Technology in Education
Virginia Society for VSTE
www.vste.org

Using Web-Based Research Activities - CyberHunts, WebQuests, PBL++MM: How Do You Choose?

by *Jill Baedke*

As a technology instructor for several schools, I am invited into classrooms to observe lessons and offer suggestions for technology integration ideas. During a recent visit to one of my schools, I was approached by a teacher who was excited about using the Internet with her third grade class. She used the term "CyberHunt" several times to describe how her class accessed a site and then found information for a question written on the board. She had the sites bookmarked for each question, and the students would go to the site and find the information. I congratulated her success with this first-time endeavor, and we made plans to meet soon so that I could share more techniques and ideas.

While sharing this lesson with another teacher, I was asked if it was actually a CyberHunt or just another Internet activity. This question started my thinking about web-based activities. What exactly is a CyberHunt or Scavenger Hunt? How does it differ from a WebQuest? What does "PBL+MM" mean? How are web-based activities the same or different? Why would a teacher choose one Internet activity over another?

After researching and examining the CyberHunt, WebQuest and Project-Based Learning plus Multimedia (PBL+MM) definitions and lessons, I found that there were many similarities. Each web-based project focused on a selected Standard of Learning (SOL), used the web for resources, and allowed for the students to construct their own knowledge. However, there were some significant differences. Let's start with the simplest lesson: a teacher-directed introduction to an Internet activity.

Introduction to Web-based Research

A common introductory lesson for a web-based research activity would be a simple question-and-answer activity where the teacher would supply a web site address and the student would explore a simple page. The technology objectives

Web-Based Research, continued

may include linking, learning how to move back and forward between pages, and doing a key word find for information. The students would build their skills and competencies for navigating a web site for information while answering a content specific question or providing a definition. Once the students are comfortable with manipulating a site for information, they could then advance to the next step: the CyberHunt activity.

CyberHunt – Scavenger Hunt – Web Hunt

A CyberHunt is an Internet activity that focuses on gathering information from web sites to answer questions or to support a concept on a particular theme or content area. The typical CyberHunt activity comes in the form of a question-and-answer graphic organizer. Most teachers in elementary school start with a paper and pencil organizer (worksheet) for the final product. As students become more proficient in computer skills, the teacher may introduce the concept of multi-tasking, where the students toggle between the Internet and the digital worksheet to enter the information. In either case, the intent is to "hunt" for facts or information to add details for the answer to the question. The questions themselves may vary from the simple fact or statement to the more complex, depending upon the age and skill level of the student. By completing CyberHunts, students learn how to navigate a web site, scan a page for detailed information, and then apply the facts or ideas to the question. A CyberHunt is an excellent way to teach beginning Internet researching skills.

When creating the CyberHunt, the teacher uses web sites to support the curriculum focus. The instructor has control over which sites have the best information to answer the questions and the students use only those sites in the activity. The students do not spend time using search engines or directories to accumulate endless websites that must be accessed, assessed and evaluated. Instead, students use their time to navigate one site for the information. The CyberHunt lesson is streamlined to a simple fact-finding activity. For this reason, the typical activity takes one or more class periods to finish.

There are no firm CyberHunt rules about the number of sites, the type of questions, or the amount of activity time to be allotted. CyberHunts have been created in all shapes and forms and for all grade levels. They cover most subjects and have no set time limit. The teacher has control over the sites, the type of questions, and the final product.

For an introductory lesson for a second grade class, one teacher laminated a simple five-question worksheet in the shape of a crossword puzzle. One site was set up in the browser with the questions being visual as well as factual. The students used a washable pen to write their answers. When finished, they compared their answers to a posted answer sheet and then wiped off the sheet for use by another student.

Teachers are also using the Personal Toolbar folder (Netscape Communicator) or Favorite Links (Internet Explorer) to make links for the web sites being used for their Internet activities. These sites can be removed from the special folders and replaced with another set depending on the activity. Students are then limited to

Web-Based Research, continued

the sites that can be seen in the toolbar. This is especially useful for students in the lower grades who may become confused with a bookmark list of sites or with using a menu bar for drop-down choices.

CyberHunts are simple to make, popular with teachers and an easy way to introduce the Internet to the students. There are thousands of Hunts on the web that are content focused and grade level specific. Additional CyberHunt information, as well as a template and storage space for teacher made CyberHunts, can be found at the site listed at the end of this article.

