

Library Websites for Elementary-aged Children:
A Comparative Analysis

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I. Defining and Contextualizing the “Problem”

Introduction

In an increasingly digital age, it is crucial for libraries to carve out a presence on the World Wide Web. As children become more active consumers of digital information, libraries serving younger populations have a responsibility to provide well-designed sites containing high-quality, helpful information that responds to the needs of these users. According to a 2003 survey conducted by the National Center for Education Statistics, 80% of kindergarteners and 91% of students in grades one through five use computers in the United States. Approximately a third of kindergarteners surveyed used the Internet, and half of the first through fifth graders who responded use the Web (DeBell 1). With increasing access to computers in public schools and libraries, these numbers can only rise.

The presence of children in the digital world is so important to libraries that it occasioned a special issue of the periodical Library Trends in Fall 2005 entitled “Children’s Access and Use of Digital Resources.” In her introduction to this issue, editor Allison Druin remarks, “Today, children expect to find computers in libraries as much as they expect to find books” (Druin 173). This close relationship between libraries and digital technology and resources supports our claim that libraries serving children should strive to offer these populations high-quality websites.

Children are surfing the Web for a variety of reasons. A December 2005 survey published in *Instructor* reports that the two primary activities of elementary-aged children who use the Web are playing games and doing “stuff for school” (“Kids on the Web” 14). Thus, entertainment and education take center stage when it comes to children’s use of the Web. Druin highlights this as well, writing, “For school projects, home entertainment, and social experiences, children access and use digital tools and information as a critical part of their lives” (173). We

believe that library sites for children should serve as portals to digital resources that can serve both of these purposes: education and entertainment.

What we set out to do with our project was to create a set of criteria for evaluating library websites for elementary-aged children (interpreted in this investigation as children between the ages of five and eleven), and then to apply those criteria to a small sample of sites. Thus, we started the project with three questions. First, what makes a library site for children effective and appealing, in terms of both content and design? Second, how does a select sample of library sites measure up? Third, how do three different types of library sites (public library sites for children, elementary school library media center sites, and digital or virtual libraries for children) compare? These different types of libraries serve different functions, and are often tied to different activities, and so differences in content seemed likely. These were the major concerns of the project. We set out to explore the literature on design and content selection of websites for children, and to use this literature to inform our criteria for evaluating the sites in our sample.

The Design Dimension

As the very existence of the recent special of Library Trends suggests, children's participation in the world of digital information has become an area of interest to researchers, particularly in the fields of Library and Information Science. While the literature regarding design of library sites for children is still relatively sparse, researchers and practitioners alike are beginning to publish in this area, as well as in the broader area of Web design for children. This attention is welcome. As usability guru Jakob Nielsen remarks in his discussion of a usability study of websites for children,

Despite this growth in users and services, very little is known about how children actually use websites or how to design sites

that will be easy for them to use. Most website designs for kids are based on **pure folklore about how kids supposedly behave** – or, at best, by insights gleaned when designers observe their own children, who are hardly representative of average kids, typical Internet skills, or common knowledge about the web (“Kids’ Corner...”).

Druin echoes Nielsen’s concerns in her discussion of digital technology in general, asserting, “Unfortunately, it is common that many new technologies do not take children’s specialized needs into consideration” (173).

So, what makes for good website design for children? Nielsen tested 55 children (39 in the United States and 16 in Israel) and observed their use of 24 sites designed for children, as well as three sites that were more general in nature. He notes that a number of “classic web usability problems” consistently troubled the children in the study (Nielsen, “Kids’ Corner...”). These included “unclear navigational confirmation,” “inconsistent navigation options,” and “fancy wording in interfaces” (Nielsen, “Kids’ Corner...”). Nielsen’s findings also highlight the unique design preferences of children. One of the most notable observations is that the children tested found multimedia content, such as animation and sound, to be positive design elements. Nielsen also notes that the children “rarely scrolled pages and mainly interacted with information that was visible above the fold” (Nielsen, “Kids’ Corner...”). As Nielsen’s findings suggest, children have unique needs and preferences when it comes to websites. Library sites designed for elementary-aged users should take these needs and preferences into account.

