Virginia Society for Technology in Education

# Journal

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Contents

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# Editor's Note:
## Changing Schedules

This note is to inform the readers of and contributors to the VSTE Journal that following this issue, the Journal will be published on a more open-ended basis. As such, we hope it will be more responsive to needs of those involved in educational technology.

This change is the most significant move since the Journal went from a printed publication in 2001 to a PDF-only version. The change to electronic format was based primarily on economic factors. The change to publication schedule is being made not due to economic factors, but due to what we see as a need within the academic community.

The plan is to publish articles as soon as they have passed through peer review and been edited (if necessary) by the author(s). The process will benefit readers who have more ready access to quality information. It will also benefit authors, who will not have to wait for months to see their work printed. This means that rather than being published twice-per-year as a collection of four to six articles, the Journal will be comprised of individually published articles throughout the year, very possibly one-at-a-time.

Since articles are already made individually available to readers, the change may not be readily evident. New articles that have been published will be listed each month in the VSTE Edge, and of course archived on VSTE's website. For organizational purposes, the volume number will change in September, and individual articles will have pages numbered in serial fashion within each academic year.

The VSTE Journal will remain a refereed publication, with submissions being subject to a double-blind peer-review. We are committed to continuing a tradition of fair, unbiased critiques by experts in the field of instructional technology, teacher education, and K12 technology integration.

If you desire more information about the VSTE Journal, please contact: journal@vste.org. For those who would like to submit an article, please read and follow the submission guidelines, and submit your article to: journal_submissions@vste.org

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# The Technology Specialist's Dilemma: Computer Repair Technician or Instructional Leader?

## Ten Steps for Success for Technology and Instructional Leadership in Schools

*by Patrick Ledesma*

As technology becomes more embedded in the daily operation and instruction in schools and classrooms, the role of the technology resource teacher or specialist has evolved to meet these new demands. Whereas such roles were previously limited to computer maintenance and the occasional skill-building "how to" lesson, today's technology specialist is often faced with balancing a variety of maintenance, instructional, staff development, and leadership challenges.

Many districts created broad "job responsibilities" that describe the dual technology and instructional role in order to define the evolving nature of the position, but often the actual implementation of that role varies from school to school and from individual to individual.

This article examines some of the observations and successful strategies for implementing technology integration and leadership in a school community and is written to help teachers thinking about a technology resource position or the teacher who has just begun their new technology specialist role.

***Step 1: Know your strengths and have a variety of teacher leadership experiences before accepting the job to minimize the "initiation period."***

Between the role of classroom teacher and the role of administrator exists the ambiguous role of the instructional specialist that is neither classroom teacher nor administrator. Classroom experience enables the technology specialist to understand instruction, but classroom experience alone does not always prepare one for influencing and guiding adult practices. Teacher leadership experiences at the department, grade, or school level add an essential level of credibility for working with teachers. Additional experiences such as mentoring, curriculum development, and participation in county wide leadership opportunities are also important. An established teacher-leader transitioning into an ambiguous position will easily define that role with administration and teachers as an instructional and staff development role rather than simply a repair function.

***Step 2: Collaborate with administration on a consistent basis to set school-wide and grade-level expectations.***

Administrative support is essential for effective instructional leadership.

# Technology Specialist's Dilemma, continued

To facilitate this process, technology specialists must have the expertise and skills to communicate how technology issues affect the administrative and instructional functions of the school and to make recommendations on how to implement policies and support efforts. The final decision is always up to administrators, but technology specialists must articulate the possible options, benefits, and concerns. The technology specialist must establish a productive relationship with administrators and meet weekly to keep them informed of all ongoing and upcoming issues and projects.

***Step 3: Establish procedures to manage the technology (prioritize and define what is important and what can wait).***

Many schools now have a variety of desktop computer labs, mobile laptop carts, Smartboards, Interwrite Pads, digital cameras, digital video cameras, LCD projects; the list goes on and on. Murphy's Law dictates that the technology will inevitably break or not work as planned. Teachers must know the proper procedures to follow to request assistance. The technology specialist must organize what gets addressed first based on specific criteria – most often what impacts immediate student instruction or ongoing school wide priorities, rather than individual teacher demands or personal expectations. Having previous classroom experience, the technology specialist understands the teacher perspective that the most important thing to teachers are their individual classrooms, but successfully maintaining a school environment necessitates a more global understanding of school priorities and needs.

Perhaps one of the more challenging tasks is convincing teachers that their classroom computer is a work computer designed for specific county duties, rather than an extension of their home computer. If limiting administrative privileges to install personal software or other software not on the approved county list is necessary to lessen repair problems and conflicts, the technology specialist must plan with administration to develop and enforce specific policies and expectations.

On the other hand, the technology specialist also learns and collaborates with teachers to maximize the use of the computer. Often teachers have knowledge of instructional software that can be useful to their specific setting. In these instances, the technology specialist works with the teacher and county policies to implement the software in the classroom.

Just as all classroom teachers know that student learning occurs only after successful classroom management, technology specialists must gain control of repair issues to make time for staff development and instructional leadership. Being able to prioritize a schedule based on school wide priorities and instructional goals, rather than responding to every issue when stopped in the hallway, will allow the technology specialist time to address all issues appropriately.

***Step 4: Understand your school community and realize your role in fulfilling its mission:***

It is critical for the technology specialist to understand the needs of the students, teachers, and administrators. What affects student achievement at the school? What are the technology proficiencies of various teachers and how does each team view technol-

# Technology Specialist's Dilemma, continued

ogy's role in their instruction? Which administrators are more technology savvy? The technology specialist must understand these issues in order to design appropriate and effective planning and collaboration efforts. Personally designed surveys based on specific school needs given to staff at the beginning of the year can help the specialist categorize the training needs of staff. Ultimately, consistent face to face contact with teachers and students add tremendously to the specialist's understanding of the school culture.

At Holmes MS, we understand the challenges our diverse socio-economic community faces with technology. Over 40% of the students receive free and reduced lunch and over 90 different countries are represented in our student population. Basic access at home for many of our students is always an issue, but understanding the role of technology in society we also know that the "haves" will never wait for the "have nots". So, we strive to expose our students to technology as often as possible during the school day and through after-school programs. Although students can learn technology skills through electives and after-school programs such as Technology Club, technology is integrated into other clubs. For example, students film and edit video on the computer for the news show that is broadcasted through the school. The Student Council also films and edits videos to show new and upcoming students a tour of the school. Highlights of intramural games are part of the school website. This approach of integrating technology wherever it fits helps maximize exposure.

Teachers display a wide variety of skills and preferences with technology. When providing staff development, it is important to consider how different teams utilize technology and who among the teachers are at the invention stage of technology integration, who are at the appropriation, adaptation, adoption stages, and which need help moving past the entry stage. Some teachers are very independent and prefer be given the technology and no further assistance. Others may require simple "how to" instructions and can immediately make curriculum connections.

