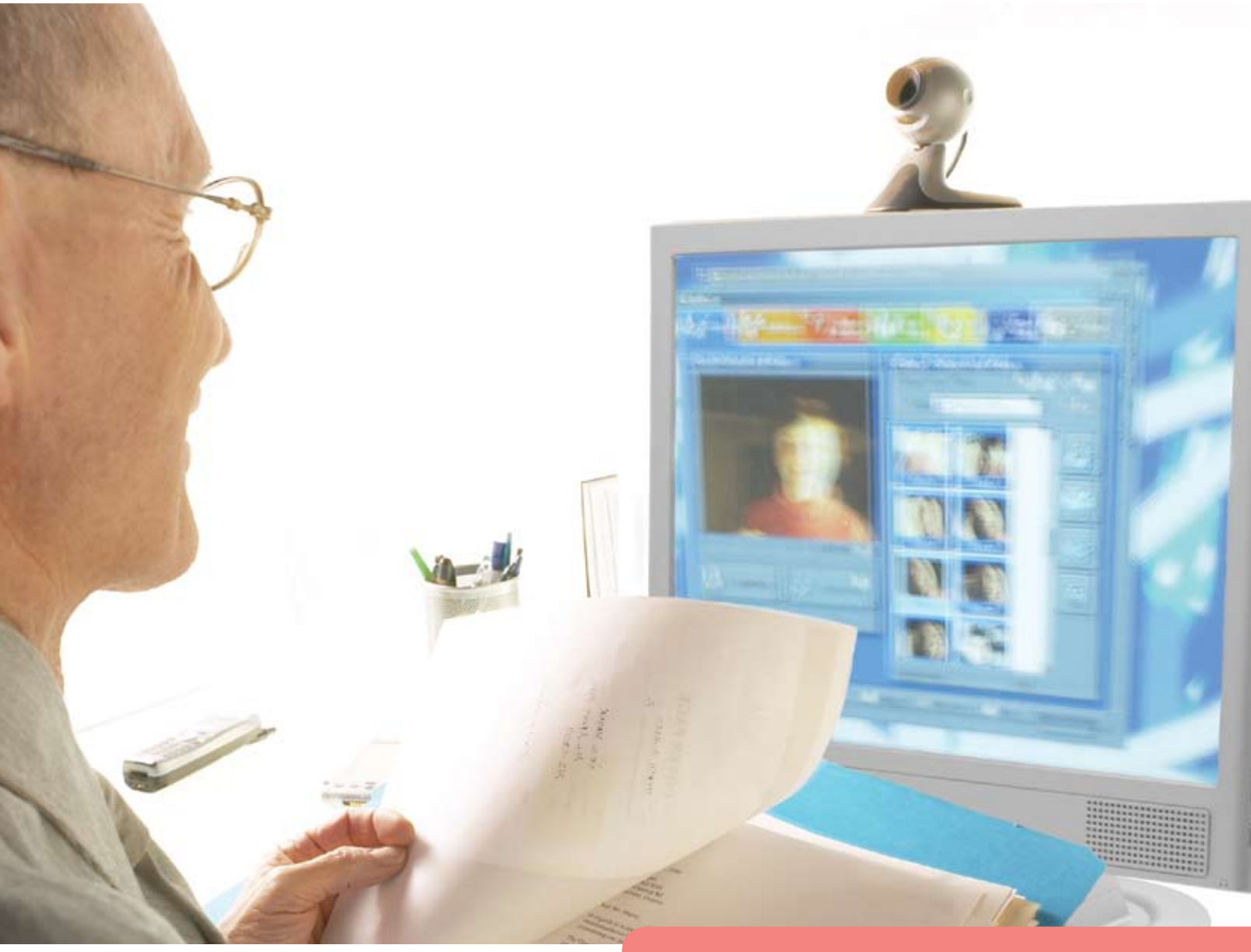
Virtual Schooling



By Niki Davis and Dale S. Niederhauser

The rise of distance education, online learning, and cyberclassrooms is creating new roles and responsibilities for today's teachers and administrators.