A particularly rich area of research on design for children involves the design of child-centered Web portals and digital libraries. While our project did not deal with Web portals, and digital libraries only served as one part of our sample, the observations of researchers in these fields can certainly be applied to the design of any website for children, including library websites.

An interesting trend that presents itself in the recent literature regarding design for children is the use of intergenerational design partnerships. These partnerships involve design teams that include designers, researchers, and groups of children who make design recommendations and actively participate in the design process. Druin et al. label this strategy “cooperative inquiry,” and remark on the importance of including children – particularly younger children – in the design process (399). Other researchers have adapted this cooperative inquiry model, and have observed children in intergenerational design partnerships. In an article published in the special issue of Library Trends mentioned above, Eliza T. Dresang refers to this trend in research, writing, “The most recent research (and practice) incorporates the child into at least part of the design process; slowly researchers and professionals are realizing that this is the optimal way to increase access to information” (189).

In an article that illustrates this trend, Large et al. compared the findings of two different studies that “investigated design criteria for children’s web portals” (45). In one of the studies, focus groups comprised of children evaluated existing Web portals in terms of screen design and organization, navigability, and usability. The authors found that these children “appreciated imaginative graphics, animation, and attention-grabbing colors” (Large et al. 49). In another study, an intergenerational design team model was used to explore portal design issues further. Children in both studies agreed that bright and eye-catching colors were important, but there was no clear consensus on which colors should be used (Large et al. 55). Graphics were also popular with children in both studies. However, the children in both studies, who were between the ages of ten and thirteen, preferred graphics that “contributed in some way to the overall visual design; graphics for their own sake were not popular” (Large et al. 55). Both groups also agreed that a clear and easily navigable layout is important (Large et al. 57).

The idea that sites must be “visual” is a thread that runs throughout this body of research. As the research already cited suggests, the use of striking visual components, including bright colors, images, and animation, is appealing to children. Druin et al. point out another advantage of sites that are heavy on the visuals and light on text: the use of visual components helps reduce cognitive load for younger users (402). Dresang also points to the literature on this topic, referring specifically to Bilal’s findings that children preferred sites with high visual content and textual content that was short and simple (183).

Of particular value to our project was the literature written by librarians and designers who have created successful library sites for children. Walter Minkel, technology editor at *School Library Journal*, for instance, sets forth seven steps for remaking children’s library websites that take into account both design and content. Minkel’s suggestions are simple, but invaluable. He recommends including a navigation bar that allows users to easily navigate the site (“Remaking Your Web Site...” 46). He urges librarians to exclude generic images such as clip art, and to instead include small digital photographs, and other unique images such as the library’s logo and mascot. Minkel also warns against using textured or multi-colored backgrounds, and remarks on the importance of good contrast between background and text (“Remaking Your Web Site...” 47).

Content Dimension

Even the most visually appealing and well-designed library site for children can be rendered worthless if it does not include useful and valuable content. We started with the assumption that all library sites should contain basic information about the library and its collections, an option for searching an online catalog or, in the case of digital libraries, the entire

collection. We also felt that library sites for elementary-aged children should serve as gateways to Web resources, to help students find useful and high-quality websites, both for education and for entertainment. As librarian Helene Blowers writes,

parents and kids are looking for more than simply referrals. They want homework assistance, age appropriate reading recommendations, and fun activities from credible, reliable sources. Who better to supply these resources than librarians? (20).

What we found in the literature supported our assumptions, and also gave us insight into additional content criteria. The Walter Minkel article mentioned above was an excellent starting point, as it lays out clear and sensible content suggestions. Minkel recommends placing the library's name prominently on each page of the site ("Remaking Your Web Site..." 46). He also recommends that library sites for elementary-aged children "provide annotated lists of homework sites and recommended books by grade level" (46). To help users find information quickly, Minkel urges librarians and designers to "make sure that your home page includes those things that are most essential to what your library offers, including links to available databases with brief descriptions" ("Remaking Your Web Site..." 47).

