Now That We Have It, What Do We Do with It? Using the Web in the Classroom

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In recent years, we have become aware of the benefits of using the World Wide Web (WWW) in the classroom (see Swain, Bridges, & Hresko, 1996, for more information). We have learned that using computers is motivating to students (Cosden, Gerber, Semmel, Goldman, & Semmel, 1987) and that using the WWW enhances the learning environment of all students, including students with disabilities (Giagnocco, 1996). Now that we have this information, what do we do with it? How do we integrate the WWW into the classroom? How can teachers act as facilitators and allow students independence in their own learning? As teachers, you may have access to the Internet at school or at home. Either way, you can utilize the WWW in a variety of ways.

LOCATING LESSON PLANS

The WWW can be an extremely useful resource for lesson plans. Try the following sites:

- Classroom Connect (http://www.classroom.net)
- Teacher’s Edition Online (http://www.teachnet.com/)
- Busy Teacher’s Website (http://www.gatech.edu/tcc/idt/Students/Cole/Proj/K-12/TOC.html)
- Education Place (http://www.eduplace.com/ [see Figure 1])

These are all sources for lesson plans that can be accessed and printed from school or home.

- The Sabine Virtual School (http://204.196.37.2/vschool.htm) is a source for online projects for K–12 students in all subject areas. Classroom activities, resources, and lesson plans are provided.
- Learning Studio (http://www.exploratorium.edu/learning_studio) contains resources for K–12 science teachers, and provides suggestions for labs or activities.

Teachers can choose lesson plans from the WWW that make use of everyday classroom materials or choose and/or develop lesson plans that incorporate the use of the WWW as part of the lesson. The example in the boxed sidebar shows a lesson that integrates the WWW into what the students are learning.

CONDUCTING RESEARCH OR LOCATING INFORMATION SOURCES

With the increasing implementation of inclusion, general education teachers need information about how to teach students with rare disorders. In these cases, the Internet can be an important and easy-to-use resource for information regarding such disorders (Leu & Leu, 1997):

- Disability Resources on the Internet (http://primes6.rehab.uiuc.edu/pursuit/dis-resources/inet-dis/inet-dis.html) and sites like it provide information about specific disabilities and links to other resources.
- The ARC (http://www.thearc.org/) and the Council for Exceptional Children (http://www.cec.sped.org~) are home pages of local and national organizations dedicated to specific interests.
- Community resources available to schools and families can also be researched and identified online (e.g., Texas Department of Mental Health and Mental Retardation [http://www.mhmr.state.tx.us/]).

While browsing for your own information, you can develop a list of sites that might be useful to parents. The WWW is also a valuable resource for teachers attempting to locate grants and other sources of external funding. Sites like the Foundation Center Online (http://fdncenter.org/index.html) and the
Federal Register (http://www.access.gpo.gov/su_docs/aces/aces140.html) list funding sources. The Foundation Center Online also provides suggestions on how to write and submit quality grant proposals.

**Using Sites As a Lesson or Lesson Enhancement**

Before students try frog dissection themselves, for example, teachers could incorporate the Virtual Frog site (http://george.lbl.gov/ITG.hm.pg/docs/dissect/info.html) or the Whole Frog Project site (http://www-itg.lbl.gov/Frog/) to show students what is involved.

Another site illustrates a step-by-step "virtual" dissection of a cow's eye (http://www.exploratorium.edu/learning_studio/cow_eye/index.html). For students unable to participate in the lab with their class, the Internet project is a viable substitute.

**WWW Scavenger Hunts**

These can be used in several ways, such as introducing students to the process of Internet searching and browsing; they usually consist of a variety of interesting sites. Teachers need to verify that the sites still exist prior to giving the assignment (see the boxed sidebar for an example). The scavenger hunt shown here was designed to introduce a lesson. With this type of lesson, students locate information and visit many different sites on specific topics. While searching, each student can gather information from sites different from those of his or her peers. Assimilating the gathered information as a class leads to valuable discussions. Some already prepared scavenger hunts can be located online at www.ctnba.org/CTN/treasure/treasure.htm.

