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IESD White Paper

Safe Schools in a Web 2.0 World 2009

October 2009

Sponsored by Lightspeed Systems and netTrekker

By Interactive Educational Systems Designs, Inc.
New York, NY



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Introduction

This white paper summarizes key findings and presents implications for school districts related to research from the *Safe Schools in a Web 2.0 World 2009* initiative.

Overview of Safe Schools in a Web 2.0 World

Web-based educational resources and applications are rapidly becoming central to student learning, teacher professional development, and school administration. However, as schools embrace the potential of the collaborative Internet, they also encounter significant challenges associated with developing students' information and media literacy skills, teacher preparedness to use the technologies effectively, network and data security, student safety, online privacy, and legal compliance.

Safe Schools in a Web 2.0 World is a multi-year initiative launched by Lightspeed Systems and netTrekker in fall 2008 to help address these challenges. *Safe Schools in a Web 2.0 World* seeks to provide education leaders with vision, guidance, resources, and support for maximizing Web 2.0 learning opportunities and student creative work while maintaining a high level of student safety and network security, by:

- › Conducting research on the experiences of districts, schools, and educators in adopting and using Web 2.0 resources
- › Disseminating findings and results from that research
- › Providing recommendations and examples related to effective practices for using Web 2.0 in education

Research Methods

Research conducted during 2009 as part of the *Safe Schools in a Web 2.0 World* initiative and summarized in this paper included two major efforts:

- › A national online survey of 501 district technology directors conducted during February-March 2009, focusing on the use, attitudes, concerns, and plans regarding the Internet and Web 2.0 technologies in U.S. school districts. 286 survey respondents were from small districts (less than 2,500 students), 172 were from midsize districts (2,500-9,999 students), and 43 were from large districts (10,000 or more students).
- › Two follow-up online discussion groups conducted in May 2009, involving 18 district technology directors: 9 from midsize districts and 9 from large districts. By design, the groups were weighted toward districts where multimedia resources and teacher-generated online content were already being used at relatively high levels, and where teachers and/or library media specialists or teacher librarians were among the important groups driving adoption of Web technologies in their district.

Introduction

Additionally, other recent reputable research sources and policy documents were reviewed to identify points of commonality and contrast with the findings from the *Safe Schools 2009* research. These included:

- › *Learning in the 21st Century: 2009 Trends Update*, a report of data from the 2008 Speak Up survey sponsored by Blackboard K-12 and Project Tomorrow
- › *Leadership for Web 2.0 in Education: Promise and Reality*, a report of data from a survey of school district administrators commissioned by the Consortium for School Networking (CoSN) through support from the John D. and Catherine T. MacArthur Foundation
- › *Web 2.0 in Education: Policy, Practice and Progress*, a monograph published by CoSN that presents research-based recommendations for school leaders related to integration of Web 2.0 into schools

All of these research efforts were designed and implemented by Interactive Educational Systems Design (IESD), Inc., on behalf of Lightspeed Systems and netTrekker, as part of their Safe Schools in a Web 2.0 World initiative.

Defining Web 2.0

Review of existing literature suggests that there is no single, agreed-upon definition of “Web 2.0.” For example, Tim O’Reilly, one of the originators of the term, stressed that on a technical level, Web 2.0 applications are designed with the Web as the platform, operate “above the level of a single device,” and require expertise in data management. Another of O’Reilly’s defining characteristics for Web 2.0 is that the software is delivered as an ongoing, constantly updated service rather than as a fixed product. In terms of what it provides to the end user, O’Reilly saw Web 2.0 as “harnessing collective intelligence” and delivering “rich [i.e., multimedia] user experiences” and high level “interactivity” (O’Reilly, 2005).

In an education context, CoSN has defined Web 2.0 as “an online application that uses the [Web] as a platform and allows for participatory involvement, collaboration, and interactions among users,” noting that “Web 2.0 is also characterized by the creation and sharing of intellectual and social resources by end users” (Lemke et al., 2009, p. 5). Also focusing on Web 2.0 for education, Solomon and Schrum mentioned “free” open-source tools and applications and Web services that “transition from isolation to interconnectedness” (1997, p. 13).

Introduction

Themes mentioned in connection with Web 2.0 align with many of the component skills commonly associated with 21st century learning, including creativity and innovation; critical thinking and problem solving; communication and collaboration; and information, media, and technology skills (Partnership for 21st Century Skills, 2009; see also the *National Educational Technology Standards for Students*, International Society for Technology in Education [ISTE], 2007). This alignment helps to explain why many educators see a high potential value in Web 2.0 as helping to prepare students for 21st century lives and careers.

Communication by the researchers and research sponsors of this paper with many teachers and education administrators over the past few years has revealed a wide variety of Web-based applications and services that are considered as falling within “Web 2.0” by at least some educators. For our initial research effort on Web 2.0 as part of the *Safe Schools 2009* initiative, we opted for an “inclusive” notion of Web 2.0, dividing the construct into seven categories related to student instruction and learning environments:

- › Student-generated online content (e.g., class blogs, online posting of student works, wiki-type collaborative formats)
- › Teacher-generated online content (e.g., teacher-developed multimedia presentations, lesson plans, student handouts for classroom activities, sets of links to digital resources)
- › Online social networking used as part of instruction (e.g., student exchange of email or text messages for educational purposes during school, Facebook-style online utilities for educational purposes, opportunities to communicate online with students from other geographical areas)
- › Online learning games and simulations (e.g., online drill and practice games, multi-player simulations, Second Life-type environments)
- › Student use of virtual learning environments (e.g., online courses, electronic tutors, computer-managed instruction, online assignments and assessments)
- › Multimedia resources (e.g., podcasts and videocasts, streaming video)
- › Online communication with parents and students outside school hours excluding email exchanges (e.g., homework pages, teacher Webpages describing assignments, teacher blogs, sites for checking grades online)

Introduction

This division of Web 2.0 into different technology categories based on content source (e.g., students, teachers), resource type (e.g., learning games and simulations, multimedia resources), and educational use (e.g., content presentation, student collaboration, home-school communication) was a unique feature of the survey. It avoided the problem of respondents applying different personal definitions of “Web 2.0,” and enabled IESD analysts to explore how districts approach different technologies differently—in terms of use, attitudes, and policy. These seven categories, including the examples provided above, were included in the survey instrument.

About This White Paper

The remainder of this white paper presents:

- › Key findings from the research
- › Findings in detail
- › Research implications in the form of a checklist for school districts
- › Future plans for the *Safe Schools in a Web 2.0 World* initiative during the 2009-2010 school year
- › References
- › Recommended resources

Key Findings

- › The most often cited reasons for adopting Web 2.0 technologies were *addressing students' individual learning needs, engaging student interest, and increasing students' options for access to teaching and learning*.
 - Preparing students with *21st century skills* is another important goal for using Web technologies or is part of districts' vision for taking full advantage of Web 2.0.
 - Districts look to Web 2.0 as a *source of resources* to address individual student needs. Districts typically differentiate instruction based on *test performance and/or ability level in content areas and/or learning style and/or modality*.
- › Many districts adopt and implement Web 2.0 technologies both to *support and enhance established instructional methods and approaches and to stimulate educational change/transformation*. Some districts see a need for new instructional methods for using Web 2.0 technologies.
- › Districts are at different stages of use and adoption of different Web 2.0 technologies. For example:
 - *Online communication with parents and students and multimedia resources* are used by many teachers, and most districts have plans/policies that promote their use. Use of *video* and incorporation of *multiple media* are frequent occurrences in large districts.
 - *Teacher-generated online content* is used by a significant number of teachers. Almost half of the districts have plans/policies that promote the use of this technology, and more districts are considering their plans/policies related to it. Based on this, it seems likely that teacher-generated online content will be an important area of growth. District technology leaders value sharing of teacher-generated online content as a way of sharing expertise and not having to constantly “reinvent the wheel.”
 - *Student use of virtual learning environments* (including online courses) was uncommon on the part of teachers in most districts. Almost half of the districts reported that very few or no teachers use this technology, while only one-fourth of the districts indicated that about half or more of their teachers currently use it. However, more than one-third of the districts have plans/policies that promote the use of this technology, and more districts are considering their plans/policies related to it. Based on this, it seems likely that student use of virtual learning environments will be an area of growth.
 - *Online social networking as part of instruction* is used by very few teachers, and many districts' policies don't allow use of this technology.

Key Findings

- › *Blogging* appears to be gaining traction in school districts.
- › Barriers to using Web 2.0 effectively include lack of *teacher knowledge/professional development, concerns about student safety and security, lack of time, and insufficient access to technology.*
- › Nearly all districts employ a Web content filter on school computers.
- › Many districts use or plan to use a variety of Web 2.0 applications for *teacher professional development.* Given this, we might expect teachers to get more comfortable with Web 2.0 technologies over the next few years, and overcome some of the barriers to their use as teaching and learning tools.
- › Many stakeholder groups are involved in *developing policies* related to Web 2.0 technologies.
- › Teachers and *students* are among the most important groups *driving Web 2.0 adoption.*
 - Preliminary evidence suggests that teachers involved in driving Web 2.0 adoption may be more *technology-savvy* than other teachers and may be newer to teaching.
 - Teachers are pushing for availability of Web 2.0 technologies for use by *both teachers and students.*
- › District technology leaders see their own important roles in driving effective use of Web 2.0 as including *interaction with curriculum leaders, evangelizing/educating district staff about use of technology to support learning, guiding selection of appropriate technologies, and providing the core technology infrastructure.*
- › District technology leaders look to technology providers to *make technology more affordable and to provide Web 2.0 services in a protected environment that creates a “walled garden” for students.*
- › Several patterns were identified with respect to results for districts of different enrollment size. Noteworthy patterns related to the *level of teacher use of different Web 2.0 technologies, the status of district plans and policies about the use of Web 2.0 technologies, and the most important groups driving Web 2.0 adoption.*

Findings in Detail

Key Reasons for Districts Adopting Web 2.0

› Results of the *Safe Schools 2009* research broadly aligned with other research on reasons why districts adopt Web 2.0 technologies. The three most frequently cited goals and priorities driving use of Web 2.0 technologies in the *Safe Schools 2009* online survey were:

- *Addressing students' individual learning needs* (e.g., different learning styles, reading levels, language proficiency, prior academic proficiency) (54% of survey respondents). Results from the two discussion groups confirmed that differentiating instruction is a key reason for adopting Web 2.0 technologies. (See below for more details.)
 - Another survey of almost 1,200 district administrators sponsored by the Consortium for School Networking (CoSN) similarly identified *meet the needs of different kinds of learners* as the second most common high-ranking priority for Web 2.0 use (Lemke et al., 2009, p. 7).
 - Data from the 2008 Speak Up surveys suggested that such concerns were also among students' key reasons for embracing online learning. More than 40% of high school students and more than 35% of students in grades 6-8 identified *work at my own pace* as one of their reasons for taking online classes. Additionally, approximately 45% of students in grades 6-8 identified *get extra help in a subject* as one of their reasons for taking online classes (Blackboard K-12 and Project Tomorrow, 2009, p. 2, Fig. 1).
- *Engaging student interest* (41% of survey respondents). Along similar lines, about half of the discussion participants from large districts identified *increased student engagement* as a goal for use of Web technologies in their district.
 - District administrators in the CoSN survey similarly identified *keep students interested and engaged in school* as the highest-ranking priority for Web 2.0 use (Lemke et al., 2009, p. 7).
 - This expectation that Web 2.0 technologies might have a potential positive impact on student interest and/or engagement has been supported by several studies. In the CoSN survey, 67% of district administrators identified Web 2.0 applications as having a positive or highly positive impact on *student interest in school*, while 65% said they had a positive or highly positive effect on *self-direction/regulation* (Lemke et al., 2009, p. 7, Fig. 1). Of 11% of curriculum directors who reported collecting data on student engagement, “almost two-thirds (63%) reported positive results for engagement,” with none reporting negative outcomes (Lemke et al., 2009, pp. 38-39).

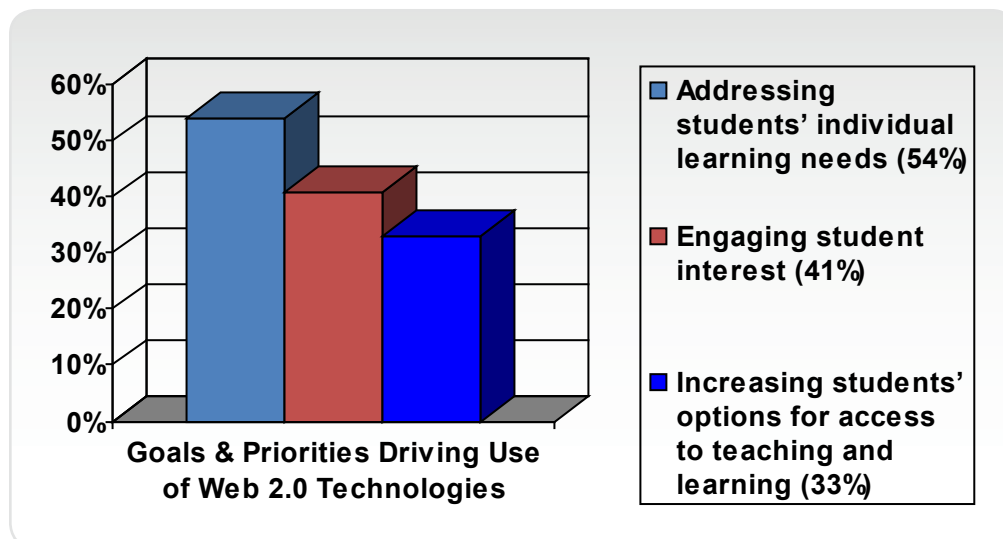
Findings in Detail

- Similarly, in the 2008 Speak Up surveys, about 40% of students in grades 6-12 who had taken online courses identified being *more motivated to learn* as one of the benefits of online classes, while about 35% identified feeling more connected to school as a benefit (Blackboard K-12 and Project Tomorrow, 2009, p. 4, Fig. 2). The same surveys found that among teachers who had taught an online class, more than 30% identified students being *more motivated to learn* as one of the benefits of online classes, while almost 50% identified students *feeling more connected to school* as a benefit (Blackboard K-12 and Project Tomorrow, 2009, p. 4, Fig. 2).

In short, the hope that Web 2.0 technologies can improve student interest and/or engagement appears to be well matched to the actual experiences of students, teachers, and administrators.

– *Increasing students' options for access to teaching and learning (33%)*

- Several of the reasons for taking online courses described by students in the Speak Up 2008 data aligned with this goal. Specifically, among high school students, more than 45% mentioned *earn college credit* as one of their reasons for taking online courses, while about 40% mentioned *take class not offered at my school* as one of their reasons (Blackboard K-12 and Project Tomorrow, 2009, p. 2, Fig. 1).



Findings in Detail

› About half of the participants in each *Safe Schools 2009* discussion group said their districts tend to adopt and implement both:

- *Technologies that support and enhance established instructional methods and approaches, and*
- *Technologies that stimulate educational change or help transform education—to encourage new instructional methods and approaches.*

However, there did not appear to be general agreement about what constituted “established instructional methods and approaches” versus “new instructional methods and approaches.”

› About half of the discussion participants from large districts identified *21st century teaching and learning, and/or 21st century skills* as a goal for use of Web technologies in their district.

- Along similar lines, the CoSN survey identified *develop critical thinking skills* as the third most common high-ranking priority for Web 2.0 use (Lemke et al., 2009, p. 7). Critical thinking is frequently considered as a key component of 21st century skills. (For example, see the Partnership for 21st Century Skills [2009] *P21 Framework Definitions Document* and the Council of Chief State School Officers [1990] *Restructuring Learning for All Students* policy statement.)

Using Web 2.0 to Differentiate Instruction

The *Safe Schools 2009* online discussions were used as an opportunity to explore the use of Web 2.0 technologies to address students’ individual learning needs through differentiating instruction—the goal/priority that was most frequently cited by survey respondents as driving use of Web 2.0 (see previous section). Key findings are reported below.

- › About half of the discussion participants in each group communicated directly or indirectly that *differentiated instruction was a key reason for adopting Web 2.0 technologies* in their district. This aligns with the finding (reported above under Key Reasons for Districts Adopting Web 2.0) that 54% of survey respondents cited *addressing students’ individual learning needs* as a goal/priority driving use of Web 2.0 technologies.
- › About half of the discussion participants from large districts mentioned use of Web 2.0 as a *source of resources to address individual needs*.

Findings in Detail

› Describing the criteria for differentiation used in their districts, the most commonly identified criteria were:

- *Test performance and/or ability level in content areas* (about half of the discussion participants from midsize districts)
- *Learning style and/or modality* (about half of the discussion participants from midsize districts)

There was almost no overlap among participants who identified these two different categories of criteria—suggesting two basically different approaches to differentiation among districts represented in the study.

› Barriers to use of Web 2.0 to meet individual learning needs that were identified most commonly by discussion participants were:

- *Teacher issues* (all but one participant from midsize districts, most of the participants from large districts). Specifically, about half of the participants in each group identified *lack of teacher knowledge/training* as a barrier.
- *Issues related to student safety, filtering, controlling the learning environment, and monitoring student work* (about half of the participants in each group)
- *Lack of time*, including instructional time, planning time, time from support personnel, and general references to lack of time (about half of the participants from midsize districts)
- *Access to hardware and/or “technology” in general* (about half of the participants from large districts)

The first three types of barriers listed here align with problems and concerns that were frequently cited by survey respondents with respect to adoption of Web 2.0 technologies in general. (See the section below, Problems Related to Using Web 2.0 Technologies.)

Findings in Detail

Opportunities

“Web 2.0 offers tremendous opportun[i]ties for teachers, students, and their families to overcome [obstacles to differentiating instruction]. The plethora of resources available means nearly everyone can find a means to support their individual needs. The fact that there are thousands of free online resources and tools, means that teachers, students, and families can try a variety of resources to find ones that best meet their needs. In addition, the pervasive and ever-changing range of options and the creativity with which many resources can be used, means teachers are not tied down by what some committee voted on as ‘the resource’ for a given objective. No waiting on bids and purchase order approvals—find it and apply it. In addition, the greater community of teachers use[s] the [W]eb to display their success with various applications and resources. Teachers can use these examples as inspiration and reassurance simultaneously.”

On differentiating instruction and use of technology

“Students are comfortable, and even have an expectation that relevant education will employ Web 2.0 types of technologies. They live online. For the majority of students, this is their experience. If we as educators have any hope of addressing individual learning needs, then it will be online. Directed studies, remediation, and individualized instruction are positive byproducts of technology enhanced instruction. Adult educators can almost consider this stealth technology. In other words individualized instruction can happen in the context of [a] student’s experience with educational technology.”

Caveat re: Web 2.0 versus Web 1.0 and challenge of building effective differentiation tools

“I am not sure the Web 2.0 provides anymore differentiation than Web 1.0. Inherent in Web 2.0 is co[l]laboration and that is what students want. They read online courses (I [say] read because most of them are text) and they lack the level of interaction and engagement that they get from Web 2.0, games, and other media outlets away from school that are successful with keeping this demographic’s attention. We want to be able to provide differentiated instruction via the Web in the classroom and through our own virtual school but it takes a great amount of work to build multiple pathways for students to follow and much teacher training to do so.”

Findings in Detail

Different Stages of Use and Adoption of Different Web Technologies

› A distinguishing feature of the *Safe Schools 2009* online survey is that Web 2.0 was broken down into seven categories related to student instruction and learning environments:

- *Student-generated online content*
- *Teacher-generated online content*
- *Online social networking used as part of instruction*
- *Online learning games and simulations*
- *Student use of virtual learning environments*
- *Multimedia resources*
- *Online communications tools for parents and students (outside of school hours)*

By way of comparison, the CoSN study defined Web 2.0 as “an online application that uses the [Web] as a platform and allows for participatory involvement, collaboration, and interactions among users,” noting that “Web 2.0 is also characterized by the creation and sharing of intellectual and social resources by end users” (Lemke et al., 2009, p. 5). Specific categories of student Web 2.0 activity that were identified by CoSN included participating in online, collaborative projects; creating and sharing content; wikis; creating polls or surveys; blogging; participating in virtual worlds; site-building (FreeWebs, etc.); posting messages; sharing music or sound files; playing interactive games; sharing visual media files; social networking; and participating in chat rooms (Lemke et al., 2009, p. 9, Fig. 3).