Minkel is also an advocate of marketing and promoting a library's services via their website. In an article entitled "We're Not Just a Building," he argues that librarians serving children and youth need to market themselves better, and that the Web can help them do so. Minkel defines marketing as "making your services so attractive to your potential users that they will want to come to the library the next time they have an information need" ("We're Not Just a Building" 26). He points out that marketing the library's services via the Web is increasingly important as younger and younger children become regular users of the Internet (Minkel, "We're Not Just a Building" 26). Primarily addressing school and public librarians, Minkel writes,

Anticipate what the visitors to your site are going to want and provide it for them by making sure it's all there. If you're a public youth librarian, there will be the location and hours of the library, a calendar of library events within one click of the homepage. If you're a school librarian, there should be lists of recommended links to specific teacher assignments and to bibliographic aids. Both kinds of sites should have links to the library catalog, databases, and other information resources, as well as your name and how to contact you ("We're Not Just a Building 27).

While this article deals with recommendations for school and public library websites, marketing seems equally important for digital and virtual libraries for children, who must promote their own services and showcase what they have to offer just as much as their school and public library counterparts.

The frequent appearance of "lists of recommended links" in these recommendations suggests the importance of including annotated lists of links on all library sites. On children's sites in particular, such link lists can help users find good, high-quality sites, and can encourage them to see the library site as a primary source for credible Web resources. Large et al., in the previously mentioned article, found that students who were viewing Web portals appreciated the use of subject categories (60). However, these categories "were appreciated only when they mirrored the way that students themselves would represent their own information needs. That is to say, a subject directory was useful if it provided direct access to the subjects currently under study in the students' curriculum" (Large et al. 60). Such a categorization scheme might also be helpful on library websites. Arranging reference and homework help sites by subject areas that make sense to elementary-aged children – math, reading, science, social studies, and so on – might make it easier for children to select sites that respond directly to their needs or interests.

There is also mention in the literature on the use of developmentally appropriate language on library sites for elementary-aged children (Large et al. 57). This makes sense, as content that

is too difficult for a child to read and understand does not fully serve its purpose. Since sites for elementary-aged children have to serve a broad range of users, of different ages, backgrounds, and literacy levels, it seems particularly important that these sites use simple and clear language.

Armed with a better understanding of the design and content concerns involved in the development of high-quality sites for elementary-aged children, we set out to actually complete the project – to create a criteria list, to evaluate a sample of library websites, and to compare our findings across the three different types of library websites identified.

Part II. The Analysis

Study Design

To evaluate public school library media center websites, public library sites for children, and digital/virtual libraries for children, we first created a criteria list, informed largely by the literature introduced in Part I. We then set out to select a sample of sites. We chose ten websites to represent each of the three types of libraries in which we were interested. We then examined the sites based on our criteria, recording our findings in a grid. We examined the home page of each site, along with all first-level supporting pages. In certain special cases, it was necessary to go beyond first-level supporting pages. These cases are addressed in our discussion. Finally, we compiled our data, calculating percentages of sites in each of the three categories that included each criterion.

The Creation of a Criteria List

To create a list of criteria for evaluation of the school, public and digital library websites, we first examined the literature on interface design and children's development. We wanted to determine what qualities the research suggested were valuable in website design for children, and see if those qualities were present in the sites we studied. We drew heavily from the literature outlined in Part I as we enumerated our criteria, and much of this literature is reflected in our criteria list. We also examined a previous study on the design of school library media center websites by Kimberly L. Poe. Poe completed a master's paper at SILS in 1999 which applied a set of criteria to a sample of school library media center websites and compared sites that were created before 1997 with those created after. The design of our study was thus similar to Poe's, at least in terms of the application of consistent criteria to a set of websites. However, her study

only included school library media center sites. We saw our project as an opportunity to expand this type of study to include other types of library sites, in order to have a more comparative examination. Many of our criteria were similar to those used by Poe, which suggests that contemporary literature on content and design for children's sites reflects the same observations about children's preferences found in the earlier literature that Poe cited.

