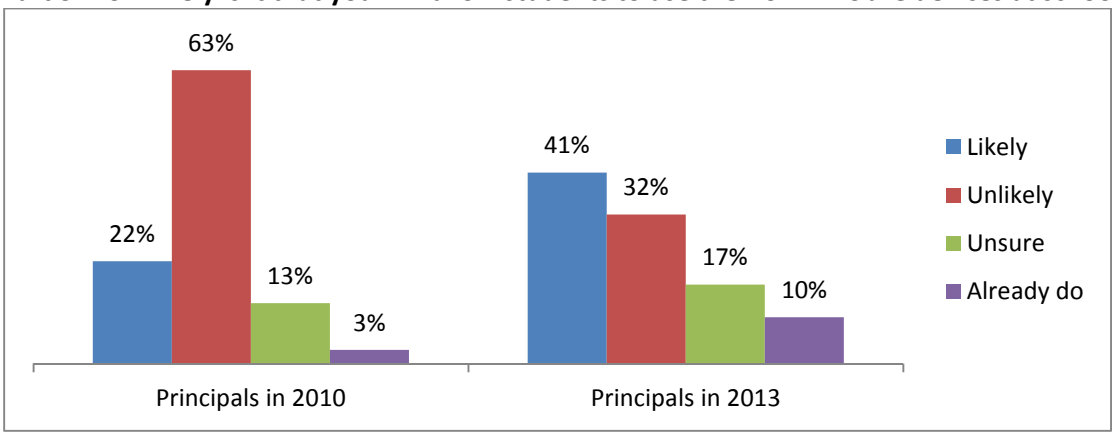
As a reflection of national discussions, district administrators (49 percent) are also increasingly interested in how to effectively integrate 21st century skills into the curriculum as a means for improving student outcomes. A similar number of administrators see leveraging digital learning initiatives such as mobile learning, online learning and the use of digital content as effectual ways to achieve these same goals. A review of what school based and district administrators see as the benefits and challenges associated with these specific approaches provides new insights into the linkages between technology and student achievement, especially in regards to college and career readiness skill development.

Mobile learning. Within the realm of mobile learning, school and district administrators identified the use of tablets (41 percent), one-to-one programs (28 percent), mobile apps for the devices (22 percent) and bring your own device (BYOD) to school programs (22 percent) as having a significant impact on transforming teaching and learning in their classrooms today. As articulated by their teachers, school principals see many of the same benefits to the use of mobile devices within instruction including:

- Increases engagement in learning (86 percent)
- Provides a way to personalize learning for each student (67 percent)
- Provides a way to extend learning beyond the school day (62 percent)
- Development of critical thinking and problems solving skills (51 percent)
- Development of collaboration and teamwork skills (47 percent)
- Development of stronger communications skills (37 percent)

Again as with teachers, principals' views on the benefits of mobile devices have evolved over time as the principals themselves have become mobile users accessing tablets, smartphones and digital readers in both their personal and professional lives. For example, 53 percent of school principals have a school provided tablet to use and an additional 35 percent also have a personal tablet for their out of school usage. This increased level of familiarity with the devices coupled with an increase in students' personal access to mobile devices is also impacting the discussions around policies that allow or prohibit students to use their own mobiles at school. Another factor in this emerging move to more BYOD type policies is a financial consideration. One-third of technology administrators (32 percent) noted that having students use their own mobile devices was an explicit school or district strategy to address ongoing budget challenges. This increasing acceptance of having students use their personal devices at school is most evident in a comparative of principals' views on the topic from 2010 to 2013 displayed in Chart 3. Whereas in 2010, only one-fifth of school principals (22 percent) were likely to allow students to use their own mobile devices at school, by 2013, the percentage of principals comfortable with that policy jumped to 41 percent with an additional 10 percent noting that they had already made the policy change.

Chart 3: How likely is it that you will allow students to use their own mobile devices at school?



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District level thinking on BYOD is changing as well. District leaders articulate various benefits to allowing students to use their own smartphones, tablets and laptops in the classroom. From a district financial perspective, 68 percent of administrators see this policy change as a way to save the expense associated with buying devices for student usage. In addition, administrators believe that if students can use their own devices, they are more likely to take ownership for the learning process (61 percent). It is also interesting to note that 56 percent of district administrators like the idea of BYOD as a catalyst for changing teacher practice in the classroom. However as appealing those benefits are, and the increased interest by students and parents in using mobile devices within instruction, serious challenges must be addressed before this solution meets the needs of administrators and teachers. Those challenges include how districts will address the twin issues of student safety and district liability when the technology is not district owned and students may be able to use their devices to circumvent district filters and firewalls set up to protect them. Additionally, even districts that have adopted a BYOD policy are still struggling with how to effectively and efficiently provide devices for students who may not be able to afford them, and how to train teachers on best practices for teaching in a classroom where conceptually every student has a different device with various levels of functionality and content. The real value of these always on, highly convenient devices on student outcomes is highly dependent upon how effectively those devices are integrated into classroom instruction. To get the deeper impact of these devices on student learning, we need to think differently about how to help teachers change their practice to leverage the unique capabilities of the tools. A similar situation exists in the potential of online, blended and flipped classrooms to support students' individualized needs.