› The results (described in more detail in the subsections that follow for five of the seven *Safe Schools 2009* categories) illustrate that teachers and districts do not approach each of these technologies in the same way.

A similar diversity was reflected in the CoSN results as well. For example:

- Percentages of district administrators reporting use of different types of Web 2.0 resources in teaching materials adopted by districts or included in the formal curricula ranged from 77% for *sharing visual media files* to only 16% for *social networking* (Lemke et al., 2009, p. 10, Fig. 4).
- With respect to formal policies, the CoSN survey found that “The majority of school districts ban social networking (70%) and chat rooms (72%) while allowing prescribed use for most of the other Web 2.0 tools (e.g., blogging, using wikis, sharing music or sound files, sharing visual media, posting messages, participating in virtual worlds, playing interactive games, creating polls or surveys, etc.)” (Lemke et al., 2009, p. 9).

Findings in Detail

- › Most of the *Safe Schools 2009* discussion participants from large districts and about half from midsize districts identified *blogs* as a specific Web technology that was being used or strongly considered for use in their districts. This appeared to encompass blogs that could be considered as *student-generated online content*, *teacher-generated online content*, and/or *online communications tools for parents and students*.

On technology implementation as a gradual process

“Moving an organization toward greater technology implementation is a process. Teachers need to see technologies as supporting and enhancing what they are already doing successfully in their classroom. After the comfort level and expertise increases, then teachers are open to transformational changes with technology. After incorporating technology in a supporting role, only then will teachers accept it [as] transformational and regard it as a positive change agent.”

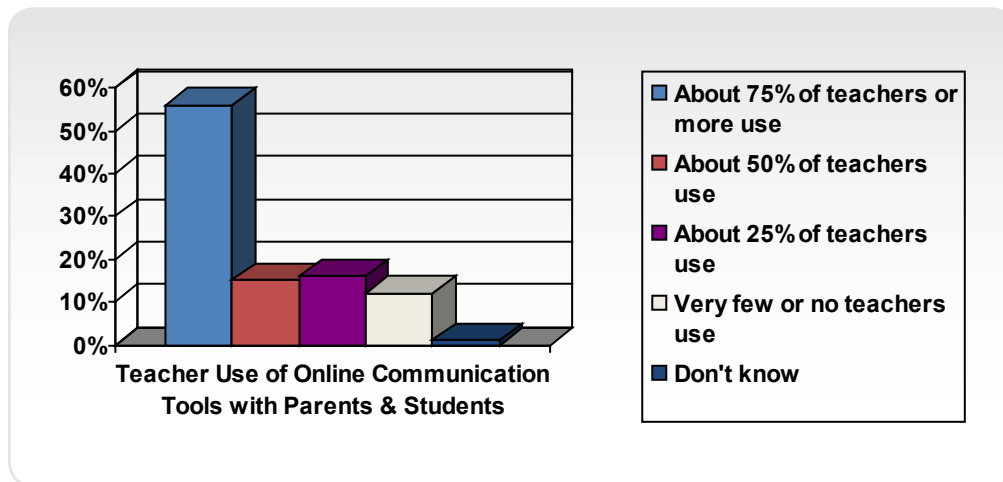
On the gap between needing new ways of teaching and institutional readiness

“[T]here is an extreme disconnect between the need for these new ways of teaching, and the integration of them into the classroom. Teachers... and students want to use the latest and greatest, but teachers specifically are unwilling, unable, or don't have the time to learn how to integrate these new ways into the classroom. A fundamental change needs to be made in education technology across the board to ensure that teachers, administrators and technical staff are educated on how to use and integrate educational technology.”

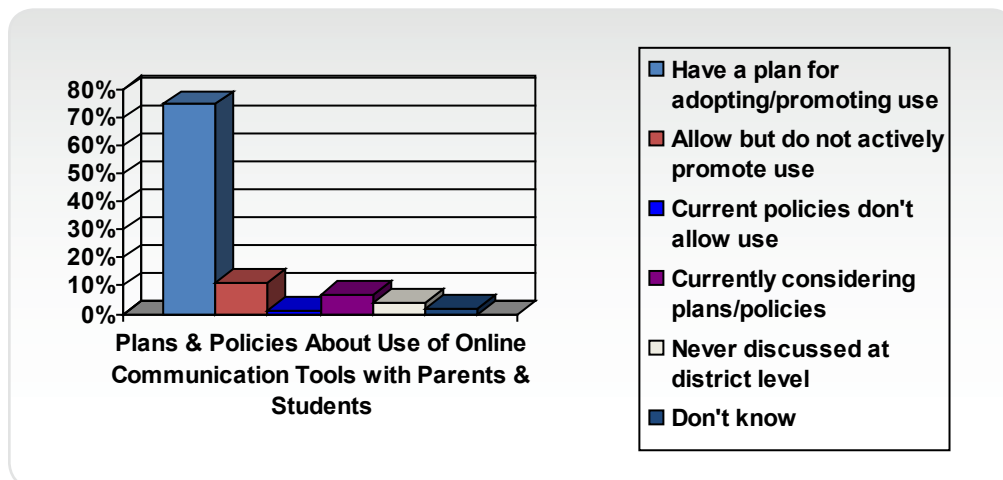
Findings in Detail

Online Communications Tools with Parents and Students

› *Safe Schools 2009* found that *online communication tools* with parents and students are widely used by teachers. 56% of the survey respondents indicated that in their districts, *about 75% of teachers or more* use *online communication tools* with parents and students.



› Most districts have plans for adopting or promoting use of *online communications tools* with parents and students. Three-fourths (75%) of technology directors who responded to the survey reported that they have a plan for adopting/promoting use of this technology.

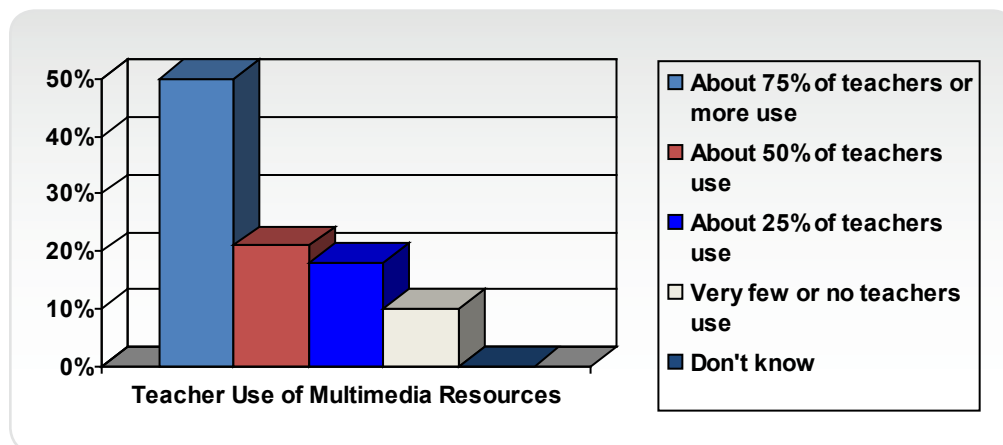


Findings in Detail

- › While tools promoting communication with parents were not one of the categories of Web 2.0 applications tracked separately by the CoSN survey, *improved teacher/parent communication* was anticipated as a positive impact of Web 2.0 by a high percentage of district administrators (75% of superintendents, 86% of curriculum directors) (Lemke et al., 2009, p. 16, Fig. 9).

Multimedia Resources

- › *Safe Schools 2009* found that *multimedia resources* are also widely used by teachers. Half (50%) of the survey respondents indicated that in their districts, *about 75% of teachers or more use multimedia resources*.

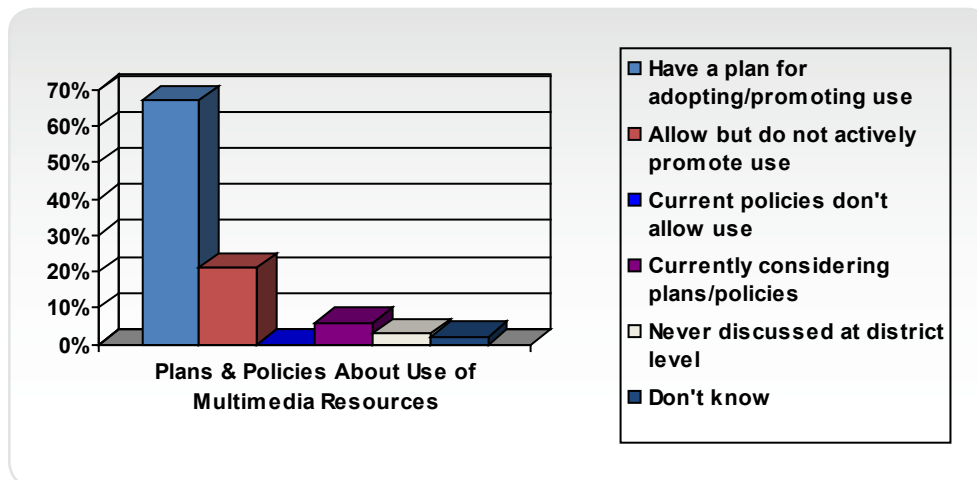


Along similar lines:

- About half of the discussion participants from large districts identified *video used in support of instruction* (e.g., streaming video) as a specific Web technology that was being used or strongly considered for use in their districts.
- Most of the discussion participants from large districts identified *incorporating multiple media* (including all references to use of video from the Internet, podcasts, etc.) as a goal for use of Web technologies in their district.

Findings in Detail

› According to *Safe Schools 2009*, use of *multimedia resources* is often supported by district plans. About two-thirds (67%) of technology directors who responded to the survey indicated that they *have a plan for adopting/promoting use* of this technology.