The criteria we developed were divided into two areas: content and design. In the content area, we wanted to first examine the type of information each website included about the library itself. For instance, our criteria included basic information about the library, contact information, an outline of library policies, library news, and the name of the institution prominently featured. We felt these factors were important because they determine whether children can find on the website the information they need in order to use the library. Another important criterion was the presence of a help or "Ask a Librarian" link. It's valuable to note because it indicates how easily users can get help if they're having trouble using the site, and this is especially crucial with very young users who may be less familiar with the Internet and computer use or who don't yet have strong literacy skills.

Another aspect of content we examined was what type of resources were available on each library site. To get a sense of the range of resources, we developed criteria including links to free Internet resources, links to paid subscription databases, links to research sites, links to entertainment sites, and links to local resources. We were curious about the types of resources school library, public library and digital library sites would link to, and the overlap, if any, between the three groups' resources.

A third type of content we felt was important to investigate was content related to instruction. To this end, we developed criteria for measuring the number of sites with tutorials

and guides, the number of sites with Internet safety links, and the number of sites with information on evaluating sources. We conjectured that the school library websites would have the most of this type of content, as they are tied more closely to instruction than public or digital libraries. We especially looked for instructional content that was interactive, as the literature indicated that this interaction helped children learn. "By asking questions and interacting with others through computer-related technology," notes researcher D. Ferguson in Information Technology in Childhood Education Annual, "students are able to understand more effectively than through traditional static methods such as textbooks and worksheets" (48).

Content was of much importance in our evaluation, but we felt design was equally important. Cooper provides an in-depth description of the cognitive, social, physical, and emotional considerations of Web design for young children, which indicates the far-reaching impact and importance of design (292-298). To evaluate the design of the library sites, we examined such factors as the readability of text, background color, and number of images. These are all important because they indicate thoughtful design with the specific audience of children in mind. Text should be large enough for the audience (elementary-aged children) to easily read, and should contrast well with the background. In addition, we looked at the types of images used as a measure of the quality of design. We felt that heavy use of generic clip-art indicated a less careful, or at least less professional, design, while original art created specifically for the website showed that much time and effort had been spent on the design. Another important design consideration was the use of icons along with text-based links. . As Linda Z. Cooper explains in her article "Developmentally Appropriate Digital Environments for Young Children," "Use of icons in conjunction with or instead of alphabetic symbols support children who cannot read, or read well, have trouble scanning text on a computer screen, or have trouble with the concept that

an alphabetic citation stands for a book that they want" (292).

Navigation is a crucial design feature, and any list of criteria for evaluation of Web design should include it. Our criteria in this area included consistently placed menus, breadcrumbs, buttons or arrows, and navigational aids "above the fold," in the first screen of the page, to avoid excessive scrolling. We felt good navigation was of vital importance, particularly for very young users who might be confused by sites without clear navigational schemes. In Harbeck and Sherman's "Seven Principles for Designing Developmentally Appropriate Web Sites for Young Children," the authors point out that navigation should be both minimal and simple, because young children "may be unable to determine how they arrived at a particular place (irreversibility)" (42).

Finally, we developed criteria measuring how appropriate the websites were for children overall, which encompassed both content and design. This criteria was more difficult to quantify than, say, the number of images or navigational arrows on a site, but we felt it was an important concept to study. We wanted to see if the sites were specifically geared toward children, instead of their parents or teachers. One criterion was the use of age-appropriate language, which includes avoiding library jargon and very sophisticated vocabulary children are not likely to understand. Other criteria we studied was the use of bright colors and animation, which studies have shown appeal strongly to children (Nielsen; Large et al.). Taken together, we hoped these criteria would indicate whether a given site is intended and appropriate for an audience of young users.

Discussion of Results

Public Libraries

We chose ten websites from across the United States for the public library component of our analysis, and tried to match these geographically with the school sites that were selected. While this study is far too small to take regional trends into account, we were interested to see what impact a library's location might have on the quality and effectiveness of its website. The five public library sites chosen from North Carolina represented both large cities and small towns, as well as areas with substantial funding differences. The five remaining websites were drawn from medium- to large-sized cities across the country, usually on the basis of innovative design or noteworthy content coverage. So many variables make a fair comparison between the ten selected sites difficult; clearly, they serve populations whose needs and levels of technology access vary widely. Still, we were able to get an idea of how public libraries are successfully addressing the information needs of children through their websites, as well as identify some potential areas of weakness.