Many teachers benefit from sessions that introduce the technology, give sample applications, then allow for guided planning time to integrate the technology into their classroom. These teachers may require follow-up support. Then there are always a few teachers who may require significant assistance learning and integrating the technology. They benefit from smaller group or one-on-one sessions with consistent follow up. For the fewer teachers who need encouragement to adapt the technology to comply with school expectations, the technology specialist must collaborate with administration so that both support and direction can be provided.

It is also important to know which teachers are interested in expanding their skills and are willing to participate in special projects. These are the pioneers who will take risks and be supportive when implementing innovative projects through grants and other creative solutions. They will also be the "teacher trainers" who help other teachers on their team or department learn technology skills. Having a "cadre" of teachers who are proficient with technology and willing to share their skills is an important resource for the technology specialist.

# Technology Specialist's Dilemma, continued

***Step 5: Understand the needs of adult learners.***

The technology specialist understands the difference between teaching children and teaching other teachers. The research on adult learners is plentiful. Teachers value practical instruction that is relevant to their students and classroom. They appreciate being able to share their own knowledge and experiences as they learn about the possibilities of what is being taught. Understanding of these principles combined with the personal and professional knowledge of those with whom one works assists the technology specialist in knowing what will motivate each teacher to learn new strategies or comply with school expectations.

***Step 6: Understand the instructional technology initiatives and direction of the system and how it affects teachers in the classroom.***

Teachers and students in Fairfax County Public Schools benefit from a wide variety of instructional initiatives and programs; however, since the education profession has witnessed many strategies or programs come, go, and sometimes come back again, it may be difficult to distinguish between "fads" and what will be lasting changes to our profession. *The technology specialist understands how technology applications have the power to change traditional classroom practices.*

When Blackboard was introduced, some teachers weren't comfortable with the concept of online access to classroom information and the emphasis on email communication since they were accustomed to telephone contact and written assignment books. This new technology "disrupted" their traditional practices and perceptions; however, our discussions (at Holmes MS) centered upon the fact that even if Blackboard were to be replaced, the fact remained that email correspondence and on-demand access to classroom information were becoming parents' standard expectation. Any replacement system would have similar features. The teachers had to understand that progress in society's expectations for accessing information were changing classroom practices and the traditional methods of parent communication and collaboration.

As teachers adopt the Benchmark Assessment Reporting Tool (BART) initiative to give online assessments to students, the timely feedback and various reports that can be generated by BART are changing assessment practices, and department and team collaboration. Although some teachers may still view this as a simple online assessment given and interpreted in isolation, many realize that this initiative, by providing common assessments online that can be given school and county wide, changes the tradition of the teacher as working "alone" in the classroom. Now test results across classes and schools can be compared and analyzed relatively easily.

These rapid changes in teaching made possible by technology will require the technology specialist to keep current in both technology and instructional issues in order to facilitate and lead discussions about instructional practices.

***Step 7: When teaching teachers, skills training is good, but leadership development is best***.

Teaching "how to" skills is a common theme for technology *training*, but only when instructional applications are made to the curriculum does actual *development* begin. The

# Technology Specialist's Dilemma, continued

role of the technology specialist is part staff development: helping teachers expand their instructional repertoire with technology. With these new skills come the opportunity for encouraging leadership and professionalism. When a teacher learns a new strategy, are there opportunities to teach other teachers, present at a faculty meeting, or share with other county teachers or specialists? A technology specialist with experience in school-wide and county-wide leadership opportunities will be in the advantageous position of helping teachers realize their potential beyond the classroom. Perhaps that teacher is ready to become a new teacher mentor in the county mentoring program or would write curriculum during the summer. Perhaps the teacher is ready to pursue National Board Certification. A technology specialist who views technology skill building as only the beginning of professional development can help teachers grow to be better teachers and leaders.

At Holmes, the seventh grade social studies and English teachers wanted to create review questions and activities for students that could be accessible at home and school. Together with the technology specialist, they created a series of online questions and review games using Quia.com; they created a website to link those activities, then shared this resource with the county specialist and social studies departments at other schools. They then reserved the mobile laptop labs after school to give students without computer access at home the opportunity to benefit from these activities. The teachers kept data to monitor student progress. Another social studies teacher collaborated with the technology specialist and created a Civil War video/PowerPoint presentation with Microsoft Producer. They created a webpage to show the presentation with links to activities and other resources. The social studies teacher then sent these resources to the county specialist and shared them with other teachers.

***Step 8: Maximize opportunities to teach students.***

Technology specialists are in a unique and enviable position to share their enthusiasm and expertise in technology with students across grade levels. This opportunity exists only if the maintenance and repair challenges can be contained and the staff development opportunities organized. By co-teaching with teachers, technology specialists improve their own content knowledge while assisting the teacher with introducing or extending their technology skills. By working directly with students, technology specialists gain an understanding of student strengths, interests, and needs. Sharing instructional responsibility and being in front of the classroom reinforces the specialist's teaching and instructional role.

If co-teaching isn't possible, the technology specialist can still impact student learning by organizing after-school programs or assisting with programs that can benefit from technology.

***Step 9: Seize the initiative.***

The technology specialist must be a self-starter and be able to operate independently with clear objectives in mind in situations where minimal direction is given. Having a sense of purpose and knowing what must be done in order to benefit students helps guide what must be prioritized and organized. The successful technology specialist ac-

# Technology Specialist's Dilemma, continued

cepts the condition of the school and collaborates with administration and teachers to improve student learning. If resources are inadequate, the specialists should write grants and obtain funding from other resources. If some innovative technology such as the SmartBoard is not available to all teachers, then the specialist should maximize the learning and potential for the classrooms that do have them while educating others of their potential. The technology specialist can then seek funding through other sources to address equity issues.

***Step 10: Most importantly, enjoy the job.***

All technology specialists love technology and enjoy working with students. To be able to share this enthusiasm for technology in a work setting with teachers and students as a profession is truly a wonderful opportunity. That point should never be forgotten during times when one becomes overwhelmed with the mundane repair and inventory demands, the mixture of enthusiasm and frustration from teachers, students who always want more, the inevitable hardware failure, and never ending software patches and upgrades.

After all, aren't you doing exactly what you chose to do? So take the moment to enjoy the details.

## About the Author

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# Live and Unedited: Videoconference Applications in the Social Studies Methods Class

*by Anthony P. Dralle, Ph.D., Amy J. Good, Ph.D., and Katherine A. O'Connor, Ed.D.*

In 1997, professor and researcher Peter Martorella looked for the emergence of the "sleeping giant" in social studies education, by which he referred to technology's still-slumbering role in teaching and learning social studies content. Since that time, the availability of one technological tool—the internet—has increased to the extent that most teachers and students are able to access a great variety of internet-based resources with little difficulty. Social studies teachers' increased use of the internet in their teaching must be credited at least in part to inservice programs' emphasis on using internet resources in teaching (Bolick, Berson, Coutts, & Heinecke, 2003). At the same time, instructors in teacher candidates' methods classes must continue to prepare teachers to use the newest technology tools, which are becoming available in public schools at an increasingly rapid rate (Bolick et al, 2003).