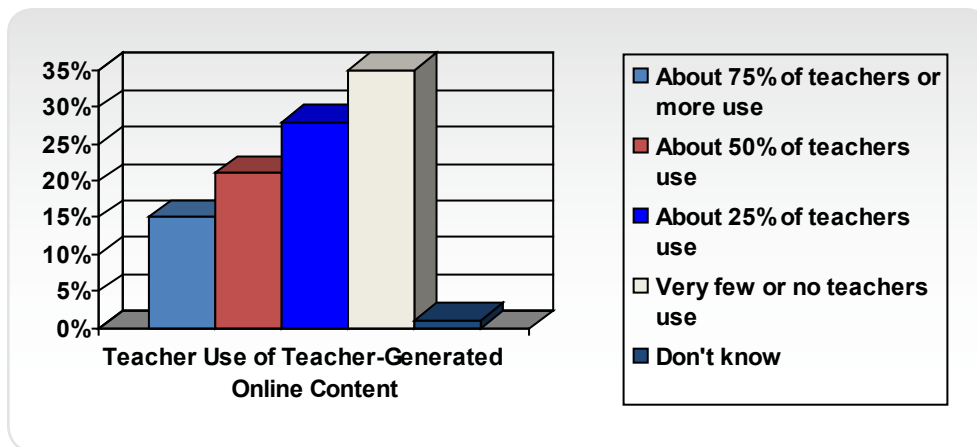


› In contrast, the CoSN survey reported that relatively few teachers were having students *share* multimedia resources, such as visual media files (photos, images, videos, presentations, etc.) or music or sound files (more than 90% in each case reporting no use or low levels of use) (Lemke et al., 2009, p. 36, Fig. 31). On the level of policy, more than half of all respondents indicated that their district policies allowed only prescribed educational sharing of visual and sound files, and most of the rest (more than 35% total) prohibited all student sharing of such files (p. 26, Fig. 18). Taken together with the *Safe Schools 2009* results, these findings suggests that while teachers are enthusiastic about utilizing Internet multimedia resources in support of instruction, they are much more cautious about allowing students to post and share such resources.

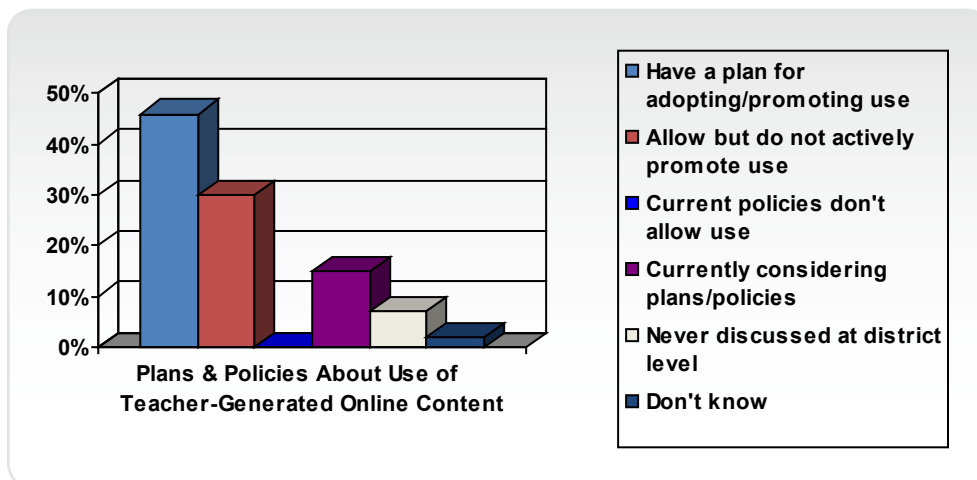
Findings in Detail

Teacher-Generated Online Content

› *Safe Schools 2009* found that in most districts, a significant group of teachers use *teacher-generated online content*. About two-thirds (64%) of the survey respondents reported that in their districts, *about 25% of the teachers or more* use this technology.



› *Teacher-generated online content* is likely to be the next area for growth based on district plans. Almost half (46%) of the *Safe Schools 2009* survey respondents indicated that their districts *have a plan for adopting/promoting use* of this technology. Another 15% reported that their districts are *currently considering district plans/policies* related to *teacher-generated online content*.



Findings in Detail

- Within the discussion groups, about half of the participants in each group indicated that there was *no* district-level plan or policy for encouraging teacher creation and sharing of online content.
- › Within the *Safe Schools 2009* discussion groups, the most commonly mentioned methods for sharing teacher-generated content were:
 - *Content management system/online document library* (about half of the discussion participants from midsize districts)
 - *Moodle* (about half of the discussion participants from large districts)
- › Within the discussion groups, the most commonly mentioned positive reasons for teachers to share online content were:
 - *Less duplication of effort, greater efficiency, and/or not reinventing the wheel* (most of the discussion participants from midsize districts)
 - *Sharing of knowledge/expertise* (about half of the discussion participants from midsize districts)

Within-district inquiry as part of the planning process

“Currently we have a 20 teacher committee looking at how to implement these new technologies. It is starting with getting an understanding of what skill sets teachers and students have and with what technologies they are familiar. For instance we are finding that nearly 90% of 5th grade students have an iPod. This could lead to deve[lo]ping podcasts by teachers.”

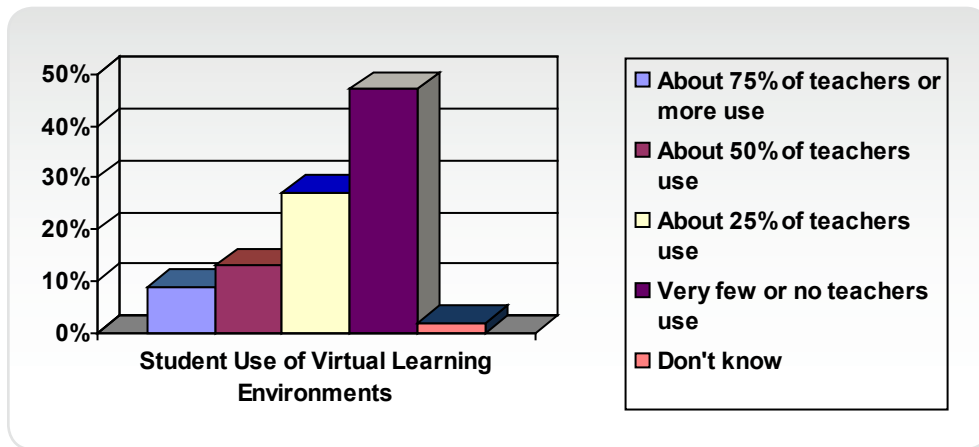
Teacher grants to encourage teacher collaboration

“This year, we are starting an internal Technology Teacher Grant concept in our district. Teachers are writing proposals/grants for pieces of equipment they are interested in utilizing. The grant application is pretty intense—and I’m getting some great ideas—that I will probably fund and would have never thought of! I’m thinking this is another way to encourage teacher collaboration.”

Findings in Detail

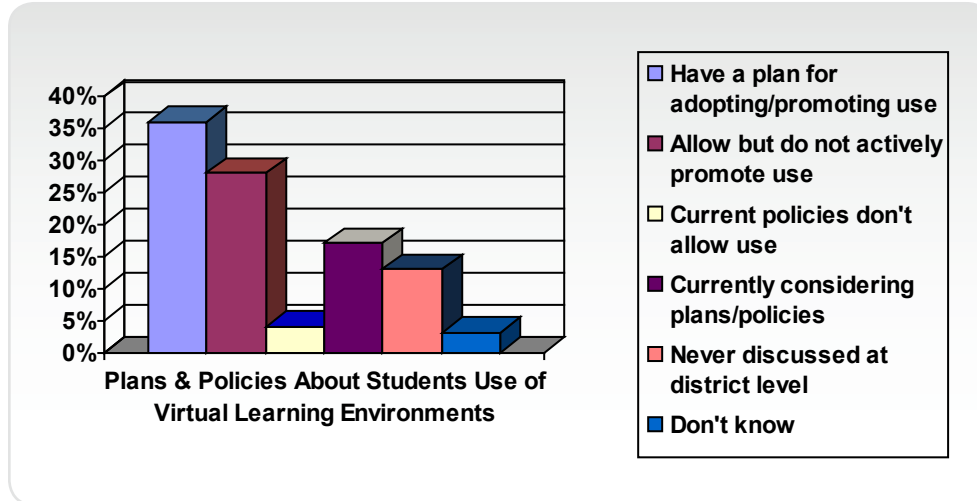
Student Use of Virtual Learning Environments

› *Safe Schools 2009* found that almost half of the districts (47%) reported that *very few teachers* or *no teachers* have students make use of *virtual learning environments*, a category that was defined as including online courses, electronic tutors, computer-managed instruction, and online assignments and assessments. 25% reported that about half or more of their teachers currently use this technology.



› *Student use of virtual learning environments* appears likely to be an area for modest growth based on district plans, according to *Safe Schools 2009*. More than one-third (36%) of the survey respondents indicated that their districts *have a plan for adopting/promoting use* of this technology. Another 17% reported that their districts are *currently considering district plans/policies* related to *student use of virtual learning environments*.