In our choice of individual libraries, we were typically guided by two considerations, the first of which was population. We looked at libraries that serve some of the country's largest population bases in cities like Jacksonville and Indianapolis. On the other end of the spectrum, we chose North Carolina libraries in small towns such as Beaufort, Taylorsville, and Chapel Hill. We wondered what the greatest qualitative differences might be across such a range of patron expectations, staffing, and financial resources.

A second consideration in our selection of public library websites, particularly those at the national level, was an initial impression of quality. Even among some of the country's largest libraries, Web pages devoted to youth services are apparently not a high priority. We wanted to select at least a few sites that we felt demonstrated the value placed on youth services by the library as a whole. One measure of this was taken at the main library's homepage. We

looked for libraries with featured links to youth services sites that would be easily recognized by young visitors. In following these links from the homepage, we also checked to see if the design quality of the children's site was noticeably lower.

At this stage, our selections were based on fairly subjective observations. Once these ten sites were subjected to our content and design criteria, however, we were able to make better-supported claims about general site quality among the ten candidates. We scored each site's performance according to factors that ranged from the availability of help links and reading lists to the use of non-generic images. Several criteria were fulfilled by all ten public library sites, demonstrating that this sample group consistently promotes the following services: acts as a portal to free Internet sites, research or homework-help sites, and entertainment sites; offers a link back to parent institutions; and features clear and readable text. Other high-scoring areas among public libraries include a general orientation toward children; the inclusion of a catalog link and Internet safety information; the provision of subscription-database access; the use of appropriate background design; and the organization of links by subject.

In many ways, the areas in which public libraries underperformed were more revealing than those that were well addressed. In spite of the importance of readers' advisory services in most public libraries, only 50% of the sites sampled provided age-appropriate reading lists. Instructional support was low, with 20% featuring help or Ask-A-Librarian links and 20% offering tutorials or guides. Another major area of inconsistency among public libraries involved how they identified and addressed their audience. Although most of the sites made some effort to appeal to kids through the use of colors or special fonts, thus receiving a 70% rating for being geared towards children, many of them were, at heart, more likely to be used by parents and teachers. Only 40% used relevant icons that might help children at lower reading levels navigate

the site. Other navigation aids such as breadcrumbs, buttons, and arrows were lacking in more than half of the sites. As for age-appropriate vocabulary, 50% of the candidate sites used language that was clearly aimed at adults.

School Library Media Centers

We also examined ten public elementary school library media center websites. In order to maintain some consistency in terms of geographic location, we selected public elementary schools that were located in the same cities or counties as the public libraries that we selected. To get a range of geographic locations, we chose five public elementary schools from different regions within the state of North Carolina and five public elementary schools in other states (Arizona, Colorado, Florida, Indiana, and Minnesota). A complete list of the public schools in the sample, along with their URLs, can be found in appendix A.

Selecting a sample of public elementary school library media center websites proved to be challenging and often frustrating. Many elementary schools simply do not have media center websites, which is a problem in its own right. Even within districts there is inconsistency among individual schools. Among those schools with media center sites, some are almost entirely devoid of content, providing only the name of the Media Coordinator or the location and hours.

Evaluating the public elementary school media center sites was tricky for a number of reasons. Several of these sites provide links to school-system wide resources. Eastover Academy, for instance, provides a link labeled “Student Resources” that takes users to a page provided by the Charlotte-Mecklenburg School System, which serves as a portal to resources collocated by grade levels. In these cases, we reached a consensus that such pages should be examined for content, since the media center site is recommending the school system’s link lists, but not for design, since the designer for the media center site would have no control over design choices on

a system-wide page. In such cases, we also extended our examination beyond first-level supporting pages, since the supporting site served a portal function rather than a content function. Many sites also included menus that were not unique to the media center itself, but were consistent for the entire school's website. We still considered these menus in our examinations, as they are present on the media center site itself. The examinations of these sites required a great deal more discussion than we expected.

