Tapped In

The new incarnation of this valuable resource is now available.

I n the early 1980s, we were struck by the way the Internet permeated university instruction and research and adopted the goal of extending this capability to K–12 schools. By the end of the decade, we succeeded in linking all 2,000 of Virginia's schools to the Internet, through establishment of Virginia's Public Education Network.

Although this was one of the first statewide school networks, it was far from the last. The nation made continued investments, amounting to billions of dollars, in its educational telecommunications infrastructure. Technological advances and federal funding policies extended the Internet to almost all schools in the United States by the end of the 1990s. Similar trends appear to be occurring internationally. For example, the most recent issue of the journal of the Association for Computing Machinery (vol. 46, no. 12) reports that Europe's children are the fastest-growing segment of the

By Glen Bull, Gina Bull, and Sara Kajder

Subject: Online communities

Audience: Teachers, teacher educators, library/media specialists, tech coordinators, tech facilitators, administrators

Grade Level: K–12 (Ages: 5–18)

Technology: Internet/Web

Standards: NETS•S 4; NETS•T II, V; NETS •A II, III (http://www.iste.org/standards)

Internet-using population, suggesting that requests from educators and politicians to add the Internet to school curricula are paying off.

The physical connections linking schools are only a beginning, however. Like the Lewis and Clark expedition that took place 200 years ago, these linkages mark a physical pathway that now extends from coast to coast. It now remains to settle the terrain opened up by the new pathways, employing them to support teaching and learning.

Collaborative Educational Communities

We were motivated to link schools to the Internet because we believed it would encourage establishment of educational communities of practice. This has occurred, but not as anticipated. A recent Pew Foundation study on the Internet and American Life found that the majority of teenagers (four-fifths) now use the Internet for their school work and that one of the most important uses is for virtual study groups. In those cases, the report offered that students use the Internet extensively to collaborate on project work and study for examinations.

In contrast, teachers do not yet appear to have formed widespread virtual communities of practice. Judi Harris has written extensively about virtual architectures and online communities in these pages. She observes that early adopters enthusiastically joined online collaborative groups in the early years of the Internet, but notes that this has yet to spread to teaching practice as a whole.

The reasons for this are both technological and sociological. The advent of the World Wide Web made it possible for any group to readily de-

velop a Web-based discussion forum. Countless schools, school districts, and educational associations have established Web-based discussions, but paradoxically, the very number and variety of such offerings made it more difficult for any one to achieve critical mass. The technological sophistication is often rudimentary, the capabilities are often not much more advanced than those available two decades ago.

The Tapped In 2 System

Establishment of widespread online communities of practice requires virtual architectures that meet authentic needs. SRI International's Center for Technology in Learning has been engaged in an ongoing research program to identify these needs and to develop a corresponding telecommunications system that can address these needs. (*Editor's note:* For this and other URLs, see Resources on p. 37.) A team headed by Mark Schlager, Judi Fusco, and Patti Schank has embarked on a systemic program of research into how teachers can best be supported. After more than a half-decade of work supported by the National Science Foundation, a free, second-generation system, Tapped In 2, has just recently been made available to teachers and the educational community.

We believe Tapped In is worthy of exploration. Built with extensive teacher input, Tapped In provides a response to teacher needs for support, community, and idea sharing within a virtual space that is both efficient and intuitive. Participants are provided with powerful, dependable communication tools, meant for interaction with as small or as large a community of teacher participants as they wish to involve.

Tapped In is designed to be an online workplace for an international community of educational professionals. It employs the metaphor of a physical community, with a central Tapped In building and outlying buildings inhabited by tenants ranging from the Milwaukee Public Schools to the Pepperdine Graduate School of Education and Psychology.

A Tapped In Classroom

Perhaps in response to the "floating teacher" who lacks a central office or home classroom, all participants can acquire a virtual office within the Tapped In community. You also can create a virtual group room or classroom, allowing colleagues or students to access and benefit from both the Tapped In community and the communication and information sharing tools it provides.

