National Technology Standards for K-12 Schools: A Case Study of Unresolved Issues in Public Relations

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Abstract:

This article addresses an important need—the dissemination of information relating to technology as a public relations tool—and the associated exigency for administrator and teacher technology training. Specifically, we identify the increased expectations for the performance of school leaders and teachers, as well as unresolved issues in public relations emerging from national technology standards. Current models of educational reform, particularly the Technology Standards for School Administrators (TSSA) Collaborative, raise questions about the relationship between public relations and communications technology for schools. Within this context, a case scenario that features the site-based research of a concerned public relations practitioner is analyzed. Related discussions include assumptions of basic know-how; challenges and contexts of technology use, including embedded cultural codes; mechanistic attitudes toward technology; and, significantly, equity and access.

Article:

Public relations is a concept with multiple meanings and connotations. Nonetheless, for the purpose of this discussion, *public relations* is understood to be a deliberate "two-way communication" between the school and community that supports the academic achievement of students, social responsibility of educators and parents, and renewal of community as a context for learning (Kowalski, 1996).

Communications technology refers to two interrelated aspects of leadership: (1) the national standards for school leaders that govern technology infusion and (2) the nonpedagogical managerial functions (e.g., electronic mail, online grading, Internet searches. web-page design) teachers are expected to employ on a regular basis.

Recent educational policies, namely the Technology Standards for School Administrators (TSSA), mandate that aspiring leaders master today,s technologies, and that practicing administrators adapt to the new expectations for high-power performance and leadership (TSSA Collaborative, 2001). Not only are administrators now required to learn state-of-the- art practices for their jobs, but they must also model them within their school communities (Mullen, Gordon, Greenlee, & Anderson, 2002), particularly in the arena of public relations (Woodroof, 1996).

Two key topics are addressed in this study: (1) the aforementioned increased expectations of school leaders and teachers and (2) the unresolved issues in public relations resulting from national technology standards. We examine a case scenario featuring the site-based research of a be-
ginning teacher in a school environment, as well as the technological implications for public relations in school communities.

INCREASED EXPECTATIONS FOR SCHOOL PERFORMANCE

The TSSA Collaborative, whose stakeholders include such influential bodies as the National Association of Elementary School Principals (NAESP) and the National Association of Secondary School Principals (NASSP), upholds that school leaders play a pivotal role in creating a progressive climate of teaching and learning. This national consortium describes its mission as optimizing benefits of technology in schools through the strong

leadership of building administrators and district superintendents. The effective implementation of technology as a "large-scale systemic reform" project reinforces that school leadership is *the* lynchpin for "enhancing learning and school operations through the use of technology" (TSSA Collaborative, 2001).

TSSA, aimed at producing a national consensus on technology standards for school administrators, grew out of the current reform movement. One explicit intention is to support P-12 administrators knowledge of and ability to perform technological functions and leadership actions (e.g., assessment and evaluation) (TSSA Collaborative, 2001). The standards are comprehensively divided into six domains:

1. Leadership and vision
2. Learning and teaching
3. Productivity and professional practice
4. Support, management, and operations
5. Assessment and evaluation
6. Social, legal, and ethical values (TSSA Collaborative, 2001)

In addition, practicing administrators and other educational leaders are expected to apply the standards to numerous contexts, including:

- . Administrator preparation and professional development program design
- Assessment and evaluation
- Role definition and job descriptions
- Individual and system accountability
- Accreditation of schools and administrator preparation programs
- Certification (credentialing) of administrators
- Self-assessment and goal-setting
- Design of technology tools for school administrators (TSSA Collaborative, 2001)

When exposed to the six domains, experienced teachers in master's courses within the educational leadership and policy studies program at the University of South Florida consistently express surprise. The public relations aspect is foreign to them, partly because of their isolation as teachers and a lack of involvement in shared governance. They question why technology is spearheaded at such a pervasive level as a reform initiative and its relevance to social, legal, and ethical values, in particular. They also struggle with the expectation that in their future leadership roles they will be expected to manage "multidirectional communication between a school, college, or university and its mix of publics," making technology "a standard part of planning and evaluation" (Woodroof. 1996. pp. 79, 82).

