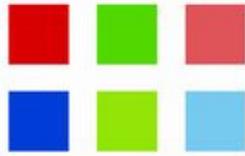Project
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Speak Up

FROM CHALKBOARDS TO TABLETS:
THE DIGITAL CONVERSION OF THE K-12 CLASSROOM

Introduction

"The application of software, hardware and devices should be as customary as a chalkboard, pencil and paper were years ago. To prepare students for the challenges ahead they need to be using the resources that will prepare them for college and/or careers and they need to use their problem solving skills, presentation skills, and communication abilities to develop as "solutionists" in a global world." (School Principal, Wisconsin)

"We need tools that will engage learners. If they are authentically engaged, they will learn." (School Principal, Texas)

We are at a cosmic moment in K-12 education. The conflux of the impeding implementation of Common Core State Standards (and other new state standards) with the advent of new, high quality, educationally rigorous and innovative digital tools and resources presents an unprecedented opportunity for holistically transforming the learning experience for all K-12 students. How we effectively leverage this opportunity may be the greatest challenge of the next decade in our schools and communities.

Some schools and districts are already capitalizing on the immense potential of this new environment and instigating what is called a "digital conversion" within their classrooms with e-textbooks, online classes, and mobile devices such as laptops and tablets. Digital conversion success stories are spurring the imagination of educators and parents that this could be the long awaited solution to the often seemingly impossible task of increasing teacher effectiveness and student achievement. However, digital conversion is not a new concept. Some might say that the seedlings of today's digital conversion efforts started in 1996 with the first NetDay Internet wiring events at schools. As those multitudes of community volunteers came together on Saturdays all across America to pull blue CAT 5 cabling through walls to connect classrooms to the Internet, they were digitally converting those schools forever. There was no going back.

Since that time, innovative teachers and librarians, forward-thinking principals and future-minded administrators have continued to build on that foundational digital conversion by tapping into the latest technologies and digital learning strategies to create new learning experiences for K-12 students. In some cases, those efforts have been incremental and classroom specific such as the teacher whose students are blogging about the latest book they read on their digital reader, or the middle school class that created their own science digital textbook using multi-media online content. Librarians and media specialists have been supporting the efforts of these teachers by taking on the new role of both sourcing expert and digital coach, focusing on the goal of building teacher capacity for such individualized digital conversions. At the other extreme, some schools and districts have jumped into the deep end of the pool with wholesale digital conversions of their curriculum, school-to-home communications and operations, leaving hard copy textbooks and printed spring carnival flyers and report cards in the dust. Driven by education leaders with a clear eye to the future, these schools and districts have transformed not only the teaching and learning experiences in the classrooms, but also the spectrum of their interactions with parents and community.

Parents have contributed to this ongoing process of digital conversion with their support of the efforts in terms of resources and ideas, and at times, have provided the impetus for the schools and districts to move more quickly to adopt new technologies that parents view as essential for their child's future success. And students, maybe more than any other stakeholder group, have showed us how they have digitally converted their personal lives outside of school with the adoption and adaption of technology to communicate, collaborate and connect with peers and experts. The students' use of emerging technologies such as digital content, social media, games and mobile devices to pursue their self-directed, interest driven learning have in many ways taught the rest of us about the potential of using such tools within the school environment.

The annual Speak Up National Research Project and the resulting trends analysis provides a birds' eye view of the changing environment for digital learning. 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 views of 39,713 parents of school-aged children, and 102,070 educators representing over 8,000 schools and 2,400 districts nationwide, we are providing new insights into the digital conversions, both incremental and wide reaching, that are already happening every day in many classrooms and schools all over the country. This process of digital conversion is not for the faint of heart however as it involves in most cases a significant transformation of what teaching and learning looks likes in America's classrooms. It is our goal with this year's report to provide a new context for understanding the environment for digital conversions by providing evidence of what it looks like in our classrooms and what is needed to scale and sustain these efforts.

Understanding the New "Perfect Storm" Environment for Digital Conversions

"Students need to be lifelong learners. Our students will face career choices that do not even exist at this time. The future is changing too rapidly for us to create a finite list of skills. If we withhold their access to any current tools that would help in this endeavor, we are holding them back and doing a disservice."
(Assistant District Superintendent, California)

For the past nine years, the annual Speak Up national findings have diligently documented the growth in educators' access to emerging technologies, and how that increased access and familiarity has resulted in greater interest in digital learning. The Speak Up survey data has also highlighted the growing expectations of parents each year for interactive and collaborative digital learning environments that they believe are essential for preparing their child to compete in the global information society. And, we have shared information and research over several years about the widespread national interest in enhanced college and career readiness for all K-12 students. Given all of those positive conditions, why is there such new fervor around digital conversions today? What makes today's education landscape different than last year, the year before or five years ago? What has changed?

For many social movements, the confluence of several factors propels the movement to a new level of energy and productivity. This is the case today with the use of emerging technologies within K-12 classrooms. We have reached a "perfect storm" with the alignment of five key factors that are driving new excitement and enthusiasm for leveraging technology to transform teaching and learning. This perfect storm is creating an unprecedented environment for taking successful pilot implementations of digital tools and resources to scale within a school, a district or a community. The five factors are not necessarily new to the landscape, but rather each has reached a tipping point in terms of directly affecting the personal and professional lives of educators and parents.

The five transformative factors that are driving this new digital conversion momentum are as follows:

Factor #1: Whether state adopted or not, the Common Core State Standards are fundamentally changing the conversation about what learning should look like in our classrooms, and there is a new realization of the potential of digital tools and resources to help address those new standards. In addition to improving teacher

effectiveness, 48 percent of district administrators on this year's Speak Up surveys chose "aligning local curriculum to national Common Core standards" as the strategy that has the greatest potential to enhance student achievement in their district. Not coincidentally, nearly an equal percentage of administrators (49 percent) also see leveraging technology in the classroom more effectively as a key driver for student success as well. Other well-known proposed solutions such as more Advanced Placement classes, 21st century assessments and career academies paled in comparison on the administrators' rankings.

Factor #2: Today's teachers, administrators and parents are increasingly mobile-using, texting, tweeting social media devotees whose personal and professional lives are dependent upon Internet connectivity and online collaborative learning environments. In fact, a majority of teachers (52 percent), parents (57 percent) and district administrators (52 percent) are now regularly updating a social networking site, and many are using a personal mobile device such as a smartphone to do that. This is creating an unprecedented "readiness" on the part of educators especially to adopt and adapt new technologies within learning.

