Virginia Society for Technology in Education

Journal

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Editor's Comments:

Who Has Time?

Time. Now there's a word that we often hear in the teacher's lounge. I don't have time at school to learn this new program they want us to implement. When do I have the time to attend training sessions? Sure wish I could be trained at a time that is convenient to me!

Interest and relevant. Yes, those are two other words often mentioned in the teacher's lounge. Educators are generally interested in learning and trying out new ideas, however only if they feel they are relevant to what they are doing in the classroom. But are staff development sessions always relevant to the individual needs and interests of educators? Sometimes they are, and sometimes they are not.

Fortunately today's educators have many different opportunities to individualize their own training based on personal interest and relevance to what they teach. Best of all, these opportunities can be at times convenient to a teacher's schedule. For example, Harley Miles' article, "A Quick Guide to Virginia's Community of Learning: Its Use and Support," explains how a teacher can access the VCOL Web site at any time to gain access to four general neighborhoods: Classrooms, Technologies, Professional Development, and Resources. These four neighborhoods provide a variety of resources to preservice, inservice, postservice educators, as well as to the general public.

My favorite part of the VCOL site is Spotlight on Classrooms. It is an up-to-date resource of links covering teaching tips and teaching tools, lesson plan ideas and resources for specific subject areas. The other strength of this Web site is the opportunity for teachers to contribute their favorite lesson plans. However, in order for the VCOL Web site to stay current and relevant, volunteers are needed to monitor and gather contributions. What a wonderful way for VSTE members to share their expertise and ideas!

In another article by Debra Sprague entitled, "Using Webcasts to Model Technology Integration," K-12 educators from Northern Virginia are described as mentors to the GMU faculty as they provide models for effect use of technology, demonstrate educational software and web-based programs, and assist university faculty in redesigning teacher preparation courses. Webcasting is a major component of this mentorship program and involves teacher and student demonstrations of how technology is used in the classroom. Broadcasted as live streaming video sent over the Internet, these events are also available for download from the project's Web site. I especially like the fact that I can download and view what I want to learn at a time most convenient to me!

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Editor's Comments, continued

Want to learn how to effectively engage in digital video production and filmmaking projects in the classroom? Nikos Thoedosakis discusses how problem-solving, logic, planning, and analytical skills are used in the process of making films in his article, "How Digital Filmmaking Develops Higher-Order Thinking Skills." He even offers to us the opportunity to "pick his brain" via e-mail if we want to learn more than what is offered on the Tech4Learning Web site. Go ahead, send that e-mail any time, day or night!

Best of all, the VSTE Journal is one of the best ways to learn what is new and emerging in the use of technology in education. How has the use of technology benefited the students in your classroom? What exciting technology innovations are being developed in school systems and higher-education institutions? What research discoveries are being made in how technology effects learning?

We would love it if you would take the time to submit an interesting, technology-relevant article for the next issue of the VSTE Journal. Visit http://www.vste.org/communication/journal.html to view the guidelines and then submit the article to the Editorial Board via editors@vste.org.

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The Colonial Times: A Learning Environment for the 21st Century

by Sally Bryan

I created a WebQuest, The Colonial Times, inspired by readings of Constructivists Brooks & Brooks (1993) and Eisner (1994). I wanted to show that when students take responsibility for their own learning, the learning is richer in content and deeper in concept development.

I was curious to see how this environment might encourage different learning styles and student strengths to become significant factors in learning. This was the first time our students and teachers attempted to function in such a "learning environment." The following is an account of what we discovered.

Bernie Dodge, the creator of the WebQuest concept, defines a WebQuest as "an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet." (Dodge, May 5, 1997). WebQuest, as an educational tool, has the potential to make several significant changes to the traditional classroom setting. First, it changes the role of the teacher from lecturer to guide. Second, it changes the role of the student from passive listener and absorber of information to active researcher and creator of knowledge. It places students in charge of finding and selecting material to be studied, of determining how the materials will be used to express their own thoughts, and it makes students, not teachers, responsible for the learning process.

The Study

Laura, a classroom Teacher, Mary, the Librarian, and I, the Technology Resource Teacher, worked together for this project. The WebQuest was correlated with a social studies unit based on Virginia's Standards of Learning and Fairfax County School's Program of Studies on early American history.

Laura's class was randomly divided into two separate WebQuest groups, one that would create a colonial newspaper; the other would create a HyperStudio multimedia presentation on colonial times. Each group worked daily with me in the computer lab for four weeks. Each session was 45 minutes long. As Mary and I worked with one group to do the WebQuest, Laura continued routine classroom

The Colonial Times, continued

activities with the other group. Scheduling was such that both groups received traditional Social Studies lessons in the classroom each morning. At the end of the four weeks, we rotated groups.

The purpose of our study was to discover what happens when students engage in technology-based project learning activities. Qualitative data was gathered based on student and teacher interviews and daily observations that were entered into journal logs.

On the first day of our project, Laura's students excitedly asked questions. They represented half of her multiage fourth, fifth, and sixth grade students. They were a diverse group of students compromising of eight boys and four girls. Some students received special services during the school day as ESOL students (English for Speakers of Other Languages), GT students (Gifted & Talented) and some received services for learning disabilities. For example, Sonia and Paula spoke little English and Pablo arrived from Brazil days before our project began.

After introducing the WebQuest plan to the students and answering their questions, I showed them our school's Web page and taught them to navigate to the WebQuest. I pointed out various sections and told them while they might find topics of interest, they did not need to select a topic yet. Students worked in small groups to investigate the sites. They were particularly interested in the primary documents that I had included as samples of early newspapers and writings. Their fascination with the first newspaper written in America, the first Almanac and the original copy of the Declaration of Independence proved to be so significant that it influenced the entire course of our study. Pablo found the history of American flags site and played the patriotic music to everyone's delight. Students wanted to print everything they found. It was a pleasure to see their enthusiasm.

It quickly became obvious that this group had many levels of skills and ability. The ESOL students, limited in English, also had little background knowledge of American History. They needed to see what I was discussing since they had trouble understanding oral explanations. The music and colorful actions in the National Geographic CD-ROMs appeared to entice the students to watch the multimedia presentations and helped them acquire baseline historical information.

After the initial introductions, I explained our project in greater depth. Working in pairs, students would explore web sites, select topics of interest and write an article to be included in the colonial newspaper. As roving colonial reporters they were to tell the American story to the colonists. We would assume the roles of colonial citizens, express our opinions, talk about important events, and create a final product to share with classmates. The students decided that the publication date would be July 8, 1776, the date when the Pennsylvania Packet published the Declaration of Independence for the first time.

At first students expressed concern about what was expected. What did I want them to write about? Faced with having to make choices about topics and how to write their articles, they were not sure how to proceed. However, they adjusted quickly and began thinking about possibilities. The following excerpts from my research log reflect initial student reactions:

The Colonial Times, continued

1/6: Larry: "Do we write it like we are there? I am just the mapmaker. I am really good at drawing maps."

Anne: "Can I make an advertisement for a lady's dress? I know.... I own the shop. I can interview the people coming into my shop."

Charlie: "My great, great, great... grandfather signed the Declaration of Independence. His name was Charles Carroll... see here it is at the bottom of the Declaration."

Teacher: Let's look for a biography of him. Where else could you find out about him?

Charlie: My grandfather knows a lot about him. Maybe I could ask him? I could look in books, too?

Jonathan & Thomas: We want to study the Declaration of Independence. Look, the Declaration of Independence was signed July 4th, but this says the Pennsylvania Packet is dated July 8th. Wow, this was in the newspaper and it was probably the first time the people saw the Declaration."

The boys appeared excited about their newspaper find. We printed a copy for each to put in a folder and used ringed note cards to keep a record of web sites and other information. To direct their quests, we began each day discussing what students had learned and what they wanted to pursue. I guided students in productive directions, offering suggestions and useful tools without taking too much control of a topic. I kept the overview of the assignment in sight while encouraging students to direct their own efforts. I noted progress on a large tag board chart to help students find information relevant to another student's quest.

Students often found a topic of interest on the Internet but not details or clarification so Mary assisted them. We discovered that integrating the various resources worked well. There were times when students found what they wanted on the Internet and times when books worked better. The flexibility of using either resource was important to our success.

Douglas, a bilingual student, translated information on colonial fashion for Sonia. Anne played the role of a Williamsburg dress shop owner, and Larry and Antonio studied battles and maps, Thomas compared the Declaration of Independence with the Constitution and Peter created his own Almanac. Jonathan became a town crier and wrote about events taking place in the colonies. I wondered if the students would see the "Big Picture" as a result of these small pieces? Perhaps Jonathan's Town crier would offer an overall picture of colonial life that could tie all our topics together.

While researching, students found topics with connections to their own lives and excitedly selected topics of personal interest. The relevance encouraged them to delve deeper into their topics. For example, Thomas was excited to learn

The Colonial Times, continued

that the revisions to the Declaration of Independence were made on his birthday. He knew he was related to Benedict Arnold and wondered which side he was on, so he investigated that.

Rather than being told what was important either by a teacher or textbook, students made their own decisions. Perhaps their motivation was inspired by freedom of choice? Critical thinking skills were embedded in this exercise as students weighed and selected information, organized their findings and determined how findings could be used in a newspaper article or advertisement.