Issues of equity and access to technology in schools with high concentrations of minorities and low-income populations have also raised pressing concerns for social justice advocates. Among these are the pivotal problems of adequate technological training for students, teachers, and parents and the equitable distribution of resources to poor students and schools (Yau, 2000; see also Bravo, Gilbert, & Kearney, 2003; Wiburg, 2003). Wiburg (2003) points out a changing understanding of educational equity in light of disparate access to digital technologies and computer-mediated networks that exists from one school to another.

CASE SCENARIO: A PUBLIC RELATIONS ADVOCATE SPEAKS OUT

As a master's student in educational leadership, Ashley Sullivan (2004), a beginning teacher in Florida during the time of this research, wrote a case study concerning the role of public relations in infusing technology within schools. She focused the investigation on one of the well-equipped middle schools in the district in which she had taught. Experimenting with various approaches to communicating with voice recognition software, modems, e-mail programs, homework websites, and online grade books, she observed the scant involvement of colleagues in the same practice. Sullivan's observation was supported by anecdotal evidence from

coworkers' comments regarding what they perceived as unrealistically high standards for using technology to communicate with students and parents.

To further explore the topic, Sullivan administered a technology user survey to teachers, administrators, students, and parents. The results, along with a test e-mail sent to 105 faculty members that received only 47 responses, confirmed her hypothesis. According to the data she obtained, only 3 out of 32 teachers were willing to learn how to use new technology, merely 75°/0 of the teachers even knew their district e-mail address, and 12% had *never* checked it. In addition, few administrators at the school had taken advantage of available trainings, and only 53% of the teachers had even heard of FIRN, the Florida Information Resource Network, which provides valuable governmental statistics (http: / / www.firn.edu). In contrast, numerous children and parents were active in learning and using technology.

The handful of teachers who had implemented modern technology to improve their communications with staff, students, and parents were, coincidentally, very "popular" with stakeholders. Homework guidelines were available online, and students and parents alike were able to access grades via a secure website. One teacher, Sharon (pseudonym), provided homework links for all subjects on her web page. She received daily e-mail messages from students regarding assignments, extra credit, and progress reports, and parents turned to her for guidance on their children,s behavior, in addition to computer-related queries.

TECHNOLOGY STANDARDS: AN UNRESOLVED PUBLIC RELATIONS ISSUE

Based on the results of her action research, Sullivan was startled by the contrast between the number of students and parents who expected personnel to use e-mail and the teachers and administrators who actually did so. On the surveys, the majority of students and parents pleaded for more contact from their school in any form, especially electronic. However, most of the staff considered communications technology unduly time consuming, lamenting, "I don't have time to check our e-mail server—this is useless—why use it when you have runners and aides?"

Sullivan's study underscores the need for practicing and future practitioners to be educated about the changing role of public relations and communications technology within the school community. As established, this early career educator believes that computer technology is a basic, everyday skill, not an optional one.' Sullivan tenaciously holds the position that technology is here to stay, and for the better. In an effort to improve the academic climate for all school-community members, including parents, she advocates the widespread implementation of computer-based technology within classrooms and across schools and districts:

The most obvious problem blocking progress at the school I studied involves insufficient training, coupled with an entrenched mindset. Those educators and administrators who have not grown up In the age of computers may not understand the opportunities being offered to them. Reality has changed: Email, websites, and listservs are the mainstay of communications, even for schools. (Sullivan, 2004. p. 148)

Echoing this view, a new administrator who participated in a recent study of leadership socialization remarked that "major corporations could not survive in today's world without technology. How can educators?" (Mullen, 2004, p. 131). Many community residents, especially parents, "view the school as *the* disseminating agency of information and services to students" (Hoover & Achilles, 1996, p. 26), which puts into perspective any resistance from teachers to employ electronic communications with stakeholders and the administrators' failure to encourage the use of technology for this purpose.