Factor #3: A continuation of the multi-year stagnation in funding for new education technology investments is now forcing school and district leaders to scrap many of the plans that have been on hold waiting for a resumption of funding. Their new approach is to test innovative ways to leverage technology to increase revenue or decrease costs even though some of these approaches challenge conventional wisdom and long held policy positions. For example, with 74 percent of technology leaders acknowledging that their ed tech budgets are less today than in the 2008/09 school year, it is not surprising that administrators are re-thinking their hard stance against student owned mobile devices in class. In just one-year from 2011 to 2012, districts piloting a Bring Your Own Device (BYOD) approach increased by 47 percent.

Factor #4: Digital tools and resources have transcended the classroom and are emerging strongly as key components of 21st century school-to-home communications. Today's administrators are increasingly looking to engage parents as co-teachers in the learning process, and thus, the linkages between home and school are more essential than ever before. How the new "digital parent" wants to receive school communications is challenging many traditional assumptions. Over one-third of parents (37 percent) now say that they would like their child's teacher or school to communicate with them via text messaging; only 5 percent held that same view just two years ago.

Factor #5: The clamor of the corporate employers for better skilled employees with work ready, global skills is at a fever pitch – and this is propelling many economically minded school boards and mayors to put renewed pressures on school leaders for better student outcomes. The implementation of Common Core State Standards in the majority of the states is at its core a response to the need for enhanced career readiness for all students.

Like puzzle pieces these five factors support one another, but also display unique characteristics that affect the readiness of some schools and districts to move forward with their plans for digital conversions. So, how ready are our nation's schools and districts today for a digital conversion? And what is the evidence that today's perfect storm environment will make a difference in the process?
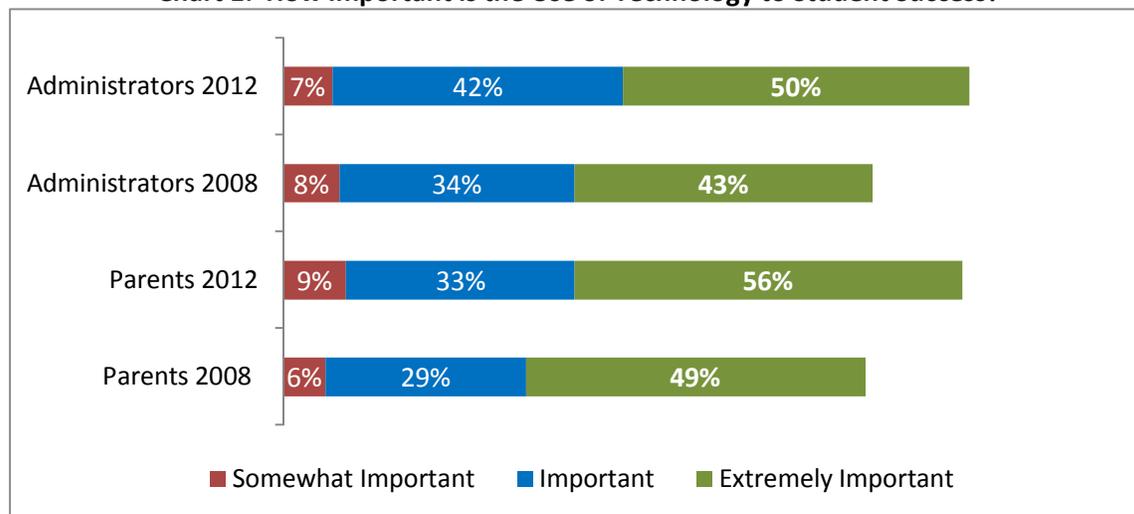
The Case for Digital Conversions Happening Today

"Our school needs to continue to develop the chances for all students to have access to technology tools with either a 1:1 laptop, netbook or tablet program. This will allow all students to be more globally connected and give students an opportunity to grow in the ever-changing global society." (Parent, Ohio)

While we can point to some excellent examples of how individual teachers are using technology tools to improve their effectiveness as a teacher, the real indication of a digital conversion tipping point is best represented by the evolving attitudes, concerns and practices of our school and district leadership, and the parents of the students. Examining changes in values as well as practices over time provides us with compelling evidence of a changing environment that is more receptive to the implementation of digital conversion than ever before.

Starting with attitudes about the value of technology within learning, a side-by-side comparison of the views of principals and parents provides a baseline for further discussion. Each year on the Speak Up surveys we ask parents, teachers and administrators to comment on the importance of the effective use of technology within learning on students' future success. In 2008, 78 percent of parents and 77 percent of school site administrators identified instructional technology as important or extremely important to student success and the school's core mission. In our 2012 poll, the percentage of parents and administrators who now highly value the use of technology jumped significantly as noted in Chart 1. Emphasizing the increasing criticality of technology in preparing today's students for the future, 89 percent of parents and 92 percent of principals now rank effective technology implementation as important or extremely important, an increase of 14 percent and 19 percent respectively from 2008.

Chart 1: How Important is the Use of Technology to Student Success?

	Somewhat Important	Important	Extremely Important
Administrators 2012	7%	42%	50%
Administrators 2008	8%	34%	43%
Parents 2012	9%	33%	56%
Parents 2008	6%	29%	49%

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Amongst parents, 56 percent chose "extremely important" as their response to this question, a statistic that should not be ignored by school and district leaders.