**Lesson Enhancements**

The WWW can also be a useful resource for lesson enhancements:

- Gallery for Interactive Geometry (http://www.geom.umn.edu/apps/gallery.html)
- Thomas page (http://thomas.loc.gov/)
- MendelWeb (http://www.netspace.org/MendelWeb/)
- NASA Shuttle Web Archives (http://shuttle.nasa.gov/)
- Layman's View of the Brain (http://maui.net/~jms/)
• The Heart: A Virtual Exploration (http://sln.fi.edu/biosci/heart.html)
• National Budget Simulation page (http://garnet.berkeley.edu:3333/budget/budget.html) would be useful when students are interacting in simulated activities involving national budget decisions. This site computes the results, allowing students to see the outcome of their decision making.
• Supreme Court site at Cornell University (http://wupct.law.cornell.edu/supct/) is a valuable site for students researching recent court decisions.
• U.S. Senate (http://www.senate.gov/) and House of Representatives (http://www.house.gov/) sites are places where students can locate information on legislative activities.

In social studies, students continually learn about other cultures, and the Internet can be a valuable resource for connecting cultures and celebrating diversity (Leu & Leu, 1997). Students can access maps and photographs of various places, and through Internet activities, can actually "visit" other cultures. Other Internet resources can also be utilized. For example, through e-mail, students can connect with students of other cultures. Such correspondence can serve as the basis for a discussion of cultural similarities and differences. In addition, with CUSeeMe (http://bio444.beaumont.plattsburgh.edu/CUSeeMe.html), students can actually see and speak with one another. This communication allows students to learn about cultures firsthand.

VIRTUAL FIELD TRIPS AND EXPEDITIONS

Students who are unable to participate in class field trips can now "travel" virtually (Giagnocavo, 1996). Gone are the days when students had to read about the White House (http://www.whitehouse.gov/) or Paris (http://www.paris.org/) in a textbook or raise money to visit in person. By "visiting" the site electronically, students can view exhibits located all over the world in just one hour. When studying the United Nations, for example, students can visit http://www.pbs.org/tal/u/ to learn and see firsthand what it is like to participate in a United Nations...
SCAVENGER HUNT AS
INTRODUCTION TO THE INTERNET

Use the Web browser to search and locate the following information. For each item, write the URL and the information needed to answer the question.

1. What is Homer Simpson's birthdate? Where was he born?
2. How much cheese does Pizza Hut use every year?
3. When and where was the first Gap Store opened?
4. What was the length of the Titanic? How fast could it travel?
5. Name three of the nine networks in the CNN News Group.
6. Describe today's weather in Paducah, Kentucky.
7. What major beverage/soft drink maker is in Lodi, California?

SCAVENGER HUNT TO INTRODUCE A TOPIC

Use the Web browser to search and locate the following information.

1. Visit an ancestor’s country of origin.
2. Visit a school in an ancestor’s country of origin.
3. Find one important fact about your ancestor’s country of origin.
4. Use an online locator to look up family members.
5. Visit a site specifically about genealogy or researching family history.

These sites differ from virtual field trips in that they consist of ongoing journeys. Online expeditions are interactive and thus engaging for students. Whole classes typically participate.

COLLABORATION

Some sites enhance collaboration among teachers and students. For example, Kidlink (http://www.kidlink.org/) and the Global Schoolhouse (http://www.gsn.org/) are available for teachers to submit suggestions for collaborative projects. Projects might include asking for classrooms from all over the world to provide specific information to be posted and distributed for all participants to use to solve problems. For example, students around the world can submit their cities’ weekly rainfall or the cost of living for their community for comparison to others around the world. A comparison of the effects of El Niño would make an interesting global study.

