

## **The Presence and Purpose of Elementary School Web Pages**

KAREN S. IVERS

*Department of Elementary, Bilingual, and Reading Education  
California State University, Fullerton  
800 N. State College Blvd. EC-376  
Fullerton, CA 92834, USA  
Kivers@fullerton.edu*

ANN E. BARRON

*University of South Florida  
4202 E. Fowler EDU208B  
Tampa, FL 33620, USA  
Barron\_a@popmail.firn.edu*

As we move toward the 21st century, more and more schools and homes will be connected to the Internet. Currently, there are over 8000 K-12 schools connected to the Internet in the United States. Half of these are elementary schools. Compared with 1106 elementary schools in July 1996, the number of elementary school World Wide Web (Web) sites registered on Web66 (the Internet's oldest and most complete list of school Web servers) has more than tripled. It is predicted that 95% of all public schools will be connected to the Internet by the year 2000.

With more and more schools gaining access to the Web, the use of the Web is becoming a viable tool for exchanging and displaying information among schools. This study examines trends in elementary schools' presence on the Web. Findings suggest that most educators use their Web presence to display information about their schools. Few educators take advantage of their school's Web presence for increasing students' communications skills, motivation toward writing, organizing and synthesizing skills, cultural understanding, and authentic learning experiences.

The Web is growing at a phenomenal rate. The Web as we know it began in the early 1990s, and has become a tool for research, the dissemination of information, online exchanges, distance learning, commercial enterprise, and creativity. As with most technological innovations, the Web has caught the attention of administrators and teachers, and many are wondering what the Web has in store for education. Research demonstrates that telecommunications enhance students' understanding and respect for cultural differences (Gersh, 1994), provide students with authentic learning experiences (U.S. Congress, 1995), increase students' inquiry and analytical skills (Honey & Henriquez, 1993), improve students' communication and processing skills (Reed, 1996), and increase the quality of student writing (Cohen & Riel, 1989; Wright, 1991). Benefits for educators include increased collaboration and communication with their peers (Honey & Henriquez, 1993), alternative instructional strategies, and "finger tip" access to research, online experts, and an abundance of curriculum resources (Barron & Ivers, 1998).

No longer just consumers of the Web, educators are beginning to design their own school Web pages. Teachers and administrators are beginning to realize that they can use the Web to provide information about their school and programs, display student work, share resources, and call for collaborative Web projects. With more and more schools gaining access to the Web, the use of the Web is becoming a viable tool for exchanging and displaying information among schools. This new form of communication affects the culture, context, and policies of the school environment, and raises many issues and concerns regarding student safety and privacy, pedagogical practices, and faculty roles. School leaders need to devise acceptable use policies and set guidelines for Web page production.

### **Purpose of the Study**

Currently, there are more than 3700 elementary schools connected to the Internet in the United States. The purpose of this study was to examine the content, design, and purpose of existing elementary school Web pages. The researchers investigated the following questions:

1. What kind of information is posted on elementary school Web pages?
2. Who is responsible for creating and maintaining elementary school Web pages?
3. What type of links are included in elementary school Web pages?

4. What multimedia and programming elements are being incorporated into the design of elementary school Web pages?

### Data Collection

Two sets of data were collected over a two-year period to examine possible trends in the content, design, and purpose of elementary school Web pages. The first set of data reflects 55 randomly selected U.S. elementary school Web sites from Web66. The 55 schools represented five percent of the total number of U.S. elementary schools registered on Web66. The second set of data represents 107 randomly selected U.S. elementary school Web sites from Web66 in 1998 (two years later). Note in Table 1 that the number of elementary school Web sites registered on Web66 more than tripled between June, 1996 and March, 1998.

**Table 1**  
Data Sets

Data Collection Dates	Number of U.S. Elementary Schools Registered on Web66	Random Sample Number	Random Sample Percent
June 1996	1106	55	5%
March 1998	3567	107	3%

During the investigation, the researchers noted the following information about each site:

- Content: information about the school, student work, classroom pages, teacher pages, local information, staff addresses, update notices, and calls for collaboration
- Designers: gender, role
- Links: local, government, educational, search engines
- Media and Programming Elements: digital photographs, animation, audio, video, image maps, mailto, counters, guestbooks, forms, frames, Java.