Virtual schooling, in which K–12 courses and activities are offered mostly or completely through digital communication technologies, has become firmly established in K–12 education across the United States. The VS movement continues to expand at a rapid rate, especially at the high school level. The National Center for Educational Statistics reported that about one-third of public school districts had students enrolled in distance education courses during the 2002–03 school year, with approximately 300,000 students participating in Web-based online courses. More recently, the Peak Group estimated online enrollments of 500,000 in 2005 and projected one million enrollments for 2006. The Southern Regional Education Board reported that "More than 90,000 middle grades and high school students were enrolled in virtual schools in SREB states during academic year 2005–06. This is nearly a 100 percent increase from the previous year." To this must be added the students enrolled in the non-state VS organizations in these 16 states.

Students choose virtual schooling for many reasons. The National Educational Technology Plan emphasized the potential of VS to individually personalize schooling and help schools respond to No Child Left Behind legislation. Recommendations included providing every student with access to e-learning opportunities and every teacher with access to e-learning training. Eighty percent of participating school districts in a recent study cited "the course was otherwise unavailable" as the number one reason why students enrolled in VS. Although a major reason students engage in VS is to get access to advance placement options, flexible time and place benefits inherent in many VS courses make possible credit recovery that enables students from the other end of the spectrum to complete coursework and graduate from high school.

Online learning can also serve an important educational access opportunity for students who are placebound or displaced. For example, Florida Virtual School provided free course enrollment to students displaced by Hurricane Katrina—including students in Louisiana. Although VS can clearly provide much needed short-term support for students such as these, online learning also has great potential benefits for lifelong learning. In April 2006, Michigan became the first state to require an online learning experience for high school graduation. The goal is to introduce high school students to the benefits of VS so that they will be more likely to seek out online learning experiences throughout their lives.

The continuing success of VS efforts will require K–12 teachers, administrators, and support staff at host schools to collaborate effectively with VS providers. Virtual schooling requires substantial shifts in teachers' roles and necessitates distributing responsibilities for providing an educational experience among host school participants and VS providers.

TERMS AND DEFINITIONS

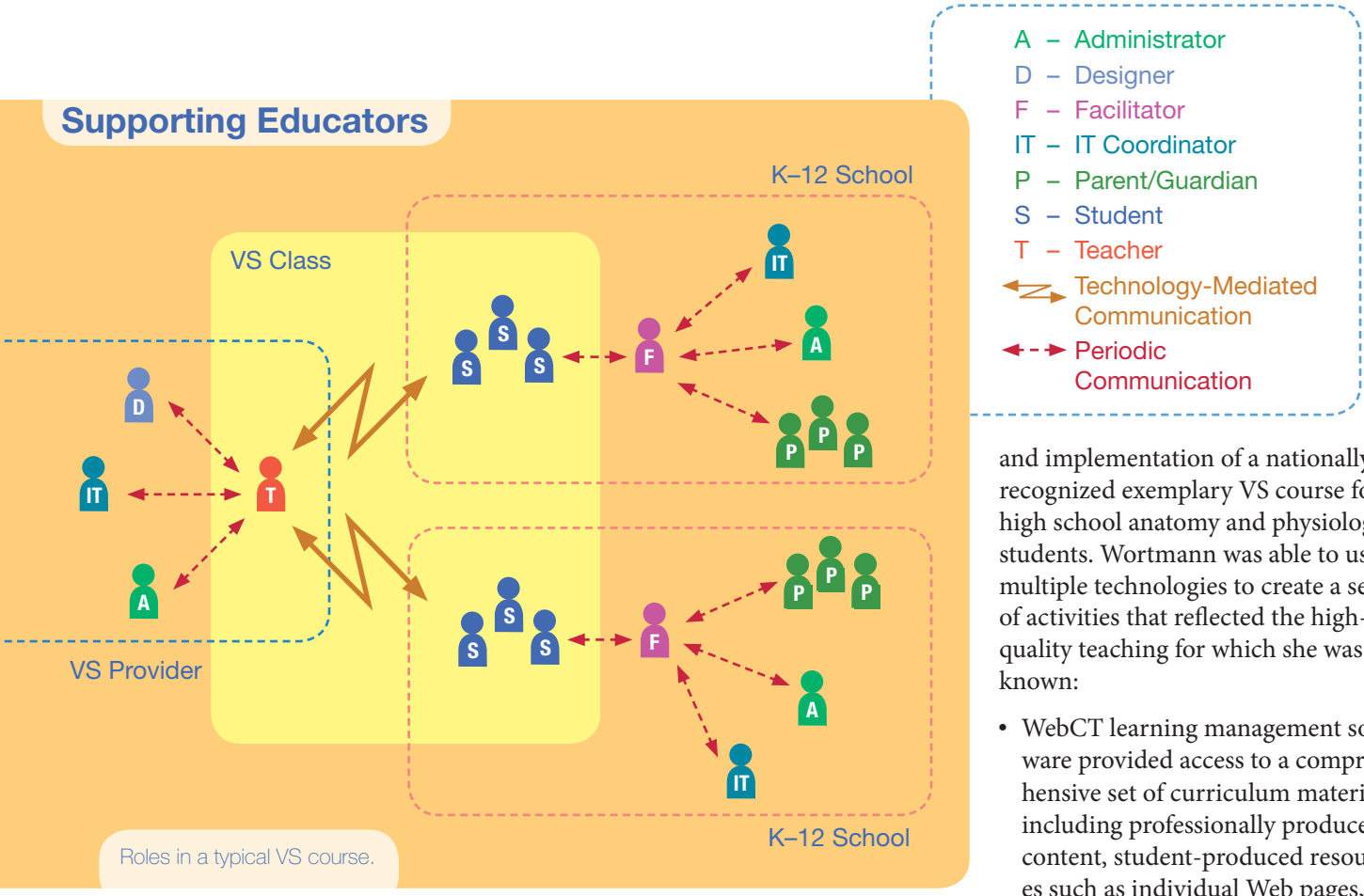
Distance Learning, or distance education, is a broad category that includes all forms of delivering education to students who are not physically "on site" to receive their education. Examples include correspondence courses delivered through regular mail, radio, and television broadcast courses, two-way interactive video courses, and Internet-based courses. Multiple classrooms that collaborate in teaching and learning using communication technologies may also be included in distance learning.