Changing Standards of Technology

One would naturally expect school personnel and administrative staff to model changing standards of technology on a daily basis. New policy and training requirements of personnel, as well as changing strategic goals within education, are just some examples signaling the wide adoption of technology. Further. within public schools, a "collaborative, technology-rich school improvement plan" has been set as an overarching standard and hence a measure of success (TSSA Collaborative, 2001, p. 8). But many professional educators

and leaders nonetheless lag, sometimes being criticized for not fully participating within their domains, modeling expectations for others, or keeping pace with the times. Those who teach in non-technology disciplines—such as math and English at the school level and educational leadership and higher education at the university level—have suddenly found themselves accountable for this new realm of professionalism.

However, just as no one wants to be considered a Luddite—rioters who fought the displacement of factory workers by machinery in the 18th century *(New Webster's Dictionary*, 1993)—we should also be wary of "jumping on the bandwagon" of every form of technology that comes our way without reflection and assessment. On the other hand, if "community" instead of "organization" is the preferred goal and metaphor of school, then technology presumably plays a vital role in improving relationships with the public (Merz & Furman, 1997). Specifically, Dodd and Konzal (2002) assert that effective communication in schools promotes a positive and healthy relationship with the public because it "leads to increased parent involvement and student motivation, more positive parent evaluations of teachers. and higher levels of parent comfort with their children's schools" (p. 234).

Public Relations Perspective

Computer-managed instruction (CMI) has a major payoff for satisfying the public relations aspect of schooling, as suggested in Sullivan's case study. Immediate improvements might not be seen in student learning per se but rather in the indicators of instructional and school activity. Examples include Internet-posted grades, tests, assignments, progress reports, and display of critical data, in addition to electronic exchanges between parents and the professionals involved in their child's academic life.

In contrast, computer-assisted instruction (CAI) focuses on the delivery and enhancement of instruction in support of the intellectual development of the child. Examples of CAI are computer programs for teaching certain subjects and PowerPoint-based lessons. (For definitions of CMI and CAI and their distinctions, see Northwest Regional Educational Laboratory, 2001.)

Identifying Basic Know-How for Practitioners

In her case study. Sullivan identified a set of basic items that collectively forms a fundamental structure for the teacher's daily routine, and, where applicable, the administrator's. Study respondents made the following suggestions for improving the quality of their work lives:

- A working e-mail address that is checked on a regular basis and available to parents and other stakeholder groups.
- Updated computers, installed with applications that benefit one,s subject matter and professional interests.
- Homework and grades posted routinely and securely online, with hyperlinked text connected to additional resources.
- A functioning, up-to-date classroom and school website that anyone (e.g., parent, student, prospective member) can visit, with relevant online forms.
- School-home partnerships, facilitated through electronic newsletters and subject-specific websites that contain grades, homework, and other resources.
- User-friendly design of the school's technology systems, including instructions and training, for personnel and others new to computers.
- is. Knowledge of people's rights and those of institutions and states, as e-mail can be mistakenly sent, intercepted, or accessed.
- The practice of "netiquette": knowing what to say and how to say it has been recognized as a learned social skill (Sullivan, 2004).

Adding to this foundation, we encourage practitioners to explore the more than 9,000 current school websites. A relevant scenario, including applications and software, appears in Table 1.

Table 1. Technology Tips for School Leaders: Applications

Scenario:	With your school team or university colleagues, discuss the TSSA and the contexts in which these are to be applied. Seek an understanding that fits with your own setting, vision, and resources, as well as grade level. Devise a set of scenarios for illustrating the standards and applications, and use these as a basis for problem solving and socializing with others. Cooperative learning contexts are terrific mechanisms for kindling the spirit and producing mastery.
Software:	SchoolSpace is a software package that enables administrators to manage information and teachers, parents, and students to communicate. It offers a streamlined approach to report analysis, grading, attendance, and information organization and storage. Also, IT software provides different online modules for administrators, guidance counselors, and teachers to record and store information. Schoolnotes.com allows teachers to store homework assignments online for free, so students and parents can easily locate their school assignments. MyGradeBook.com is another website that allows teachers to calculate and securely post grades online. There is a minimal yearly access fee required, but Sullivan says it is "worth gold" and that parents have even offered to pay the fee so they can have instant access to their children's grades. Parents and students can access their accounts using individualized passwords. Cancellations.com is another noteworthy website, one that allows districts to post school closings online and send e-mail alerts to parents who are registered. Bigchalk.com allows teachers space to maintain a calendar, publish a homepage, post images and student artwork, and access research databases. Yahoo! Geocities, a website that can be reached via geocities.com, provides free online storage space for creating homepages for a class or school.