## Findings

**Content (What kind of information is posted on elementary school Web pages?)** Table 2 suggests that there is a growing trend to use one's presence on the Web for communication. The percentage of staff email addresses has almost doubled, and 27% (compared to 5%) of registered elementary schools show evidence of using their Web presence to collaborate with others. More teachers are posting information about themselves, also (see Teacher Pages). Table 2 shows a drop in the other categories, however. Fewer sites provided information about their schools, displayed student work, provided classroom pages, displayed an update notice, and furnished users with information about the community in the March 1998 survey.

**Table 2**  
Content (What kind of information is posted on elementary school Web pages?)

Survey	Info. About School	Student Work	Class Pages	Teacher Pages	Local Information	Staff E-mail Addresses	Update Notice	Evidence of Collaboration
June 1996	96%	49%	40%	5%	25%	16%	51%	5%
March 1998	84%	43%	36%	20%	16%	30%	38%	27%

**Creators' Role (Who is responsible for creating and maintaining an elementary school's Web pages?).** A growing number of media specialists (including librarians) and technology coordinators are assuming the responsibility for creating an elementary school's Web pages (see Table 3). Of the Web pages with identified authors, almost half of these were created and maintained by the school's media specialist or technology coordinator. Teachers continue to develop Web sites for their schools, although the percentage is decreasing. Other contributors include administrators, university faculty, parents, and business partnerships. Joint efforts to develop elementary school Web sites remain minimal.

**Table 3**

Creators (Who is responsible for creating and maintaining an elementary school's Web pages?): Role

Survey	Teacher	Media Specialist/ Technology Coordinator	Principal (administrator)	Univ. Faculty/ Student & Elem. Teacher	Teacher & Student	Teacher, Student, Parent	Business	Other
June 1996	40%	25%	5%	5%	5%	0%	8%	12%
March 1998	27%	48%	8%	2%	6%	2%	6%	0%

Note: Percentages based on the number of Web pages with identified authors.

**Creators' Gender (Who is responsible for creating and maintaining an elementary school's Web pages?)** Of the Web pages with identified authors, an increasing number of females appear to be responsible for creating and maintaining an elementary school's Web pages. These numbers only reflect 78% (June 1996) and 65% (March 1998) of the surveyed sites. Combined efforts appear to have dropped considerably (see Table 4).

**Table 4**

Creators (Who is responsible for creating and maintaining an elementary school's Web pages?): Gender

Survey	Links to Local Information	Links to Educational Resources	Links to Search Engines
June 1996	69%	65%	31%
March 1998	47%	65%	39%

**Links (What type of links are included in elementary schools' Web pages?)** The drop in the percentage of links to local information parallels the drop in the percentage of Web sites providing users with information about the community, as seen in Table 2. Links to educational resources are the most prevalent, followed by links to search engines (see Table 5).

**Table 5**  
 Links (What types of links are included in elementary schools' Web pages?)

Survey	Links to Local Information	Links to Educational Resources	Links to Search Engines
June 1996	69%	65%	31%
March 1998	47%	65%	39%

**Media and Programming Elements (What multimedia and programming elements are being incorporated into the design of elementary schools' Web pages?)** Digitized images (photos) continue to be a dominant media element (see Table 6). The use of animation grew tremendously, probably the result of available libraries of animated gifs. The use of frames and audio increased as well. Web creation programs (i.e., Microsoft FrontPage, Claris Home Page, and Adobe PageMill) are making these elements easier to incorporate into Web sites. Audio was used to share school songs, choral and music samples, mascot sounds and themes (e.g., the Sharks' Web site played the theme of *Jaws*; see <http://www.rockdale.k12.ga.us/sce/default.htm>), and a welcome message. One school had a Webcam (see [http://www.nwoca.ohio.gov/~def\\_ms\\_www/](http://www.nwoca.ohio.gov/~def_ms_www/)) available so users could see into their computer lab. "Mailto" continued to be a popular option; the percentage of Web sites with counters decreased. Forms, guestbooks, image maps, and Java options are still not used much.