District administrators are increasingly interested in new ways to drive student achievement. When asked to identify the issues that are most likely to wake them up in the middle of the night, four out of ten district leaders (41 percent) in 2012 pinpointed achievement measured by test scores and closing the achievement gap as top concerns
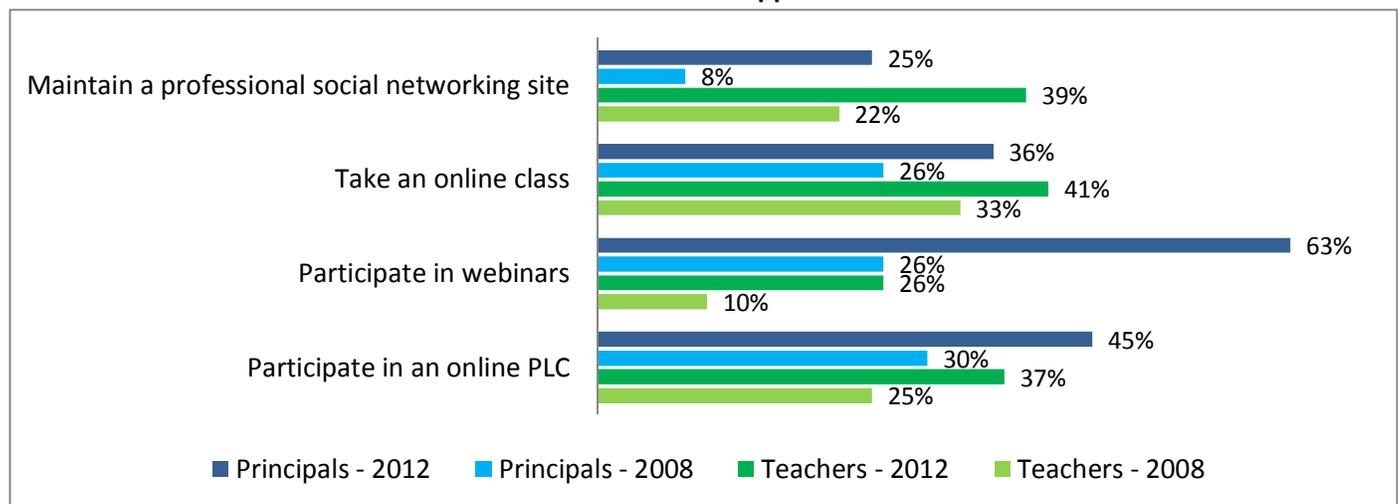
for their district, a growth of 21 percent over 2011 responses.   Correspondingly, district administrators are also more concerned this year about having adequate technology to support new digital learning initiatives in the classroom (36 percent) and the fledgling use of data to assess student achievement (37 percent).

The district administrators' concerns over adequate technology are also representative of this changing education landscape at the school level. Concern over digital equity, or the inequitable access to the Internet or technology outside of school, is a more predominant issue today than ever before. In 2007, only 12 percent of school site administrators noted digital equity as a primary technology challenge; today 41 percent identify that issue as critical. With the increased dependency upon Internet resources to support homework and school projects, administrators and teachers are highly concerned about unintentional inequities amongst students. They are also concerned about the level of in-school connectivity capacity that will allow them to leverage the wide range of new online tools and resources within instruction. While only one-tenth of principals considered Internet capacity and bandwidth an issue in 2010, 27 percent note that limited connectivity is a major challenge and concern for them right now as they tackle digital conversions in their schools.

Significantly, the changes in the value proposition around digital learning have also led to new practices by educators. Over the past five years, teachers and administrators have increasingly adopted a wide range of emerging technology tools and services to support their own professional work, signaling a stronger level of personal comfort with these tools. The use of online tools for personal professional growth is particularly demonstrative of the adoption trajectory by educators. The five-year growth in areas such as taking online classes and participating in an online professional learning community (PLC) is a noteworthy measurement of progress.

Chart 2: What Online Tools Do You Use to Support Personal Professional Growth?

Maintain a professional social networking site: 25%, 8%, 39%, 22%
Take an online class: 36%, 26%, 41%, 33%
Participate in webinars: 63%, 26%, 26%, 10%
Participate in an online PLC: 45%, 30%, 37%, 25%

Legend: ■ Principals - 2012 ■ Principals - 2008 ■ Teachers - 2012 ■ Teachers - 2008

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In addition to using digital tools for professional development, teachers are also increasingly interested in leveraging technology for activities with students and many are modifying their instructional plans to incorporate more digital experiences. Nearly a majority of classroom teachers (45 percent) noted in 2012 that they were creating more interactive lessons because of having access to technology, an increase of 25 percent in just the past two years. Teachers' opinions on the obstacles that they face using technology at school also reflect a new emphasis on student-focused digital learning, as noted in Table 1. Besides time, teachers in 2008 identified school filters and firewalls (42

percent) as the top obstacle they faced in using technology at school; by 2012, only a third of teachers (36 percent) had that same complaint. Instead, the greatest challenge according to the teachers now is student access to computers for use at school (55 percent).

Table 1: What Are the Major Obstacles You Face Using Technology at Your School?

	Teachers – 2008	Teachers - 2012
We don't have enough computers for students to use	31%	55%
School filters and firewalls block the websites I need for my class	42%	36%
I need additional professional development on how to effectively integrate technology into my instructional plans	9%	33%
District policies limit the technology that I can use	19%	28%

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"The effective use of technology cannot be a choice for staff members. It is a reality in the 21st century. Therefore, effective usage must be an expectation for all educators."   (School Principal, Pennsylvania)

When many education and policy leaders talk about digital conversions, their focus is on the use of mobile devices such as laptops and tablets within instruction. Implementing a one-to-one initiative that provides every student with a computing device is often the starting point for a digital conversion plan. The acceptance that a mobile device could be an important asset in a child's learning environment has been documented by the Speak Up data results. Personal usage by parents, teachers and administrators has driven greater acceptance of the value of these devices for students, and spawned many effective and innovative ideas on how to best leverage the technology to support digital conversions at all levels.

Within a four-year span, the personal access of parents, teachers and school site administrators to mobile devices has changed dramatically. As evidenced in Table 2, the migration from cellphones without Internet access to Internet-connected mobile devices such as smartphones and tablets has been similar for all stakeholder groups.

Table 2: Personal Access to Mobile Devices – from 2008 to 2012

|	Cell phone without Internet access	Smartphone	Tablet computer
Parents - 2008	90%	32%	5%
Parents - 2012	35%	73%	49%
Teachers - 2008	80%	20%	6%
Teachers - 2012	40%	67%	32%
Principals - 2008	74%	27%	10%
Principals - 2012	29%	70%	30%

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While parents, teachers and administrators have progressively picked up smartphones and tablets, they have moved away from the feature-oriented cell phone that lack Internet access.   And as they have developed a greater dependency on the anytime, anywhere access to the Internet from the palm of their hand, their views on the

potential benefits of similar technology for students has changed as well. In the case of parents, only a quarter of parents (25 percent) in 2008 saw mobile devices within instruction as the means to transforming the learning experience. However, in 2012, as evidenced by Chart 3, a majority of parents now endorse the idea that mobile learning can increase student engagement in learning, personalize the learning process for the student by providing out of school and remediation opportunities, and improve parent-teacher-student communications. Teachers and administrators agree wholeheartedly.