The results of our examinations were often interesting and, in many cases, surprising. There was very little consistency among these websites in terms of our criteria, though certain patterns did emerge. Not surprisingly, almost all sites in this category (90%) had a primarily educational goal. The remaining site seemed to have both educational and entertainment goals.

One interesting, and troubling, pattern that emerged was that the school library media center sites were not consistently geared towards children. Only half of the sites utilized the simple and clear language that we expected to see on sites that serve children ranging so broadly in age and literacy. The sites that did not utilize age-appropriate vocabulary tended to include library jargon (e.g., "automated card catalog") and more sophisticated language than would be appropriate for children aged five to eleven. These sites seem to be geared more towards parents, and sometimes teachers, than the student users of the media centers.

Content areas in which we expected school library media center sites to score high yielded interesting results. One notable example is the exclusion of reading lists on many of these sites. Since literacy is such a primary focus in elementary schools, we expected to see links to reading lists on most sites. However, only 30% of sites included or linked to reading lists. Since these sites represent physical libraries with established communities of users, we expected that they would score high in terms of the provision of basic library information. However, only

40% of the school library media center sites examined provided basic information, such as location and hours, and only 20% clearly outlined the library's policies. Some of the sites that ranked high in other areas of content and design, such as the Barbara Bush Elementary School "Virtual Library," included little information about the media center represented. Only 40% included news and information about upcoming events, and another 40% included prominent contact information. We found these results to be troubling; students accessing these sites from off-campus who need to know basic information about their media center would likely be frustrated by many of these sites. Despite these shortcomings, however, more than half (60%) of the media center sites examined appeared to make an active effort to promote their collections and services.

Media center sites did not consistently provide links to online catalogs or provide other ways to search collections. Only 60% did so. Even fewer (40%) provided links to subscription databases. Links to free Web resources appeared on 90% of the sites examined, and all of the sites which included links provided links to research-oriented sites, such as homework help sites and search engines for children. Only two of the sites examined included link annotations, and those that did annotate links did so inconsistently. Only 60% of the sites arranged their links in terms of subject areas. Links rarely made use of relevant image icons for lower literacy readers (20%), which could prevent younger users from using the site to its fullest potential. Links to local resources, such as public libraries and museums, were found on six of the ten sites. While school library media center websites are actively striving to include useful and entertaining links for users, the organization and presentation of these links still needs improvement.

We were surprised by the lack of instructional content and support on the school library media center sites. Instruction is a major component of library education in public schools, and

we expected to see this reflected in these sites. However, none of the sites examined included original instructional content. Only one, the “Virtual Library” at Barbara Bush Elementary School, provided a link to a research guide, and this link was not annotated so that students could easily recognize it as such. None of the sites included information on evaluating Web resources, though the resources provided suggest that Media Coordinators are aware that children use the Web for homework and research. Also surprising in light of recent concern among parents and teachers regarding Internet safety was the fact that none of these sites provided information on this topic. Only one site (Eastover) included a help link.

In terms of basic design principles, the media center sites scored relatively highly. Nearly all of the sites (90%) included sufficiently large and readable text, and all sites included text that contrasted background colors well. All ten sites avoided the use of all capital letters, which can be very distracting and make text difficult to read. Six sites had a solid color background. Those that did not featured textured or repeated-image backgrounds, which can hinder screen-reading.

All sites used images, though the number of images ranged from two (Mary Scroggs and Clear Creek) to over 100 (Barbara Bush). Six of the sites had under ten images, two had between eleven and twenty, and two had over twenty. In terms of relevance, 80% of sites included relevant images. And while 60% of sites employed non-generic images, including photos and originally designed artwork, 40% used generic clip-art, which significantly decreased the overall feel of professionalism in site design.

The school library sites scored poorly in terms of design preferences associated with children. Only three sites (30%) utilized bright, eye-catching colors. These sites favored primary colors in their designs. Most pages, however, were overwhelmingly white, which is less visually

appealing to younger children. None of these sites included animation, another design dimension that research suggests is appealing to younger users.