Online learning. District administrators see the inclusion of online learning options for both students and teachers as key agents for transformation within their schools. Four out of ten district leaders already acknowledge that various blended learning models are stimulating new ways of thinking about teaching and learning within the classroom. And high school principals, in particular, are seeing online classes as a way to provide a diverse set of students with more meaningful learning experiences.

Over 41 percent of high school principals report that they now are offering online classes for students in math, science, history and English/language arts. An additional one-third of high schools are also making a wider variety of world languages available to their students through online courses. Only 17 percent of high school principals said that their school is not offering online classes for their students at this time.

Beyond the course content, high school principals see online learning as providing ways to engage all kinds of students in learning and ways for these students either to ensure their graduation or to prepare for college level coursework. Table 5 provides a synopsis of the various reasons why high school principals in particular are providing more online learning alternatives for students, and the types of student needs they are addressing.

Table 5: How online learning is supporting the needs of many types of students

Why online learning?	High School Principals
Provide academic remediation	66%
Keep students engaged in staying in school	63%
Provide options for students that need credit recovery	61%
Provide options for home-bound students	53%
Provide options for at risk students	50%
Provides students with options for advanced coursework	49%
Provide options for gifted students	41%
Provides students with dual enrollment options with local colleges	39%

Implicit in the discussion about students' college and career readiness is the need for high school graduation rates to improve. Online learning is offering many schools and districts new ways to stem dropout prevention and also to provide alternatives for students whom are unable to attend school or have not proven successful with traditional school models. The challenge continues to be, however, that districts cannot find enough teachers interested in teaching in an online environment. Despite the fact that 41 percent of teachers have taken an online course for their own professional development, only 17 percent say that they are interested in teaching online. In this case, familiarity with the digital tools and resources is not proven yet to be a driver to greater acceptance or interest.

Digital content. As with mobile devices and online classes, school and district administrators (44 percent) are equally optimistic about the potential of digital content resources including animations, real time data, videos, games and online textbooks to have a transformative impact on teaching and learning. Additionally, a majority of administrators (54 percent) believe that the effective use of digital content within the classroom can increase students' career readiness by linking real world problems to academic content. Administrators face two inter-related challenges however in realizing these benefits; providing enough computers and devices for students to use at school (55 percent) and having enough bandwidth to support the multi-media, data intensive resources (38 percent).

This issue of school bandwidth capacity is a timely topic of discussion. Technology administrators identify that if they had sufficient bandwidth, the classroom student experience could be enhanced through the increased use of streaming videos within instruction (74 percent), increased use of multi-media resources in the classroom (68 percent), and better utilization of online curriculum (57 percent). Additionally, the technology leaders note that they would be better able to provide online professional development for teachers and offer enhanced online professional learning community options for all staff. However, the reality is that only 25 percent of all school and district based technology administrators say that they have enough connectivity and bandwidth to meet their student and teacher needs. Given the high potential articulated by both teachers and administrators about the potential of digital resources to enhance the relevancy of curriculum materials, addressing the challenge of increased bandwidth to schools is no longer just a technology issue. Rather school connectivity should be viewed as an important component in our national efforts to prepare every student with the skills they need for college and career success.

Play #4: Building parental and community support for the use of digital tools to help students develop college and career ready skills

"Building relationships between the public schools and the community to support student achievement is a critical factor in preparing students for college and career. The school district must be proactive in communicating its goals and values to the community in order to address the challenge of providing adequate resources to support education."

School Board Member

Our first ever survey of community members' thoughts on their local schools and the future of education included responses from a diverse set of education stakeholders. Respondents included business leaders, parents whose children had already graduated from high school, school employees, board members and volunteers not in a teaching or administrative position, homeowners and concerned citizens. Despite this variety of experiences with the local schools, in some areas, the voice of the community in terms of the importance of digital tools was loud and clear. For these stakeholders (86 percent), it is vitally important that every student have access to the Internet to support schoolwork. Especially noteworthy is that amongst this group of concerned community members, 52 percent labelled Internet access as extremely important for student success.