"I would prefer if my child could use a smartphone/iPad/Kindle in class to assist with learning. Our children grew up on this technology and this is the future of learning." *(Parent, Florida)*

Chart 3: Value Proposition for Using Mobile Devices within Instruction
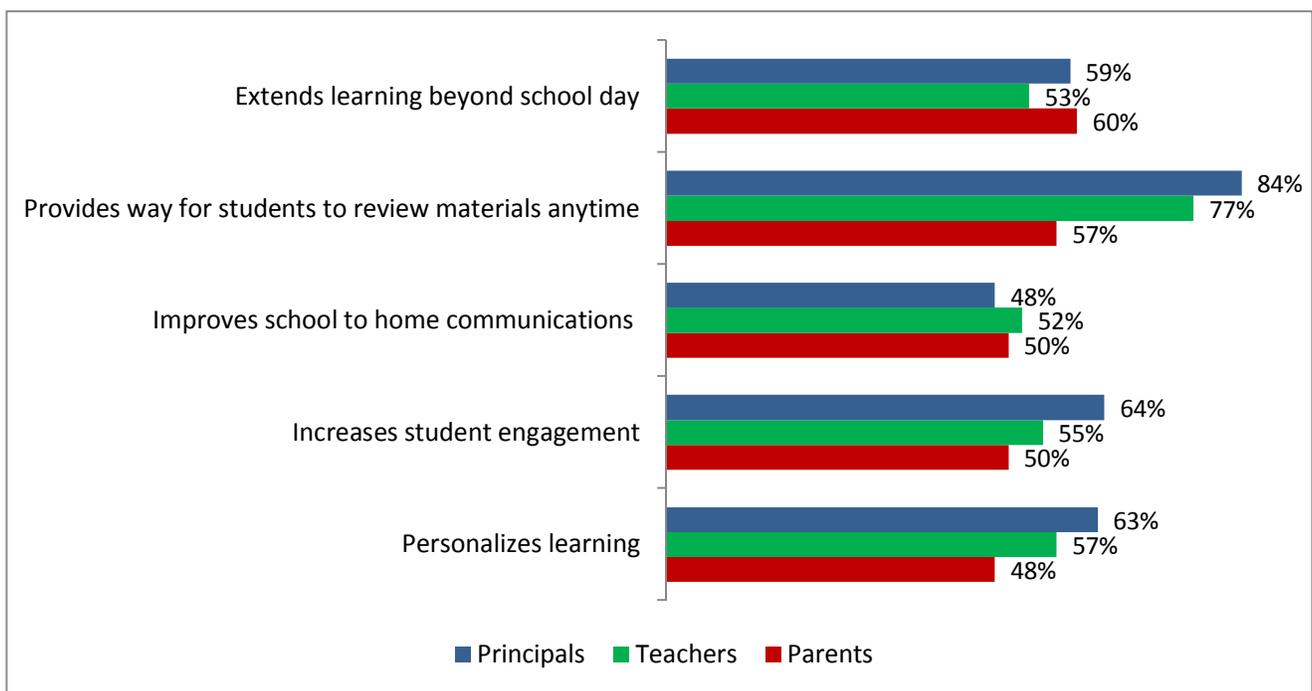
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This changing value proposition around mobile learning is more than simply lip service, however. Teachers are recognizing that they need specific professional development to support the use of mobiles in the classroom. Within any digital conversion planning process, there needs to be a strong emphasis on professional development that provides opportunities for teachers to reflect on both their current pedagogy and how a digitally enabled environment will mandate changes to their instructional practice. When asked to identify their wish for professional development this school year, teachers noted the need for skill based instruction as well as capacity building.

Teachers' Wish List for Professional Development to Support Mobile Learning

- How to use a tablet within instruction (32 percent)
- How to identify mobile applications to use in the classroom with my students (31 percent)
- How to use a variety of student-owned devices in the classroom (17 percent)

Correspondingly, administrators' hardline stance against the use of student owned devices in school has softened as well. When asked in 2010 if they would allow their students to use their own devices at school for academic purposes, only 22 percent of principals said that was likely, 63 percent said it was unlikely for their school. In 2012, we see proof of this mobile device style digital conversion happening right from the principal's office. Today, over a third of principals (36 percent) say that a new Bring Your Own Device (BYOD) to school policy for students is likely. The opposing view has now dropped to 41 percent. At the district level, an even more dramatic shift has taken place in the views of administrators on these BYOD policies. In 2011, 52 percent of district administrators said that they did not allow students to use their own mobile devices at school. This year, only 35 percent are still holding on to that district wide policy statement, with 32 percent saying that the use of student owned devices should be at the discretion of the classroom teacher.

Evidenced by the changes in attitudes, practices and policies over the past few years, we now see the emergence of a rich and varied tapestry of digital conversions happening across the country. The tapestry includes teacher-driven classroom conversions as well as district wide, wholesale transformations. Some of these implementations start with the introduction of laptops or tablets for every child to use at school. The impetus for others is the movement from print to digital represented by the replacement of traditional hard copy textbooks with interactive online or e-textbooks. Still others focus on providing alternatives to the traditional classroom experience such as with blended or flipped learning environments. Rather than focusing on finding the perfect recipe for a digital conversion, it is more important to determine the implementation strategy that best fits the unique goals, needs and culture of the school or district. The following three examples from this emerging national tapestry of digital conversions provide additional insights about the real opportunities and challenges associated with transforming teaching and learning.

"I think that with enough time and attention, technology can be utilized to personalize learning for students and used to enhance the face-to-face classroom. But technology is only a tool--we must put time and effort into creating a specialized curriculum that is different from what we currently do, rather than simply try to put 20-year-old lessons online, or have students answer a series of multiple-choice questions." (Classroom Teacher, Texas)

A Tapestry of Digital Conversions: Three Examples

Mobile Learning: The digital conversion in urban education

The perceptions around the unsatisfactory level of student achievement in urban schools are a perennially favorite topic amongst researchers, policy-makers and the media. Additionally, the conversation around the digital divide or students' lack of technology and Internet access outside of school commonly starts with anecdotal stories about urban youth. For these reasons, it is appropriate for our expanded analysis of mobile learning to focus on the urban version of this particular type of digital conversion. Our strong participation by schools and districts in large urban communities such as Columbus, Chicago, Detroit, Baltimore, Nashville, and Phoenix provides a solid basis for examining the views of urban parents, teachers and administrators specifically on mobile learning.