Critiquing Assumptions of Basic Know-How

The TSSA imply that administrators should lead the infusion of standards within their schools by seizing the opportunity for professional staff development and their own personal learning. Instead, school leaders typically use intermediaries, such as experts in technology, for modeling to others and for the hands-on knowledge upon which they quickly become dependent (TSSA Collaborative, 2001). However, taking as an analogy the world of outdoor leadership, "paddling a kayak" and "working to reach consensus in a group" are challenging tasks to those who lack the basic skills or who have not been oriented: "Looking back at my early forays into outdoor leadership I realize how ignorant I was. . . . Practice, especially with feedback on your performance, will allow you to overcome the discomfort and move into competence. Mastery of skills is important not only for leadership, but also for teaching" (Kosseff, 2003, pp. 39-40).

Recalling our ignorance at the start of our own professional journeys, we can better empathize with the struggles others may exhibit in an area that is new to them—a mentoring capacity that is not only critical for technology trainers but also seasoned principals socializing new administrators and teachers. In the context of technology, some people, such as Sharon, the technologically fluent teacher mentioned in the vignette, send attachments with their email messages, convert file formats, and perform other computer-based tasks in an automatic and almost "natural" manner. For others, however, even a simple process like sending or responding to an electronic message is a demanding task.

Obviously, the issue of basic know-how is far broader than the domain of computer technology and related communications for schools. For example, basic tasks involving the development of duty rosters, facilitation of staff meetings, and the use of problem-solving strategies. discipline techniques, and school improvement planning all require know-how and effective implementation. And managing different types of school budgets is not a challenge to be underestimated, often posing a stumbling block for those new to the job (Mullen, 2004). Other more basic but nonetheless potentially troublesome tasks include designing and using surveys, developing interviewing skills, and documenting personnel issues (Llewellyn, 2004; Paquette, 2004). But even these tasks revolve around computer technology, which, as the TSSA Collaborative (2001) specifies, involves a

redefinition of role and job description. Schools are now at the point where, as one of our reviewers pointed out, technology not only informs learning but also continues to reshape education.

THE TECHNOLOGY SLOPE: LEARNING CHALLENGES AND CONTEXTS

Contextual Adaptability

Even straightforward technology-based tasks and procedural issues, some of which have been previously noted, are culturally and organizationally embedded and will require decoding. Partly for this reason, concept—defined as a mental structure and product of the imaginative or inventive faculty *(New Webster's Dictionary,* 1993)—is a far more empowering tool than technical skills mastery . According to O'Neil (1995), technology should no longer be used to simply augment traditional processes of communication and teaching, learning, and administering. To have an impact, technology should be used to bridge the school, home, and community. This implies that the most basic uses of technology have a vital function beyond their apparent application, and that technical skills acquisition alone is not sufficient for developing relationships with public groups.

Contextual adaptability can be envisioned, we believe, as a continuum ranging from technological literacy to technological fluency to technological ingenuity. Technological literacy involves basic skills such as opening and saving a computer file and reading e-mail; more complex is techno logical fluency, the ability to apply technology meaningfully within a context, distinguishing it from the more "primitive" form. Not discussed in the literature but evident to us is a more complex form we call technological ingenuity—the capacity to generate new contexts with technology and creatively use applications for purposes not previously imagined. For example, one educational institution adapted PowerPoint, a presentation software program, to solve a problem within an administrative context; namely, the tool was used in an original way to create floor plans to facilitate moving to a new building.