Online Learning refers to the distance learning format that uses the Internet to deliver instruction and provide opportunities for interaction among participants. Students typically use a learning management system such as Blackboard or Moodle to engage in a variety of online activities, including watching and/or listening to lectures or demonstrations, reading Web-based content, participating in group discussions, and working collaboratively on group projects.

Course Shell describes a course that has been designed to be offered online and is ready for an instructor to take over. The course content, assessment materials, and other artifacts are in digital format, without teacher modifications and student enrollment. It is possible to purchase or lease a course shell and import carefully structured resources into a course management system.

Virtual Classroom refers to the learning context that is established in online learning environments. Some elements are common to traditional classrooms, including teachers, students, and learning activities; however, as there is no physical space in which these activities occur, a learning management system is often used to help the teacher create a virtual space for participants to interact with each other and course materials. Alternatively, the virtual classroom may refer to a distant K–12 classroom connected through technology to the learner or teacher.

Virtual Schooling includes all of the elements associated with learning in an online environment. The virtual classroom provides the context for learning, and online teachers and students act as participants. Often virtual schooling includes considerable infrastructure, with required technology, technical, and pedagogical support staff and administrators. The complete system that enables the delivery of online distance learning constitutes virtual schooling. Variations in virtual schooling include videoconference or "on-site" sessions blended with online learning, and the collaboration of classes and their teachers.



Roles in a typical VS course.

GRAPHIC CONCEPT BY STEPHEN B. GILBERT

Although the students who will participate in VS are what Alan November refers to as digital natives, teachers are digital immigrants. Delineating new roles and responsibilities for teachers can raise their awareness of the demands of VS, and help them understand how teaching roles and responsibilities are likely to change in response to the needs of their digital native students.

A Virtual Schooling System

In a common approach to VS, the virtual classroom includes a teacher and groups of students who are distributed among two or more distant schools. The teacher may have a local class as well. Rather than meeting in a traditional classroom, the teacher and students communicate and share resources using digital technologies (e.g., e-mail, videoconferencing, and a learning management system such as Blackboard or Moodle). At each remote school, an on-site facilitator liaises with administrators and parents to support students in each school, and an instructional technology coordinator supports students' technical needs. The distant VS teacher is typically a practicing teacher in a different school or district, who also receives support from his or her own local administrator and instructional technology support person. Many VS teachers work in collaboration with course designers who help develop course Web sites and materials, or they adapt an existing course shell.

