Faculty Scholarship – Library Science   Library

12-1997

The Internet Pyramid

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Recommended Citation

THE INTERNET PYRAMID

Many activity-based articles describe how the Internet can help develop higher level thinking skills. But these skills can be used and assessed only after students have a basic working knowledge of the Internet. In this article, Ann Johnston presents a framework for teaching elementary students to use the Internet in the one-computer classroom. More information about the science activities discussed here can be found at http://www.iste.org/publish/learning/supplement.html.

By Ann Johnston

Most educational projects we read about involve complicated Internet activities. Many of these projects are time consuming, have been geared toward secondary students who have a lot of computer access, and emphasize higher level thinking skills. I understand this perspective, but I am bothered that other, perhaps more fundamental, skills are dismissed out of hand. Many articles I have read imply that e-mail or keypal projects are not justifiable because they do not seem to promote higher order thinking skills. Such projects, however, not only show students different ways to gather information, but also establish basic Internet skills that students can use as they develop higher level thinking skills.

A friend and I have an ongoing discussion about whether our units have the right "type" of justifiable goals. We start by basing units on articles we have read, yet none of them has addressed where to begin. We now believe that we must start with the simplest activities, such as surfing the World Wide Web and sending e-mail. In this article, I provide ideas for integrating Internet use into an elementary classroom with one computer.

Start with the Basics

As an elementary science teacher, I begin with the basics: establishing a foundation on which students can build. I have created five elementary-level activities that develop students' skills over five grades: (1) looking at a functional Web site, (2) using e-mail and surfing the Internet with various search engines, (3) researching as a group, (4) collecting data and relating with e-mail keypals, and (5) researching independently. Students begin by seeing how Internet connections work and how to follow links. When they finish the activities, they are ready and able to find their own information without much teacher guidance. I call this system the *Internet pyramid* (see Figure 1).

Building Internet Skills Grade by Grade

I usually introduce the Internet in the first grade by teaching one or two lessons using a Web site. One site asks safety questions and provides links to the answers (http://www.uoknor.edu/oupd/kidsafe/start.htm).

This lesson has two goals. First, the information on this site can help students evaluate the information I have given them in previous safety lessons. Second, we address what the Internet is and how to follow links. I make sure that students hear the telephone dialing and ringing, and we discuss how the process works while we wait for our connection. The students' faces and comments are unforgettable when you tell them where the Web site actually is. They become excited when they understand that they are connected to Florida. Their eyes get big, and they often shout, "Wow!"

In second grade, the students and I begin to search the Internet for pictures and information about animals. Some people do not consider this a good project because students can also use books (which we spend more time using than computers) to complete this process. I believe, however, that time doing guided Internet searches is time well spent; stu-

dents learn that books are just one source for information. The Internet is also invaluable for "visiting the world." For example, books do not allow us to visit Sea World and find out the latest news on Shamu, the Killer Whale; the Internet can (see http://www.bev.net/education/SeaWorld/). Books are and will always be wonderful, but in today's world students need to know a variety of ways to access information in the classroom.

By third grade, students can conduct group explorations and do individualized searching under teacher supervision. Although some people might say we have not yet used higher level thinking skills, I believe that students must learn the basics of Internet searching before they can begin to use such skills.

My fourth-grade students develop projects and research primarily by using the Internet. They collect temperature data from different cities in the southeastern United States (http://www.weather.com/twc/homepage.twc). Then they e-mail schools in those cities to ask questions and share data about the areas where they live. They also find facts and newspaper articles for their homeroom teachers.

Fifth-grade students get to use the Internet to help them with their human anatomy research (http://k12.colostate.edu/~tferro/human/anatomy.html). They also can copy and use graphics from certain pages if they get permission for duplication from the pages' authors; in this way, they learn about copyright issues. Students use search engines and bookmark sites while taking notes and filling out an Internet bibliography. The end result is a multimedia presentation for the class.

Using the Internet on One Computer

My classroom has only one computer that is online. Fortunately, I can project its screen onto a television monitor. I use this setup in two ways: (1) to demonstrate using and doing searches on the Internet and (2) to monitor students when they do small-group or independent Internet research. When my TV is on, I can see where my students are online at all times. Six computers with Internet access are also available in our computer lab and the library, but I rarely use these because I prefer to use a technology center in the classroom.

Technology centers, in fact, are wonderful management tools. They allow me to become a facilitator in the students' exciting adventures. I use a variety of options in my classroom's technology center, including computers, filmstrips, and tape players. The different options available for learning help motivate students and allow them to use different learning styles.

Final Thoughts

Am I expecting too little of my students? I don't think so. As in any good lesson, I need a strong foundation or background on which to build. These younger students not only have to learn about the Internet but also need a frame of reference for the technology itself.

If your students have not used the Internet before, don't jump into a huge project. No matter what grade they are in, they may have to begin by e-mailing and surfing. Set realistic goals for both your students and yourself. Remember: You are accountable to yourself and your students, not to the authors of articles about Internet use! Don't compare yourself to other classrooms or schools. There's no set "norm." A huge range of hardware and teacher training just won't allow it. And everyone has to start somewhere. ■

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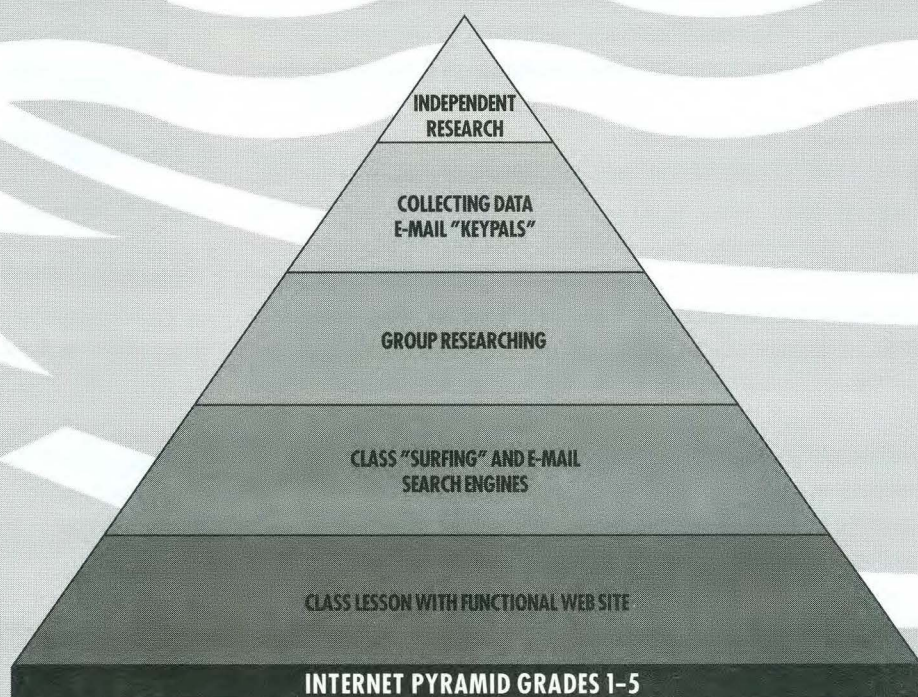

INDEPENDENT RESEARCH

COLLECTING DATA E-MAIL "KEYPALS"

GROUP RESEARCHING

CLASS "SURFING" AND E-MAIL SEARCH ENGINES

CLASS LESSON WITH FUNCTIONAL WEB SITE

INTERNET PYRAMID GRADES 1–5

Figure 1.