Contextual adaptability, not procedural knowledge, is likely the overriding capacity necessary for school leadership to flourish, especially in implementing and sustaining a climate of technology. The TSSA Collaborative (2001) identifies the significance and role of school context (e.g., school and system size, community characteristics) in the capacity of leadership to forward this systemic reform initiative. In other words, what appears on the surface to be a basic skill may be a complex, if not demanding, conceptual task requiring lifelong learning. School leaders in the technology domain are not only accountable for their own performance but also the system as a whole; assessment, evaluation, and goal setting occur at interconnected levels.

Social Milieu

Technology fluency, even literacy, can be viewed as culturally situated individual activity (Cobb, 1994). Here, the view of learning resides not with the individual student or teacher per se, but rather within social contexts and arenas wherein purposeful or authentic action occurs. Many school and university practitioners now think of computer-based technology as a basic skill; however, this interpretation should be problematized. Where computers are underutilized or misused as, for example, a mechanism for e-mail but not for the Internet, their potential is not being maximized. And where teachers and administrators lack Internet connections, access to functioning computers, and technology support, as well as informative training and professional development, one must consider the social milieu in which the literacy of individuals and groups takes shape.

To elaborate, just as Cobb (1994) questions whether the "mind is located in the head or in the individual in social action" (p. 13), one can speculate whether technology literacy is a fundamental skill that resides in one's thinking or is a capability that presents itself as an activity in creative problem solving. Taking the latter view, it is difficult to make the distinction between technology as a basic or an advanced skill without considering the problem for which technology is a solution. Technological literacy suggests two components: the knowledge and ability for using a resource to solve a problem and the capacity to identify problems befitting such skills, as well as the capacity to modify resources as problems dictate.

Word processing, another example, is a basic skill when used to solve rudimentary tasks in a manner not measurably more effective than an electric typewriter. If one only used word processing to perform the same actions as those accomplished with the "old" technology (e.g., type and delete words with minor formatting using tabs), such actions could only be characterized as elementary technological skills. By contrast, use of word processing to alphabetize citations by converting them to a one-column table and using the table sort function to rearrange the entries represents technological dexterity. In both instances the resource was the same, but the demonstrated capability, defined by the problem and solution to it, was vastly different. Although the former may be labeled technological "literacy," the latter reflects an advanced capability one could call technological fluency because of the creative use of technology to solve a novel problem.

Regarding the issue of basic versus advanced technological skills, the intersection of problems and solutions forms four conditions. On a continuum from the most basic skill (point 1) to increasingly advanced skills (point 4), the last item listed reflects the greatest sophistication within our schema.

1. Solves ordinary problems with established solutions.
2. Diagnoses unanticipated and unusual problems and applies existing solutions.
3. Improvises unconventional and creative solutions to routine problems.
4. Originates and defines extraordinary problems demanding innovative solutions.

Blind Advocacy

The technology impasse described herein has some uncertainties that should be mentioned in order to help balance the picture being painted. For example, many naturalists and environmentalists strongly believe that society has become a slave to technology, and that we as humans are turning into a "technology" ourselves, inseparable from the computer screen and separable from the deeper wonderment of life, compromising our capacity to live fully. In addition, the technology literature and related educational standards seem colored by a positive, even strongly advocating, tone. As Hargreaves, Earl, and Schmidt (2002) attest, "the underlying assumption in a technological perspective is that everyone shares a common interest in advancing the innovation. The only issue is how best to implement it" (p. 73).

One overridingly favorable bias, however, poses challenges for the novice technology user striving to understand the pedagogical value of technological trends: Critical perspectives on distance education are underrepresented, as are frameworks for evaluating technology-infused learning (Mullen, 2002). Bowers (1998) argues that the discourse in this field is "dominated by advocates who now control the direction of educational reform" (p. 76). Technology, which has been ascribed status apart from its pedagogical function, is reified as "a transformer" (Mendis, 2001). Such attribution potentially detracts from the teaching/learning and mentoring focus.