**Table 6**  
 Media and Programming Elements (What multimedia and programming elements are being incorporated into the design of elementary schools' Web pages?)

Survey	Photos	Animation	Audio	Video	Mail-to	Forms	Counter	Guest-book	Image-Map	Frames	Java
June 1996	82%	11%	4%	2%	82%	4%	35%	9%	2%	0%	5%
March 1998	84%	46%	11%	1%	86%	6%	21%	8%	5%	12%	7%

## Discussion

After reviewing the surveyed sites, several trends appear to emerge. First, there is a growing trend to use one's presence on the Web for interactive communication. In addition to providing the school address and telephone number, more schools are posting faculty email addresses, teacher pages, and using their Web pages to collect survey information or to coordinate collaborative projects. The March 1998 survey recorded fewer sites that provided information about their schools, displayed student work, and provided classroom pages. Surprisingly, the researchers came across school sites in both studies that published students' full names, grade levels, and teachers. Ten (9%) of the sampled elementary schools in the March 1998 survey identified photographs of students by name. This is not recommended and should be avoided at all costs. The March 1998 survey also found fewer sites that displayed an update notice and information about the community. Several sites had not been updated for over a year.

Another trend is the growing number of media specialists and technology coordinators who are creating an elementary school's Web pages. Web site creation and maintenance is an ongoing task that requires technology, organization, and management skills, collaboration, and an allotted amount of time. Not all teachers or administrators have the extra time to maintain a school's Web site. Volunteers may help a school start a Web site, but teacher input is critical if the site is to extend students' authentic learning experiences. Some volunteer webmasters were frustrated with the lack of teacher participation. Indicators that sites lacked collaborative efforts include sites that had workable links but were missing the majority of the indicated content. These pages were "under construction," waiting for somebody's input. Other sites had the creator's information updated, but the remainder of the pages lagged behind. Some Web sites were the efforts of individual teachers and were posted on personal home pages (i.e., America Online). It appeared that several schools had created Web pages for no clear purpose other than to "be on the Web." In fact, one teacher commented that she had created the school's Web pages because "other schools were doing it."

There appears to be an increasing number of females responsible for creating and maintaining an elementary school's Web pages. Female role models may help increase opportunities for gender equity with use of computers.

School Web sites continue to offer links to educational resources and use digitized images (photos) as dominant media elements. Most sites are simplistic in design: less than 15% of the sites surveyed included frames,

forms, image maps, audio, video, guestbooks, or Java. Interestingly, the few sites that did incorporate advanced Web design features were not always created by outside businesses. In addition, these features did not necessarily improve the design or content of the pages. Basic knowledge of HTML or access to Web creation programs makes it possible for nonprogrammers and “nontechies” to create simplistic and effective Web pages.

### **Conclusion and Recommendations**

In both surveys, a strong percentage of schools used their Web presence to share the demographics and philosophy of their schools. In addition to school information, some schools utilized their Web pages for instructional content, student publications, and student-centered activities. Emphasis at this point, however, does not appear to be on instructional components or classroom publishing: less than half of the schools surveyed published students’ work or classroom contributions, and less than 30% of the schools used their Web site to initiate collaborative projects. Fewer schools in the second survey included information or links related to their community, also.

Even though the number of elementary school Web sites has increased dramatically in the last two years, the purpose of elementary school Web pages has yet to be well-defined, other than to “be on the Web.” This is analogous to purchasing a computer to “have a computer.” How the computer is utilized is what makes it worthwhile. Very few schools take advantage of the Web’s potential. Schools that appear to be taking advantage of their presence on the Web include:

1. Shoal Elementary School(<http://www.rockdale.k12.ga.us/sce/default.htm>)
2. Jesse Stuart Elementary School (<http://170.182.203.83/JSWebPage/html/jsesinfo.htm>)
3. Prettyboy Elementary School (<http://www.qis.net/prettyboy/>)
4. Bucksport Middle School (<http://www.wh-gardnerms.bucksport.k12.me.us/>)
5. Jackson Preparatory Magnet School (<http://www.jackson.stpaul.k12.mn.us/>)
6. Arbor Heights Elementary School (<http://www.halcyon.com/arborhts/arborhts.html>)
7. Carminati Elementary School (<http://www.tempe3.k12.az.us/Carminati/carminati.html>)