Findings in Detail

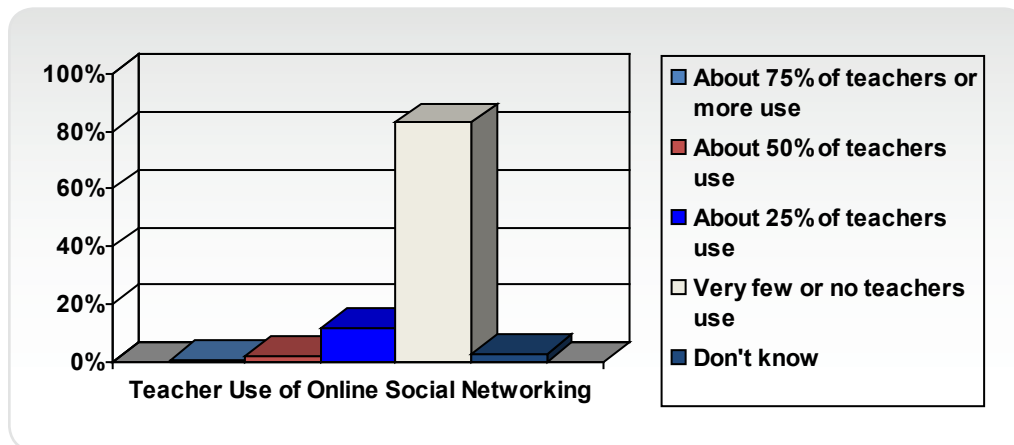


- Extending well beyond this short-term projection, Michael Horn, coauthor of *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*, predicts that by 2019, 50% of all high school classes will be online (Bosco, 2009, p. 5, quoting Michael Horn).
- › Student use of virtual learning environments has been associated with positive impacts on teachers' instructional practices. According to the 2008 Speak Up data, approximately 65% of teachers reported that teaching an online course resulted in *encouraging students to be more self-directed*, while almost half mentioned that it *facilitated collaboration between students* and *facilitated student-centered learning* (Blackboard K-12 and Project Tomorrow, 2009, p. 6, Fig. 3).
- › The most commonly identified barrier to *student use of virtual learning environments* in the *Safe Schools 2009* online survey was *lack of teacher knowledge about how to use effectively* (44%).
- This finding aligns with results from the 2008 Speak Up survey which found that, according to school principals, many of the barriers to online learning relate to inadequate teacher preparation (Blackboard K-12 and Project Tomorrow, 2009, p. 3).

Findings in Detail

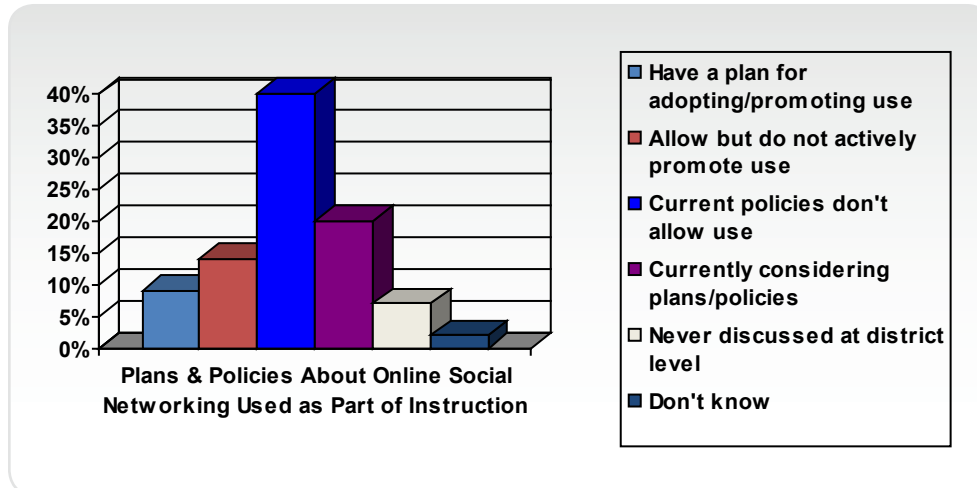
Online Social Networking as Part of Instruction

- › *Safe Schools 2009* found that very few teachers use *online social networking as part of instruction*. Most technology directors who responded to the survey (83%) indicated that very few or no teachers currently use this technology.



- Similarly, the CoSN survey reported that very few teachers were having students *blog* or take part in *social networking* (Lemke et al., 2009, p. 36, Fig. 31).
- › Many districts have policies that *don't allow use of online social networking*, but trailblazers exist. 40% of the *Safe Schools 2009* survey respondents indicated that *current policies don't allow use* of this technology, while 9% reported that their districts *have a plan for adopting/promoting use* of *online social networking*.

Findings in Detail



- As noted above, the CoSN survey found an even greater level of restriction with respect to social networking, with more than two-thirds of school districts banning social networking and chat rooms (Lemke et al., 2009, p. 9).
- › Barriers to the adoption of *online social networking as part of instruction* that were identified by technology directors who responded to the *Safe School 2009* survey include the following:
 - Human factor barriers: Most frequently identified were the *need to monitor appropriate use* (55% of respondents), *lack of teacher knowledge about how to use effectively* (51%), and *teacher perceptions about the lack of instructional value or appropriateness* (48%).
 - Technology-related barriers: Most frequently identified were *student safety concerns* (76% of respondents), *district network and data security concerns* (35%), and *limited support systems, including technology personnel* (27%).

Findings in Detail

District Attitudes about Using Web 2.0 Technologies in Connection with Student Instruction

- › A majority of *Safe Schools 2009* survey respondents reported a *positive attitude* in their districts toward *multimedia resources* (84%), *online communication with parents and students* (81%), and *teacher-generated online content* (63%).
- › Survey respondents reported an almost even split between *positive attitudes* and *ambivalent or mixed attitudes* toward *student use of virtual learning environments* (46% positive; 42% ambivalent or mixed attitudes).
- › Survey respondents reported an almost even split between *negative attitudes* and *ambivalent or mixed attitudes* toward *online social networking used as part of instruction* (42% negative; 41% ambivalent or mixed attitudes).
- › Looking more generally at the impact of Web 2.0 as a phenomenon on aspects of students' lives and education, the CoSN survey found that 73% of district administrators identified Web 2.0 applications as having a positive or highly positive impact on students' *communication skills* and *quality of schoolwork* (Lemke et al., 2009, p. 7, Fig. 1). Most district administrators were positive about the impact of Web 2.0 in other areas as well, including outside interests; interest in school; self-direction/regulation; and sense of community/culture.

These generally positive outcomes, in comparison to the more mixed *Safe Schools 2009* results, may be explained by the fact that Web 2.0 applications were being considered as a whole and not strictly in an educational context in this question from the CoSN survey. The CoSN finding that districts had varying policies with respect to different specific Web 2.0 technologies, as documented in the previous section, supports the general *Safe Schools 2009* finding that educators' attitudes toward different specific Web 2.0 technologies varied widely.

- › About half of the *Safe Schools 2009* discussion participants from midsize districts described the importance of *new instructional methods for using Web technologies*.
 - Findings of the CoSN survey underscore the importance of new instructional methods related to Web 2.0. According to the CoSN survey, fully 83% of district administrators believed that the use of Web 2.0 requires *changes in instructional practices* (Lemke et al., 2009, p. 43, Fig. 39).

Findings in Detail

Problems Related to Using Web 2.0 Technologies

- › About two-thirds (66%) of the *Safe Schools 2009* survey respondents indicated that the issue of *preventing students from posting personal data* either *negatively affects* or *seriously restricts* use of Web 2.0 technologies.
 - Similarly, most of the participants in each *Safe Schools 2009* online discussion group identified *student privacy and/or safety* among key concerns, issues, and counterarguments that prevented participants' districts from adopting and implementing Web 2.0 tools.
 - This concern was confirmed by the CoSN survey, which found that 53% of district administrators classified *students giving out personal information* as a moderate to severe problem in their districts (Lemke et al., 2009, p. 20, Fig. 13).
- › About half of the *Safe Schools 2009* survey respondents reported that concerns about *protecting students from inappropriate content* (54%) and/or *responding to cyber-bullying* (53%) either *negatively affects* or *seriously restricts* use of Web 2.0 technologies.
 - Similarly, most of the *Safe Schools 2009* online discussion participants from midsize districts identified *inappropriate content* among key concerns, issues, and counterarguments that prevented participants' districts from adopting and implementing Web 2.0 tools.
 - These findings were supported by the CoSN survey, in which about half of the district administrators identified *accessing inappropriate materials* and *cyber-bullying* as a moderate to severe problems in their districts (Lemke et al., 2009, p. 20, Fig. 13).

“There is . . . no question that there is co-mingling of educationally/instructionally valid content with inappropriate content on sites such as YouTube, Picassa, Twitter, etc. There is no ‘magic’ filter to make sure that only the inappropriate content is kept out. That puts those who manage filters in a position where we know good content is being restricted. Content is sacrificed to ensure [eRate] compliance and entire communication methods . . . are often restricted on the chance that they could put school officials in the position of accounting for inappropriate or dangerous student behavior underwritten with taxpayer dollars. There aren’t easy answers as there are real dangers to students in these environments and there are real opportun[i]ties being lost by the wholesale restriction of access.”

Findings in Detail

- › *Lack of teacher knowledge about how to use a technology effectively* and *teacher time requirements* were the human factors most often identified by technology directors who responded to the *Safe Schools 2009* survey as among the most significant barriers to use of several Web 2.0 technologies.
- Similarly, about half of the participants in each *Safe Schools 2009* online discussion group identified *lack of knowledge and/or need for professional development in order to take advantage of Web 2.0 technologies to support teaching and learning* among key concerns, issues, and counterarguments that prevented participants' districts from adopting and implementing Web 2.0 tools.
- The challenge of providing appropriate professional support for teachers was underscored by the CoSN survey, in which almost all district administrators agreed that “Web 2.0 requires a new type of teacher training” (Lemke et al., 2009, p. 11, Fig. 6).

Actions Taken by Districts to Assure Student Safety When Using Web 2.0 Technologies

- › The vast majority of technology directors who responded to the *Safe Schools 2009* survey (95%) reported that their districts had *installed a Web content filter on school computers*. This finding was verified by the CoSN survey, which found that “Nearly every school district in the U.S. has an Internet filtering system” (Lemke et al., 2009, p. 27).
- › A majority of technology directors who responded to the *Safe Schools 2009* survey indicated that their districts *gave faculty and staff instructions on Internet safety* (79%), *gave students instructions on Internet and/or Internet search engine safety* (79%), *instructed students on how to conduct safe Web searches* (70%), and *provided parents with tips and information on safe computing for children* (56%).
- › About half of the *Safe Schools 2009* discussion participants from midsize districts mentioned *monitoring student use of Web 2.0 technologies* as a strategy for addressing issues related to student privacy, safety, and/or inappropriate content.