Of the sites examined, 80% included a consistently placed menu on all pages living on the library's site. A majority of sites (70%) placed the menu "above the fold," making it easier for children, who are less likely to scroll down than adults, to navigate the site. The sites were lacking in terms of other navigational aids, like "breadcrumbs," buttons, and arrows. Three of the ten sites (Eastover, Putnam, and Lew Wallace) had "breadcrumbs" to let users see the path they took through the site. It is worth noting, however, that these "breadcrumbs" were generally not prominently placed, and were presented in relatively small text.

Digital/Virtual Libraries

The third group of sites we studied were digital and virtual libraries for children. Many resources for school library media specialists and teachers recommend these digital and virtual libraries as good places for students to do research. In fact, many school library and public library sites link to these libraries in order to draw them to their patrons' attention. We chose a variety of digital and virtual libraries to study, including both state libraries and digital/virtual libraries with a national audience. When choosing these libraries, we looked at which were recommended frequently in the professional literature for school librarians and teachers. In addition, we attempted to gather a geographically diverse selection of state virtual libraries. We applied the same criteria to these sites as we did to the school library and public library sites, although we suspected that some of the criteria would not be present in the digital and virtual library sites.

Our findings revealed some interesting results. Some of our preconceived ideas about

how these libraries would differ from school and public library sites were reflected in our data, but other new ideas were also revealed. We were able to draw conclusions about both the content and design of these online libraries.

Not surprisingly, these library sites scored low in the categories more closely tied to physical location. For instance, only one of the ten sites studied included library news, and only two included information about library policies. These are both factors that would be more important at a physical library with a visible community of patrons. That community would like to know about library news because they visit the library building and use its collections in person. On the other hand, online patrons throughout the country are probably less concerned about the new developments at a digital or virtual library. Similarly, patrons at a physical library need information about library policies in order to obtain library cards and check out tangible items. Few digital or virtual libraries we looked at had policies available for the public to read because that information is less important when the library's collection is entirely digital.

Unlike the school library sites, which have a primarily educational purpose, the digital and virtual library sites had a variety of purposes. Four of the ten sites had an entirely educational goal, while the other six had either an entertainment goal or a mixture of education and entertainment. We found that the state libraries were much more likely to serve only an educational purpose. 66% of those state-created sites did not contain or link to any entertainment whatsoever. In contrast, the national digital and virtual libraries all had at least a partly recreational focus. They included either original content that was entertaining, such as games, puzzles and quizzes, or linked to outside entertainment sites. For instance, the America's Library site designed by the Library of Congress contained a "Super Sleuth" history game and a state geography treasure hunt among many other games, Story Place included several animated stories

for children to watch, and the Internet Public Library's Kidspace had a "Fun Stuff" collection of links.

Contrary to our expectations, the digital and virtual libraries contained almost no instructional content. We found very few tutorials, guides or pathfinders, little information on Internet safety, and only a few suggestions on how to evaluate sources. Among the ten sites studied, the Kentucky Virtual Library for Kids site focused the most on instruction, providing an in-depth "Research Rocket" tutorial. Part of that tutorial included "The Web", a page with tips and tricks for finding good Internet sources. The Internet Public Library's Kidspace also included original instructional content, such as a guide to learning HTML and a section of links about Internet safety and finding online sources. The other eight sites we examined were devoid of instructional content.

Another unexpected finding is that many of the state libraries, despite being recommended as a good research source for students, are meant to be used primarily by the residents of that state. 83% of the state digital and virtual libraries contained paid databases which users would have to get from their public school or library. Some libraries also had links to free resources, but several, such as South Carolina's DiSCus for Kids, had only resources for residents. These sites were protected by a combination of IP address identification and passwords protection. They can be freely accessed from school and public libraries within the state, but to access them from home, students would need a password, obtained from a local public or school library.

The design of the digital and virtual libraries ranged from poor to excellent. Most did a good job of meeting basic design requirements for use by children. Eight (80%) of the sites used icons as well as text to indicate links. Eight (80%) also used text that was large, easily readable

and contrasted well with the background color. Only two state libraries scored poorly in this category. Mississippi's site used bright red text on a blue background, which is difficult to view, and Colorado's site contained dark text that faded into the dark blue background. As well as meeting basic usability criteria, approximately half of the sites used design that appeals to children, such as bright colors and animation.