This support for the value of Internet connectivity extended beyond rhetoric, however. As discussed earlier, 80 percent of community members and 69 percent of parents identified learning how to use technology tools as a critical college and career ready skill. Both groups seem willing to stand behind that belief with their pocket books as well. Two-thirds of community members and a similar percentage of parents of school-aged children said that they would be willing to pay $.50 more per month (or approximately $6 per year) on their phone bill if those extra funds were used specifically to increase school access to the Internet for student learning purposes. While this concept may stimulate some interesting new policy discussions, the deeper significance of this finding is that it solidly reinforces the connection between student learning, the development of college and career ready skills and technology access.

Parents have a parallel response to the idea of their child using a mobile device to support schoolwork in school. Parents identified similar benefits as the teachers and administrators to the use of laptops, smartphones and tablets in class. Amongst different types of parent groups, parents of children at Title 1 (as an indicator of home poverty) schools were especially interested in how mobile devices could personalize the learning process for their child (50 percent), and extend the learning day beyond 3 pm (52 percent). Again sharing a common view on the value of mobile devices to help students develop 21st century skills, parents representing all types of communities and ages of their children, were universally interested in having their child in a class where that child could use their own mobile device. Table 6 identifies the percentage of parents from different sub-groups that would like their child in a mobile-device using classroom.

Table 6: Desire to have their child in a class where using one's own mobile device is allowed

Parent by Community / Age of Child(ren)	Likely that I would want my child in that class
Parents from urban communities	64%
Parents from rural communities	64%
Parents from suburban communities	59%
Parents from Title 1 communities	63%
Parents of elementary students	58%
Parents of middle school students	63%
Parents of high school students	65%

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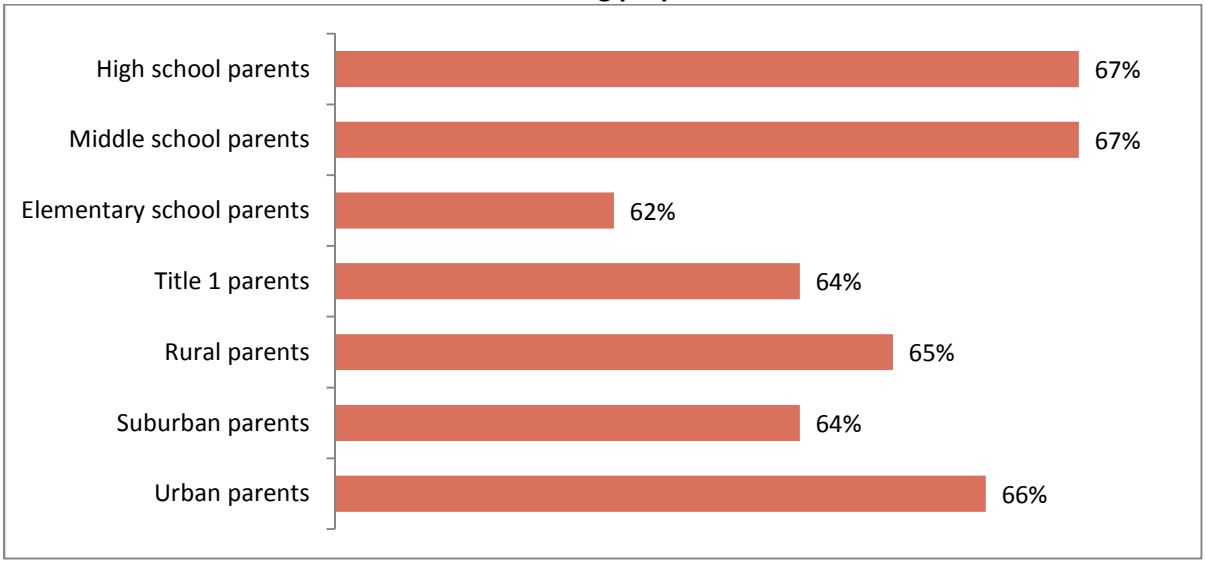
But, will parents be willing to purchase a mobile device for their child to use at school? According to parents from each of the studied sub-groups, two-thirds would say "yes." With increasingly more affordable data plans and special incentives for device purchases in the market, parents are stepping up to support their child's education and to enhance family communications by equipping their child with mobile devices such as a smartphone, tablet and/or laptop. As documented in our first report on the Speak Up 2013 national findings, 89 percent of high school students and 73 percent of middle school students now report having personal access to a smartphone. In addition, increasingly students even in grades 3-5 (58 percent) are demonstrating that they could bring a tablet to school if it was allowed. This explosion in student access to mobile devices is being driven largely by two concerns that parents have about their child's education: what tools can help my child become more organized with their schoolwork and what tools will help my child be prepared for an uncertain future in terms of jobs and the economy. By putting mobile devices in the backpacks and pockets of their children, parents are hoping to achieve both goals. As we see in Chart 4 parents across all of the studied cohorts are interested in building the capacity of their local schools by equipping their children with mobile devices.