While the internet will continue to offer new and exciting resources for teaching and learning social studies, continued hardware and equipment advancements make possible many additional uses of internet technology as a teaching and collaborative tool. Specifically, continued expansions in Internet 2 bandwidth and the greater availability of high-speed internet connections at public schools facilitate using such videoconference applications as teleobservation and telecollaboration much more easily than even just five years ago. Using these technologies, along with affordable (between $1,000-$3,000) videoconferencing equipment, instructors in methods classes for teacher candidates can conduct real classroom observations and real-time collaborative classes with teachers and students thousands of miles from their on-campus college classroom. Skeptics have warned of videoconferencing's lack of reliability (Thorsen, 2003), but these concerns are diminishing quickly as more public schools and a great number of colleges and universities purchase the equipment needed to telecollaborate seamlessly.

## Teleobservation in the Methods Class

Teleobservation is a type of collaboration between a university and public schools that provides instructional and observational opportunities among classroom teachers, university professors, K-12 students, and preservice teacher candidates. Teleobservation is an observation method that includes team teaching and utilizes videoconferencing to enable a university professor and a K-12 classroom teacher to meet and plan a content lesson for K-12 students. The lesson can be taught by the classroom teacher, the university professor, or by both as team teachers. The preservice teacher candidates remain

# Videoconference applications, continued

on campus to observe the social studies lesson in real time via videoconferencing. Before the lesson begins and at the end of each teleobservation class period, the classroom teacher(s) can stay on camera, giving the preservice teacher candidates an opportunity to ask specific questions regarding the content, methods, or management planned for the lesson or observed during implementation. Preservice teachers may also communicate with the classroom teachers via email or threaded discussion before or after the teleobservation, making possible additional reflection and conversation.

**Setting up a Teleobservation Partnership: Equipment Considerations**

Equipment needs for videoconferencing are surprisingly affordable, with a school's entire setup costing less than $3,000. For videoconferencing and telecollaborative teaching experiences, both university sites or the university site and the public school partner site need an Internet Protocol (IP) address, microphones, H.323 video conferencing equipment (i.e., Tandberg, Polycom), software, a way of displaying video (i.e., a television monitor or Liquid Crystal Display (LCD) projector), a speaker system, and transmission lines. The videoconference units are portable and need only electrical power, a high-speed internet connection of 384 kilobits per second, microphones, and a television monitor for displaying the video and playing the audio. Once purchased, this equipment can be used in multiple classrooms, or classes can reserve space in a room dedicated to hosting videoconferences (Holston, 2005).

During teleobservations between public schools and methods classes at East Carolina University, video and audio signals from one site are digitized and made available to videoconferencing equipment via the internet. For internet safety reasons, the university site should dial up the partner school site. When executed in this way, the partner school site has the authority to answer the calls. When the partner school recognizes that it is the university calling in, they answer. In this way, the partner school is in control of permitting or not permitting any calls from unknown IP addresses.

One additional preparation consideration is securing necessary permission forms. It is important for K-12 students to sign their school-based permission forms and the preservice teacher candidates to sign the university tele-education forms. See Appendix A for an example of a tele-education permission form.

**Personnel Considerations**

There are multiple productive formats for conducting teleobservations. Key personnel include a K-12 classroom teacher and two technology support staff members. Depending on the type of observation, one university professor may be present at the K-12 school, teaching or team-teaching the observed lesson, while a second professor remains on campus with the preservice teacher candidates to guide their social studies methods observation in the university classroom. Alternatively, a single university professor may guide the preservice teachers' observation experience, while the classroom teacher teaches the observed lesson. These arrangements nurture seamless technology integration because it is the technology support personnel who set up the mobile equipment, while the classroom teacher and university professor teach social studies content and concentrate on the K-12 students' learning.

# Videoconference applications, continued

**Scheduling Considerations**

As Cochrane (1996) noted, "merely linking distant groups or individuals at different locations… [does not in itself]…create an effective learning environment" (p. 320). Scheduling time in advance of the teleobservation to meet with the classroom teacher and children is essential to the success of this technology-infused collaboration. Important considerations include: 1) organizing the teleobservations during regularly scheduled classroom times that also coincide with the university scheduled methods classes, 2) planning the goals of the teleobservation and the objectives of the classroom lesson together, 3) adhering to the school's pacing guide content guidelines, and 4) (when the professor will be teaching in the classroom) building a rapport with the classroom students by volunteering in the classroom several times before the teleobservations. As with other technology tools, it may be necessary to have a backup plan; for example, a scheduled teleobservation was canceled due to hurricane worries, leading to an unscheduled "face-to-face" class session without the aid of videoconferencing.

**Educational Benefits: Preservice Students' Perceptions of Teleobservation**

Teleobservation allows preservice teacher candidates the opportunity to see an actual social studies lesson being taught. While most teacher preparation programs already include field experiences for those students, as Vannatta and Reinhart (1999) have noted, there are clear advantages to an entire preservice teacher class sharing a common observation experience. After the observation, methods instructors can refer to strategies and content taught in the lesson which all students observed. It would not be feasible for an entire class of preservice teachers to observe inside a single classroom, and even observing several teachers in a single school requires travel time and scheduling complications, which can eased by the teleobservation experience. In addition, particularly in the elementary school setting, it is difficult to arrange placements in the social studies classroom for preservice teachers, as state and national testing procedures often limit the time allotted for social studies instruction (Heafner et al., 2005; Van Fossen, 2005). Teleobservation allows the entire class to observe a social studies lesson at once.

Evidence collected from a survey in a secondary social studies methods course suggests that preservice teachers in our classes find the teleobservation experiences to be beneficial in several ways. The preservice teachers stated that they appreciated observing a real-time, unedited lesson taught in their content area, with all students surveyed indicating that the observation was more valuable than a videotaped lesson from which mistakes might be edited. There are few technology limitations, in most students' views. Survey respondents found the audio and video quality to be good or acceptable, and nearly all found the technology to be very or somewhat satisfactory overall.

One secondary student summarized the advantages he found in the teleobservation:

> I liked how we could talk about what was going on in the classroom as it happened and didn't interrupt the actual class or their instruction. It also didn't distract the students from their learning because there weren't 30 extra people in their classroom.

# Videoconference applications, continued

K-6 preservice teachers reported that they learned social studies content taught in the observed lessons, effective teaching strategies, and classroom management techniques. The students' respect for their methods professors increased as they saw strategies discussed in class modeled successfully with students in the actual classroom (O'Connor, Good, & Greene, 2005).