Restricted access, bringing services within firewall

“In our District there is a decided effort to maintain some level of balance. We provide teachers with access to YouTube to obtain educationally valid content from it while restricting access to students. The other thing we have done is try to bring Web 2.0 technologies inside the firewall. The idea is that blogging with WordPress doesn't have to occur out on the Internet for it to be useful. So, we set up a WordPress server and provide access to it. We set up similar environments for hosting Wikis, Podcasts, Video-on-Demand, DocuShare for Web-based access to files, etc. All of these are available from anywhere in the world, however, we restrict access to who can participate so that we provide a mirror of the services without the safety issues. It is a reasonable response to a difficult challenge.”

Findings in Detail

Use of Lightspeed

“I have the advantage of having Lightspeed, and knowing how to use it. Along with a handful of other network tools, I can look at ‘the neat stuff’ in demand by students (and teachers) and analyze what exactly is coming across the network (besides the obvious). If there is any doubt at all in my mind about a compromise in security or the chance that an overzealous employee loading banner/sidebar ads might put our District at risk for bad publicity, the site is blocked. If the average user saw the amount of ‘hidden’ traffic that comes across the wire every time they pull up a Myspace page, they would be amazed.”

Vision of the Future

- › About half of the *Safe Schools 2009* discussion participants in each group mentioned a need for districts and schools to *increase access to technology* (including broadband infrastructure) in order to use Web 2.0 to its maximum advantage.
- › About half of the *Safe Schools 2009* discussion participants from midsize districts identified *21st century skills* (i.e., collaboration, creativity, critical thinking/problem solving, and the ability to use Web 2.0 technologies) as part of their vision for use of Web 2.0 to its maximum advantage.
 - Similarly, about half of the discussion participants from large districts identified *21st century teaching and learning, and/or 21st century skills* as a goal for use of Web technologies in their district, as reported above in the section, Key Reasons for Districts Adopting Web 2.0.
- › The following roles were mentioned by district technology leaders in the *Safe Schools 2009* online discussions in describing how they could help their districts use Web 2.0 to its maximum advantage:
 - *Support curriculum department and/or help make technology integral to curriculum leaders* (about half of the participants from midsize districts)
 - *Evangelize and/or educate educators and leaders regarding use of technology to support learning* (about half of the participants from large districts)
 - *Select and/or guide selection of appropriate hardware and software* (about half of the participants from large districts)
 - *Provide core technology infrastructure and/or create a technological environment where Web 2.0 can be used effectively* (about half of the participants from large districts)

Findings in Detail

- › The actions most commonly mentioned in the online discussions that technology providers could take in order to help districts use Web 2.0 to its maximum advantage were:
 - *Make technology more affordable* (most participants from large districts)
 - *Provide Web 2.0 services in a protected environment* (e.g., “walled gardens”) (about half of the participants from midsize districts)
- › On a broad level, the need for change moving into the future related to Web 2.0 was verified by the CoSN study. A majority of the district administrators surveyed believed that the growth of Web 2.0 requires *specific changes in the way schools are structured*: e.g., changes to instruction approach, changes in the role of the learner, and greater access to technology and the Internet (Lemke et al., 2009, pp. 41-43). When asked specifically whether they believed that the growth of Web 2.0 use required *specific changes to instructional practices in schools*, over 80% answered yes (p. 44, Fig. 39).

“To use [W]eb 2.0 as a tool the students and teachers must be separated by location [and] time and grouped by content...

“Inter-classroom communication certainly can use the communication tools of Web 2.0. Collaborative tools such as Gogledocs can be utilized by teachers and students as part of a lesson. Once the community of learners is expanded to encompass students and teachers from diverse geographic areas we’ve met two key components of the anytime, anywhere, shared content. Our stumbling block becomes the methodology utilized to authenticate the user...

“The development of standards in core academic areas and the summative assessments based on technical evaluations means ‘you don’t need to be there.’ The student only needs to go to the school to attend those classes where physical presence is required. Chemistry, Art, Band, Sports, Drama etc. The community will provide locations and materials for these participatory activities. Once students can master knowledge and skill sets in a [W]eb 2.0 environment the application of that learning can be shared. Learn the chemistry, show up at a lab for the experiments. Gather with the community for the Science Fair.”

Findings in Detail

Web 2.0 Applications for Teacher Professional Development

As reported by *Safe Schools 2009* survey respondents, many districts are using or plan to use a variety of Web 2.0 applications for *teacher professional development*, including:

- › *Educators posting content online* (66% of respondents)
- › *Educators viewing podcasts, videocasts, streaming video, etc. re: professional topics and/or best practices* (62% of respondents)
- › *Educators viewing short videos to learn specific features of software applications* (62%)
- › *Use of online communication and collaboration tools* (53%)

Groups Involved in Web 2.0 Policy and Driving Web 2.0 Adoption

- › According to *Safe Schools 2009* survey respondents, many groups are *involved in developing policies* related to Web 2.0 technologies, including:
 - District technology leaders (91% of respondents)
 - Superintendent or assistant superintendent (75%)
 - Principals (70%)
 - Teachers (66%)
 - The CoSN survey confirmed that while teachers (including technology teachers) do not generally have primary authority for making Web 2.0 decisions, they often have significant formal or informal influence on such decisions (Lemke et al., 2009, pp. 31-32, Fig. 24, 25, 26).
 - District curriculum leaders (58%)
 - School board (49%)
- › With respect specifically to advancing Web 2.0 use through restructuring, the CoSN survey found that 60% of curriculum directors felt a high degree of responsibility, compared to only 44% of superintendents and 43% of technology directors (Lemke et al., 2009, p. 46).

Findings in Detail

- › A majority of district administrators in the CoSN survey stated that decisions with respect to Web 2.0 were made at both the district level and the individual school level, compared to about one-fourth who said such decisions were made only at the district level and almost none who reported that such decisions were made only at the school level (Lemke et al., 2009, p. 30, Fig. 22). This is consistent with the findings of the *Safe Schools 2009* survey as reported above, in which both district-level personnel and school-level personnel were reported as commonly being involved in developing Web 2.0 policies.
- › The groups most often identified by *Safe Schools 2009* survey respondents as important in *driving adoption* of Web 2.0 technologies were *teachers, district technology leaders, and students*.
 - *Teachers* were most frequently identified as an important group driving adoption of *multimedia resources* (78% of respondents), *online learning games and simulations* (65%), and *teacher-generated online content* (60%). *Teachers* were also identified as among the top groups driving adoption of three other Web 2.0 technologies.
 - *District technology leaders* were most often identified as an important group driving adoption of *student use of virtual learning environments* (44% of respondents). *District technology leaders* were also identified as among the top groups driving adoption of five other Web 2.0 technologies. (A note of caution—these findings are based on the responses of district technology directors, who might have a biased sense of their own role in the adoption of Web 2.0 technologies.)
 - *Students* were most frequently identified as an important group driving adoption of *student-generated online content* (47% of respondents) and *online social networking used as part of instruction* (36%). *Students* were also identified as among the top three groups driving adoption of three other Web 2.0 technologies.

Role of Teachers in Adopting Web 2.0

The *Safe Schools 2009* online discussions were used as an opportunity to explore further the specific role teachers played in adopting Web 2.0 technologies. Key findings are reported below.

- › Discussing whether teachers driving adoption is a good thing or makes technology directors' jobs more difficult:
 - About half of the participants from midsize districts described the impact of teacher involvement in Web 2.0 adoption in *primarily positive terms*.

Findings in Detail

“Teachers who drive this adoption make our jobs, as instructional technology personnel, [easier]. All we have to do is supply the tools, the training and ongoing support.”

“It is a plus when they ask for technology. . . . If teachers are assisting me in driving technology into their classrooms, then I am all for it. If it gets into their classrooms, then it will eventually ease into their lessons and filter to their students, which is what we are wanting. We [want] teachers to not be afraid of technology and use it as a resource that will help them.”

“I feel it would make my job easier if teachers were key players in driving this adoption. Currently, I believe my job is harder—because I’m constantly in [an] ‘influential role’ with staff members. I’m trying to light to fire. I’m having to build the group of key players one by one.”

- About half of the participants from large districts described the impact of teacher involvement in Web 2.0 adoption as *mixed overall* (positive and negative elements).

“It is clear in our District that Web 2.0 technologies are embraced most readily and widely when there are teachers at the school who effectively model their instructional efficacy. This can create some challenges in a couple of ways. First, teachers that lack technology skills sometimes react against the particular Web technology for the simple reason that it heightens their sense of anxiety that they are falling further and further behind. Sometimes that anxiety can be re-directed and serve as motivation to embrace the technology but I have only seen that when there is peer coaching involved. Second, often times those who lead with technology are effective because they embrace change so readily. They are willing to consistently try new technologies and, occasionally, this can result in what we refer to as Random Acts of Technology (RATs). This can further alienate slow adopters because they just can’t consider trying so many different options.”

Findings in Detail

- › When discussion participants were asked to characterize the teachers that drive Web 2.0 adoption:
 - Most of the participants from large districts indicated that teachers from *across grade levels and/or teaching assignments* were involved in driving Web 2.0 adoption.
 - About half of the participants from large districts specifically indicated that the *more technology-savvy teachers* were the ones driving adoption.
 - About half of the participants from midsize districts indicated that *newer teachers* were more likely to drive Web 2.0 adoption. However, several participants indicated that involvement in Web 2.0 adoption was spread across teacher generations.

- › Participants in the discussion groups were asked to characterize Web 2.0 technologies that teachers driving Web 2.0 adoption were pushing for, and how the teachers wanted to use these technologies. In their responses:
 - Most of the participants from large districts and about half from midsize districts mentioned *student* uses of Web 2.0 technologies.
 - About half of the participants from large districts mentioned *teacher* uses of Web 2.0 technologies.

- › The technologies that were mentioned most commonly as being desired by teachers were:
 - *Blogs* (most of the participants from large districts and about half from midsize districts)
 - *Podcasts, video production, and/or streaming video* (most of the participants from midsize districts, about half from large districts)

Findings in Detail

Patterns Based on District Enrollment Size

District technology directors who responded to the *Safe Schools 2009* survey were asked to identify the size of their districts in terms of student enrollment ranges: *less than 2,500 students* (small districts), *2,500 to 9,999 students* (midsize districts), or *10,000 or more students* (large districts). Based on a comparison of the separate results for each of these three district size categories, the following noteworthy patterns were identified in the survey results.