Chart 4: How likely is it that you would purchase a mobile device for your child to use at school for learning purposes?



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Parents and community members have different motivations for wanting their neighborhood schools to be the best they can be and for the graduates of those schools to be well prepared for the jobs and careers of the future. Community members in particular also have a keen understanding of the challenges faced by local schools including adequate funding (76 percent), providing adequate technology (58 percent) and measuring achievement based upon test scores (56 percent). As school and districts leaders work to build up their own capacities for using digital tools to support students' 21st century skill development, it appears that parents and community members are in sync with their goals and willing to support these efforts wholeheartedly.

"Emerging technologies help teachers capture, tweak, and repeat instruction to meet individual needs, and help students master 21st century skills critical for success in 21st century workplaces and communities."
Parent of an elementary school student, Fairfax County Public Schools (VA)

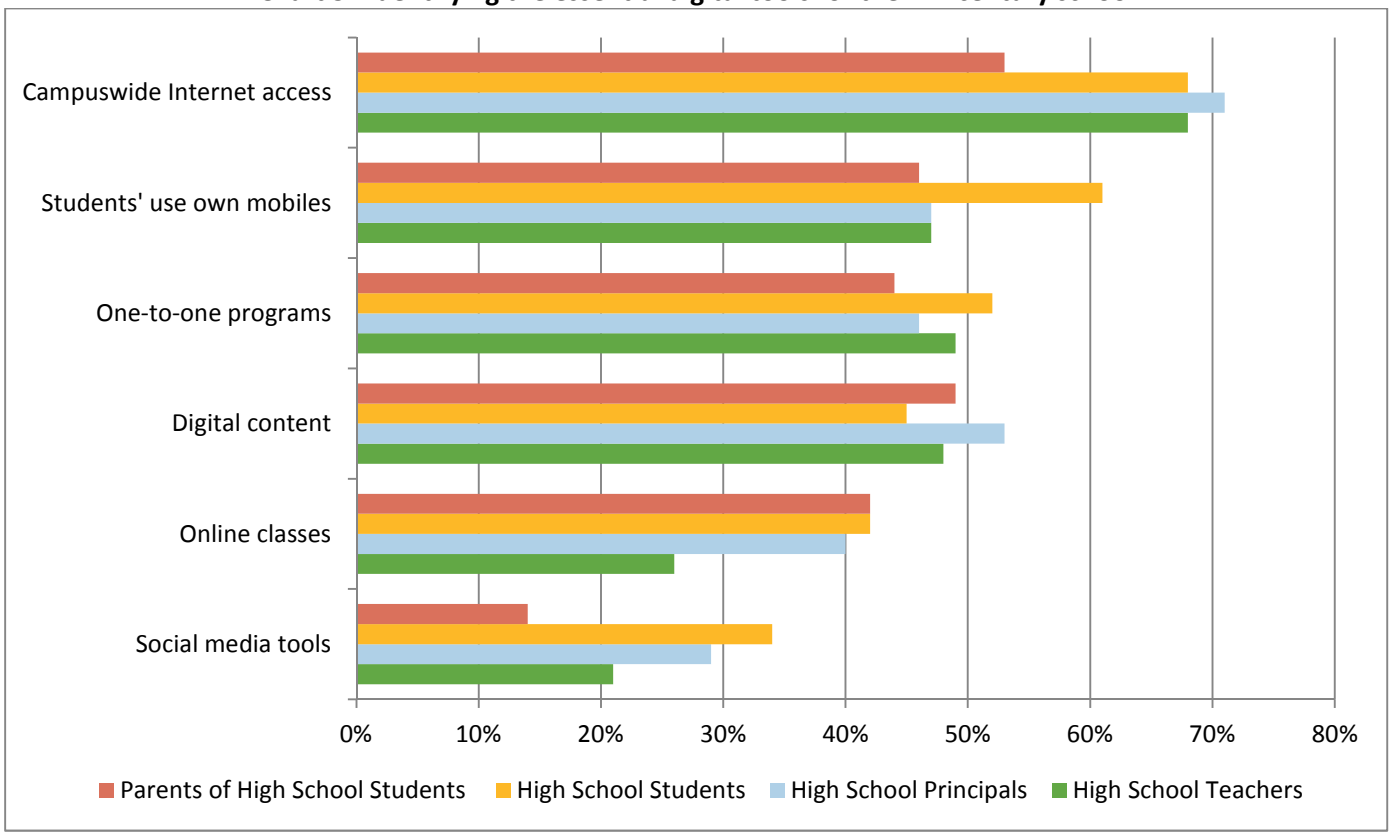
Final Play: Designing schools that will leverage digital tools to help students develop college and career ready skills