**Methods Professors' Considerations**

Teleobservation makes possible what face-to-face observations could not duplicate: Having as many as 30-60 preservice teacher candidates observing the same social studies lesson in one classroom is not realistic. Advantages for using videoconferencing for observation also include less travel and gas money for preservice teacher candidates and less disruption at the partner school site including the signing-in, parking, and observing from the back of a classroom. The preservice teacher candidates also obtain knowledge on the *same* lesson during teleobservations, not several different face-to-face lessons. Teleobservation fosters a more comprehensive conversation about a social studies lesson because everyone observes the same lesson simultaneously, and the preservice students and methods professor are able to discuss and reflect on the similar example together (O'Connor et al., 2005).

**Challenges to Teleobservation's Use as a Teaching Tool**

Teleobservation challenges occur with the scheduling and audio/visual capabilities. University professors must plan at least six months in advance of the actual teleobservation dates. Time is needed for the university professor and classroom teacher to arrange departmental approval, have organizational meetings, plan content, and discuss teaching methods for the team teaching teleobservations.

Audio and visual capabilities can be another challenge. Although both sites may have access to the proper equipment, a strong bandwidth and high speed internet connection are needed for the equipment to accurately digitalize the audio and pictures. Testing the equipment before the teleobservations is essential. In our observations, the only visual limitation for the remote observers occurred when the teacher used the overhead projector, an image the video camera was unable to capture. More powerful technology now much more commonly available at public schools and universities makes any sort of teleobservation much more reliable today than ever before, but if the user finds that video images are shaky or if the sound is inaudible, increasing the bandwidth may be advantageous.

**The Telecollaborative Experience in Methods Instruction**

Like teleobservation, telecollaboration offers realistic, exciting opportunities in the methods class for the preservice teacher. Telecollaboration is using videoconferencing to work jointly with other professionals at a remote location. Telecollaboration builds on the principle of educators connecting lessons and content with other subjects and viewpoints. Educators are not limited to working with their colleagues in their school or community; they can develop collaborative working relationships with specialists in a variety of educational fields, regardless of their location.

# Videoconference applications, continued

**The University of Virginia / University of South Florida Experience**

The researchers first experienced telecollaboration as an educational tool as graduate students, participating in a telecollaborative experience in which videoconferencing served as an innovative, effective technology tool in social studies methods and graduate educational courses conducted between the UVa and the USF. Each day, in a telecollaborative format, these courses provoked new ideas and considerations for classroom instruction. The preservice and in-service teachers observed and participated in the seamless integration of technology and were taught through telecollaborating instructors (see Mason & Berson, 2000 for more information on this telecollaborative experience). Now, as social studies methods instructors, we are able to collaborate with colleagues and build on telecollaboration's capabilities.

**The East Carolina University / University of Southern Mississippi Experience**

After participating in telecollaborative experiences as graduate students at the University of Virginia, instructors at ECU conducted a search for a social studies methods instructor interested in integrating technology into his or her social studies methods course. The search was narrowed to a respondent who shared a common technology interest, a common social studies philosophy, and a common commitment to collaboration at USM. In the beginning, many conference calls and emails were shared. Decisions regarding the specific dates for telecollaboration hook-ups were set, and the instructors at both institutions reserved the appropriate equipment and labs.

Creating learning communities that transcend geographic limitations is both challenging and beneficial. Detailed ideas about social studies instruction and hands-on student activities to utilize during the hook-ups were exchanged, and electronic pal (e-pal) topics and protocols were designed. Protocols included a personal history artifact discussion, thinking like an historian, and family history (Good, O'Connor, & Luce, 2004). Students communicated by email with their e-pals during the weeks that the telecollaborative hook-ups did not take place. Several program issues were considered: a) class size, b) accessibility of technical support staff, c) compatibility and availability of telecollaborative equipment, and d) possible time zone differences.

In their first collaborative class, students presented historical artifacts they had collected and attempted to summarize, contextualize, and infer information regarding each artifact. This collaboration helped students see how their own diverse personalities and backgrounds all contribute to the social sciences.

Subsequent collaborations were related to family, local, and state history. During these collaborations, the class heard from guest speakers and worked in groups consisting of students from each campus. The social atmosphere allowed the students to be exposed to other perspectives of time and history.

**Perceptions of the Experience**

Preservice teachers commented that through interaction with their remotely located colleagues, they learned more about content and pedagogy. Additionally, their comments indicated that they experienced the kind of powerful, inquiry-based, constructivist social studies learning that the National Council of the Social Studies (NCSS) en-

# Videoconference applications, continued

courages. The preservice teacher candidates also commented that telecollaboration hook-ups went beyond such traditional teaching methods as lecture and textbook discussion.

The telecollaborative setting proved to be similar to that of a regular classroom. Instructors' field notes indicated that the technology seemed to "disappear" while the participants became engaged in the instruction and learning. The instructors did not need to "produce the show," as the technology support services at both universities were comprehensive. Similar to the participants, successful moments of implementation occurred when the professors reached the point of not feeling like TV hosts or news correspondents, but rather, simply teachers.

**Challenges of the Experience**

Many of the issues that students mentioned after the first telecollaboration day were modified before the final telecollaborative meeting. When students were asked what was unsuccessful about the telecollaborations, they most frequently mentioned technical components and logistical issues. The desire to "compete" between classes by outtalking one another was one challenge faced throughout the semester. Other instructor-observed difficulties included inadequate planning and use of inappropriate teaching strategies such as overemphasis of teacher talk versus student talk. The instructors also realized how important it is to follow through, facilitate, and supervise the informal, additional computer mediated communication (CMC), including e-pal communication and discussion threads. Students only tend to participate in these additional technology-based communication mediums if they receive frequent instructor feedback. These challenges and time demands have a bearing on the quality and benefits of the experience related to the teaching and learning that should occur.

**Additional Uses for Teleconferencing in Education**

The national demand for highly qualified teachers continues to grow, and East Carolina University, like many other universities offering teacher preparation, has seen its enrollment grow rapidly. Often, nearby public schools cannot support all the teacher candidates needing internship placements. As a result, placements of 50 miles away or further are not uncommon, posing great challenges to faculty observing their many teacher candidates in the field.

Teleobservation technologies can alleviate this problem by enabling faculty to conduct preservice teacher observations from their home university setting. At East Carolina University, professors report that these observations appear to be as effective as face-to-face observations, and professors can actually communicate with classroom teachers via email during the observation without interrupting the preservice teachers' teaching.

As more public schools acquire the equipment and technological competence needed to facilitate teleobservations, universities may increase their use of this technology to enhance the observation process. Potentially, each university supervisor could observe more student interns, regardless of their distance from the university. When necessary, multiple supervisors could observe an individual student teacher's lesson. Student teachers and public schools also stand to benefit, as student teachers will have more

# Videoconference applications, continued

choices of schools in which to intern, and schools in more geographically remote areas will have the opportunity to work with and possibly hire new teachers.