Management Efficiency

Further, a serious criticism of the role of technology in education today is its alignment with efficiency models and dynamics of "prediction and control," or "management- speak." English (2003) has linked what he calls the "core technology" to education standards—specifically the National Council of Accreditation for Teacher Education/ Educational Leadership Constituent Council (NCATE/ ELCC) designed for the professional preparation and practice of school leaders—of which the TSSA Collaborative is a leading part. He views the NCATE/ELCC accountability model as a "rational-technical apparatus" (or core technology) that harnesses the field, not as a "foundational epistemology" guiding it (pp. vii, 127, 129).

Such dark sides of the standards can be applied to mechanistic attitudes toward and uses of technology that detract from human relations goals. Where schools promote a "hierarchical arrangement" with stakeholder groups through technology use, the former would be expected to market and sell the vision of the facility and its managerial model rather than engage parents and others in a communal process. In other words, the use of technology itself is no guarantee that schools will build democratic, instead of bureaucratic, cultures. For example, in Sullivan's scenario, a reverse world- view is portrayed wherein parents (i.e., community stake-

holders) have moved ahead of teachers and administrators in utilizing technology for school-home communications.

Equitable Access

Of major concern in public relations are equity and access. Although more and more American families have Internet access, many still do not, creating poverty-based obstacles. If general announcements and items supporting the instructional program of a school are exclusively available on its services, then the lower end of the socioeconomic spectrum can be disadvantaged. In such cases, current means of interaction must be maintained, leading to a duality in systems that severely compromise the capacity for impoverished families to satisfy expectations for technology use. Because the Internet is now "the main avenue of commerce and communications, people not connected to the Internet could become a new category of the disenfranchised" ("Study: Millions May Lag as Internet Grows," 2000, p. 2).

According to the Consumer Federation of America and the Consumers Union's report (discussed in "Consumer Groups," 2000), the "digital divide," which risks large parts of the U.S. population being left behind socially, economically, and academically, will probably worsen in the future ("Study: Millions May Lag as Internet Grows," 2000, p.2). The evidence for this claim was based on a national survey of 1,900 respondents, although the Consumers Union does not clarify how they were selected: "Nearly half of those who responded to a recent nationwide survey said they do not have access to the Internet at home" (p. 1). Of those who are "disconnected," more than 50% claimed not to know what the Internet is, and 40% indicated not anticipating being connected in the next 4 years. A pressing reality in American society is that "the disconnected are much more likely than those who do have Internet access to live in lower income, older and minority households" (p. 1).

Further, in 2001 the National Organization on Disabilities surveyed a cross section of adults nationwide and interviewed 2,024 of the respondents (Hendershot, 2001). This grassroots organization, which has shaped the legislative agenda with respect to persons with disabilities, discovered that although the use of technology by persons with disabilities has been increasing approximately 38% used the Internet at home—this statistic lags behind the figure (56%) cited for use by adults without disabilities. The research concluded that a significant gap in technology use continues to exist for people with disabilities.

Moreover, many professionals (e.g., journalists, researchers, and corporate executives) characterize the Internet as a main artery of communications and commerce. New studies have linked technology with student achievement, and the results thus far appear to have established "a small but significant impact" (see, e.g., Branigan, 2004, p. 1). However, as Branigan suggests, this picture is far less rosy than it may appear, as poorer school districts continue to lag due to reduced access to technology. As technologies grow in sophistication, so too do the requirements of children and families to stay on top. The growing emphasis on and excitement about laptops and wired campuses can only exacerbate the digital divide. Although struggling schools continue to work hard to acquire donations for their outdated computer labs, wealthy schools have been rapidly replacing their own labs with personal laptops for all students. Not surprisingly, the greatest factor involved in achieving this whole-school change involves "shifting the expense of the traditional computer lab to a parent- student responsibility" (Thomas, 2000, p. 2).