Students spent hours pouring over their findings, talking about what they saw, writing notes of sites to revisit and topics to remember. Although I was concerned that their topics were narrow and might not result in acquisition of information required by the curriculum, I found the students empowered because they actively chose what to learn. They even appeared to read the textbook with increased interest. The most remarkable event was the enthusiasm generated by America's first newspaper.

Then I became concerned that the research process was taking a long time and we might run over schedule. I also worried that the students weren't learning the core curriculum and if the project failed expectations, would the classroom teacher let me have the second group of students for the same length of time?

One day a distraught Thomas couldn't find the detailed information on the Internet that he wanted to support his point of view on The Declaration of Independence. My most enthusiastic student seemed to be giving up, but the next day he told me that he had decided to be a Virginia farmer who lived near Thomas Jefferson. While working in his tobacco field, Jefferson would came by in his carriage to chat about the Declaration of Independence and the threat of war it might create. What a positive change!

However, several of independent-working students showed similar moments of discouragement. Sometimes they were slow to find information or they forgot to save information. At times they found too much information and became overwhelmed and needed a new perspective to help them with their investigations. For example, Charlie could not find a biography of Charles Carroll. I suggested that he investigate Carroll's colonial community. What would he have done each day? What would he have thought about the English taxes? Could informed guesses lead to reasonable conclusions?

I learned with the students. They were individuals with different strengths and needs, but meeting those needs were difficult. Even with the assistance of a parent volunteer and librarian, my students needed more guidance than we could give. The more capable students helped each other in peer conferences and in decision-making. However, the ESOL students needed a great deal of modeling. Other students could not read information well enough to translate it into their own words. It was not the technology skills that required our time and attention. Teaching the skills of searching, selecting, interpreting, outlining, and creating appropriate information became our major focus.

The Colonial Times, continued

The final product was an enormous success. Once the students saw their final product they forgot about all the ups and downs. They proudly presented it to their class and enthusiastically answered questions about their contributions.

On February 1, Mary and I began working with the second group. We had learned a lot and looked forward to what we felt would be the easier of the two technology integration projects. We were in for a big surprise.

Laura observed the first two days of this project while Mary worked with the other half of her class. She too was curious about what had made her first group of students so excited. But, our first day was a disaster because other students came to the computer lab to complete keyboard lessons, distracting our students. Laura was also upset when she realized, "What was I thinking? This group is so needy... this group will really be hard."

The next day we restricted other students from the lab and our WebQuest activities were better received. We started by viewing a Hyperstudio presentation made by students the previous year. Our new group saw their friends dressed in colonial costumes and saw how the button made links, sounds, transitions and scrolled text on the cards. They were anxious to begin.

As I introduced the National Geographic CD-ROMs to the students, they listened intently as we discussed the HyperStudio project plan. We brainstormed topics of interest. One student suggested doing the causes of the American Revolution. It was decided that each student would research a famous colonial person, including women, slaves, children and Native Americans. The person's point of view about the Revolutionary War would be expressed. Using the WebQuest guidelines, the students began to research colonial people. They book-marked sites and took notes on note cards, and left indicating they were eager to return.

During our daily group discussions we talked about point of view. Using storyboards, each student planned the sequence of the stack including a graphic and text on each card. Graphics were downloaded from the Internet, drawn by students, or imported by scanning pictures from books.

My parent-volunteer, Mary and I helped students create an image folder to save downloaded images from the Internet. However, we found that this was a needy group with many members needing one-on-one support to complete a task. Fred was upset because he couldn't find additional information on Henry Knox. Bill seemed happy looking at Native American pictures but he could not read any of the materials. Brenda liked looking at Betsy Ross pictures but could not focus on written information to take notes. Ellen searched aimlessly. I was again discouraged by the inability of students to conduct independent research on a topic of their choosing. However, Laura told me that one of her students, Brenda, was responding to our project during her morning class sessions and seemed to be absorbing information.

This group seemed less dynamic, less capable than the first, except for a few students. I wondered, "How could a classroom teacher adapt to these

The Colonial Times, continued

conditions?" The individual attention needed by each student was enormous. It was difficult teaching these students to peer-conference and help one other. Again, it was not the use of technology that was difficult; it was the lack of skill development in reading, writing and researching that posed roadblocks.

Using a written guide, students created introduction cards and worked on the storyboard plans for the additional cards. Some students made independent efforts to find information and to use the information to create their stack. Fred returned with information about Henry Knox. He worked at home to find what he needed. Then I realized that everyone was now showing interest in the project.

As usual, the problem was time. I felt anxious because this group could not be rushed; needing to move at their own rate and at times adult supervision to proceed. They weren't helping their peers. They lacked confidence in their own ability to make selections or decisions. They needed more opportunities to observe and practice what was being asked of them. Thank goodness for my parent volunteer. I could not have completed this project without her help. She read the materials to Brenda, translated the information and helped Brenda type information.

When the second group finished their projects they showed the same pride in their accomplishments that the first group had displayed. They also forgot their frustrations as they shared their final product with the whole class. Their teacher was thrilled with the quality of their work and with the level of excitement that seemed to permeate all their academic efforts.

Summary

As a result of this project, students learned new research skills and how to use information found in electronic media to present history in interesting ways and weak achieving students sustained interest for a longer than normal periods of time. They also found new avenues of self-expression. More accomplished students showed enthusiasm for self-directed work. And, the classroom teacher is now ready to use this model of teaching in her next unit of study.

I also learned that a change is required in our instructional program before a paradigm shift can be made from traditional acquisition of knowledge to student-centered utilization of knowledge. This change must be brought about by collaborative efforts of teachers who have a vision of new educational focus and opportunity. A technology resource teacher must plan in concert with classroom teachers to affect such change. Classroom teachers must be a part of the hands-on activities; learning and exploring as the activities evolve.

The following findings and implications will shape our future use of technology:

- Project-Based Learning environments encourage students to judge and utilize information for themselves rather than simply being taught information. However, Project-Based Learning requires development of skills that are different from those in the traditional classroom. Students must be able to read various types of resources and learn decision-making and research skills such as sorting, evaluating and selecting important information.

The Colonial Times, continued

- In order to meet the varying needs of individual students, metacognitive coaching and appropriate study skills needed for critical thinking, problem solving and reasoning must be modeled. Learning to use the technology is not the major problem for students; it's the problem of learning independent skills required to effectively use the opportunity technology offers.

- Teachers need the time to develop their own expertise to effectively use technology and plan with colleagues project-based activities such as WebQuests.

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The Colonial Times *WebQuest is on the Lemon Road Elementary School's Web page: http://www.fcps.edu/LemonRoadES/colonialwebquest*

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Making Your Web Site Available to Everyone

by Tim Stahmer

Imagine your district building a new school and NOT including ramps and wide doors to allow unrestricted access to students and visitors in wheelchairs. Imagine visually impaired students in your district NOT being provided with assistive devices to allow them full access to the same information as other students. Whether through modifications of the physical facilities or the use of adaptive technology in the classroom, today we do everything we can to make the school experience available to as many people as possible.

But What About Your School's Web Site?

Many people with visual, auditory and physical disabilities are using the web these days - including your site. But it's possible they are blocked from accessing the information you have to offer because of the way your pages are designed. For example, people with visual impairments often use screen readers to access web sites but these devices can be confused if pages are graphic heavy or oddly formatted. And if a site features a large amount of audio files, hearing impaired visitors will miss the information offered.

It doesn't have to be that way. Creating sites that are accessible to people with disabilities is very simple and costs nothing. Before making any changes, however, you should first find out just what problems your pages have. The best way, of course, would be to visit your web site the way that a person with disabilities might, using a text reader or other assistive technologies.

A second option would be to visit Bobby. "Bobby" is a web site created by The Center for Applied Special Technologies (CAST) (http://www.cast.org/bobby/) which will evaluate your pages and produce a report showing exactly where a user with disabilities might have problems. The CAST web site also has a wealth of information about how new technologies, such as cascading style sheets, affect the use of the web by the disabled.

However, as I said, it doesn't take a lot of work to create web pages that will be easily available to the widest possible audience. Here are some basic alterations you can make.

Use ALT Tags

One of the easiest things you can do to aid your visually impaired visitors is to add ALT tags to your graphics, especially those used for navigation. Many people never see the ALT tags on a web page but if you set your browser to display pages without images, the ALT tag will be displayed in the space that would be occupied by the image. Including an ALT tag takes a few extra seconds (the manual for your editor program will tell you how).

When you write the ALT tag make sure the text accurately describes the image or link. For example, if you have a button that takes the visitor to the main page for the Social Studies

Web Site Availability, continued

department, the ALT text should be "click here for information about the social studies department" rather than just "social studies" (or worse, "soc stud"). In the same way, a picture a group of students showing off their science fair project should accurately describe the picture.

On the other hand, not every image requires a descriptive ALT tag. For instance, if you use a bullet graphic strictly for decoration, adding the ALT tag "bullet" would mean that a blind user would hear the word "bullet" over and over again as they moved across the page.

A side benefit of using ALT tags is that you help any of your visitors who are using a slow modem and elect to use their browser without downloading the images. The text in the ALT tags will give them a better idea of what is on your page and how to navigate around your site.

Offer A "Text-Only" Version of Your Site

This is especially important if your site features audio information or if you have used Flash technology for presentation or navigation. Flash can be a big problem for screen readers and other assistive technology. If you rely on a Flash movie for site navigation, handicapped visitors may not be able to navigate your site.