Amongst all of the education stakeholder groups, a key component of a student's portfolio of college and career ready skills is their ability to use technology tools effectively. Though only 51 percent of high school students said that they were explicitly learning how to use technology as a workplace skill within their classes, the overall report card for how well schools are preparing students to use technology in a future job was very positive; at least from the perspective of the adults. Two-thirds of parents, teachers and community members agreed that technology use in the classroom was preparing students to use these tools in college or a future job. School and district administrators were even more enthusiastic in their endorsement of the quality of preparation. Eight out of ten administrators and 82 percent of technology leaders agreed that the way technology was used in their schools was helping prepare students for future success.

But, how does that glowing report card translate into actual practice? In this year's Speak Up report, we focused on how specific technology tools and resources were supporting the development of students' college and career ready skills in the classroom. The views of teachers, administrators, parents and community members provided us with rich input for a comprehensive discussion of how these tools could be used to help students develop critical thinking and problem solving skills, strengthen teamwork and collaboration skills, and enhance communications skills. The benefits of mobile devices, online learning, digital content and Internet connectivity were reviewed alongside the real world challenges educators face using these tools within instruction. Therefore, it is now time to evaluate the readiness of our schools to implement the digital tools that have been identified as key to workplace skill development.

By asking the stakeholders to envision their ultimate 21st century school, we are able to capture their honest appraisal of the value of these various digital tools in context with one another. Chart 5 provides a snapshot of what high school teachers, principals, students and their parents identified as the most essential digital tools for the 21st century school. The tools identified match those reviewed in this report. As illustrated in the chart, there is some variance in terms of the valuation of these tools amongst the different stakeholder groups. Students, parents and administrators placed a higher premium on the value of online classes than teachers did. Administrators saw digital content as more valuable than others did. And students are significantly more interested in using their own mobile device at school and the role of social media tools within learning than the adults.

Chart 5: Identifying the essential digital tools for the 21st century school



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As schools and districts move ahead with plans to leverage digital tools such as these to support students' college and career ready skills, it will be important for leaders to recognize that effective technology usage, even in a visionary ultimate school as designed here, is highly dependent upon three essential factors. Those essential factors are as follows: the context of the usage of the digital tools, the relevancy of those tools to the student, and how the usage, both in and out of the classroom, is supported by the overall education community.

Our goal throughout this review of the Speak Up 2013 national findings was to provide new insights to help schools and communities build their internal capacities so that every student in Anywhere USA who wants to go to college or desires to follow a vocational path will be well prepared to do so. It is seemingly impossible for us to envision what educational, career or job opportunities may be available for students in the future, even in the relatively near term of the high school graduation class of 2020. However, we can foresee that possessing content knowledge in key academic areas, being fluent in the workplace skills of critical thinking, problem solving, cultural awareness, teamwork and communications amongst others, and understanding how to use various digital tools and resources to support lifelong, life-wide and life deep learning will be essential.

As we think about the bright-eyed and wiggly seventh graders all across the country who will be coming back to school in the fall, along with their younger and older siblings, let's double down our efforts to ensure that all students are well prepared to follow their dreams wherever they may lead them.

About the Speak Up National Research Project and Speak Up 2013

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 3.4 million K-12 students, parents, teachers, librarians, principals, technology leaders, district administrators and members of the community 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 2013, Project Tomorrow surveyed 325,279 K-12 students, 32,151 parents, 37,756 teachers, 2,230 librarians, 933 district administrators, 3,020 school administrators, 577 technology leaders and 1,346 members of the community representing 9,005 public and private schools from 2,710 districts. Schools from urban (28 percent), suburban (32 percent), and rural (40 percent) communities are represented. Just under one-half of the schools (46%) that participated in Speak Up 2013 are Title I eligible schools (an indicator of student population poverty). The Speak Up 2013 surveys were available online for input between October 2nd and December 20th, 2013.

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), the use of technology within specific curricular areas, 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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ABOUT PROJECT TOMORROW

Project Tomorrow® is the nation's leading education nonprofit organization dedicated to the empowerment of student voices in education. With 18 years of 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 3.4 million K-12 students, parents, teachers, librarians, principals, technology leaders, district administrators and members of the community have shared their views and ideas through Speak Up.

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