**Conclusion**

Already, most users find that teleconferencing is a rich, worthwhile experience in which the collaboration, not the technology, takes center stage. Additional research and practice in the use of teleobservation and telecollaboration should refine and improve the usefulness of these technology tools. Other videoconference capabilities will continue to emerge as the technology's accessibility increases. The exciting reality is that, over time, equipment costs should continue to drop, and more public schools and universities will be able to explore additional uses for these powerful technologies.

Teleconference technologies rely on collaboration between interested parties, and all users will benefit as more partners sign on. Collaborative class sessions between university methods classes and those involving public school students and teachers will become more useful when users have more choices of collaborative partners. Particularly in social studies, increased use of these technologies will be beneficial in terms of bringing collaborative partners from diverse regions of the United States, and eventually from around the world, into the conversation.

Social studies educators sometimes struggle to impress upon students how important the study of world cultures is to students' lives. Though we are all active participants in the global community, some students still question the relevance of learning about life outside their own physical community. As teleconferencing already makes students at universities in different regions of the United States partners in the same classroom, students in the near future may be able to share ideas and talk with students in classrooms around the world[1] (Harris, 2006).

When considering technology's educational application, the user should always ask, Will the technology allow me to do something with my students that I could not do before technology? Will the technology allow me to do something with my students better than I'm doing it now? (Harris, 1998). Clearly, teleobservation and telecommunication satisfy these criteria as tools for methods instruction.

[1] Judi Harris of the College of William and Mary has been a leading advocate of telecollaborative experiences between schools; her website Virtual Architecture's Web Home serves as an example of some interesting telecollaborative possibilities (Harris, 2006). See Harris's site at: http://virtual-architecture.wm.edu

# Videoconference applications, continued

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# Videoconference applications, continued

## Appendix A

TELE-EDUCATION PROJECT

CONSENT AND RELEASE

In consideration of being permitted to participate in Tele-education project at East Carolina University ("ECU"), I hereby grant to ECU the absolute and irrevocable right and unrestricted permission in connection with the Tele-education Project on _____(date or dates) with respect to my/my child's name, photographic portraits or pictures, likeness, or voice or any or all of them or in which I/my child may be included with others, to copyright the same, in ECU's own names or otherwise; to use, re-use, publish, and re-publish the same in whole or in part, individually or in any and all media now or hereafter known, and for any purpose whatsoever, for illustration, promotion, art, editorial, advertising, or any other purpose whatsoever without restriction as to alteration. My signature below acknowledges my understanding that this may involve the use of recordings of video conferencing for educational purposes. I understand that the potential audience for viewing Tele-education Project will be faculty and students in the College of Education at East Carolina University and others for educational purposes. I understand and consent to the possibility that any reproduction of the demonstration may be used without my prior examination and/or approval.

In consideration of being permitted to participate in this Tele-education Project, I , the undersigned, do for myself, my heirs, and personal representatives, agree to hereby release, hold harmless, and discharge ECU, all of its officers, agents, and employees from and against any and all claims, actions, or causes of action, liability, and demands whatsoever that I or my representatives have or may have against any of them which result from causes beyond the control of, and without the fault or negligence of East Carolina University, its officers, agents or employees which stem from, arising out, of or in connection with the use of my/my child's photographic portraits or pictures, name, likeness or voice, or any or all of them, including without limitation any and all claims for libel or invasion of privacy with my participation in the Tele-education Project.

I fully understand that my participation in this Tele-education Project is completely voluntary, and that I/my child am/is not under any requirement to participate, and this confirms that I am of full age and/or have the right to contract in my own/my child's name. This acknowledges that I have read the foregoing and fully understand the contents thereof. This release shall be binding upon me, my heirs, legal representatives, and assigns.

In witness thereof, I have caused this Consent and Release to be executed this _____ day of _____, 20__.

Witness: Participant (or Parent):

_____ _____

Signature Signature

Child’s name if applicable:

# Videoconference applications, continued

## About the Authors

**Anthony P. Dralle** is an Assistant Professor and Program Area Coordinator of History Education at East Carolina University in the Department of Curriculum and Instruction. Anthony has taught Social Studies and Language Arts at the middle and high school levels in North Carolina and Virginia. Anthony is currently teaching undergraduate and graduate courses in secondary and middle grades social studies methods, as well as courses in the teaching of history. His research interests include reading and writing instruction and technology integration in social studies.

**Amy J. Good** is an Assistant Professor at East Carolina University in the Department of Curriculum and Instruction. Amy has taught grades 4-7 in Ohio and Virginia and has earned National Board Certification. Amy is currently teaching undergraduate and graduate courses in elementary social studies methods and classroom management. Her research interests include social studies, technology integration, classroom management, and National Board Certification.

**Katherine A. O'Connor** is an Assistant Professor at East Carolina University in the Department of Curriculum and Instruction. Katie has taught in the North Carolina public schools for 9 years. She is certified in K-12 Reading, and in K-12 Academically Gifted and has obtained National Board Certification. Katie is currently teaching AIG licensure courses, elementary social studies, and graduate level action research classes. Her research interests include social studies, technology integration in teacher education, action research, and teacher retention.

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# Three Habits of Highly Successful School-Based Technologists

## Service, Integration, Rounds (SIRs)

*by Wanda Walters*

*Author's note*: As a former Instructional Technology Specialist for Fairfax County Public Schools, I have had the pleasure of working with our School-Based Technology Management team members and School-Based Technology Specialists (SBTS) to ensure effective use of instructional technology. During the past few years, three strategies have evolved to provide technology specialists with the tools for a successful year. The goal of this article is to illustrate that by incorporating the **SIR** (Serviceability, Integration, and Rounds) strategy, school-based technology specialists will be able to easily and effectively serve the technology needs of their schools.

Historically, at the beginning of each school year, new and veteran technology specialists are bombarded with central- and school-based task requirements. Oftentimes, many specialists are not sure where to begin, except with feelings of frustration and being overwhelmed. The next three sections of this article will provide background on "SIR" and recommendations for effective implementation.

### Serviceability

Is everything in working order? At the start of the school year, do your teachers have printing capability, email access, and projection functionality? As I have participated in walk-throughs of numerous school sites and conducted countless teacher workshops, one of the most disturbing observations that I made, and statements that I've often heard, was that despite all of the equipment available, teachers are lacking one or more of the aforementioned.

To address this basic service concern, I worked with Karen Gerstner from the FCPS School-Based Management team to facilitate a basic technological services priority for SBTS. We developed a checklist to verify that that every elementary teacher could print, had email access (our district uses Microsoft Outlook) and could project from his/her laptop computer. Attached is the "POP into the New Year" checklist that school-based technologists use to validate that all teachers have the core technology necessities up and running within with the first few weeks of the school year. This checklist articulates the technology priorities for the opening of school and adds an important element of accountability for both the teacher and technology specialists to ensure that the minimum expected functionality is achieved.