Providing a text alternative is also a good idea for non-handicapped visitors. If access to your information relies on the visitor having a certain plug in or a certain version of that plug-in, you may turn away some people trying to view your pages. Remember, it can be frustrating to those who arrive at a page only to find they don't have the correct configuration to view it.

Choose Fonts and Colors Carefully

Many people with low vision make the default text size used by their browser larger and sans-serif fonts (such as Helvetica or Arial) are much easier to read on a video screen and scale much better than serif fonts (like Times). For the same reason avoid italic fonts.

Also, keep the visually impaired in mind when you choose the colors. Some color combinations that look fine to you may not contrast well to people with low vision. People who are "color blind" may also have trouble, especially if you rely on color alone to indicate important information such as links.Give Users An Opportunity to turn "Off" Animation

Give Users An Opportunity to Turn "Off" Animation

Many site builders like to have motion on their pages such as animated GIFs, scrolling text or animation using DHTML. But this movement can confuse the assistive technology used by some of your visitors and may be hard to view by others. Never use blinking text, the MARQUEE tag or other elements that cause the screen to flicker.

Abbreviations and Acronyms

Avoid using too many abbreviations and acronyms which reader software will misread. If you do need to use acronyms, spell them out in titles, headers and opening

Web Site Availability, continued

paragraphs to make the information more understandable. Of course, this will also help sighted visitors who may not know all the inside terms that are familiar to your local community.

Avoid Frames and Complex Tables

Frame structures, while sometimes useful to create navigation schemes for your web site, can also confuse screen readers and other technologies used by physically handicapped users to move around pages. Complex table structures can also do the same unless they include some kind of orientation information.

Use Cascading Style Sheets

One of the best ways to make web sites more accessible is to use the relatively new technology of cascading style sheets (CSS). CSS allows web designers to separate the structure of a document from the content, which allows visitors using assistive technology to better interpret the content. A side benefit for the designer is that CSS makes the site easier to update and maintain.

There is much more to the topic of making the web more accessible to everyone than can be covered in a short article. However, this outline should provide you with a good foundation to begin the process of looking at your site and making the necessary changes.

References

For more information, visit the following web sites:

- Center for Applied Special Technology (www.cast.org/bobby) - In addition to the site checker mentioned earlier in this article, the CAST site includes information about other tools and techniques for building accessible web sites.

- The World Wide Web Consortium (www.w3.org) - An international organization that develops and certifies new web technologies. Their standards include a proposed set of guidelines for making web sites more accessible.

- Section 508 Home Page (www.usdoj.gov/crt/508/) - Section 508 is a set of regulations that requires federal agencies to make sure that their web sites are accessible to people with disabilities. It is very likely that other governmental agencies (like schools) will be required to meet similar standards in the near future.

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One for All: The Single Computer and Technology Integration

by Ross Perkins

A Familiar Experience?

Jim, an experienced social studies teacher, was sitting in the teacher's lounge grading some mediocre papers about the effects of British colonialism. His juniors had about as much interest in writing them as he had in grading them. He stopped for a moment after reading a particularly confusing run-on, and suddenly he had an inspiration. His students could use the computer to create multimedia mini-documentaries on colonialism. It would be a great way for them to get excited about producing a report. They would do research, storyboard, create, and present. But then hard reality slapped Jim in the face. What was he thinking? First, it was almost impossible to schedule the computer lab for the time that would be necessary. Second, the one computer sitting in the back of his classroom would not be much help – he had 26 students in one section of world history and 24 in another. He stared down at the run-on, gave it a healthy dose of red ink, and read on.

It is quite likely that you have had an experience similar to the one just described. The excited talk of "technology in the curriculum" seems to be a fantasy for those whose reality, like Jim's, means that one computer sits in the classroom and the notion of letting two dozen or more students use it for educational purposes is beyond the pale.

Or is it? Many teachers around the country are in a similar circumstance, but they are using their single classroom computers effectively. The problem does not seem to be that there is only one computer, but that good information about how to use it for a classroom full of students is not widely disseminated.

Moving Forward

While it is true that teachers will not use computer technology in their classroom before they themselves are comfortable with it (Hurst, 1994; O'Neil, 1995), it is also true that simply learning to use the computer for specific tasks does not mean that teachers will use it effectively as a tool to help student learning (Tan, 1998). Teachers need to be trained to combine educational technology with teaching styles and specific management techniques in order to make learning happen.

One for All, continued

This article assumes that readers want to use the computer in their classroom but are at a loss to develop their ideas given equipment restraints. The purpose of this article is to give suggestions that are informative yet general enough so that all teachers, at whatever grade level, area or expertise, can put their solitary computer to good use.

An Administrative Assistant

The single computer can be a valuable a tool for many administrative, communication, or planning tasks. Advice found in many articles and books about the one-computer classroom point out that teachers can use the computer to meet their own needs (e.g., Dockterman, 1997; Kahn, 1998; Oehring, 1993; Tan, 1998). The use of the machine for personal activity is directly related to teaching, even if the students themselves are not "doing" anything with the computer. How? As any classroom teacher will agree, ideas and tools that help save time, energy or effort do in fact benefit the instructional process. Creating word processing documents or calculating grades via a spreadsheet can save hours of time – time that is better spent developing creative ways to teach content.

An "Electronic Chalkboard"

If one were to create a taxonomy of computer use in the classroom, there would likely be a good deal of debate about which use is the most important for student learning. Among one of the top uses, though, would likely be that of presenting or displaying information. After all, since the first standardized classrooms were created there has been a way for teachers to display information to the entire class.

A number of authors writing about the one-computer classroom discuss the merits of using the computer to project information (e.g., Brown, 1998; Dubois, 1997; Johnston, 1998; Tan, 1998). Projection may be done either by connecting the computer to a television, connecting it to a LCD device that can be used with an overhead projector, or by the use of a projection display device. Some teachers may even have access to "smart board" technologies.

As Tan (1998) points out, this "electronic chalkboard" can be used to display agendas, train students to use certain software or the Internet, aid in delivering lectures, or show simulations. A networked machine could display web sites and Java animations. Other uses might to display data input from digital cameras, digital microscopes, or probeware. Students can use it to display projects that they create.

Making such use of the computer, Tan writes, allows students to observe the teacher using programs, which will in turn help them use computer software and they will "learn to value the classroom computer as part of their learning experience" (1998, p. 10). Other insights reveal that using projection devices with one computer can help enhance students' visual literacy skills (Dubois, 1997), help a teacher monitor student work (Johnston, 1998), and help a class build community stories (Oehring, 1993). Another suggestion would be to use it to conduct "game show"-like reviews, or demonstrate how student work is assessed.

One for All, continued

Visibility Concerns

When planning to use the computer for presentations one should note variables related image visibility. Televisions, if used, should have at least a 27-inch screen so the image can be seen by students in the back of the room. If windows cannot be shuttered with blinds or curtains, a television's glass screen will reflect light, which would make it impossible for some parts of the class to see what is being shown. LCD projectors often require a special kind of overhead projector with an extra bright bulb, otherwise the image might be too dark. Finally, some projection display units are not well-suited to rooms where there is ambient light.

Student Use

Many teachers reading this article are already using the computer to complete personal tasks and may already be using it to display presentations. What they are looking for, however, are ideas that will allow students to actually sit in front of the monitor and "do." This next section provides information about group organization, collaboration, time management, software selection.

Precautionary & Preventative Measures

If the classroom computer is being used to complete the administrative tasks outline above, the teacher must be aware of the risks associated with allowing students to use it. The first measure a teacher can take has nothing to do with encryption, but has everything to do with planning. When teachers allow students "free time" on the computer, the likelihood of a getting a virus or another electronic bogey is quite high.

Each time a student sits in front of the classroom computer, he or she should have an educational task to complete (Banaszewski, 1997). Specifying a certain time period during with they can use the computer also helps reduce unwanted activity (Oehring, 1993) . Other ways to restrict the possibility of students misusing the system is to use screen display capabilities "televise" a student's or groups' activities to the class (Johnston, 1998). There are certain software solutions that allow teachers to track all keystrokes and all web site visits. Anti-virus software is highly recommended. Even well-intentioned students can inadvertently delete files, so teachers are also advised to make back-ups of any important information. Use password protection on files that contain private student information. System administrators may have additional suggestions.

Decide the Purpose

As Brown (1998) points out, a question a teacher must ask is, "For what purpose do I want my students using the computer?" This is a pertinent question because the answer guides a number of other decisions. Good teachers allow their objectives to dictate the media used, not the other way around. If objectives justify the use of the computer, one needs to know that it can aid in developing a number of instructional goals. These goals include: creation and/or planning of projects, presentation of material, information research, problem-solving, data management, drill and practice, educational gaming, and student assessment. Some of the activities listed are conducive to collaboration, whereas others are reserved for individual use.

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One for All, continued

Establishing Groups

Creating groups falls mostly within the realm of "the art of teaching." There are no hard and fast rules about who to place with whom, as only the teacher knows his or her pupils well enough to make such judgments. However, it is not as simple as asking students to "get into groups of three or four." Such a method is in fact highly discouraged (Eraut, 1994) as it tends to give rise to gender inequity, social exclusion, and less-able groups. Eraut (1994) describes some of the aspects of group formation.