8. Cody Elementary School (<http://www.mil.esu3.k12.ne.us/cody/cody.html>)
9. Columbine Elementary School (<http://www.sni.net/colelem/>)
10. Clearview Elementary (<http://www.clearview.pinellas.k12.fl.us/>)
11. Daniel Elementary School ([http://www.kent.wednet.edu/KSD/DE/DE\\_home.html](http://www.kent.wednet.edu/KSD/DE/DE_home.html))
12. Dodge Elementary School (<http://204.234.22.1/SDGI/Dodge.dragonWeb/main.html>)
13. Floris Elementary School (<http://www.chaos.com/floris/>)
14. Hillside Elementary School (<http://hillside.coled.umn.edu/>)
15. Buckman Elementary School (<http://buckman.pps.k12.or.us/>)

These schools incorporate most of the following into their Web sites:

- Update notice (main menu)
  - “Mailto” to webmaster (main menu)
  - Information about the school (including student and parent handbooks, school philosophy and mission statement, curriculum information, discipline policies, miscellaneous procedures, etc.)
  - School address and phone number
  - Staff email addresses (with “mailto” option)
  - Links to local information (including district links)
  - Links to educational resources and search engines
  - Student work
  - Student created pages
  - Classroom pages
  - Principal page
  - School newsletter
  - School calendar or schedule
  - Cafeteria information (lunch menu)
  - PTA information
  - After school curricular activities
  - Call for collaboration
  - Homework helpers
  - Audio
- The following information is also recommended:
- Acceptable Use Policy (see Bucksport Middle School at <http://www.wh-gardnerms.bucksport.k12.me.us/> and Jackson Preparatory Magnet School at <http://www.jackson.stpaul.k12.mn.us/>)
  - Specific course links (see Eagle School of Madison at <http://www.mailbag.com/users/eaglesch/index.html>)

- Downloadable or printable forms for permission slips, spelling contracts, or other documents

Keeping up with the potential of technology continues to be an ongoing process. As new technologies emerge and become part of the education environment, educators may find themselves with new roles and responsibilities. The maintenance of an elementary school's Web site places new responsibilities on the school's administrators, teachers, and technology coordinator or media specialist. Administrators need to recognize the importance of planning the design of the Web site and the contributions of the school's staff, students, and community. In addition, if he/she has not already done so, the administrator may need to hire a technology coordinator or media specialists with the required skills to help create and maintain the school's Web pages, as well as provide other technology-related services (workshops, grant writing, and so on). It is important to have a tenured or permanent faculty member responsible for maintaining the school's Web pages. Graduate students, volunteers, or other nonpermanent personnel may be used to help create a school's Web pages, but there is no guarantee that these people will be around to maintain the Web pages. Teachers need to be involved in the process, too. A school's technology coordinator or media specialist is more likely have a better understanding of the teachers' needs than an outside volunteer, also.

Teachers should be made aware of policies regarding protecting students' identity, copyright issues, and posting information on the school's Web site. To help teachers take advantage of school Web pages, teacher training institutions may want to focus on the instructional potential of elementary school Web pages, as well as show models of exemplary sites. Everyone at the school should be made aware of the school's acceptable use policy.

The depth and sophistication of elementary school Web pages may increase as educators become more aware of the potential of the Web and more comfortable with the instructional applications. Similar to the introduction of computers into the classroom, when few saw beyond using the computer for drill and practice, it may take some time for elementary schools to utilize the full potential of the Web. Unfortunately, as we wait for guidelines and policies to be developed, many schools may be unknowingly placing children at risk by not maintaining the children's anonymity and not stressing the importance of evaluating information that is received through the Web. A school's Web presence may, indeed, be used to enhance students' learning experiences, but it is important that the appropriate safeguards and organization structures are in place.

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