The virtual classroom includes many of the same facilities as other online systems, including:

- Bulletin boards where you can post notes
- Asynchronous threaded discussions where students can post questions and hold discussions
- Synchronous chat, allowing real-time interactions between students and a guest presenter
- Private messaging to allow students to interact with the teacher or one another
- File space in which you can upload and download documents
- An area where you can recommend links to other Web sites

Each Tapped In session occurs in a detachable chat window, with the capability to direct participants to other sites across the Web as the presenter discusses them. An important feature of the chat sessions is that

a transcript of the discussion is automatically generated and e-mailed to participants. Public *After School Online* sessions are archived on the Tapped In site.

Into the Classroom

The Pew Foundation survey reports that students are increasingly making use of discussion tools, chats, and instant messaging on their own. Bringing these tools into classroom learning not only provides opportunities for exploring how language and communities work but also teaches students the requirements and rules for participating in online communities.

Tapped In provides special student accounts and private classrooms that teachers can set up in the Student Activities Center Building. Tapped In community members cannot interact with the students unless invited by the teacher. Teachers also receive transcripts of all student conversations to help assure the teacher that students aren't engaging in inappropriate behavior. The transcripts also provide teachers the opportunity to become better facilitators through the ability to send personal notes with links to resources or to post public comments that move the dialogue forward. The whiteboard feature is particularly useful for this purpose.

On the simplest level, using Tapped In with students allows for an examination of community dynamics, communication skills, and literacies such as posting to a discussion board or managing to hold onto the thread of a discussion in a chat occurring in real time. Ask students to make discussion posts in response to a class reading or a lab experiment. Hold a real-time chat with students, inviting participation from all students, not just the outspoken ones who sometimes dominate in-class conversation. Use the links list as a hot list for conducting research.

More involved instructional uses of Tapped In range from holding interactive debates using the real-time chat tool (and archiving student transcripts) to establishing groups that use their own Tapped In space to interact while completing a collaborative project. Conduct literature circles using the discussion tool. Bring a guest author into the class community as a mentor participant who works alongside student writers and readers.

Professional Development and Support

Tapped In goes beyond the intent of many course delivery and support systems in one important respect—it was designed from the beginning as an international professional support system for teachers. Teachers naturally seek out colleagues and peers when working through new ideas, learning new skills, or trying out new ideas. They are good at sharing ideas and eliciting feedback when trying something new. Educators are hungry to learn from one another, celebrating what's really effective and sharing in the frustration when things don't go as planned. Tapped In takes those conversations to a new level, allowing us to interact with teachers and experts across the globe.

The Tapped In community includes virtual groups in almost every content area and subject. The goal described on the Tapped In Web site is to bring "educators together both locally and worldwide to cultivate a community that supports each teacher as a professional." This is accomplished with a system designed to:

- Plan and conduct learning projects with colleagues and students
- Participate in or lead topical discussion groups
- Manage and attend online courses
- Mentor other educators
- Try out new ideas in a safe, supportive environment

When you first enter the Tapped In system, you arrive in a foyer staffed by volunteers such as BJ Berquist. BJ is a teacher at the Loysville Youth Development Center in Pennsylvania, who has been involved in the community almost since its inception. Although the Tapped In server is physically located in California, one benefit of a virtual community is that a network of teachers around the world can contribute to its development and guide its evolution. As new users enter the reception area, they are greeted (through the built-in chat facility) and provided with any needed assistance.

The reception area includes a campus map and a directory of other floors in the main Tapped In building, as well as a listing of rooms on each floor. It also includes an online Events Calendar providing an overview of discussions scheduled throughout the coming month. Depending on the time of year, you may find an opportunity to chat with Bernie Dodge about WebQuests or get a guided tour of the Library of Congress's Lewis and Clark Learning Page by Leni Donlan.

The resources of the system, and access to experts, mentors, and colleagues are available to any educator who wishes to participate. If your interest or content area is not represented, the Tapped In volunteers will assist with development of an online interest group if you wish to provide leadership.