Group processes include pupil roles, decision making, turn-taking and participation, argument and conflict, and collaboration. Optimal group size depends on age, expertise, personalities, and collaborative ethos. Factors such as availability of time, level of participation for each group member, and the nature of the software being used should also be considered when developing groups. Students, even adult students, do not automatically collaborate just because they are in groups (Lowry, 1994). Collaboration must be modeled and each student should be assigned specific roles, although such roles can (and should) rotate.

Managing Time

The problem with individual use of the single classroom computer is that it takes too much time. The math is not difficult: if 25 pupils in a class that lasts 50 minutes must spend 15 minutes each at the single computer, the 25th student would finally finish in the seventh class session, or a full week after the first student began! For complex projects, individual use of the single computer is simply not an option in the one-computer classroom.

Teachers can save time by first training students on software or Internet use. They should also provide explicit models of what needs to be accomplished. By using presentation devices, or by simply modeling outcomes and skills with paper-based materials, the teacher can establish an organized method for computer use. Instructors should break projects into steps so that groups can complete each stage quickly.

Another suggestion, as noted by Banaszewski (1997), is to encourage peer tutoring. He notes that finding students who are skilled in computer use is not difficult and many are willing to help. Banaszewski cautions the teacher not to let these students become "experts," as it may establish an undesirable dichotomy between the "doers" and "non-doers." Rather, he suggests that all students get the chance to teach each other skills. Another suggestion from Banaszewski is for teachers to use free time to train small groups of students. This is particularly useful in that it allows for small-group formative evaluation to take place, where one can estimate what kind of training works and what does not. Gaining feedback about the software or lesson is also a result of such sessions.

Students must also know when they are to use the computer and for how long. By establishing a posted rotation schedule and keeping timers on hand, the teacher can more easily manage time. Suggestions include using a name board,

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using numbered cups, or a clothespin chart (Oehring, 1993). The teacher must decide how best to implement the rotation of individuals or groups, as deciding how to do it is paramount to success. A final time management strategy involves "staggering" computer use (Banaszewski, 1997) . While some students are at the computer, others are not simply waiting to use it, but receiving instruction or completing work related to the lesson.

Hardware and Software Considerations

The actual layout of the workstation is important to consider with regard to group creation (Eraut, 1994). How many students can sit around the computer and work together comfortably? Is the screen on top of the desk so all students can see it, or is it recessed below the desk, meaning the each person will have to stand up and lean over the person at the keyboard? Is the desk situated to permit easy (and quiet) access and egress? Kahn (1999) states that software considerations are equally important. Does the program force a student to start and stop at pre-determined points, or can he or she begin and end an activity at will? Does the program allow students to work together in teams, fostering collaborative problem-solving activities? Is the software easy to use, or will a student learn more about process than content? Teachers should keep in mind that not all software is conducive to the specific requirements of the one-computer classroom. In evaluating software in such an environment, one should keep in mind aspects related to ease-of-use issues and collaboration.

Final Thoughts . . .

Remember Jim's dilemma? Should he abandon his idea altogether based on what he perceives is a constraint, or can he implement some of the ideas found here? There is not one right answer. Just as "Jim" must work out his own solution, each teacher must balance his or her own strengths, those of the students, and the resources available. Beyond using the computer as an "administrative assistant," or "electronic blackboard," innovative teachers can and will find ways to create productive, collaborative teams of students, develop ways to manage instructional time effectively, and select engaging software solutions.

There are many solutions for teachers like "Jim" who have one computer but hundreds of great ideas for educational technology implementation. Two fairly recent books offering more solutions and examples are listed below. The appearance of the titles in this article is not an endorsement of the content. Teachers who wish to review them are invited to send their comments to any of the editors of the VSTE Journal.

The abstracts shown here for each book are abbreviated forms of the entries found in the ERIC database.

Dockterman, D. A. (1997). Great Teaching in the One Computer Classroom (4th ed.). Watertown, MA: Tom Snyder Productions.

This book offers practical solutions for turning the computer into a valuable teaching tool both inside and outside the classroom. It shows how teachers can use a single computer to help ease their administrative burdens, enliven classroom presentations, spark discussions, and foster cooperative learning and critical

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thinking. Appendices include step-by-step instructions for getting started with some basic software tools and classroom applications as well as general information; a list of education and technology organizations; a list of education and technology publications; a list of 59 education-centered listserv discussion groups; a glossary of Internet terms; and a 27-item reading list.

Cost: $19.95
Pages: 110 pages
ISBN: 1-57809-681-2
Accession No.: ED414873

Kahn, J. L. (1998). Ideas and Strategies for the One-Comptuer Classroom. Eugene, OR: International Society for Technology in Education.

This publication is intended to provide teachers with ideas and strategies for using one computer in the classroom. The focus is on elementary school classes, but some activities can be used with older students. Recurring themes are: scaffolding learning, "crap" detection or critical thinking, and knowledge organizing. Chapter 1: "Classroom Management"; Chapter 2: "Ideas for Using Integrated Packages"; Chapter 3: "Knowledge Organizers"; and Chapter 4: "Teaching With One Computer in the Content Areas." Five appendixes provide: a sample keyboard diagram, a worksheet for creating a ClarisWorks database, basic information on useful software packages, contact information for software publishers and other resources, and contact information for national educational software distributors.

Cost: $25.00
Pages: 141 pages
ISBN: 1-56484-132-4
Accession No.: ED 421981

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How Digital Filmmaking Develops Higher-Order Thinking Skills

By Nikos Theodosakis

If you scan the Hollywood box office report (variety.com) you will find the names and rankings of the top grossing films in the United States. Monsters Inc., The Phantom Menace, Shrek, Harry Potter, and other multi-million dollar success stories.

But here's another list of important films produced this last year. My Family's Stories, Choices, My Dog Spot, Interview with a Civil War Soldier, My Family's History, Triangles, Friends.

Though these obscure cinematic experiments may never break box office records, sell buckets of popcorn, or spin off merchandising memorabilia, they are among the most important films being made today. In addition, the most influential thinkers of the future, our children, are creating them.

Classrooms are turning into studios, teachers into producers and students into filmmakers. Inexpensive and easy to use digital cameras and editing software have enabled educators to explore the use of digital video as a serious tool for teaching and learning.

While the benefits of filmmaking in the classroom encompass student awareness, creativity, engagement, technical learning, it also provides a beautiful bridge to life outside the classroom. This article looks at how digital video production and filmmaking projects in the classroom can help develop higher-order thinking skills. In particular, I would like to explore how filmmaking provides a framework for the development of higher-order thinking skills, from the students' creation of the original idea to their first presentation and beyond.

Visioning

Filmmaking is about turning the intangible into the tangible. Regardless of the size of the film, Ben Hur or My Science Experiment, movies start with that wonderful thing called "the idea." As the idea formulates, a vision of the final film begins to develop. The challenge for students is to hold a clear picture in their mind of what they want to communicate and then to guide their film towards that vision. The goal is to put that vision on the screen.

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It is also about learning the process of looking at where you want to be, looking at where you are now, and constructing a plan to connect the two. It is about exploring not only what the vision is, but also what the vision does. How it moves you into action, gets you up on your feet, and makes you advance in order to crystallize what you have in your mind. It is important that students develop visioning skills for both their present and future worlds. We need students to see how ideas can be transformed into action and how if they want to reach for something, if they can dream it, they can do it.

Research

When audiences go to see a film in the theatre, they seldom realize how much research goes into the making of the movie. In the formative stages, writers, directors and producers research story ideas that relate to the idea they are imagining. They interview people, read books, clip magazine articles, scan the Web, draw upon personal experiences and look to uncover information from anywhere they can, knowing that key secrets can be revealed in the least likely of places.

Once an idea is decided upon, the filmmakers research in order to get a better understanding of the context and content of the story. One of the characters in my wife Linda's latest screenplay works with autistic adults. Linda has been researching autism on the Web, interviewing caregivers working with autistic adults, and has arranged to work-shadow some of these caregivers and their clients. The more she researches, the more it informs her story.

As information exponentially explodes all around us, the ability to effectively mine that information also increases. If we are to prepare students to make sense of all that information, then familiarization with good research skills —knowing where to find things, how to find things, who to ask, how to collect it and how to organize it —becomes another important skill developed by filmmaking.

Problem Solving

Turning the vision into the finished movie on screen requires a seemingly endless journey into problem solving, not only in terms of what do we want to show, but also, how we will show it.

As students set out to create their films and discover obstacles of time, of equipment and of other resources, they learn to identify and solve their own problems, and to own the process for finding solutions. It is then that these multiple, real world filmmaking challenges have become a great opportunity to experience real world problem solving.

Logic

Sometimes when I am putting together a film, I feel like I'm in the middle of a giant algebraic equation. So many decisions in filmmaking are affected by so many other decisions. IF it is sunny we WILL shoot Scene 16 by the lake with all the actors and props required for that scene, BUT IF it rains THEN we will shoot the interior scene in the cabin living room. There are so many decisions that are interwoven into all of the other decisions that filmmaking requires the development and utilization of good logical thinking skills.

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In the classroom the process of filmmaking requires students to imagine what they will need to make their movie. As they are asked to develop a strategy of planning, production and editing, they start assembling a logical series of events and resources to make it all come together. Regardless of whether this process is articulated on paper, or simply considered in their minds, that process will occur.