WebQuests

In 1995, Bernie Dodge and Tom March developed a format for web-based lessons and named it "WebQuest." In a WebQuest, students are given a task or problem to solve, using the Internet as a source of information. They define the WebQuest as "…an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet…" (1995). A well-designed WebQuest has six elements:

- Introduction – for background information
- Task – a fun and thought provoking activity
- Process – the steps and guidelines for the activity
- Resources – teacher directed sites or materials
- Guidance – suggestions by teacher
- Conclusion – final product and closure

The WebQuest may be either a short-term or long-term activity, depending on whether a finished project will take several class periods or several months. In either case, the six elements are the building blocks to a well-rounded activity.

To create a WebQuest, the teacher starts with the curriculum and then introduces the background information. A task is proposed that would motivate the student and support the curriculum. Teacher-selected web resources and additional materials are given to the students to help them formulate a solution to the task. In the Process phase of the WebQuest, the teacher may distribute a numbered guide or a timeline of deadlines to keep the project moving forward. The WebQuest is finally evaluated with a product such as an oral report, skit, multimedia presentation or graphic. In the Conclusion phase, the group sums up, reviews and reflects on the topic.

A WebQuest is more involved and detailed than a CyberHunt and is usually introduced to students who are more comfortable with using the Internet and assessing web-based information. Whereas a CyberHunt may only ask for a single answer to a question, a WebQuest uses higher-level cognitive skills and problem solving techniques. Pre-selected web sites are the main source of information, although the teacher may suggest some outside materials.

While the finished product in a CyberHunt is usually a graphic organizer, the finished product in a WebQuest is in the form of a presentation. The students' final projects may be in the form of a report, poster, skit, slide show, etc. Students may work alone or in cooperative groups for WebQuest activities.

Virginia Society for Technology in Education
VSTE
www.vste.org

Web-Based Research, continued

In a WebQuest, several web sites are used as the primary means to construct a body of information for the finished product. Students learn how to analyze and compare different resources of information, apply the information to a solution and then demonstrate understanding by designing a final product.

Examples of WebQuests:

Elementary: You are asked to invent a machine that helps you do chores around the house. Use at least three simple machines to make your invention; then draw and label the parts. Advertise your invention on a poster and present to the class. (Web-based resources provided by teacher)

Secondary: Analyze the data from information about the sinking of the Titanic and submit a report (slide show) on ways to avoid the same disaster in the future. (Web-based resources provided by teacher)

Project Based Learning plus Multimedia (PBL+MM)

Project Based Learning plus Multimedia is similar to a WebQuest in that it builds from a curriculum concept, actively involves students to solve a problem or task, and allows for students to construct their own knowledge. The final project or activity is an assigned multimedia presentation such as a PowerPoint presentation or video. However, there are several differences between a WebQuest and a Project Based Learning activity. In a WebQuest, one's main resources are web-based, and the task presented may be whimsical or imaginary. In a Project Based Learning activity, the resources are broader in scope, and the task (project) is based on an authentic, real-world problem.

The Buck Institute for Education (2002) has developed a model for Project Based Learning and has an excellent site that describes PBL in detail. A well-planned PBL activity has four defining elements:

- Content – real-world question that "hooks" the student;
- Conditions – expected behaviors of students such as teamwork and task-and-time management;
- Activities – investigative and engaging using real–life resources and technologies;
- Results – real-world outcomes that are presented using multi-media presentations, models or reports.

To create a PBL+MM activity, the teacher again starts with the content objective and creates the "hook" that motivates the students. Students are put into groups to conduct both web-based and traditional research in order to find possible solutions to their task. The PBL+MM allows for more freedom for the students to explore and construct their own knowledge base. Each team plans their own strategies, explores sources of information and formulates their own end results. The teacher is the guide and supports the team's efforts. Since the Condition phase is an important part of the project, student groups are expected

Web-Based Research, continued

to self-evaluate their progress, monitor performance of the group, and work together as a team for a final project presentation. There are several suggested rubrics for this phase of the activity posted at the Buck Institute for Education web site listed below.

The Activity phase of a PBL+MM may take several weeks or months to complete, depending on the project. During this time, many other content skills are embedded in the process and evaluated, such as note taking, discussing, graphing results, writing summaries and presenting information. Students also take advantage of traditional resources, such as videos, interviews, guest speakers, experimental research, field trips and more.

A PBL+MM, by definition, requires the final project to be in a multimedia format such as a movie, PowerPoint presentation, HyperStudio or other multimedia software. In the Results phase, the students present and defend their solution to the project to their peers.