An example of this type of virtual schooling system can be seen in some of the courses provided through Iowa Learning Online. Online educator and former Iowa Teacher of the Year Gail Wortmann led the development and implementation of a nationally recognized exemplary VS course for high school anatomy and physiology students. Wortmann was able to use multiple technologies to create a series of activities that reflected the high-quality teaching for which she was known:

- WebCT learning management software provided access to a comprehensive set of curriculum materials, including professionally produced content, student-produced resources such as individual Web pages, a course calendar, and a syllabus. Communication tools included asynchronous discussion boards, e-mail, and a drop box for completed assignments.
- Videoconferencing was used several times each week so that students could speak directly with Wortmann during virtual office hours. Students also used videoconferencing for class presentations.
- Self-study was also an important aspect of the course. The textbook was an effective tool for self-study, complemented with use of resources from the Web to locate information and solve real-world problems. Finally, students completed informal laboratory activities in which they

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used generally available materials to conduct experiments and submitted a series of digital photographs to show how they had conducted key parts of the project along with a report of their findings.
- Formal science labs at a regional location with proper scientific equipment were blended into the course each quarter.

Wortmann recognized the importance of having a team of educators working together to create and support teaching of her VS course. She received release time for course design and technical support from the VS information technology specialist. Iowa Learning Online, the virtual school, produced high-quality materials, supported and maintained hardware and software, and recruited and registered students. Iowa Learning Online also provided training for educators at host schools to support students in their courses—especially the on-site facilitator who supported students, coordinated the efforts of administrators and the IT specialist, and interacted with parents.

Roles and Responsibilities

Educational teamwork is common in K–12 schools and becomes even more essential for high-quality VS. The three core roles in a VS system are teacher, designer, and VS site facilitator. Principals, school counselors, instructional technology coordinators and students' parents or guardians support these key players. There is considerable overlap in these roles, and individuals may take on multiple roles or a given role may be divided among a number of people.

Teacher. In a previous *L&L* article ("Distant but Not Out-of-Touch: What Makes an Effective Distance Learning Instructor?," March 2000), Barbara McKenzie and M. D. Roblyer discussed factors that contribute to successful online teaching. They found that the key characteristics of an online teacher were similar to those of any successful teacher: communication and classroom organization skills. But the degree to which these characteristics are present appear to be important in the VS teacher. VS teachers need to be highly organized and include comprehensive informational materials if they are to provide appropriate levels of structure in the course and in individual activities to meet their VS students' needs. Furthermore, they must be able to effectively use a wide variety of communication tools

in ways that provide students with opportunities to participate fully in activities and stay on task.

Full participation includes teacher-student communication without developing overdependence, assessing student work and providing timely feedback, and peer collaboration. Good teachers develop social presence in their virtual classrooms, creating a supportive and welcoming environment that allows for the wider variation in student ability and experiences that comes with a dispersed student population. The teacher must be actively involved in monitoring and engaging students in discussions and self study, clarifying instructions, and providing multiple opportunities for engagement through multiple media to achieve course objectives, to alleviate the isolation of students, and to resolve students' misconceptions of course content and related activities.

Wortmann specified course content and related resources in our example, but these attributes were actually developed by instructional designers with expertise in producing materials in Web-based learning environments. For each offering of the course, the teacher must adapt the syllabus and time-schedule to fit participating schools' schedules. Instructional technology coordinators at each site ensure that the teacher and students have adequate access to technological resources and that hardware, software, and network systems function properly. This often goes beyond the typical roles of the IT specialist. For example, security in the local host school networks often requires adjustment to firewalls and filtering software to allow students access to the virtual Web-based learning environment.

Administrators. Administrators also play an important role in supporting VS efforts. They are responsible for allocation of necessary resources, logistical coordination, and maintenance of collaborative arrangements. As instructional leaders in the school, they are also responsible for recruitment and quality assurance of courses, and determining the need for VS courses, such as offering advanced science courses virtually in a rural school when such courses are no longer available due to teacher shortages.

Facilitators serve as an essential resource for students when other communication channels are not effective, including technology breakdowns that may lock students out of their virtual classrooms.

VS Site Facilitators. Perhaps the most important role to communicate through this article is that of the facilitator. The importance of this role is often underestimated, and individuals who fill it are underprepared and underpaid. The facilitator role may be filled by a local K–12 teacher, administrator, guidance counselor, or aide hired specifically for the purpose. There are several terms used for what we call the VS site facilitator role: The original Virtual High School called the facilitator a *site coordinator*, and Iowa Learning Online uses the term *coach*. Students rely on their VS site facilitator to provide information about VS possibilities, instructional support when taking VS courses, and access to K–12 school resources. The facilitator generally serves as an advocate for them in the VS system.