Planning

A feature film is very rarely filmed in sequential order. This is because time, money and other resources can be better utilized if similar scenes are shot at the same time. Often these scenes are grouped by location, or by actors, or by equipment availability.

Filmmaking in the classroom enables students to explore their own planning and time management skills as they estimate, budget, schedule, analyze and revise their filmmaking projects.

The results of poor or proper time management can be examined and used as yet another learning tool in this process, so that there is a constant self-analysis of what works and what does needs a new approach.

Analytical

Another skill which is invisible to the movie audience, but which is essential to the filmmaker, is the ability to critically analyze information. As a director, when I am standing on a film set, my role is to take in all the information about the scene that I have researched and all the new information that I am receiving from the actors, the crew or the location. Then I analyze it against my vision for that particular scene. It is about looking at all the information and deciding what should be included and what should be left out. It is about filtering on your feet.

Later, during the editing process, I will look at multiple takes of the same shots, and multiple shots of the same scene, and decide, after I look at all of this information, which film footage best illustrates what I am trying to communicate and what I want to explore. As long as we continue to be overloaded with information and continual decision-making, the development of analytical processes will be an important survival skill for students.

Beyond the Classroom

Now more than ever, filmmaking in the classroom can play a strategic role in engaging student learning and in encompassing multiple educational objectives. The goal here is really to enable students to experience these skills in the classroom as part of the preparation for them using it in their own worlds beyond the classroom. When students have opportunities to solve problems, budget, schedule, analyze, research, plan, imagine and communicate their ideas to others, they are building real world skills. And although their films may never be up on the big screen, the experiences learned and the skills developed will make them much more than better filmmakers, they will become better thinkers, and it seems that ultimately, this is what this planet needs.

Digital Filmmaking, continued

About the Author

Nikos Theodosakis is a filmmaker, educator and author of the book The Director In The Classroom: How Filmmaking Inspires Learning (Tech4Learning, Inc., www.tech4learning.com). You will find more information on filmmaking in the classroom as well as links to the resources mentioned in this article at his website www.thedirectorintheclassroom.com Contact him by e-mail: nikos@thedirectorintheclassroom.com

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A Quick Guide to Virginia's Community of Learning: Its Use and Support

By Harley Miles

Virginia's Community of Learning (VCOL) offers preservice, inservice, and postservice educators, as well as those who simply have an interest in education and learning, a comprehensive collection of resources that span educational endeavor. The VCOL site (www.virginialearning.org) provides quick reference within four focused neighborhoods: Classrooms, Technologies, Professional Development, and Resources.

The Classrooms neighborhood encompasses all areas of the curriculum from core to crucial. The Technologies neighborhood provides insight into emerging applications and devices while also providing support for the extant technology environment. The Professional Development neighborhood covers the gamut from certification to retirement. The Resources neighborhood catalogues general resources for those interested in broad areas of education and learning. While the universe of the site is comprehensive, maneuvering through and to its content information is not difficult.

Anatomy of the VCOL Homepage

The VCOL community structure allows for both quick, direct access and thoughtful, investigative exploration. As with any Web resource, on first visit it is helpful to study the layout of the homepage. Most successful sites divide their homepage into areas that provide insightful information as well as access to the nooks and crannies of the site itself. The VCOL homepage employs this approach very well.

Across the top of the VCOL homepage are navigation buttons that connect to each of the four focused VCOL neighborhoods. These buttons allow the user quick access to his or her neighborhood of choice without having to wander through extraneous information. The bottom of the page contains these same links in a text format. The middle of the page provides timely information about a topic of interest. These Word on the Street articles serve to whet the user's appetite for information contained within the site. Down both sides of the VCOL homepage are links to interesting and timely tidbits available within the site's resource collection. The left side of the page provides the more static service links to the usual Search, About Us, Contact Us, Site Map, and Copyright and Privacy areas. Interspersed within these service links are links to opportunities that enable the user to contribute to the site in both organized and spontaneous ways.

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Quick Guide to VCOL, continued

One such opportunity is Highlight a Teacher. This option allows the user to enter information about a teacher, class, or school involved in activities that are exciting, creative, and note worthy. This information might be featured as a future VCOL Spotlight on Education. By taking the time to provide such insight, the user enables VCOL to promote, to the state and the world, activities and accomplishments in schools across Virginia.

Two other user contribution opportunities are Submit a Site and Include Your Organization. These two entry points allow users, with little effort, to expand the VCOL resource offerings. Users who have found sites that are particularly useful in their area of expertise or interest can, through Submit a Site, provide basic information that will allow VCOL to recognize the site's worth, catalog it within the VCOL collection structure, and link it to the greater educational community. The Include Your Organization option provides an opportunity for Virginia educational organizations to have a link from the VCOL web site to their organization's site. By taking advantage of these user contribution opportunities, the user helps the VCOL resource collection become a more comprehensive anthology of related resources.

Another service link found on the left of the VCOL homepage is Educator's Calendar. It has long been a goal of many Virginia educators to have a single clearinghouse for educational activities. Educator's Calendar provides such an opportunity. Users can view the calendar to find information about conferences, symposia, workshops, and other activities. Users can also contribute information to the calendar.

For example, if a health and physical education teacher happens to learn of a conference devoted to Approaches to Exercise and Diet for Adolescent Children and feels this conference could be an excellent opportunity for health and physical education colleagues, that teacher can request to have the conference noted on the calendar. In this way, it would not be left to happenstance to alert colleagues to the opportunity. There would be a recognized resource that provides the information. Educator's Calendar is a resource that thrives on user participation and support.

Within these service options, Send a Lesson should become an extremely powerful user contribution opportunity. Send a Lesson is envisioned to provide a uniform lesson plan format that addresses Virginia accountability issues and allows Virginia educators to share successful approaches to instruction across the curriculum. At present, this option is not operational; it is being refined to make certain that it will meet the needs of classroom educators at all levels and within all curricular areas.

Current links within the Classrooms neighborhood provide access to collections of lesson plans, but the VCOL Send a Lesson option will eventually provide a collection of lesson plans tailored specifically to the needs of Virginia educators. Imagine the possibilities if each Virginia educator contributed just one VCOL lesson plan. The collection would then include thousands of Virginia bred lessons that focus on Virginia's instructional needs.

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On the right side of the homepage is the Neighborhood Spotlight area. Much as the VCOL homepage offers the Word on the Street articles, each neighborhood's main page includes Spotlights focused on timely resources of neighborhood interest. By glancing at the VCOL homepage Spotlights area, the user can quickly get a glimpse of the current featured spotlight for each neighborhood. If a topic peaks his or her interest, the user can quickly use the link to learn more about the topic. If time is of the essence or no listed spotlight on this particular visit seems to be crucially relevant, the user can then quickly move to the neighborhood of choice to access focused resources and information.

The Neighborhoods

Without leaving the VCOL homepage, the user has access to services and snippets of information, but entering the VCOL neighborhoods demonstrates the true value of Virginia's Community of Learning. Each neighborhood provides the user a comprehensive array of focused resources. To heighten awareness of the focus, each neighborhood's pages are color coordinated. All Classroom pages are enhanced in blue; Technologies, in green; Professional Development, in yellow; and Resources, in red. This color coordination may seem a trivial detail, but it allows the user to remain connected to and aware of the neighborhood he or she is exploring.

Each neighborhood's main page is structured similarly to the VCOL homepage. In fact, the top and bottom buttons and text links are identical throughout the site. Even the left margin service links are replicated and appear on all pages. This continuity provides the user a heightened familiarity and comfort level while exploring and using the site.

The remaining areas of a neighborhood's main page provide the focus and insight of that neighborhood. The center of the page offers the neighborhood's current Spotlight article. Whereas the VCOL homepage's Word on the Street offers information that may cross neighborhood boundaries, a neighborhood Spotlight focuses on a resource closely tied to that VCOL neighborhood. A Spotlight provides timely snippets that may entice the user to explore in detail this noted information.

The contents area or right side of a neighborhood's main page, displays a links list of the neighborhood's resources. In Classrooms, for example, there are presently two main listings: Subject Areas and Classroom Resources. The Classrooms Subject Areas include Art, Career Technology & Vocational Education, Computer/Technology, English, Foreign Languages, Health & Physical Education, History/Social Science, Mathematics, Music, Science, and Work & Family Studies. If he or she clicks on any of these subjects, the user enters that subject's page with links to information organized in categories such as Instructional Resources, Curriculum Sites, Professional Organizations, and Learning Activities/Web Quests. Within the contents area of the Classrooms main page, the Classroom Resources list provides links to category listings of Teacher Portals, English as a Second Language, Library Resources, Special Education, Teaching Tips & Teacher Tools, Virginia SOL, and Webquests. Each of these listed links in turn provides focused resource links aligned to each category.

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While the Classrooms neighborhood may seem to provide the greatest wealth of information for the Virginia educator, the other VCOL neighborhoods offer additional focused riches. The Technologies neighborhood provides both the technophile and technophobe insight into technology as an entity with links to category listings of Operating Systems, Hardware, Software, Peripherals, Vendors, and Shareware. In addition to the computer as a technology, the Technologies neighborhood includes information on Handheld/Portable Devices, Video Conferencing, and Wireless Application.