Creating Online Communities

Technology allows us to amplify our resources, connecting with colleagues whom we might otherwise see infrequently at professional conferences or providing a support system to students in a class. Because Tapped In currently provides any teacher with a virtual classroom without charge, there is an opportunity to explore

new ways of expanding the physical classroom whether you have one computer in the classroom or access to a networked computer lab. A good starting point may be to expand and support activities that students are already undertaking on their own.

This could include exploration of virtual study groups and peer mentoring. The Pew Foundation study found that "Most students correspond with other online classmates about school projects and upcoming tests and quizzes." The Tapped In environment offers an opportunity for teachers to provide leadership, facilitating these activities. Tapped In can be used on the same computers that students are currently using for individual collaboration through their own initiative, that is to say, any computer with Web access. You might wish to ask students to make discussion posts that extend a class activity or assignment.

Synchronous chats offer another type of communication tool within Tapped In. The key is to take advantage of the unique capacity of the chat. For example, you might invite a guest speaker to interact with your students online. Chat conversations can be initially challenging to enter and follow because things can move quickly as multiple participants simultaneously post. However, many students have become accustomed to instant messaging as a routine element in their social interactions, and this same capability can be harnessed for instructional interactions.

It is important to realize that technology does not do it all. It is easy for teachers to think that because students embrace the technology, it will lead them to high-level thinking on its own, but this is not the case. Discussion will likely not facilitate itself. There needs to be at least one person paying close attention and asking deliberate questions that challenge the participant's ideas, thinking, and meaning.

Teaching with online discussion tools opens students and teachers to discoveries about class community, what it means to critique ideas, and how it is that we facilitate active talk and learning within electronic spaces. A class use of the Tapped In discussion board is both a space for individual expression and a place where the group's voice is gathered and amplified. Authentic discussion should allow students to test new ideas and push the thinking of their peers.

Summary

The Internet now links almost all classrooms and schools in the United States and increasing numbers of schools internationally. Students use the Internet extensively to form virtual study groups and collaborate on project work. However, virtual communities of practice have not yet transformed teaching and teaching practice.

To successfully establish communities of professional practice, online systems must mirror and support existing physical and sociological communities. The SRI research group that developed Tapped In is currently collaborating with local school systems to undertake collaborative research into how this might best be accomplished.

One teacher recently commented, "I've worked with several educational online environments and Tapped In is the only community where I've entered the cyberspace and been welcomed within nanoseconds. Volunteers at the Help Desk (in particular, BJ!) are what distinguish Tapped In from any other online communication—the exceedingly rich and user-friendly interface wouldn't be worth much at all without the volunteers to help folks negotiate the online space."

Available without charge to individual teachers and educators, Tapped In offers links to other educators, experts, and resources in almost every subject and content area. Teachers can also establish virtual offices and online classrooms to supplement their existing classes, providing electronic support for students who wish to employ the Internet as an electronic learning resource.

Resources

Pew Internet and American Life Project. (2002). *The digital disconnect: The widening gap between Internet-savvy students and their schools.* Washington, DC: Pew Research Center.

Schlager, M., & Fusco, J. (in press) Teacher professional development, technology, and communities of practice: Are we putting the cart before the horse? In S. Barab, R. Kling, & J. Gray (Eds.), *Designing for Virtual Communities in the Service of Learning.* Cambridge, UK: Cambridge & University Press.

SRI International's Center for Technology in Learning: http://ctl.sri.com

Tapped In 2: http://ti2.sri.com

Glen Bull is the Ward Professor of Education in the Curry School of Education at the University of Virginia.

Gina Bull is a computer systems engineer in the Information Technology and Communication (ITC) organization at the University of Virginia with responsibility for collaborative communication protocols.

Sara Kajder is a graduate fellow in the Center for Technology and Teacher Education within the Curry School of Education at the University of Virginia.

Want to respond to an author? Send your comments to us at letters@iste.org.