Education leaders from all communities are increasingly concerned about digital equity issues and at the heart of many of those discussions are a set of long held beliefs about the access that students have to mobile devices and

Internet access. Similar to developing countries, many education leaders in urban centers look to the potential of putting a mobile device with 3G/4G or Wi-Fi Internet connectivity in the hands of their students as a promising step toward improved student outcomes. To maximize the potential of mobile devices as an instructional asset, teachers need to redesign their instructional plans to take advantage of the unique features and functionality of these devices, especially the always-on Internet access. Improving student outcomes, therefore, is predicated on both extending access to high quality Internet resources outside of school, and a digital conversion of the teacher's pedagogy.

As noted earlier, parents are increasingly mobile device users and the parents in urban communities are no exception to that rule. Three-quarters of urban parents (76 percent) have a smartphone and 50 percent have a tablet computer, slightly outpacing their rural counterparts. Additionally, 44 percent of urban parents noted that they access the Internet on a regular basis through a 3G/4G wireless mobile device, highly comparable to the national average of 43 percent. This high level of personal access and familiarity with using a mobile device translates into a strong value proposition for the instructional use of such tools by parents in all kinds of communities. Topping the list for urban parents is the potential of accessing online textbooks through the mobile device (64 percent). Six out of 10 urban parents see their child using a mobile device to review class materials on their own time as a form of self-remediation. Moreover, 57 percent believe that their child will be more engaged in learning with a mobile device in their hand.

To assess the depth of parents' value proposition in mobile learning, parents were asked this year to consider a hypothetical situation around the use of mobile devices in school. What if there were two comparable classes and in one class your child could use a mobile device and in the other class they could not, how likely is it that you would want your child in the mobile-using class? Showing great solidarity regardless of community type, three-quarters of parents from urban, rural and suburban schools say it is likely or very likely that they would want their child in the class with the mobile devices as noted in Chart 3. Of the 75 percent of urban parents who said they want their child in that mobile-using class, 47 percent identified that request as very likely. Only 10 percent said it would not make a difference in their child's education.

Chart 4: Likelihood of Wanting Their Child in a Class Where Mobile Devices Are Used
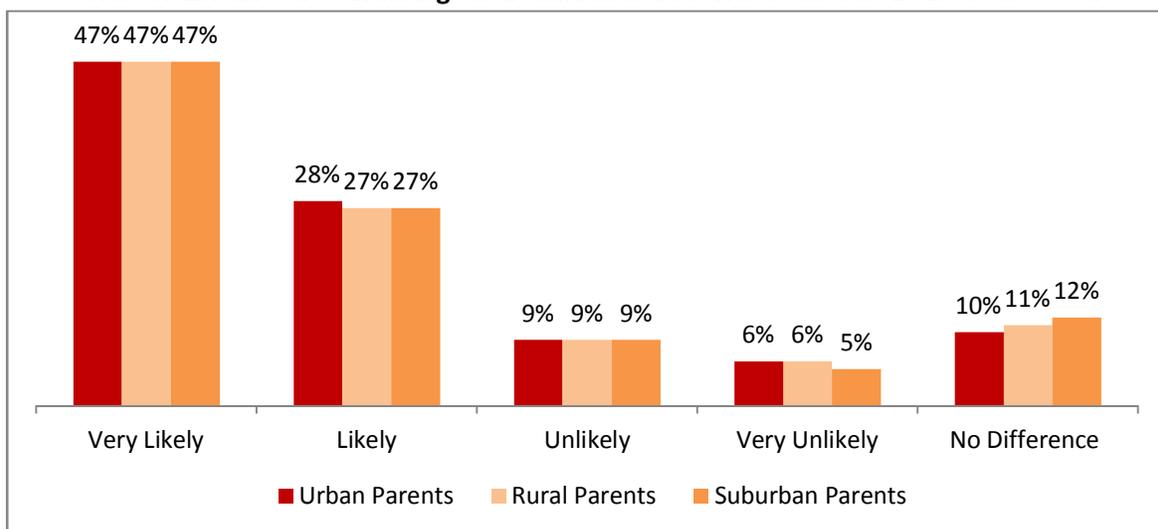
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Urban parents' support for mobile learning extends to their willingness to purchase a device for their child to use at school for academics. Echoing the data on the mobile using class preferences, 73 percent of urban parents say it is likely that they would purchase a mobile device for their child to use at school to support learning, if the school principal allowed it.

The parents' timing for this new position is opportune. Urban principals are increasingly reconsidering their pre-existing views on the use of student owned mobile devices at school, but they are split on the likelihood that they will change their prevailing policy of no usage at school. Based upon responses this year, 43 percent of urban principals say it is unlikely that they will allow their students to use their own mobile devices at school, but 41 percent say it is likely. The biggest concerns for urban principals are potential theft of student owned devices (48 percent), the need for teacher training on classroom usage (35 percent) and network security issues (34 percent). Additionally, one-third of urban principals (35 percent) say that they are concerned about digital equity issues and the situations that may arise with students who do not own devices. Urban principals slightly outpace their rural counterparts with this equity concern point; 29 percent of rural principals identify that concern area as well.

Teachers also have concerns about the use of mobile devices within the classroom but interestingly, the concerns of urban teachers closely echo those of teachers in suburban and rural communities. Number one on the urban teachers' concern list is the potential of these highly compelling and interactive devices to be distractions in the classroom (72 percent). Two-thirds of urban teachers (67 percent) also note the concern over some students possibly not having devices. This concern translates into the teachers' angst about a lack of knowledge about what features to use on the devices (23 percent), not having specific curriculum to support the device use (27 percent), and not knowing how to integrate the devices into instruction (28 percent).

Like their peers in other communities, urban students view a personal mobile device as a gateway to a more personalized learning experience, both in school and out of school. It appears that their parents agree, and urban teachers and administrators are increasingly enabling the digital conversion of their classrooms to accommodate mobile devices.

"It would be a great educational benefit for students and teachers for all to have electronic devices to use daily in all classrooms. Learning can be synthesized for students. A combination of teacher materials and presentations along with online resources would enhance the learning opportunities for students. By submitting work electronically it would allow schools to save money in paperwork and it would decrease the need for textbooks."
(Assistant Principal, Indiana)

S*ocial Media: The digital conversion for school-to-home communications*

Quite often, the discussion about the role of mobile devices within digital conversions includes a debate on the pros and cons of the use of social media tools within learning. Regardless of one's side on this debate, students are already leveraging social networking sites for school project collaborations, and teachers are increasingly tapping into Twitter as an informal professional development tool. The frontline today for social media within education, however, is in the arena of school-to-home communications, and the expectations of parents might surprise many education leaders.