There is even a links list for Training & Tools that relates specifically to emerging and existing technologies. The Professional Development neighborhood's contents area cites links to categories relating to Certification, Conferences, eLearning, Higher Education Programs, Professional Development Planning, Recruitment, and Retirement. The Resources neighborhood catalogues links to general resources in categories of Online Publications; Libraries & Museums; Reference Material; Schools, Colleges, & Universities; Organizations; Grants; Career Information; and Parent/Home Support.

Throughout VCOL some resource links tend to cross neighborhood boundaries. Such links, therefore, may appear in several places within the Community. For example, the user will find a link to VAHPERD (Virginia Association for Health, Physical Education, Recreation and Dance) cited within the Classrooms neighborhood under Health and Physical Education and also cited within the Resources neighborhood under Organizations. VCOL makes every effort to provide links where—indeed everywhere—they make the most sense as a resource to the user. The purpose of creating a resource community is not to impede or delay access to a resource; it is to provide easy, logical access to needed information.

A Historical Perspective

Virginia's Community of Learning is a monumental endeavor that did not spring full grown like Pallas Athena, but evolved from exceptional antecedents. Virginia has consistently been in the forefront of providing electronic educational resources. It was the first state to provide free e-mail access to public school educators. Virginia's Public Education Network (VaPEN) provided, at the time, unheard of opportunities for educators individually to share information and instructional resources. A small group of volunteers, who were passionate about this technology and recognized the possibilities it offered, devised a means for capitalizing on the resource and created Virginia's Electronic Academical Village.

Patterned after Jefferson's design for the University of Virginia, which he called his "Academical Village", the Electronic Academical Village was organized around Pavilions that focused on resources in the various curricular areas. This text-based resource provided the first statewide, on-line sharing of curricular resources.

As technology evolved and graphical interfaces emerged, the Electronic Academical Village morphed into the Anthology Project. The Anthology Project endeavored to continue the goal of the text based Electronic Academical Village and to offer instructional resources in the new medium of the Internet.

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While the resource files resided on servers housed at the Virginia Department of Education and within the VaPEN structure, throughout the electronic resources evolutionary process, each endeavor relied very heavily on volunteer support to gather, post, and maintain the resources.

The initial organizational structure was such that the process was very labor intensive. Maintenance of the resources required a great deal of effort from the few, overworked, volunteer support individuals. This organizational flaw jeopardized the entire endeavor. The situation reached such critical mass that there was danger that needed support for the project would disappear and all of the resources would be lost.

At this point, the Virginia Society for Technology in Education (VSTE) suggested that it could assume responsibility for the resources if other entities would help shoulder the load. To this end, in 1998 representatives from VSTE, the Virginia Educational Technology Alliance (VETA), and the Virginia Department of Education (VDOE) met to discuss ways for saving the resources and continuing to offer this service to Virginia's educational community. From these talks emerged Virginia's Community of Learning. In February 2000, VaPEN's electronic instructional resources were transferred from the Virginia Department of Education to VSTE. Working in partnership with VETA and VDOE, VSTE now houses VCOL and has assumed the major responsibility for its maintenance and continued well-being.

The Structural Difference and Opportunities for Participation

The major difference in the structure of the electronic resource environment that had been and that which now exists is a different approach to the distribution of the tasks and workload. A basic premise of Virginia's Community of Learning is that the energy, effort, and work needed to support such a valuable resource must be distributed across the community.

Service opportunities are designed to allow many hands to perform small, manageable tasks that together maintain the community. In this construct, no person who volunteers to help will be called upon beyond the limits of his or her energy, passion, desire, or availability to serve. The welfare of the whole entity is not dependent upon any one individual and is not diminished by the ebb and flow of volunteer interest or energy. On the contrary, VCOL's welfare is enhanced by the contributions of experienced and new participants alike.

Anyone with a passion for education, a desire to be involved, and a willingness to share time—a little or a lot—can help support the VCOL effort. The crucial understanding is that no one who offers to help will be called upon to do more than he or she is willing or able to do. Tiny steps, as well as giant leaps, will carry VCOL forward. The choice is left to the participant.

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Volunteer Support

As noted, Virginia's Community of Learning is organized around four general neighborhoods: Classrooms, Technologies, Professional Development, and Resources. Each of these neighborhoods has an individual focus that may be best suited to an individual volunteer's interest or passion; however, the general nature of each neighborhood's support needs falls within four generic task responsibilities and job classifications:

VCOL Resource Hound

VCOL Resource Hounds are continually on the lookout for organizations, entities, individuals, and areas of interest for their chosen VCOL focus area. VCOL Resource Hounds recommend sites and resources that are new to the VCOL collection or that have exciting activities or topics of interest that might have timely importance for VCOL Spotlights.

VCOL Scholar

VCOL Scholars have two tasks. 1) They review resources that have been recommended for the collection to make certain that the recommended resource is appropriate for the assigned area or for the collection itself; and 2) they periodically visit posted resources within the collection to make certain that the links are valid and the information remains pertinent to their VCOL focus area. VCOL Scholars work within the selected assigned area for which they are "responsible" and passionate.

VCOL Spotlight Reviewer

VCOL Spotlight Reviewers review and evaluate information that has been recommended for a VCOL Spotlight in their selected focus area. VCOL Spotlight Reviewers participate in developing criteria by which each recommended resource is reviewed.

VCOL Liaison

VCOL Liaisons are communication links between VCOL and various professional and curricular organizations. VCOL Liaisons maintain, on behalf of VCOL, a connection to these organizations. This connection may take the form of direct communication or of a simple monitoring of the organization's web site. VCOL Liaisons inform organizations of the VCOL site and request link privileges for the VCOL site. In addition, VCOL Liaisons request the organization to place a link to the VCOL site from the organization's site. VCOL Liaisons seek suggestions for areas or activities of the organization that might deserve a VCOL Spotlight promotion. The goal of a VCOL Liaison is to maintain a dialog on ways VCOL can assist and be assisted by professional and curricular organizations. Where appropriate, it is most helpful if the VCOL Liaison is a member of the organization to which he or she is liaison.

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Quick Guide to VCOL, continued

The beauty of a community is that everyone tends to care, everyone tends to help, and everyone tends to benefit. This is particularly true in the educational community. Virginia's Community of Learning promotes this construct and offers educators across the state an invitation to participate as volunteer or visitor.

About the Author

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The Virtual High School: America's Learning Frontier

By Carol A. Clair

In this age of advancing technology, educators are challenged daily to rethink their craft. However, such soul searching is no longer reserved only for the practitioner. As K-12 school districts grapple with public demands for accountability that have resulted in assessment and accreditation tests such as Virginia's Standards of Learning (SOL) and experience the heated debate over school choice, they are motivated to employ "out of the box" thinking to improve achievement without depleting financial resources.

The development of several successful virtual high schools has caused administrators to critically assess traditional delivery models. This article explores the concept of the online high school. It describes three current iterations of this model.

1. The statewide model
2. The charter school model
3. The cooperative model

The Statewide Model

The most widely publicized statewide program to date is Florida High School http://www.flvs.net/. Founded in 1996, the Florida program enrolls 2500 students annually and employs 58 teachers. FHS is financed almost entirely by the Florida legislature and is dually viewed as a research project and a state service.

The school employs only top faculty; this is possible because there are no geographical constraints. Classes are open to all eligible Florida students.

"70 percent are from public schools, 21 percent are home-schoolers. And 9 percent are from private schools." (Trotter, 2001)

FHS combines asynchronous learning with self-directed practical learning (such as labs). Features such as learning styles assessments and student selected pacing give the courses a custom feel thus compensating somewhat for the lack of personal attention.

A student-information system keeps track of grades and progress on individual pacing charts. Parents and the traditional school, when appropriate, are emailed regular progress reports. Parents can view their child's work online when they log on with the child's password.

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Because there are a myriad of security issues surrounding examinations, teachers are encouraged to create alternative assessment tools to supplement testing. In-depth projects, essays and portfolios are utilized.

The state of Florida believes FHS is particularly important for its rural school districts. Schools in these districts are typically too small to offer a wide variety of classes, even when such classes target important curriculum areas. However, FHS allows them to offer a competitive array. Even in poorer areas where many students do not have home access to the Internet, districts can schedule enrolled students in a school-based lab. This often produces an additional advantage for such students since mentors are often assigned to the facilities, thus providing instant feedback and personal attention.

The state legislature expects to be able to cut funding to FHS within three years; it currently provides $6.17 annually. With this in mind, FHS will begin offering its services to private schools in 2002 for a fee. Additionally, it is currently leasing its courses to other states and districts and is providing both F2F (face to face) and online professional development for potential online instructors.

Following Florida's lead, other states are in the process of initiating their own virtual high school programs. In the fall of 2002 Maryland will launch the Maryland Virtual Learning Community. Illinois and West Virginia are currently testing the waters by leasing courses from FHS.

The Charter School Model

It seems inevitable that charter school proponents would discover the opportunity to create online institutions. Such schools are particularly well suited to provide home-schoolers advanced courses that parent educators are often unable to teach. Additionally, they have the potential to provide these students access to academically competitive, recognized educational experiences that are removed from the environment that caused the original disenchantment with the traditional school model.