Level of Teacher Use of Different Web 2.0 Technologies

- › Multimedia resources: In general, the larger the district size category, the more likely were respondents to report that *about 75% of the teachers in their districts or more* use *multimedia resources*.
- › Teacher-generated online content: In general, the larger the district size category, the more likely were respondents to report that *about 25% of the teachers in their districts or more* use this technology.
- › Online social networking used as part of instruction: Respondents from large districts were less likely than respondents from other district sizes to report that *very few* or *no teachers* currently use this technology.
- › Student-generated online content: In general, the smaller the district size category, the more likely were respondents to report that *very few* or *no teachers* currently use *student-generated online content*.
- › Student use of virtual learning environments: Respondents from large districts were less likely than respondents from other district sizes to report that *very few* or *no teachers* currently use this technology.

Findings in Detail

Status of District Plans and Policies about the Use of Web 2.0 Technologies

- › Online communication with parents and students: Across the district size categories, most respondents reported that they *have a plan for adopting/promoting use* of this technology. In general, the larger the district size category, the more likely were respondents to report that they *have a plan for adopting/promoting use* of this technology.
- › Multimedia resources: Across the district size categories, a majority of respondents reported that they *have a plan for adopting/promoting use* of this technology. In general, the larger the district size category, the more likely were respondents to report that they *have a plan for adopting/promoting use* of this technology.
- › Teacher-generated online content: In general, the larger the district size category, the more likely were respondents to report that they *have a plan for adopting/promoting use* of this technology.
- › Online social networking used as part of instruction: In general, the smaller the district size category, the more likely were respondents to report that *current policies don't allow use* of this technology.

Most Important Groups Driving Web 2.0 Adoption

- › Responding technology directors from large districts most often included *district curriculum directors* among the three most important groups driving adoption of most of the Web 2.0 technologies, along with *teachers* and *district technology leaders*. This is in contrast to the results from respondents across the district size categories, for which the groups most frequently identified as important in driving adoption of Web 2.0 technologies were *teachers*, *district technology leaders*, and *students*.

Research Implications: A Checklist for Districts

The following questions are designed as prompts for districts to apply the results of the *Safe Schools 2009* research by reflecting, analyzing, and making decisions about their current and future uses of Web 2.0.

Informed Leadership

- Are district leaders informed about the instructional potential of various Web 2.0 technologies, including examples of innovative instructional uses of those technologies?
- Is professional development on Web 2.0 provided in our district for school administrators, including principals and other leaders?
- Do district and school leaders have opportunities to learn from the experience and successes of students and technology-savvy teachers about uses of Web 2.0 tools for educational purposes?

Aligning Web 2.0 Use with District Goals

- Has our district conducted an analysis of needs related to key district goals that could be supported using Web 2.0 technologies, such as addressing students' individual learning needs, engaging student interest, and increasing students' options for access to teaching and learning?
- Has our district identified ways that Web 2.0 technologies could be used to address these needs?
- Has our district considered ways Web 2.0 technologies could be used to help develop students' basic knowledge and skills in core subjects (e.g., through sharing multimedia resources)?
- Has our district considered the potential of Web 2.0 technologies for "leveling the playing field" among different groups of students?
- Has our district considered ways Web 2.0 technologies could be used to help develop students' 21st century learning (e.g., creativity and innovation; critical thinking and problem solving; communication and collaboration; and information, media, and technology skills)?

Research Implications: A Checklist for Districts

District Policies and Procedures

- Has our district developed policies and procedures for aligning Web 2.0 use to curriculum?
- Has our district developed policies and procedures for assessing Web 2.0-related skills and abilities?
- Has our district developed policies and procedures related to safety and security in connection to Web 2.0 use? (See the Balancing Safety, Security, and Effective Instruction checklist below for more detail.)
- Has our district developed policies and procedures for supporting teacher professional development in appropriate uses of Web 2.0 technology—focusing both on technical proficiency and on effective instructional practices? (See the Professional Development and Support checklist below for more detail.)
- Has our district developed policies and procedures describing appropriate staff and student uses of Web 2.0 technologies, including consequences for misuse?
- Have students and teachers been involved in developing district policies and procedures—to help ensure that policies and procedures are feasible, achieve buy-in, and take advantage of expertise at the local school level?
- Do district policies and procedures take into account the differences among various categories of Web 2.0 technologies (e.g., student-generated online content, teacher-generated online content, online social networking used as part of instruction, online learning games and simulation, student use of virtual learning environments, multimedia resources, and online communication with parents and students out side school hours)?
- Are district policies and procedures informed by research and experience about which approaches to use of Web 2.0 technologies offer the best instructional value in support of district goals?
- Has our district explored the need for restructuring of the systemwide teaching-learning enterprise to make Web 2.0-supported change possible?
- Does our district have one or more committees or groups that have been tasked with keeping current on best practice approaches with Web 2.0 and helping district leadership and educators understand how these approaches impact district policies and teaching practice?
- Does our district continuously reevaluate our Web 2.0 policies and procedures in light of experience at the school level, new information about best practices, and technological innovation?

Research Implications: A Checklist for Districts

Online Course Offerings

- Has our district considered the potential of online course offerings as a way to address credit recovery issues, increasing graduation requirements that necessitate providing alternative ways of completing core courses, and/or the need to offer specialized courses to only a few students (e.g., foreign languages, college credit coursework)?
- Has our district considered a plan for starting with a few online course offerings and expanding over time?
- Have district curriculum leaders identified groups of educators that might be particularly open to offering instruction online?
- Have district curriculum leaders identified key subject areas that might represent good starting-places for offering instruction online?
- Has our district developed an appropriate organizational structure for supporting online courses, such as a “school within a school” with a single designated person in charge (Michael Horn, quoted in Bosco, 2009, p. 5)?

Balancing Safety, Security, and Effective Instruction

- Do district policies and procedures reflect our district’s understanding of the Children’s Internet Protection Act, which requires installation of filtering or blocking software in most districts (Solomon & Schrum, 2007)?
- Do district policies and procedures reflect our district’s understanding of the Family Educational Rights and Privacy Act (FERPA) privacy requirements?
- Has our district considered a system of *intelligent* filtering that protects students from truly inappropriate content and protects the technology infrastructure from threats while allowing legitimate content and resources to get through?

Research Implications: A Checklist for Districts

- Has our district considered a “walled garden” approach (e.g., an education-focused search system that provides access to educator-vetted, curriculum aligned online resources, and/or education-focused Web 2.0 tools that incorporate a layer of educator monitoring and/or operate within-district only)?
- Has our district implemented appropriate policies and procedures, including a Web 2.0-savvy Acceptable Use Policy, policy regarding copyright and ethical use of intellectual property, a student safety and awareness campaign, a policy for classroom management and monitoring of Web 2.0 student activities, and a policy for communicating with and enlisting the support of parents about Web 2.0 safety issues (Solomon & Schrum, 2007)?

Hardware, Infrastructure, Access Issues

- Has our district identified baseline requirements in order to use various Web 2.0 technologies effectively as educational tools?
- Has our district explored creative solutions for providing hardware needed for Web 2.0 use, such as hardware donation programs, purchase of refurbished computers, and purchase of netbooks?
- Has our district implemented a five-year technology replacement program to reduce the need for repairs of outdated hardware?
- Has our district considered training building-level technology contact people to keep the equipment up-to-date and handle routine maintenance on site?
- Has our district considered work-arounds to address issues of access from home (e.g., collaborating with local public libraries and after-school programs to provide access)?
- Has our district approached local colleges and/or universities about sharing resources?
- Has our district approached local companies about sponsoring Web 2.0 initiatives?

Research Implications: A Checklist for Districts

Time Allocation and School Schedules

- Has our district allotted sufficient time for planning and development of Web 2.0 learning activities and resources?
- Has our district considered adjusting the school schedule to allow sufficient blocks of instructional time to carry out Web 2.0 instructional activities?
- Has our district scheduled time for professional development and ongoing support related to Web 2.0?
- Has our district scheduled time to evaluate student learning related to Web 2.0 use?
- Has our district made any needed adjustments to ensure that instructional implementation of Web 2.0 technologies does not place an additional time burden on district personnel, including classroom teachers?

Strategies for Transitioning to Newer Technologies

- Have district technology and curriculum leaders investigated the current level of teacher and administrator knowledge related to the various Web 2.0 technologies?
- Have district curriculum leaders identified Web-experienced teachers or groups of teachers who might be candidates to “evangelize” innovative uses of Web 2.0 technologies?
- Does our district have one or more committees or groups that have been tasked to try out new uses of Web 2.0 resources, see what works, and then share their findings with educators and administrators?
- Have district curriculum and technology leaders identified logical “next steps” for district educators that would represent natural extensions of familiar technology applications to newer educationally valuable technologies? For example:
 - If teachers and principals are comfortable with communicating via email, could they make the transition to blogging and encouraging reader feedback?
 - If teachers are comfortable finding (and/or creating) and incorporating Web resources in instruction, could a system be established for them to share classroom-tested resources and get feedback from other teachers—possibly including student-developed resources in the mix?

Research Implications: A Checklist for Districts

- Has our district developed a plan for professional development and support that is specifically geared toward helping teachers transition to newer technologies? (See the Professional Development and Support checklist below for more detail.)

Professional Development and Support

- Do teachers in our district receive professional development to help them gain familiarity and experience with educational uses of a variety of Web 2.0 tools?
- Does our professional development embed use of Web 2.0 technologies within a focus on a specific subject area or theme and specific learning goals?
- Are our teachers provided with models of classroom-tested instructional applications of different Web 2.0 tools?
- Do our teachers receive guidance on the changing roles of teachers and students with Web 2.0?
- Do our teachers receive ongoing support (extending beyond one-time PD workshops) at the school level as they attempt to apply new methods of teaching and learning related to Web 2.0?
- Does our district make effective use of school technology coordinators to support educators?
- Have systems been developed that enable skilled students and teachers to support teachers who are Web 2.0 novices (e.g., through teacher-student tech teams that can enter classrooms to assist teachers who are trying out Web 2.0 projects for the first time)?
- Has our district considered strategies for fostering local professional learning communities, as encouraged by organizations such as the National Staff Development Council (see the NSCD's Standards for Staff Development at <http://www.nsd.org/standards>)?