STUDENT RESEARCH

Like teachers, students can utilize the WWW for research (Oliver, 1997). Online publications provide students with information instantaneously (Dyrli & Kinnaman, 1995). Researching online provides students with access to a wide variety of up-to-date facts (Barron & Ivers, 1996). For instance, students researching Pennsylvania could access the following sites:

- Amish (http://www.800padutch.com/amish.html)
- Quakers (http://www.222quaker.org)

Other popular research sites for students include the following:

- Genealogy Home Page (http://www.genhomepage.com)
- Alamo (http://www.lib.utexas.edu/Libs/CAH/texas/cah_texas1.html)
- NASA (http://www.nasa.gov)
- U.S. Postal Service (http://www.usps.gov)
- Hawaii Dinosaur Exhibit (http://www.hcc.hawaii.edu/dinos/dinos.l.html) (see Figure 2)
- Firsthand Civil War accounts (http://www.ucsc.edu/civil-war-letters/home.html)
- Hurricanes (http://www.miamisci.org/hurricane/)

For students attempting to explore the arts, sites displaying...
famous works include EXPO (http://sunsite.unc.edu/expo/) and Teaching and Technology’s Museums page (http://www.pathfinder.com/time/teach/museum.html). Both of these sites are “jumping-off points” and have many links to museum sites around the world. Some of the links available from these sites include these:

- Smithsonian (http://www.si.edu/)
- Vatican Exhibit (http://sunsite.unc.edu/expo/vatican.exhibit/Vatican.exhibit.html)
- Dead Sea Scrolls Exhibit (http://sunsite.unc.edu/expo/deadsea.scrolls.exhibit/intro.html)
- Exploratorium (http://www.exploratorium.edu/) (see Figure 3)
- Library of Congress (http://lcweb.loc.gov/)

One benefit for viewing artwork online is availability. Many images available for viewing online may not be currently displayed in the museums for visitors to see on-site due to the amount of physical space required to display museum acquisitions (Broun, 1994).

**Information about College Programs**

For high school students getting ready to graduate, the WWW can be used to investigate various college programs. The LD (Learning Disabilities) Resources page (http://www.ldresources.com/colleges.html) provides links to universities with programs designed specifically for students with learning disabilities. Students can also locate universities that have programs specifically for students with disabilities. West Valley College (http://198.31.96.8/wvc/ss/leap/sworley/dsps.html) in California offers programs like Learning Efficiency Assistance Program (LEAP), adapted physical education, and other support services such as readers and note takers for individuals with special needs. The following universities also advertise special programs for students with disabilities:

- The University of Arizona (http://www.salt.arizona.edu/)
- University of Washington (http://weber.u.washington.edu/~doitn/)
- Adelphi University (http://www.adelphi.edu/)

**Other Uses**

Schools might also make use of online literature to avoid the purchase of class sets of novels or to avoid replacing lost or damaged books in an existing set. Students can now access their readings on the WWW from home or school, so they no longer have to carry books back and forth to school. For example, sites like Shakespeare (http://the-tech.mit.edu/Shakespeare.html) and Project Bartleby (http://www.cc.columbia.edu/acis/bartleby/index.html) provide the...
actual text of literary classics online. Students and/or teachers can view text online or print it for reading and highlighting. Another site, Online Children's Stories (http://www.ucalgary.ca/~dkbrown/stories.html), provides the text of children's classic stories and is a good site for parents and/or younger children to visit. The Children's Literature Web Guide (http://www.acs.ucalgary.ca/~dkbrown/index.html) provides links to sites and resources related to children's books. It also includes lists of Newbery and Caldecott winners, discussions regarding children's literature, and information about online publishers.

The WWW can also serve as a forum for publishing students' work (Leu & Leu, 1997). Dodo Land (http://www.swiftly.com/azatlan/) allows students to complete each other's stories. Sites like KidLink (http://www.kidlink.org/) and CyberKids (http://www.cyberkids.com/) also post children's work online. CyberKids not only includes children's artwork, but also posts original musical compositions and children's stories and poems online.

**SUMMARY**

The Web is a valuable resource and learning tool for both students and teachers. With today's technology, there is an abundance of information available at our fingertips. It is important, however, to integrate Internet use in the classroom with quality teaching and facilitating. Quality instruction that integrates Internet use allows students to go beyond the walls of their school building and explore the world.

Persons interested in submitting material for Technology Tips should contact Diane Pedrotty Bryant, University of Texas at Austin, Special Education Dept., SZB 306, Austin, TX 78712.

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**REFERENCES**