According to the Center for Educational Reform, a school choice advocacy group based in Washington D.C., there are currently 30 cyber charter schools offering instruction in twelve states. Charters have been granted in Alaska, Arizona, California, Colorado, Florida, Kansas, Minnesota, and New Mexico. Ohio, Pennsylvania, Texas and Wisconsin (Trotter, 2001)

One of the largest, Electronic Classroom of Tomorrow Charter School (eCOT) is based in Ohio and enrolls 2,838 students in its second year of operation. eCOT was founded as a vehicle to reach out to Ohio's rural population on the Pennsylvania border. The alternative was to bus the students to Pennsylvania and pay that state for educating Ohio's students. Instead, eCOT has been attracting students from Pennsylvania.

Although the charter school legislation in most states allows charters to operate unfettered by government regulation as long as they obtain appropriate results, states are not applying those rules to cyber schools. In Ohio, for example,

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the Department of Education has decided to monitor how learning is taking place in these institutions.

Since charters are not as open to the same public scrutiny as public schools, there is less publicity concerning their methodologies. Most either are managed by for-profit management companies such as the Edison Project or are using purchased courseware and curriculum.

One definite reality about cyber charters is public school districts are taking exception to their existence. Several lawsuits have been filed by teachers' unions and school districts. The awarding of public funds to online institutions is being questioned as an equitable practice. Although state law mandates such charter school funding formulas, traditional educators maintain that this was not the legislative intent. They say they are being billed for students that were never enrolled in their districts and the attraction to virtual schools by home schoolers is creating a budget shortfall.

The Cooperative Model

The Virtual High School (http://vhs.concord.org) is composed of more than 125 cooperating high schools from across the U.S. Participating schools contribute teachers and faculty time in return for enrollment for their students.

The formula is simple. For each course offered online by a participating school, the school is awarded 20 enrollments. This allows schools to offer an expanded curriculum without incurring additional FTE expense. Funded by a Technology Innovation Challenge Grant (http://www.ed.gov/Technology/) to the Hudson Public Schools, VHS is the largest cooperative currently operating.

The Concord Consortium is the primary subcontractor for technology and pedagogy. The Consortium is a not for profit educational research and development organization whose mission is the harnessing of emerging technologies for the purpose of bringing expanded educational resources to all people regardless of circumstances.

The one-semester courses are delivered using an asynchronous, scheduled model structured around online discussion groups (Concord Consortium, 1999). This structure allows students to access lessons and discussions at any time, yet maintains a degree of consistency by scheduling topics. Therefore, students are essentially on the same page at the same time. Such consistency of process enriches discussions and allows students to learn from each other.

This centrality of the online discussion group is viewed as "the defining characteristic of the Concord model" (Concord Consortium e-Learning Group, 2000). The emphasis on "meaningful collaboration" and a strong desire to keep costs as manageable as is practical unfolds in eight major design characteristics:

- Asynchronous collaboration - the primary learning strategy that includes group problem solving between students using threaded discussion.

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- Limited enrollment - each section is limited to 25 participants. Working teams of 2-3 are formed for project work.
- Expert facilitation - facilitator (notice this term is used to replace "teacher") proficiency keeps discussions at higher levels and prompts further exploration.
- Trust - the facilitator establishes and shapes intellectual and social norms that create a safe learning environment.
- Explicit schedules - schedules seek to preserve "anytime, anywhere" flexibility while structuring content in a manner that encourages discussion and facilitates learning.
- Excellent materials - a wide array of online and traditional learning materials accommodates varied learning styles.
- Good pedagogy - courses include clearly defined objectives that are matched directly to assessment, continuous assessment, clear assignments and well-defined student expectations with regular feedback.
- Quality assurance - course preview, monitoring, and assessment are approached from four perspectives: design, content, delivery and impact. Courses are revised annually based on analysis of these areas.

As is indicated in the design elements, several of the hallmarks of the Concord Model are dependent upon teacher training. Teachers participate in a yearlong, online professional development program. The training uses action learning to simultaneously ground teachers in both the learning and teaching experience. They are trained in facilitating, moderating and structuring online discussion groups. Since each teacher is required to develop and submit an acceptable course prior to entering the training program, their courses are enriched and modified as part of the learning process.

Participation in the VHS does not reduce basic instructional costs for member schools. Because teachers are assigned to virtual rather than F2F courses, there is a loss of local instructional time. However, since that loss entitles the district to twenty enrollments at VHS, there are fewer students requiring services. Therefore, there is theoretically a net zero effect on number of sections offered and students taught. This dollar neutral feature makes it easy for schools to justify expansion of their VHS program involvement.

Additionally, the decentralized nature of VHS keeps administrative costs down, encourages creativity and is not threatening to faculty. This translates to strong union support.

The VHS vision includes the establishment of other cooperatives. Assuming all virtual high schools can agree to adhere to common standards, there could be cross enrollment. Specialized cooperatives could concentrate on particular

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disciplines or cultural needs. As has been illustrated by VHS, small schools would become increasingly attractive as they offered a large school curriculum.

Conclusions

It is tempting to think that virtual education may be a "silver bullet". It clearly has the potential to move our local schools to a world-class level. By working collaboratively, schools can leverage their strengths and minimize their weaknesses.

However, it is important to note that currently there is little substitutive research in this emerging area. In the specific topic area of virtual learning at the secondary level, this author could not identify any completed major studies. This is partially due to the newness of the model. However, the Web-based Education Commission's report, the Power of the Internet for Learning: Moving from Promise to Practice, speaks of the need to emphasize such research.

"We must establish a pedagogical base for the effective use of Internet learning. We need a vastly expanded, revitalized, and reconfigured educational research, development, and innovation program, one built on a deeper understanding of how people learn, and how new tools support and assess learning gains"

When considering these programs, there must be recognition of the fact that not all students are suited to this kind of learning. All three of the models discussed have strict policies regarding student participation requirements. The VHS has a preliminary "test drive" period during which students can drop or be dropped without penalty. Online educators expect that there will be more withdrawals and drops than there are in a traditional environment. All emphasize that students must be disciplined and self-motivated, clearly not skills all high school students possess. Therefore, virtual high schools should be viewed as a piece of the puzzle, one that when integrated into the whole creates expanded reach and richness, but may not be suitable for all students.

Teachers in virtual schools report that students who fail to flourish in environments that are more traditional frequently excel in the virtual world. One could theorize that such students are relieved to be removed from the peer pressures of high school life. In a virtual setting, they are judged only for academics. Clothes, athletic ability and friends are removed from the equation.

These dynamics raise questions regarding appropriate placement and counseling for potential students. Will schools begin assuming that those students that do not possess the cultural capital that assures success in our traditional environment are also not suitable for online learning? Could virtual learning become simply another benefit reserved for a select few, thus creating yet another layer of inequity or exclusivity in our already tracked high schools?

Will online learning create opportunity for socially and economically disadvantaged students? Alternatively, will it widen the digital divide? The Commission Report points out that virtual schools have the distinct advantage of being able to travel with migrant children. Although they are literally referring to the

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children of migrant workers, there are "migrant" children and families in our ghettos. Families in survival mode frequently move around. The poorest families have no homes. Does it make sense to assume though that simply because the virtual schools can retain seamless records of progress that these children will have reasonable access to computers? Certainly, this could be accomplished by placing systems in locations that are accessible to these populations. However, achieving this would mean making the education of our disenfranchised a national priority. Are we willing to do that?

Will we be capable of developing cooperative models of virtual delivery? Can the virtual schools agree on a set of universal standards? Without such interdependent themes, we will not reach our fullest potential. If we regress into our standard competitive mode, if for-profit, bottom-line oriented corporations manage these ventures, we will erect new barriers rather than eliminating them.

That would be a tragedy, for we have a blank slate here. This new domain is ours to develop as we see fit. It is an opportunity to re-invent education without demolishing it and starting over. It is entirely possible that virtual practices can cross-pollinate into our traditional environments enriching both rather than depleting one to benefit the other.

It is also possible that the new intellectual and social norms that arise from this medium can result in an educational environment that is more accepting of diversity, values interdependence over competition and engages students in ways that teach them to be more active participants in our democracy. It is rare that a society is presented with such an opportunity. Let us hope that we do not squander it.

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Using Webcasts to Model Technology Integration

By Debra Sprague

The inclusion of technology into preservice and inservice teacher education has become a necessary and important component in most, if not all, teacher education programs. Many State Departments of Education, including the Commonwealth of Virginia, now require teachers to pass technology competencies in order to maintain certification or become certified to teach.

The National Council of Accreditation of Teacher Education (NCATE) incorporates technology into five of its six new standards and requires colleges of education to include plans for integrating technology into their conceptual frameworks (Wise, 2000).

The ideal way to prepare teachers for incorporating technology into classrooms is by integrating technology-based learning environments into the college curriculum, with university faculty modeling usage (Sprague, Kopfman, and de Levante Dorsey, 1998). According to Carroll (2000), "Future educators should learn with these modern learning tools integrated into their studies by teachers and faculty who are modeling technology-proficient instruction, particularly in those courses where they acquire the subject area expertise they will use in the classroom" (p. 179). However, a recent survey by the Milken Exchange (1999) revealed that most faculty, whether in colleges of education or in the disciplines, do not model the use of technology in their courses.

Many university faculty members do not know how to effectively integrate technology in their courses. Although they may have basic computer skills, there is a sizable gap between personal technology use and use in teaching. It is much easier to learn basic computer applications, which are often covered in workshops, than to find - or even know where to seek - effective models of technology use that will improve learning.