Mirroring the general population, parents of school-aged children are becoming increasingly fluent with social media tools to support personal interactions. Today's parents are texting, tweeting and networking using a wide variety of social media tools. As illustrated in Table 3, parents of elementary students are slightly more likely than parents of older children to be tapping into emerging digital tools to support personal relationships and entertainment goals, possibly reflecting a younger population of parents who may be more digitally native. However, the overall universality of parents' experiences with these online tools and their increasing familiarity with the new paradigms around social relationships that are developed and maintained online has interesting ramifications for school and district home communications.
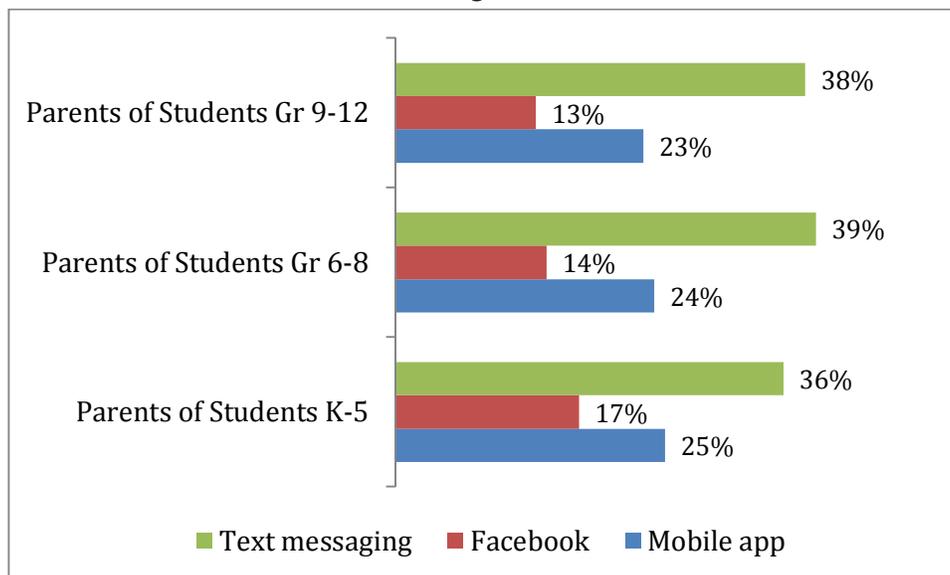
Table 3: Parents' Personal Use of Social Media Tools

	Elementary School Parents	Middle School Parents	High School Parents
Communicating via text messages	86%	86%	86%
Maintaining a social networking site	62%	55%	52%
Watching online videos	40%	36%	34%
Streaming online TV shows	37%	34%	32%
Playing online or mobile app games	30%	28%	25%
Using Twitter	14%	13%	13%

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As with the integration of digital tools in the classroom, school-to-home communications is also undertaking a digital conversion in many districts. When we asked parents about their preferences on the use of digital or social media tools for school-to-home communications, there appears to be little or no difference in parental preferences based upon the age of the child in school. Chart 5 highlights the commonality in the preferences of parents of elementary, middle and high school students for social media usage for school communications.

Chart 5: Parents' Preferences for Digital School-to-Home Communications

Parents of Students Gr 9-12: Text messaging 38%, Facebook 13%, Mobile app 23%
Parents of Students Gr 6-8: Text messaging 39%, Facebook 14%, Mobile app 24%
Parents of Students K-5: Text messaging 36%, Facebook 17%, Mobile app 25%

■ Text messaging ■ Facebook ■ Mobile app

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"When teachers say they don't have time for social media that concerns me because what they are saying is they don't have the time for a valuable tool because they are too busy doing things inefficiently with yesterday's tools."
(Title 1 Director, California)

While 37 percent of parents wish that their child's teacher or school would communicate with them via text messaging, less than one-quarter of teachers (23 percent) say that texting between parents and teachers is a common practice today. Technology leaders and principals are putting a high premium however on the use of school or district social networking sites such as Facebook to communicate with parents. One-quarter of middle school principals believe that a social networking site is a highly effective way to reach certain parents, and 39 percent of technology leaders note that their districts already have this capability. However, only 14 percent of parents of middle school students place the same high value on a school or district Facebook site for school to home communications. While the social media frontier may be new territory for many schools and districts, parents' top choice for school to home communications is one that many educators are still very familiar with; 88 percent of current parents say they value *personal emails* from the teacher sharing specific information about their child. Given the growing usage of emerging social media tools by parents, and education leaders' interest in digital conversions including those around school communications, the era of email may end up seeming as archaic as the that hard copy printed flyer in the backpack in the very near future.

*Digital Content: The digital conversion by math and science teachers*

Some districts are interpreting "digital conversion" to mean simply a move from print instructional materials to digital or online resources. Narrowly focused, the discussion often focuses on the replacement of traditional hard copy textbooks with interactive, multi-media digital or e-textbooks that are accessible to students online using mobile devices. The inclusion of digital content in the instructional process involves much more than simply moving to an online textbook. Middle school and high school principals in particular see the digital conversion of all instructional materials as addressing several significant challenges: increasing student engagement in learning (64 percent), providing new opportunities to extend learning beyond the school day due to increased accessibility (59 percent) and decreasing their school's dependency on textbook publishers for curriculum (50 percent). Additionally, these administrators are excited about the potential of using rich digital content to stimulate more relevant learning activities using better quality materials (44 percent).   On the other hand, school principals point to specific obstacles that stand in the way of their content-specific digital conversions:

1. Providing enough computers/devices with Internet access for students to use digital content (55%)
2. Evaluating the quality of the digital content (45%)
3. Balancing instructional time constraints with time to use the digital content effectively (43%)
4. Teachers are not trained on how to incorporate digital content into instruction effectively (41%)

The role of the teacher in the digital content conversion is, of course, paramount. In many ways, middle and high school science and math teachers appear to be the new pace cars for this adoption process and their usage patterns can provide interesting new insights to support administrators' goals. As noted in Chart 6, math and science teachers are using more digital content in their classrooms than other teachers. The use of videos is particularly interesting in light of the new national discussions around "flipped learning."