Responsibilities of the local facilitator start with advising each student on the selection of VS courses that address his or her needs, and establishing realistic expectations for what it takes to be successful in the VS environment. Success in VS tends to be related to students' organizational skills, study skills, abilities to communicate effectively in a variety of modes, ability to be self-motivated and self-directed, and facility with the various technologies. Facilitators can help students focus their attention on course-related tasks to promote engagement and commitment to learning as they mentor and monitor student progress. Facilitation includes liaison with each student's parent or guardian who may support distance learning at home. When more than one student is at a given locale, the facilitator can build a community within the on-site group to encourage participation and develop an ongoing peer-support system.

Facilitators may also be required to proctor examinations to ensure the integrity of technology-mediated assessment and support students as they work on independent and group projects. The facilitator often provides important feedback to the VS teacher concerning challenges experienced by students, and their perceptions of the course. Facilitators serve as an essential resource for students when other communication channels are not effective, including technology breakdowns that may lock students out of their virtual classrooms. Collaboration is also required with the school instructional technology coordinator and administrators to ensure provision of adequate support, services, and reporting.

In summary, each facilitator plays a key role in VS and is responsible for providing immediate, personal, face-to-face communication with students; engaging in local problem-solving of many types; and mentoring students. The VS site facilitator is a vital liaison between the students' school and the virtual teacher.

Preparing Teachers for VS

A current challenge in U.S. education is to prepare teachers for VS. Preservice teacher education programs typically provide field experience during which students become immersed

in the culture of schools and come to understand the complementary roles of educators within each K–12 school. Field experiences in a virtual class may be possible, but the teacher's classroom management and the complementary roles of supporting educators are often obscured due to the nature of the VS system. This will become readily apparent to readers who examine the online tours of courses provided at some of the Web sites included in the Resources section of this article. The student perspective is well represented for online aspects of the course, but roles and responsibilities of the VS teacher and collaborating educators are rarely apparent.

Niki Davis leads the innovative project Teacher Education Goes Into Virtual Schooling with support from the U.S. Department of Education (FIPSE) and collaborating universities to address this challenge and to develop resources and courses for teacher education programs across the United States. The resources that will be developed may also be useful for all K–12 educators and to set standards for roles and responsibilities in virtual schooling. Organizations providing the VS opportunities are also keen to promote good practice and provide effective education for the many thousands of participating students. This article aims to raise the awareness of *L&L*'s readership that every teacher may have a role to play in the facilitation of VS now that it is becoming a common experience in U.S. education.

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Resources

Davis, N. E., Niederhauser, D. S., Compton, L., & Lindstrom, D. (2005). *Good practice to inform Iowa Learning Online: Considerations for Developing Online Instruction and Virtual Laboratory Activities:* http://projects.educ.iastate.edu:16080/%7Evhs/consider.htm

Florida Virtual School Web site: http://www.flvs.net/

Harms, C. M., Niederhauser, D. S., Davis, N. E., Roblyer, M. D., & Gilbert, S. B. (in press). Educating educators for virtual schooling: Communicating roles and responsibilities. *The Electronic Journal of Communication/La Revue Electronique de Communication.*

Iowa Learning Online Case Studies: http://projects.educ.iastate.edu:16080/%7Evhs/index.htm

Iowa Learning Online Web site: http://www.iowalearningonline.org

Judi Harris Virtual Architecture for Collaborating Classrooms Web site: http://virtual-architecture.wm.edu

McKenzie, B., & Roblyer, M. D. (2000). Distant but not out-of-touch: What makes an effective distance learning instructor? *Learning & Leading with Technology, 27*(6), 50–53.

National Center for Education Statistics: http://nces.ed.gov

National Educational Association Guide to Teaching Online Courses: http://www.nea.org/technology/images/onlineteachguide.pdf

SREB reports: http://www.sreb.org

Teacher Education Goes into Virtual Schooling project Web site: http://www.public.iastate.edu/~vschool/

Virtual High School Web site: http://www.govhs.org/

WebCT interview with Gail Wortmann: http://www.webct.com/exemplary/viewpage?name=exemplary_2005_wortmann

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