The differences between a WebQuest and PBL may be puzzling at first glance since both are project-oriented and both use the Internet to obtain information. The WebQuest, although project based, is limited in its inquiry in that the information resources suggested by the teacher have already been established and published. The WebQuest, by definition, does not account for the students to experiment or establish new resources outside the references suggested. Students are limited to the web sites approved by the teacher so that the final product reflects only the information on those sites.

The PBL activity has the potential and latitude to include not only accomplished resources but also student-directed research to solve the given task. In a PBL, students could survey, experiment, tally, observe, interview and brainstorm countless other ways to reach their objective. Also, supportive technology is not limited to Internet resources but may include other areas such as special software, digital cameras, probeware, scanners, calculators and more. Both activities allow for creative problem solving, but the PBL challenges new ideas and investigations.

PBL Examples:

Fourth Grade: Henricus is the second settlement in Virginia built to rectify the many problems not anticipated at Jamestown. As a real estate agency, your group must create a one-minute iMovie advertisement to "sell" your new community. Which job skills and types of people would you need to make Henricus a strong settlement? Resources: web-based, field trip, interviews and surveys. (Example from Longdale Elementary School, Grade 4, Henrico County)

High School: Social Security will go broke by the year 2025 if it remains as it is. An Advisory Council on Social Security cannot agree on what to do to extend and expand Social Security. You will be a part of the Advisory Council's decision-making team. Some of you will be working with State representative, Jerry Weller from Illinois. (Example from the Buck Institute of Education)

Web-Based Research, continued

Table of Comparisons

	Student Outcomes	Time	Resources	Final Product
CyberHunt (Introductory Internet lessons)	-Navigate a web site -Scan for details -Apply information	- One class to several class periods	-Teacher-selected web sites	- Graphic organizer (worksheet, puzzle, word search, etc.)
WebQuest (Extending Internet skills)	-Compare web sites -Evaluate information -Apply information -Design a finished product	- Several class periods to several weeks	-Teacher-selected web sites -Teacher-selected outside resources	- Visual presentation (report, poster, play, slide show, etc.)
Problem-Based Learning plus Multimedia (Applying resources to an Authentic Real-world Project)	-Assessing multiple resources -Applying facts to problems -Synthesizing information -Evaluating process and project	-Several weeks to several months	-Teacher or student-selected web sites -Outside resources (field trips, surveys, interviews, reports, experiments, etc.)	- Multimedia presentation (PowerPoint, HyperStudio, movie, slide show, etc.)

Conclusion

How does a teacher choose from these three web-based activities? In order of skill acquisition, the CyberHunt gives the students the opportunity to learn introductory Internet skills while integrating the content curriculum. If a student needs to practice linking to web sites, scanning for details and answering factual questions related to content, then a CyberHunt is a perfect match. If a student already has these introductory Internet skills, then the next step is the WebQuest. A well-made WebQuest broadens the Internet activity to include many web sites that result in a student-created product for assessment. The Project Based Learning plus Multimedia is the most involved activity in that it requires higher-order thinking skills and allows for students to demonstrate their knowledge and skills in multiple ways.

With the infusion of technology and Internet access, teachers now are committed to guiding elementary and secondary students to use the Internet in a responsible and productive way. Choosing the best web-based activity depends on the teacher's objective and the students' abilities and skills. Choosing the right content-focused activity can be as easy as surfing the Internet for established lessons or creating one that matches the curriculum. With the right project, these web-based activities can lead to establishing life-long information-gathering skills.

Web-Based Research, continued

Article Resource URLs

Cyberhunts
http://www.kn.pacbell.com/wired/bluewebn/

WebQuests
http://webquest.sdsu.edu/

PBL+MM
http://www.bie.org/pbl/

References

- Buck Institute for Education. (2002). *Project Based Learning*. Retrieved November 2002, from http://www.bie.org/pbl/resources/examples.php
- Dodge, B. (1995). *The WebQuest Page*. Retrieved November 2002, from http://webquest.sdsu.edu/
- March, T. (1995). *WebQuests and More*. Retrieved November 2002, from http://www.ozline.com/learning/
- PacBell. (1995). *Online Learning*. Retrieved November 2002, from http://www.kn.pacbell.com/wired/bluewebn/

About the Author

Jill Baedke is an Instructional Technology Instructor with Henrico County Public Schools and an adjunct instructor for Virginia Commonwealth University. She can be reached by e-mail at cjbaedke@henrico.k12.va.us.