Chart 6: Teacher Usage of Digital Content
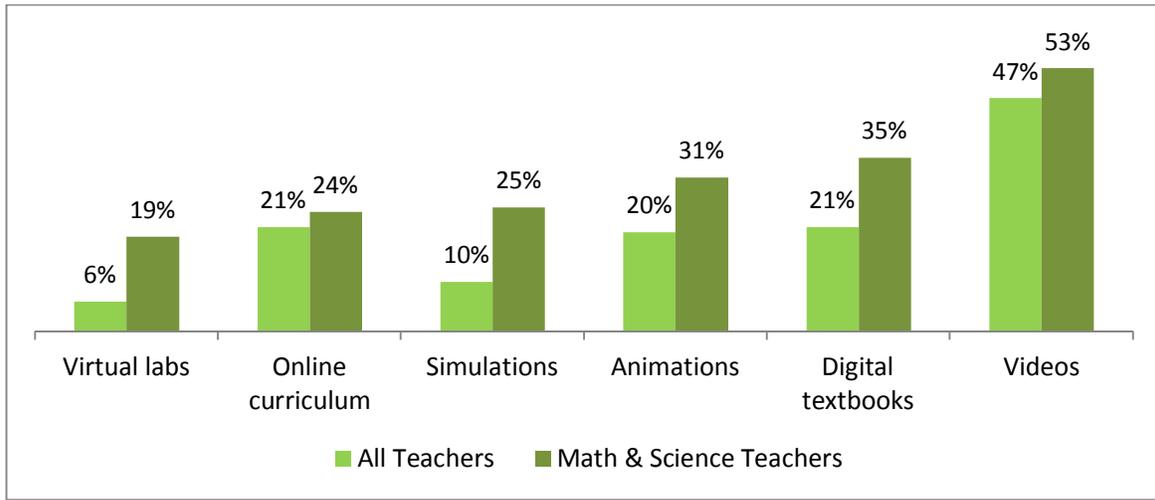
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While the definition of flipped learning is still evolving, teachers on the Speak Up 2012 surveys were provided with a simplistic explanation and asked to identify their level of experience with this new instructional strategy. Flipped learning was defined on this year's Speak Up survey as a new classroom model where the teacher assigns videos (self-created or from the Internet) of lectures or lessons for students to watch as homework, and then class time is spent on project based learning activities, in-depth class discussions, and more individualized teacher-student interactions. Again, we see that math and science teachers are leading the pack in terms of their adoption of this new teaching strategy. Though still nascent as a trend, 15 percent of math and science teachers say they are already flipping their classroom and leveraging the power of online video and project based learning to transform the learning experience for their students. Only 9 percent of all teachers are doing the same currently. Additionally, almost one-quarter of math and science teachers (23 percent) who have not yet implemented this strategy are interested in doing so. And their principals agree with 30 percent of those administrators interested in having their teachers try flipped learning this year.

Despite the support for flipped learning amongst administrators and teachers, two key issues remain as potential obstacles to greater adoption of this interesting new teaching strategy. First, educators share a concern about students' abilities to access online videos and other Internet based content outside of school. Almost six of ten math and science teachers (59 percent) noted this as a significant concern. Second, both administrators and teachers acknowledge that teachers need specific professional development in the identification of high quality digital content to utilize this new classroom model, and they need support in understanding how to best utilize the in-class time most effectively. Simply moving from a hard copy textbook to an e-text or the use of multi-media digital content in the classroom does not really constitute a sustainable digital conversion. As the math and science teachers are well aware, transforming the teaching and learning experience requires the development of new instructional capacities.

"Children learn best when they are engaged with the content, can manipulate it so that their learning is flexible, and when learning is social- in that they share and exchange ideas about their learning within real world applications. Technology can bring into the classroom the real world and help learning become alive and real in time."
(School Principal, New York)

Digital conversions – it is all about building capacity to support the process!

Based upon the review of this year's Speak Up national data findings, the evidence is in that digital conversions are happening in a wide variety of classrooms, schools and communities. The implementation pattern within this tapestry, however, is uneven with a plethora of isolated campfires of innovation and success. A few well-known district wide initiatives are providing valuable insights on how and why their digital conversions work, and those promising practices continue to support the overall cheerleading on the need to change teaching and learning for every child, every day. But, it is time to shift the conversation to building local, state and national capacity to scale and sustain this new way of thinking about the educational enterprise. Having the recipe with the ingredients of how to stimulate a digital conversion using tools such as online textbooks and tablet computers is an essential first step. However, the sustainability of that effort beyond the pom-poms and cheers of the moment depends upon building critical internal capacities that provide our educational institutions with resiliency, fortitude and adaptability.

In order to implement digital conversions within their school or district, education leaders identify three areas that are essential for building sustained success with the use of digital tools within teaching and learning.

1. Bandwidth capacity to support the full inclusion of digital tools and resources
Reflecting the rapidly increasing adoption of multi-media digital resources within the classroom, over one-third of technology leaders (34 percent) identified Internet capacity and bandwidth issues as their most challenging technology issue today; in 2010, only 10 percent of these leaders identified that same issue as critical. When asked to assess their current bandwidth capacity, only 15 percent of district administrators and technology leaders said that they have enough connectivity to meet their current needs. The path to digital conversions, at the classroom or school level, require the peace of mind that the Internet connectivity will be stable and plentiful to support the animations, simulations, real-time data and videos that teachers increasingly want to use within instruction. Currently, 71 percent of district technology leaders say they cannot ensure their teachers that their future needs for classroom connectivity can be met, and 11 percent say that their current connectivity does not even address even district needs today. District administrators understand the potential benefits of increased Internet connectivity. If they had the bandwidth that they needed, they would be able to better utilize online curriculum (52 percent), offer online learning opportunities for student and teachers (32 percent) and strengthen school-home linkages (31 percent) in addition to supporting usage of multi-media in the classroom (54 percent).

2. Investment capacity to instigate and sustain digital conversions
The issues around bandwidth capacity inherently include funding challenges as well as infrastructure. Three-quarters of technology leaders (74 percent) say that their current school year budget to support instructional technology is less than it was in the 2008/09 school year. Districts are dealing with this situation with a variety of stop gap strategies; maintaining the status quo on current projects (48 percent), putting projects on hold (37 percent) or even cutting back on current projects to save money (32 percent). While some are repurposing budget line items such as tapping into traditional textbook funds for digital textbooks (20 percent), others either are looking to technology solutions to further decrease costs. For example, 46 percent of technology leaders say that they have implemented cloud-computing applications for this reason and 44 percent acknowledge purchasing tablets instead of laptops as a cost saving measure. Despite success stories around zero sum budgeting techniques to support digital conversions, the bottom line is that building the internal capacity of a school district to transform teaching and learning from the inside out most often requires some level of new

investments in digital tools and resources, teacher professional development and infrastructure. From a policy perspective, 91 percent of district administrators believe that the reauthorization of the Elementary and Secondary Education Act (ESEA) should include a specific funding program to support digital conversion efforts.