LESSONS AND IMPLICATIONS

Bringing attention to the problem of cultural disparity in technology literacy during the digital age necessitates that solutions be actively sought. As examples, the sources we cite on the topic of equity and access (Branigan, 2004: Bravo et al., 2003; Consumer Federation of America and the Consumers Union, 2003; Hendershot, 2001: Thomas, 2000; TSSA Collaborative, 2001; Wiburg, 2003; Yau, 2000) together recommend the following school and policy reforms:

- Public policy should close the digital divide by giving people the skills to use information technologies, the experience to make them comfortable with these technologies, and the resources fo obtain the necessary hardware at home.
- Policymakers should seek cost-effective avenues to address the deprivation that the digital divide creates, as vulnerable groups (e.g., ethnic minorities and students with disabilities) are harmed by their lack of access to technology.
- Direct tax breaks should be given not to corporations, as has been the case, but instead to the people who cannot afford technology.
- An accurate picture of technology's effect on school performance and student achievement should be obtained by examining multiple factors (e.g., educators' teaching practices and computer-related experience, student engagement in lessons using technology, teacher-parent patterns of technology communications; and teacher and administrator training, as well as their databased and daily use of computers).
- The focus on high-stakes test scores as a measure of achievement should be broadened to incorporate a diverse range of computer-based activities for students (e.g., collaborative web design).
- All parents and guardians should be educated about the value of technology skills for their children and themselves and take steps to accommodate students who do not have computer access.

As concerns the issue of public relations, K-12 American schools are now under fire for not meeting the increased expectations of the public and the business community. Evidence abounds, taking such prevalent forms as pay for performance, accountability standards, school-to-work initiatives. and high-stakes testing. Clearly, schools must regain the public's trust, and technology has the potential to aid in this goal. Seeking "a sense of community" does not come easily for many educators largely because of the isolation involved in the work, yet many have admitted to being dependent on the public's help in achieving academic goals and fostering relationships with students (Hoover & Achilles, 1996; see also Merz & Furman, 1997).

How can public schools do a better job of public relations, then, particularly in the area of technology? One lesson of Sullivan's case study (2004) materialized in the form of Sharon, who served as a significant link between parental acknowledgment of a job well done and the degree to which technology can be used in the business of education. CMI can have a major payoff for satisfying the public relations aspect of schooling. Similarly, school leaders can improve their relationships with stakeholder groups by using CMI systems as a form of outreach and standard of performance in bridging with homes and communities. Distinctions between the use of technology for building and sustaining public relationships (CMI) and for pedagogical improvement and student learning (CAI) could be a catalyst for increased success at the local school and district levels.

CONCLUSION

What is considered an advanced skill today will, for many of us, become a basic one tomorrow—but this reality is simply not the case for many pockets of society and even entire school districts that will continue to trail behind. Higher expectations for accountability in teaching and learning at the K-12 level and shared responsibility for quality education and leadership are major goals of school reform (Jossey-Bass Reader, 2000; Mullen et al., 2002). Technology is rapidly reshaping how we teach, learn, communicate, research. and evaluate at all levels of the academy and the nation's schools. Contexts for such study include high poverty with high minority ratios (Lanahan, 2002), student learning and achievement (McNabb, Hawkes, & Rouk, 1999), major initiatives for implementation and media coverage (Meek, 1999), and university innovations that promote forays into institutional and global partnerships (Boyer, 2003).

Graduate preparation programs are also being slowly impacted: A minority of university professors in educational leadership have taken the lead by meaningfully integrating technology into classroom delivery and student learning. But the TSSA for school leadership and implications for practice will also need to be thoroughly discussed, beyond the modeling of technology use. The TSSA Collaborative's six domains of

performance for technology infusion seem over whelming in their comprehensive reach, so future school leaders will need time to construct an understanding of the systemic picture.

One aspiring school leader has already formed the impression that technology has become "a lifeline, one needed for guiding the work of every school and for creating much needed, family-school partnerships" (Sullivan, 2004, p. 16). Ultimately, technology is more than a word today—it is a powerful force that is revolutionizing education, with the belief that the 21st-century school and academy will be significantly different.

NOTE

We acknowledge that the debate concerning whether technology Is a basic or an advanced skill remains open or unsettled in this article. We argue that context and change are overarching frameworks in this matter, which means that communIcations technology Is neither basic nor advanced per se, while allowing SullIvan, the teacher, to speak her own mind about how she sees technology as a basic skill that every school practitioner should know. We present both points of view. without collapsIng them into a singular perspective, and have also provided support from the literature and from real life contexts for each.

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