### Integration

Another stumbling block to a successful year is an unclear plan for effec-

# Three Habits, continued

tively integrating technology within the curriculum. Last year I developed the 5W/5E technology integration model that outlines a clear, concise, and doable method to successfully infuse technology into any instructional program. This model is being widely embraced by many educational entities. Below is a short synopsis. The entire article and supporting templates can be found in a previously published article in the *VSTE Journal* (Walters, 2005).

**The 5W/5E model**

We are all familiar with the 5W's: *What, Who, Where, When, and Why*. We begin by asking the 5 W's as it applies to curriculum and integrated technology.

1. **What**?
   What is the instructional goal?
   What technologies are available?
   What technologies would the educator like to use?

2. **Who** is being targeted for the infusion of technology?
   Whole group?
   Flexible group?
   Students with differentiated needs?

3. **Where** will the technology be delivered?
   In the classroom using a teacher presentation system?
   In the classroom computer center?
   In the computer lab?
   With resource/peer support?

4. **When** will the technology infusion take place?
   As a warm-up or wrap-up activity?
   After a particular lesson?
   What is the timeline?

The next is the most important question that the teacher needs to ask herself: *Why* is she using technology? Let me cite an example of the value of teachers being able to articulate their reason for using instructional technology.

As a technology trainer, I was listening to one of our very fine teachers sharing an integrated technology lesson that she developed. When asked why she designed that lesson, she looked quizzically and responded, "Because we were told to develop a lesson using technology for our next assignment." After listening to my 5W/5E presentation, she remarked, "Now I know why I developed that lesson. I wanted to evaluate my students' understanding of the social studies vocabulary….thanks for giving me the words." I feel as though this teacher was pleasantly reminded that she did in fact have an educational purpose before she had a technology goal.

# Three Habits, continued

5. **Why** is the teacher using technology to address educational objectives?

To answer this question, the Biological Science Curriculum Study's 5E model is infused with this W.

1) Is it to **engage** students in the topic? For example, a teacher may use an interactive website as a warm-up activity to begin a unit on fractions and then continue the lesson with manipulatives and/or text resources.

2) Is the goal to provide the students the opportunity to further **explore** the concept? An instructor may assign students a particular CD ROM, website, or utilize designated templates.

3) How about using technology to **explain** an objective? Technology may be used to further clarify the concept and define relevant vocabulary.

4) Could the most appropriate use of technology be to provide students with the opportunity to **elaborate** and build on their understanding of the concept by applying it to new situations? This is especially true when it is evident that students have already mastered a particular baseline goal and are in need of a more differentiated, higher-level thinking experience.

5) Finally, would the teacher's intent be to assign students technology-based activities that will help them and the teacher to **evaluate** their understanding of the concept? For example, a teacher may direct students to open a paint program and show her that that they understand that 9/12 = 75%.

Using the Biological Sciences Curriculum Study (BSCS, 2006) "5-E" constructivist model: *Engage, Explore, Explain, Elaborate, and Evaluate,* teachers are better able to articulate their educational purpose for their selection and defend the appropriateness of the chosen technology. The 5-E model is based on a constructivist philosophy of learning (Trowbridge & Bybee, 1990). The theory of constructivism encourages educators to focus on making connections between facts that are required and tailoring instructional strategies that allow students to actively construct meaning and foster understanding of objectives. Effective use of technology is the perfect instrument to achieve this goal.

During the past year, I have discussed the 5W/5E concept with countless colleagues and the response has been virtually unanimous, with typical responses being "This makes so much sense," or "It is so logical, understandable, and doable." Many School Based Technology Specialists (SBTS) that I've had the pleasure of working with are planning to use the 5W/5E framework to organize technological resources for their teachers during the upcoming school year.

A supporting PowerPoint presentation and a PDF of colorful 5W/5E bookmarks for teachers are available upon request.

# Three Habits, continued

**Rounds**

I have also had the pleasure of working with Linda Hamilton, a former central instructional technology specialist who has now returned to the classroom. Linda has also been a school-based technology resource teacher. As we were working together, we could not help but notice that there were numerous instances of school-based technology specialists who were not fully familiar with their staffs or the technology needs within their buildings. As we were brainstorming for a strategy to facilitate a solution, we discussed the practice that doctors use to check on the status of their hospitalized patients. They make "rounds." Linda stated that while in a school-based position she "made rounds" throughout her building to ensure that all equipment was up and running – or logged in for service – at least once every two weeks, and always before the hardware technician (TSSPec) arrived for his/her scheduled visit. Even though teachers have the ability to email their school-based technology specialists for assistance, Linda found the face to face contact invaluable. Below are quotes from FCPS SBTS who use the "rounds" strategy.

> "I started to implement the 'rounds' concept last year. A few days ahead of the TSSpec day, I literally cover the entire building to ask each teacher, specialist, and office staff member – face-to-face – if there are any tech problems. Many requests are really easy to fix on the spot. More difficult tasks I add to our job list. I am able to contact 95% of my staff within a 90 minute period on a single day." P.S., Sunrise Valley ES.

> "I am a new SBTS. Since both of my schools are fairly large, the Rounds strategy helps me to stay informed about technical problems that exist, as well as the training needs of teachers. I try to finish my "rounds" before the day the TSSPec is scheduled to be at each school. This allows me to attend to the instructional needs that were voiced during my "rounds," and to perform Level 1 troubleshooting. The TSSPec and I work together to do follow-ups so that turnaround time is decreased. Teachers appreciate the attention and quick response that we are able to give to their requests. I love using this system." L. M., Newington Forest and Saratoga ES.

> "People are grateful that I come to them. Great [public relations] for SBTS! I find out about problems in a timely fashion (not 3:00 Friday!). I have time to prepare a list for the TSSPec. I have found that a lot of teachers don't bother to email me or fill out the Fix It form because technology usage is low on their priority list. Teachers are, however, very receptive to help and want it, even though they don't solicit it. I see faces and become familiar with staff and build valuable rapport. Quick fixes get done on the spot." B.W., former SBTS, currently Early Childhood Instructional Technology Specialist.

It has been noted that the Rounds focus should change throughout the school year (e.g., use of a designated resource, strategy, other). If you are a school-based technology specialist, consider beginning the upcoming year with a "rounds" plan. You will find that your objectives will be easier to meet and your staff members will be very appreciative.

# Three Habits, continued

If you are a school-based technology specialist, consider beginning the upcoming year with a “To SIR with Love” plan. You will find that your objectives will be easier to meet and your staff members will be very appreciative.