A concerted effort will be needed to move faculty use of technology into a variety of advanced learning applications that can improve education. Such an effort is currently underway in many universities throughout the country funded by the U.S. Department of Education's Preparing Tomorrow's Teachers to Use Technology (PT3) Program.

Using Webcasts, continued

Preparing Tomorrow's Teachers to Use Technology Grant Project

In June 2000, the Graduate School of Education (GSE) at George Mason University (GMU) was awarded a PT3 grant by the U.S. Department of Education. The goals of the three year project are (1) to fully integrate technology in the instruction of preservice interns, (2) ensure that preservice interns are skilled in and have experience with integrating technology into K-12 classroom instruction, and (3) disseminate broadly the resources and best practices this project develops for integrating technology in preservice teacher preparation.

This project involves two major components. First, GSE faculty members are paired with K-12 teachers in a one-to-one mentoring relationship in which the teachers serve as mentors to the faculty. The K-12 teachers are chosen from three local school divisions: Arlington Public Schools, Fairfax County Public Schools, and Prince William County Public Schools.

The teachers are chosen based upon their effective use of technology to support the learning of their students and are matched with faculty based on content area and grade level. These teachers are providing models for the effective use of technology, are demonstrating various software and web-based programs that can be used in education, and are assisting the GSE faculty in redesigning their teacher preparation courses.

The second component of the grant, and the focus of this article, involves the development of a series of Webcasts (live streaming video sent over the Web). These Webcasts focus on various technologies and the ways in which these technologies can be used in the K-12 classroom. The Webcasts may be viewed live or downloaded from the project website (http://www.techmentor.org).

Defining Webcast Technology

Webcasting is a revolutionary emerging technology and a key component to the project. By using the power of the Internet and a digital video camera, it is now possible to broadcast videos that before required a high-end television studio, a transmitting tower and a government license. Webcasting replaces the production equipment found in such studios, including multi-camera switching and special effects such as animation. Webcasting provides the power to simulcast live events such as corporate meetings, newscasts, conferences, classroom training, trade shows or even a talk show.

What this means is that any live event can be videotaped and sent out over the Web in real-time. Because these events are sent over the Internet live, the technology is interactive so that the viewer can ask questions of the presenter in real-time and get immediate responses. Someone watching the Webcasts could send the presenter an e-mail message asking for clarification of a statement. The presenter could then respond to the question on camera and provide an immediate answer.

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Using Webcasts, continued

Currently five Webcasts have been completed and are available on the project website. The Webcasts have been completed on the following topics:

1. Inspiration Software
2. Internet Seach Engines
3. Website Evaluations
4. KidPix Software
5. Television and Video

The Webcast curriculum is developed by teachers from the three partner school districts and is broadcast by Kidz Online. Kidz Online (http://www.kidzonline.org/) is a non-profit organization whose mission is to teach all children about the technologies that will play a major role in their futures. Kidz Online uses a "kids teaching kids" education model. Each Webcast developed by this project follows the same format.

First, the technology is explained and the presenter demonstrates how to use it. For example, the Webcast on Inspiration goes through, step-by-step, the process for creating a web or mind-map using the program. Second, the presenter discusses curriculum ideas for using the program in a variety of content areas and grade levels. This discussion comprises the majority of the Webcast. Ideas are included for use in Math, Science, Social Studies, and Language Arts. These curriculum ideas are supplemented with pre-recorded video of students using the technology to complete class assignments.

Accessing Live Webcasts

In order to access the Webcast, the viewer needs access to the Internet and a software program that will allow for the viewing of video. The most common programs include RealPlayer by Real (http://www.real.com/), QuickTime by Apple (http://www.apple.com), and Window's Media Player by MicroSoft (http://windowsmedia.com/mg/home.asp). To view GMU's Webcasts live, Media Player is needed.

A person wishing to access a live Webcast should point their browser to http://www.kidzonline.org/techmentor/ and, 15 minutes prior to the start of the Webcast, click on the 300 & 56k at the bottom of the page. This will automatically launch Windows Media Player and the Webcast will appear. If you wish to be informed of the dates and times for future Webcasts, please send an e-mail message to the author at dspragu1@gmu.edu.

Sometimes it is difficult to access the live Webcasts. This is caused by too much traffic or firewalls on school computers. It is a good idea to test the computer system prior to trying to access the Webcast. Anyone wishing to test the computer system in advance can view the archived streaming video at http://www.techmentor.org/Claspy.htm. If there are problems, please call 571-203-8990 on Wednesdays or Fridays between 11 AM and 5PM for technical support.

Using Webcasts, continued

Downloading Archived Webcasts

All of the Webcasts are archived on the project website. Viewers have the option of choosing to watch the videos in QuickTime or Windows Media Player (the first Webcast on Inspiration is in QuickTime and RealPlayer formats). Media Player requires more hard drive space and takes longer for the video to download. However, it provides a better resolution and a higher quality of video. QuickTime should be used if the viewer is using a dialup connection or if space is a concern. Also, Kidz Online is in the process of close-captioning the archived Webcasts. To view the closed-captioning, Media Player must be used. To access the archives, follow these instructions:

1. Open up Netscape or Internet Explorer.
2. Go to http://www.techmentor.org/webcasts.html
3. Scroll down to Video-on-demand Archive.
4. Click on the Date for the Webcast you wish to view.
5. Click on the software you will be using (Windows Media Player or QuickTime). If you have neither program on your computer there is a link on the website for downloading either of these.
6. Click on the segments of the Webcast you want to view or click on View Entire Webcast if you wish to see all of it. Most of the Webcasts are between 45 minutes and an hour in length. This will launch the program you are using and download the video. Then you can watch the video in the same way you watch television.

Assessing the Effectiveness of Video as a Training Tool

Since Webcasts are an emerging technology, no research on the effectiveness of Webcasts as a training tool has been conducted. However, we can extrapolate effectiveness by looking at the research on instructional television and video.

Instructional television refers to video that "is transmitted by satellite to a school where it is either recorded and used when convenient or used immediately and interactively through a combination of computers and television" (Clark, 1998, p. 290). Early research studies on instructional television showed that children learned effectively from instructional television under the right conditions (Chu and Schramm, 1967). These included the use of subtitles, repeated showings of the instruction, and being placed in motivating conditions.

A more recent study compared the learning of a story from two communication methods, reading and television viewing. Middle school students were evaluated in terms of recall, inferential learning and mental effort. The results revealed that although students invested more mental effort in reading, the students who viewed television experienced more long term recall and inferential learning

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(Beentjes and van der Voort, 1993). Further studies discovered that television viewing resulted in greater comprehension while reading text was related to greater vocabulary building (Braunlich and Cennamo, 1996; Podszebka, Conklin, Apple, and Windus, 1998). It should be noted that each of these studies recommended further research to determine the effects of exposure to print vs. television media and the combination of both mediums.

A study conducted by Clevenson (2001) revealed that using video as a means to communicate with parents resulted in higher student achievement on school science fair projects. In this study parents were provided, in both text and video form, information on helping their children complete a science fair project. The instructions were broken down into specific steps parents could do to assist their children. Those students whose parents viewed the video format scored significantly higher on the science fair project than those whose parents viewed the text information. The level of parent help provided to the student was not a significant factor in this study.

Research has also been conducted to determine the effects of combining video and text. When closed-captioning is added to video, studies have shown an increase in the vocabulary of second language learners (Fisher, Flood, and Lapp, 1999) and an improvement in learner motivation (Shea, 2000).

Studies conducted with adults have shown that video can be just as effective or better than other forms of instruction, especially in the transfer of procedural knowledge (Atherton and Buriak, 1998). The research also indicates that video is even more effective for adult learners when combined with computer-based technologies (Moore, 1987; Dillion and Kincade, 1990).

Based on these finding it appears that video is an effective technology for providing instruction. Combining video with closed-captioning and interactivity, as is possible with the Webcasts, may result in further learning. There are plans to test this hypothesis once the Webcasts are fully developed and the closed-captioning has been completed. In the meantime, teachers and faculty who are currently using the Webcasts as part of their instruction have expressed their opinion on the quality and effectiveness of this technology:

"I came across your Webcast archives and thought the clips were very well done! I'm teaching a Computer Applications in Education class for teachers and was wondering if I'd be able to share your project resources with my students. I'm going to introduce concept-mapping soon and thought the Inspiration video segments would really illustrate the importance of visual representation tools. Dan Redding did a great job!" – faculty member at the University of Tennessee.

"Hurrah! I just went in and checked out the start of Inspiration - How wonderful! I think that we will be adding this to our regularly visited sites - I can think of so many ways it can be useful! For teachers who 'miss' training parts, or those who want to refresh revisit and remind themselves of what they have learned, for those who can't come to training but want to learn something specific ... My goodness, I think that this will probably become an important link for our grant website too!" – faculty member at the University of Houston – Clear Lake.

Using Webcasts, continued

Conclusion

The current funding of the PT3 grant used to develop these Webcasts is scheduled to end June 2002. The Graduate School of Education at George Mason University and its partners plan to continue to develop Webcasts as long as there is funding. Topics for future Webcasts include: multimedia/hypermedia in the classroom, use of simulations, diversity issues and technology, and online communities. If you wish to be notified of future Webcasts please contact the author at dspragu1@gmu.edu.

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