Research Implications: A Checklist for Districts

- Has our district created structures for educators to share best practices in use of Web 2.0 within specific subject areas, grade levels, and/or applicable learning groups (e.g., special education)?
- Do teachers have opportunities to observe other teachers engaging in successful educational practices using Web 2.0?
- Has our district considered strategies to encourage teacher buy-in and commitment toward Web 2.0 best practices, such as making new technology available in classrooms dependent on classroom teachers agreeing to participate in relevant professional development?
- Has our district considered partnerships (e.g., with higher education institutions) to provide powerful and sustainable Web 2.0 professional development to educators in our district?

Home-School Connection

- Has our district considered the need to build parental support for education-focused uses of Web 2.0?
- Has our district implemented initiatives to inform parents about legitimate education-focused uses of Web 2.0 technologies and to demonstrate their value?
- Is our district prepared to address parent concerns about student privacy and safety?
- Are teachers and administrators prepared to meet the particular challenge of convincing parents that Web 2.0 communication and collaboration tools are being used in educationally valid ways?

Future of the Safe Schools in a Web 2.0 World Initiative

During the 2009-2010 school year, the *Safe Schools in a Web 2.0 World* initiative plans to:

- › Develop free resources for administrators and educators that will help them adopt Web 2.0 safely and effectively to improve teaching and learning, including:
 - Case studies of districts using Web 2.0 tools to improve the quality of education while ensuring student safety and technology system security; plus an analysis of best practices in planning for and implementing Web 2.0 integration that these exemplary districts share
 - Strategies for students and teachers to leverage Web 2.0 technologies to accomplish everyday educational tasks and meet educational challenges more successfully
- › Review and disseminate an annotated list of literature from a variety of reputable sources on adoption and effective use of Web 2.0 in education
- › Add educational technology partners to the *Safe Schools* initiative, to ensure expertise in all major aspects of Web 2.0
- › Collaborate with other institutions focused on best practices in educational application of Web 2.0 technologies (e.g., CoSN and ISTE)

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Recommended Resources

Research Reports

- *Growing Up Digital: Adults Rate the Educational Potential of New Media and 21st Century Skills*
Common Sense Media & the Joan Ganz Cooney Center. (2008, May). *Growing up digital: Adults rate the educational potential of new media and 21st century skills*. Retrieved August 28, 2009 from <http://www.joanganzcooneycenter.org/pdf/Growing-Up-Digital-Presentation.pdf>.

This presentation summarizes results from a survey of 695 parents of students aged 6-14 and 264 K-8 teachers addressing beliefs about the importance of digital media skills, the educational benefits of different digital media platforms, and the potential of digital media to help children learn 21st century skills, together with the practices of parents with respect to their children's use of digital media.

- *Leadership for Web 2.0 in Education: Promises and Reality*
Lemke, C., Coughlin, E., Garcia, L., Reifsneider, D., & Baas, J. (2009). *Leadership for Web 2.0 in education: Promise and reality*. Culver City, CA: Metiri Group. Commissioned by the Consortium for School Networking through support from the John D. and Catherine T. MacArthur Foundation.

This report presents results from a survey of almost 1,200 U.S. school district administrators, including 389 superintendents, 441 technology directors, and 359 curriculum directors, addressing beliefs, perspectives, and practices of educational administrators related to effective use of Web 2.0 in K-12 education.

- *Learning in the 21st Century: 2009 Trends Update*
Blackboard K-12 and Project Tomorrow. (2009, July). *Learning in the 21st century: 2009 trends update*. Washington, DC and Irvine, CA: Authors.

This report presents results from the 2008 Speak Up survey of more than 335,000 K-12 students, teachers, administrators, and parents across the U.S. related to growing student interest in online learning and how schools are responding to that interest.

- *Leadership in the 21st Century: The New Visionary Administrator*
Henke, K. E. (2008). *Learning in the 21st century: The new visionary administrator*. Irvine, CA and Washington, DC: Project Tomorrow and Blackboard K-12

This report presents results from the 2007 Speak Up survey comparing attitudes and experiences of "visionary" administrators who "are bridging the digital divide" with those of students and other administrators.

Recommended Resources

Best Educational Practices

- *Blogs, Wikis, Podcasts, and Other Powerful Web Tools for Classrooms*

Richardson, W. (2008). *Blogs, wikis, podcasts, and other powerful Web tools for classrooms* (2nd ed.). Thousand Oaks, CA: Corwin Press.

This book describes ways for educators at all levels and disciplines to use a variety of digital tools to create relevant, interactive learning experiences in the classroom. This edition features applications and real-world examples, research on Web technology, a critical section on Internet safety, and an emphasis on information literacy.

- *Web Literacy for Educators*

November, A. (2008). *Web literacy for educators*. Thousand Oaks, CA: Corwin Press.

This book provides a guide to educators for teaching children careful Internet search techniques.

- *Web 2.0: New Tools, New Schools*

Solomon, G., & Schrum, L. (2007). *Web 2.0: New tools, new schools*. Eugene, OR: International Society for Technology in Education.

This book provides a comprehensive overview of Web 2.0 technologies, their importance in 21st century education, and their application in the classroom and in professional development. Featured technologies include blogs, podcasts, wikis, social bookmarking, photo sharing, video showcasing, Web 2.0 versions of desktop tools, electronic portfolios, and many more. Also included are examples of classroom applications of Web 2.0 tools and discussions of educational leadership issues, online safety and security issues, and a vision of the future of the Web 2.0-enhanced education.

Educational Policies, Trends, and Frameworks

- *Web 2.0 in Education: Policy, Practice and Progress*

Bosco, J. (2009). *Web 2.0 in education: Policy, practice and progress*. Monograph in the 2009 CoSN [Consortium for School Networking] Compendium series.

This article cites key research results from the Leadership for Web 2.0 in Education: Promises and Reality CoSN study (cited above) and other sources, then presents a set of recommendations for school leaders related to integration of Web 2.0 into schools.

Recommended Resources

– *Long Tail Learners Blog*

<http://www.longtaillearners.com>

This blog by well-respected educational technology expert Karen Greenwood Henke focuses on “how technology is transforming learning inside and outside our schools” and the “future of learning.”

– *P21 Framework Definitions Document*

Partnership for 21st Century Skills. (2009, May 27). *P21 framework definitions document*. Retrieved August 28, 2009 from http://www.21stcenturyskills.org/documents/p21_framework_definitions_052909.pdf

This article defines a framework with guidance to educators on 21st century student outcomes—a blending of content knowledge, specific skills, expertise, and literacies students need in order to succeed in work and life in the 21st century—and the support systems that are needed to produce these outcomes.

– *National Educational Technology Standards for Students*

International Society for Technology in Education (ISTE). (2007). *National Educational Technology Standards for Students* (2nd ed.). Washington, DC: ISTE.

This set of standards describes skills and knowledge required by students in order to learn effectively and live productively in an increasingly digital society, as defined by the International Society for Technology in Education.

Recommended Resources

Internet Safety

- *Internet Keep Safe Coalition Website*
<http://ikeepsafe.org>

The Internet Keep Safe Coalition is a broad partnership of governors and/or first spouses, attorneys general, public health and educational professionals, law enforcement, and industry leaders working together for the health and safety of youth online. Resources provided on the Website include a curriculum for elementary grades based on research from Harvard's Center on Media and Child Health and resources related to Internet safety for both teens and parents.

- *National Cyber Security Alliance Website*
<http://staysafeonline.org>

The National Cyber Security Alliance is a nonprofit public private partnership, working with the Department of Homeland Security (DHS), corporate sponsors, and nonprofit collaborators to promote cyber security awareness for home users, small and medium size businesses, and primary and secondary education. Resources related to K-12 education provided on the Website include a 2008 national baseline study related to the state of cybersecurity, cybersafety, and cyberethics education in K-12 classrooms and lesson plans for grades 8-12 created in collaboration with the USA Today Education Foundation and the Department of Homeland Security.



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About netTrekker

netTrekker is a leader in the delivery of digital K-12 educational content. The company is dedicated to enhancing the education of today's youth with highly effective technologies that deliver the rich educational value of the Internet to every child in a safe, relevant, easy-to-use format. netTrekker is the #1 educational search tool and was first to market with a standards-based solution utilizing the services of Academic Benchmarks, the premier provider of comprehensive standards-based K-12 educational databases, alignment tools, and integration products. Peers, educators, and parents have honored netTrekker more than 25 times for its contribution to education. Founded in 1999 by Robert Reinders, the company serves millions of students and thousands of schools around the world. For more information visit www.netTrekker.com or phone 877.517.1125.

About Lightspeed Systems

Lightspeed Systems Inc., founded in 2000, develops comprehensive network security and management solutions for the education market. We are committed to helping schools operate their networks effectively and efficiently, so educators can provide safe online teaching and learning environments. Our software is used in more than 1,000 school districts in the United States, the United Kingdom, and Australia to protect more than 5 million students. For the past two years, Lightspeed Systems has been recognized on the Inc. 5,000 list as one of the fastest-growing private companies.

About IESD

Interactive Educational Systems Design (IESD), Inc. provides a variety of services related to research on education technology issues and the evaluation and development of educational software, multimedia products, and websites. IESD was founded in 1984 by Ellen Bialo and Dr. Jay Sivin-Kachala, the firm's President and Vice President. IESD's clients include education market publishers, technology hardware manufacturers, government agencies, non-profit institutions, and school districts. IESD designs and implements qualitative and quantitative research—including focus group research (in person and online); structured interviews; survey research; user testing; demographic and financial data analysis; literature reviews; and text document summary and analysis. IESD also custom-designs and implements evaluation research on educational programs, products, and services. For more information, call 212.769.1715 or email iesdinc@aol.com.