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# Technology planning in Virginia: A trend analysis

*by Karen Richardson*

Technology is often the handmaiden of school reform. This relationship is evident in the 1986 report, *Excellence in Education: A Plan for Virginia's Future*, commissioned by Governor Gerald Baliles and completed by The Governor's Commission of Excellence in Education [GCEE] (GCEE, 1986). This report spawned the Literacy Passport Test, the state's first standardized test, while also leading to the creation of a state-level position related to educational technology and the state's first educational technology plan. Increasing access to technology and making effective use of it were seen as ways to support other educational goals including reducing illiteracy and decreasing the wide disparity between school divisions in the state. According to the report, "For Virginia's educational system to be among the nation's best, it must operate on the cutting edge. Today that cutting edge is educational technology" (p. 13).

While some technology planning had taken place in the Commonwealth in the 1970s–mostly related to electronic classrooms and distance learning–the Excellence in Education report widened the focus to look at all the new technologies that were rapidly becoming available and really began the process of formal technology planning in Virginia. The Commission's foresight to include technology as part of the school reform effort meant that Virginia got an early start on thinking about technology in schools and was able to help further a more organized state-wide approach to implementation, providing much-needed funding and guidance for localities as they faced the expensive tasks of rewiring schools and purchasing hardware and software, and then later as they developed their own policies and practices around the use of technology in the instructional program. Technology was part of the policy and planning conversation from the beginning; it took on an importance it might otherwise not have had. Indeed, by 1992, when some states still did not even have a state technology plan, the Standards of Quality in Virginia called for local school biennial plans to have a technology component, and technology was identified as one of the Department of Education's five focus areas (Virginia Educational Technology Advisory Committee [VETAC], 1996, p. 1).

## The Initial Plan (1988-1994)

The first technology plan, which seemed at times more like a shopping list for Circuit City with its specifications for computers, wires, and even storage cabinets, was published in 1988 and covered a six-year time period. It has been followed by two more plans, with the current plan published in 2003 (Virginia Department of Education [VDOE], 2003). These plans reflect state policies towards technology and education, and by studying these

# Technology planning, continued

plans, we can identify trends in state support for technology use in the Commonwealth's schools.

**Recent Trends Related to Implementation**

Several of the trends can be directly traced to the original Excellence in Education report and even earlier educational technology efforts. These include a concern for equity, using technology to support student achievement, and the need for more automated data collection.

Equity was a major concern of the Excellence report, and that concern is reflected in the first technology plan. The report specifically mentioned the use of technology to close the gap between wealthier urban divisions and poorer rural divisions by using electronic classrooms, which had already been developed in Virginia in the 1970s. This initial focus on distance learning has been reflected throughout the three technology plans, and currently the Department of Education is developing a Virtual Advanced Placement School that provides students throughout the state the opportunity to earn college credit even if their local high school does not offer Advanced Placement courses.

The report also recommended the use of technology in support of the state's new Literacy Passport Test (LPT). This relationship between standardized testing and technology has remained a prominent theme throughout all three technology plans. The first plan focused on placing microcomputers in the middle grades since that is where the LPT was given. In subsequent plans, technology use in the schools was tied to instruction and remediation related to the Standards of Learning. The state's current Web-based SOL Technology Initiative, which will be discussed in detail later, represents the most recent effort to use technology to support student achievement.

Finally, another major theme of the original Excellence in Education report that has remained in place throughout the past 16 years was that technology be used to "reduce the paperwork burden which is piling up for teachers and administrators" (GCEE, 1986, p. 14). Beginning with the first plan and continuing through the current plan, the state has focused on developing databases that could be used to track student, financial and teacher information. The second plan could report that such a system—the Virginia Student Information Management System (VASIMS)—had been developed and adopted by over 100 school divisions in the state (VETAC,1996, p. 15). More recently, that system has been updated and replaced by a Windows-based version. By the third report, the focus was on web-based data applications for state data collection, warehousing, and reporting. It also calls for a common set of data definitions that allows standard communication and interpretation of student information. Yet, while the technology has gotten more sophisticated, the purpose remains the same: to provide divisions with support for collecting, analyzing, and storing student data in a way that will be useful to individual districts and the state.

Thus, the 1986 report provided the seeds of several technology initiatives still in place today. The first technology plan, published in1988, addressed the concerns of the report, but also began several trends that remain part of Virginia's plan for technology today. One of those is the recommendation that schools "designate a responsible

# Technology planning, continued

person in each school division and school to coordinate staff development and application of technology" (VDOE, 1989, p. 9). According to that first plan, this person might be a teacher, administrator, media specialist or other instructional specialist working in either a part-time or full-time capacity. By the time of the publication of the second plan, the state had come to recognize the need for "the consistent support and assistance of a building technology designee to show best technology applications for best teaching practices" (VETAC, 1996, p. 27). The plan recommends specialized training for this designee and the development of guidelines for technology competencies and endorsement requirements. The most recent plan takes this position one step further, calling for establishing and maintaining "instructional technologists" in school divisions. The plan clearly defines this new position as a licensed educator who works directly with teachers to help them integrate technology in their classrooms (VDOE, 2003, p. 34). In addition, the Standards of Quality (SOQ) that are used to set benchmarks for Virginia's schools were recently amended to reflect this new position (VDOE, 2004, p.8). The SOQ call for a minimum of two technology positions for each 1,000 students with one being technical and the other one to serve as an instructional technology resource specialist.

**A Focus on Integration**

This growing concern for actually using technology in schools rather than simply collecting hardware can be clearly seen in the most recent report. This is a reaction to research in both Virginia and across the United States that has increasingly shown that while school have spent billions on hardware, software and connectivity, very few teachers are using the computers with any regularity or for much beyond drill and practice or word processing. The first two plans shared an emphasis on creating foundation levels for computer technology and networking infrastructures within the schools. They each set target goals for student/computer ratios beginning with 10 to 1 in the first plan and 5 to 1 in the second plan. Much is made, at least in the first plan, of specific technologies that should be purchased, and the second plan makes similar recommendations for types of networks that should be established within schools. Basically, the focus of the first two plans was to bring the state school divisions up to speed with technology. The third plan took a somewhat radical departure from this trend, with the focusing moving from "stuff" to "what to do with the stuff." The plan emphasizes the importance of integrating technology into instruction by devoting the first, and most extensive part of the current plan, not to hardware and wires as it did in previous plans, but with classroom use of computers and the express goal of improving teaching and learning through the appropriate use of technology (VDOE, 2003, p. 21). Hardware and software now take a back seat to teaching and learning in terms of the planning process although the state still recognizes that many school divisions do not provide the necessary access to support the targets identified by the plan and continues to recommend that schools meet a 5 to 1 computer to student ratio (VDOE, 2003,). Access is clearly tied to student achievement rather than, as in past plans, where the effort seemed simply to accumulate technology resources.