3. *Teacher capacity to adopt and adapt new technologies to personalize student learning*

When discussing the benefits of a digital conversion, whether that includes online or blended classes, digital textbooks or one-to-one mobile device usage by students, school and district administrators acknowledge criticality of teacher training and comfort with using technology as key to implementation success. That process of building teacher capabilities includes both skills based instruction on the tools as well as professional development around new digitally enhanced teaching strategies. Teachers want to know more about how to identify high quality digital content to use within instruction (31 percent) and then how to flip that classroom to a more project based learning environment (15 percent).   They want to learn how to use tablets with their students (32 percent) and what mobile apps they should be using in the classroom (31 percent). Teachers are also interested in learning how to leverage tools such as educational games (26 percent) and videos (20 percent). Most importantly, today's classroom teacher wants to learn how to use a wide range of emerging technologies to personalize learning and differentiate instruction for their students (45 percent).

As noted earlier, the digital conversion process requires teachers to think differently about what they teach, and how they teach it. Librarians and media specialists are increasingly playing a critical role in building the capacity of the classroom teacher to leverage digital tools and resources effectively within instruction. With a keen eye on the situation, 41 percent of librarians already identify that a primary challenge is moving teachers from sporadic use of digital content within the classroom to more sustained and meaningful practice with the resources. They have three primary recommendations on the types of professional development experiences that would be most effective for changing their teachers' attitudes and capabilities:

1. Mentoring by an instructional coach who is resident at the school (50 percent)
2. Teacher participation in a professional learning community for collegial support (45 percent)
3. Support of a library media specialist who can help with the identification of appropriate digital content and tool identification, and support implementation with students (45 percent)

The role of the new librarian or media specialist is still evolving. But as the drum beats louder for digital conversions, many classroom teachers will need additional support to make this transition to these new tech-enabled, student-centric learning environments. The librarians are ready to do their part.

"I view myself as a "secret weapon" at our school. Common Core's emphasis on explanation, complex text, and inter-disciplinary combinations is my expertise. I see my role as helping teachers work through their curriculum and help develop research-driven activities that require reading rich texts, complex thought, and purposeful lessons. "
*(Librarian Media Specialist, Ohio)*

For the most part, administrators appreciate and support teachers' learning curve with the new technologies. However, as districts move to a wholesale approach to digital conversions, the need for teacher accountability on the use of technology within instruction naturally increases. Parents are also interested in seeing greater

standardization in the use of technology within their child's school or district. One-third of parents (33 percent) say that their biggest concern about tech use at their child's school is the variance between teachers and classrooms on usage, and that the effectiveness of the technology being used is too dependent upon individual teacher skills. When asked if teachers' evaluations should include an assessment of how effectively the teacher is using technology to enhance instruction and student achievement, parents (64 percent), principals (74 percent) and district administrators (80 percent) overwhelmingly support the concept but teachers' opinions are mixed with almost an even split between agreement and disagreement.

Chart 7: Should Teachers' Evaluations Include an Assessment of Technology Usage?
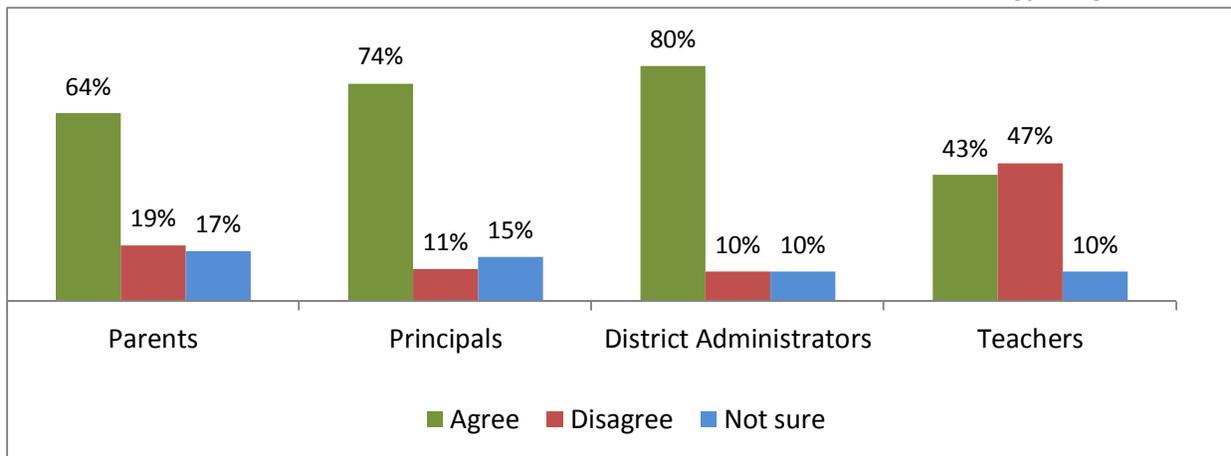
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Ending Thoughts

"The first thing that must happen to prepare students with the "right skills" to compete and collaborate in a diverse global economy is a huge instructional paradigm shift that fundamentally changes the way students learn. The opportunities are endless; you just have to find the right time to begin." (Instructional Technology Specialist, Georgia)

Many factors are driving a new level of excitement and enthusiasm around digital conversions in schools and districts right now, and the experiences gained from a rich tapestry of recent digital learning projects are providing a host of best practices to follow. However, the digital conversion of our K-12 classrooms from chalkboards to tablets requires one additional capacity that will ultimately determine the success of the initiative. Prior education reform efforts have taught us that the "secret sauce of success" is the development of a strong school, district and community culture that highly values innovation, is comfortable with outcomes-based planning, and never wavers from the commitment to supporting the student's future. The digital tools that we use to transform the learning experience for today's students may change over time as new products and services are developed. The capacity for establishing a sustainable organizational culture that learns, unlearns and relearns as part of daily practice is the real litmus test for a successful digital conversion. As stated, the opportunities for digital conversions are endless – our task is to find the right time and place to begin this journey. There is no turning back now.

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.