# Technology planning, continued

The other area in which the move from accumulation to integration can be seen is in the changing trends regarding professional development. Training and a concern for skills has been a part of all three technology plans, but like the move from technical specifications to concerns about teaching and learning found in the integration section of the third report, the focus of the recommended types of professional development has changed as well, again most radically from the second to the third plans. The first two plans were concerned mainly with skills in using technology, calling for basic level training in "computer utilization" (VDOE, 1989, p. 24) and "available technologies and software" (VETAC, 1996, p. 29). Thus, teachers took courses in PowerPoint and Word, learned how to create web pages, and sometimes even performed technical work like installing memory or replacing a hard drive. But the third plan refocused this professional development on helping teachers learn to use the technology to support teaching and learning with programs including "effective approaches to integrating technology into K-12 education" (VETAC, 1996, p. 6).

**Research-Based Decision Making and Introducing Standards**

One major trend had its roots in the 1980s but has only become a recent priority as a result of national policies. Using research to identify best practices, guide decisions about technology use, and justify expenditures for technology has been a trend throughout the history of technology planning in Virginia although it has taken on a more prominent role over the years, particularly with the passage of the federal No Child Left Behind legislation that emphasizes the need to support education practices with evidence-based research. The first plan made little mention of specific research studies but called for

> more research studies…to provide answers to legislators who are responsible for appropriating funds for technology and to educational administrators and teachers who decide how to use the funds. Informed decisions based upon valid, reliable research will promote public confidence in and support for educational technology. (VDOE, 1989, p. 29)

By the time of the second plan, evaluation had taken on a larger presence, warranting its own section and making only one clear recommendation: "To assess on a continuing basis the impact of technology in schools to learn which technologies provide the most benefit to student achievement" (VETAC, 1996, p. 34). An appendix described research studies related to each of the plan's major sections and demonstrated how it had been used to develop the plan. In the current plan, evaluation has been renamed "accountability," but the goal is essentially the same: "Assess the value that information technology adds to teaching and learning environments" (VDOE, 2003, p. 7). More significantly, research has been moved from the appendix and to the front of the plan. The Executive Summary makes much of the research base that supports the plan and indeed, each of the five sections of the plans begins with a review of recent research in that particular area. In addition, the Introduction points to various studies

# Technology planning, continued

and reports that have been commissioned by the state over the years and whose results have contributed to the current plan. It seems to be all about research now.

Certainly, creating standards is a trend seen throughout the three plans. They reflect a concern for defining minimum requirements both for technologies and the people who use them. The first plan was more concerned with setting standards for foundation-level technologies that should be found in every school. But standards for teachers and students were not far behind. One of the direct results of the second technology plan was the creation of the Technology Standards for Instructional Personnel in 1998, which in 1999, the General Assembly declared that all teachers had to meet in order to qualify for licensure. In addition to teacher standards, the state had already created Technology Standards for Students as part of the Standards of Learning. Currently, the state is working on technology standards for school administrators, which will be based on the National Educational Technology Standards for Administrators (VDOE, 2003). In addition, the state is considering updating the technology standards for instructional personnel to reflect new technologies and the emphasis on the use of technology to support teaching and learning, a trend seen in other areas as well.

Of course, none of this would have happened without funding. While Virginia has never had an annual funding stream for technology, it has consistently funded technology in schools with an annual average expenditure of about $50 million (Richard, 2003). The need for a consistent funding stream was highlighted by Larry Hoover, school superintendent and first chair of the Virginia Educational Technology Advisory Committee, formed in 1988 at the recommendation of the Baliles' commission. In remarks to the General Assembly in 1999, Hoover pointed out that it would be nice if school divisions were able to rely on a predictable amount of technology money from the state each year. But he also commended that General Assembly for its ongoing support that has been "instrumental in advancing instructional technology in our public schools" (Hoover, 1999, p. 1).

**Embracing New Technologies**

The final trend evidenced throughout the planning program is Virginia's willingness to embrace new technologies, particularly the World Wide Web. Despite the fact that the first technology plan was published several years before the words "world wide web" or "internet" became part of the vernacular, its third section—entitled Connections—focused specifically on developing an electronic network that would link the DOE and local school divisions with the rest of the world. It envisioned the creation of a shared network called Virginia Net where users could communicate and share information and resources with other users around the world. By the time the second plan was published, Virginia Net had become Virginia's Public Education Network, or VA PEN, a state-wide internet system serving the local school divisions. Indeed, the state provided many teachers and students with their first email addresses as well as dial up access to this new electronic network called the internet. In fact, by 1996, the system had over 18,000 users and had had to impose severe limitations on the use of the network because of the overwhelming demand (VETAC, 1996). Eventually, the state

# Technology planning, continued

gave up the role of internet service provider, preferring to leave that function to the school localities.

Now, the state is making innovative use of the web again with the web-based SOL Technology Initiative. According to the State Superintendent of Education, this initiative is intended to use web-enabled systems to improve Standards of Learning instructional, remedial, and testing capabilities of high schools. Funding for this program is targeted to reach three general goals in each high school. These goals are: a) providing student access to computers with a ratio of one computer for every five students, b) creating internet-ready local area network capability in every school, and c) assuring adequate high speed, high bandwidth capability for instructional, remedial, and testing needs (DeMary, 2000).

Specifically, the state wanted to be able to administer the SOL high school tests online beginning in 2003, an initiative that required much work to bring various localities up to the standards. This emphasis has been noteworthy; according to Education Week's annual *Technology Counts* report, Virginia is one of the most advanced states when it comes to online testing (Richard, 2003).

**Conclusion**

As the state has moved away from the detailed technical requirements outlined in the first plan, the plans seemed to indicate a changing relationship between the Department of Education, schools of education, and local school divisions. At the beginning, the state realized that if any of this was going to happen, they were going to have provide direction and funding: "Educational technology…must take a central place in public school education. This will not happen without state leadership and commitment" (GCEE, 1986, p. 13). Once school divisions began to take more local control by purchasing their own technology and hiring division and school staff to direct its use, the state could begin to work more as a collaborative partner with the divisions. Subsequent technology plans have had far fewer recommendations than the first one and were to be seen less as than as guides for local divisions to use in their own technology planning (VETAC, 1996, p. 1). Currently, localities are required to have plans that are "consistent with the state technology plan" (VDOE, 2003, p. 8). This focus on alignment between state and local plans helps further the state-wide vision for educational technology put into place nearly two decades ago.

The state technology plans have provided clear directions for the past 16 years for a variety of stakeholders related to technology integration from Department of Education employees to classroom teachers to business leaders to school administrators. Besides funding, the state has taken a variety of steps over the years to support school divisions in their efforts to grapple with technologies that seem to change every day. Through the use of its website which offers resources related to technology, professional development related to technology, and an annual technology conference, the Department of Education works to promote the fundamental purpose of the technology plan which is "to enhance students' academic achievement through the use of technology" (VDOE, 2003, p. 1).

# Technology planning, continued

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## About the Author

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