The digital and virtual library sites were less successful with our more complex design criteria, such as original art and navigation. Only 30% used navigation aids such as buttons or arrows, and a similar percentage used breadcrumbs to help children see the navigational path they followed. We observed a variety of design quality. About half the sites used original art that had been created specifically for the site, while the other half used generic clip art. This imparted a more professional and creative look to the sites with original art. The average number of images on each site was 17.6, but the more professional-looking sites with original design contained a noticeably higher number of images. For example, the Kentucky Virtual Library for Kids site contained 24 images, the America's Library site had 28 images, and the Internet Public Library Kidspace had 38 original images.

Part III. Reflections

While some of our findings were not particularly surprising, there were a few patterns that came out in our analysis that we found particularly interesting. The first was fact that not all of the sites examined were clearly oriented towards children. The digital and virtual libraries scored highest in this category, with 80%; public libraries scored 70%; media center sites were only clearly oriented towards children 50% of the time. We found that this criterion was one of our most difficult to apply, as making a distinction between sites clearly geared towards children and sites that are not involves capturing subtle elements like tone, audience, and vocabulary.

We were also struck by the lack of instructional content and support across all three different types of libraries. We expected to see tutorials, guides, safety information, and evaluation tips, as children are increasingly using the Web for educational purposes. However, this content was notably lacking in most cases. We were also surprised by the lack of reading lists provided by all three types of libraries. We were particularly surprised that school and public libraries, which have traditionally been associated with promoting literacy, were not stronger in this category.

We noticed that school media centers and digital/virtual libraries did not consistently promote their programs and services, while public libraries did. We imagine that this is because public libraries have more of an impetus than other types of libraries to promote their programs and services, as they are trying to attract children to visit the library when they are not required to. School media centers have more of a captive audience, as students often have set times to visit the media center each week, and are required to use the collections for assignments. The digital and virtual libraries promoted their services half the time, and it's important to note that,

of these libraries, it was overwhelmingly those that are national in scope that are promoting their services. State digital or virtual libraries were much less likely to promote themselves.

Public library and school media center sites consistently provided links to free Web resources. Digital and virtual libraries were much less likely to do so, only providing these links in 50% of cases. We realized, however, that those sites without links served a different function than the public library and media center sites; they often provided original digital content, or were meant to serve as portals to subscription resources geared toward citizens of a particular state.

Digital and virtual libraries were much more likely than school media or public library sites to have a mixed focus of education and entertainment, or even to be entirely focused on entertainment. These sites are thus responding to the various needs of elementary-aged users, who look to the Web to serve both educational and entertainment functions. These library sites were also more likely to include design elements that are attractive to children, including bright, eye-catching colors and animation.

We also found it interesting that the school media center sample lacked the consistency in results found in the other two types of sites examined. We think that this is tied to the fact that, in many public schools, an individual librarian is typically in charge of the media center website, whereas public library sites and digital or virtual sites are much more likely to be created by a team of librarians or designers.

What we really realized while completing this project is that it is difficult, if not impossible, to truly capture the quality of a site, even with a comprehensive set of criteria. These criteria do not always capture more subjective elements of a site's design, including professionalism. It was also difficult to capture a "coolness" factor, though this is a factor that is

very important to elementary-aged children. These are affective elements that our criteria simply did not account for. If we had more time, we would investigate the area of affective design, and make an attempt to integrate some of these affective elements into our site analyses. We would also, with more time, attempt to more clearly integrate ADA (Americans with Disabilities Act) Standards for Accessible Design into our criteria list.

If we had a great deal more time, we would also want to use what we have come up with so far to design a usability study of a sample of library websites. We would ideally embark on a study with children of different ages and skill levels, from different schools, and of various ethnic and socio-economic backgrounds, so that we could make broader conclusions about content and design for children. This type of study would also allow us to get at some of the more affective dimensions that we mentioned earlier, particularly the “coolness” factor. We would also be interested in more closely examining the sites to determine whether or not style-sheets and consistency in design could be used as a measure of site quality.

From our examinations, we are able to make a few broad recommendations for improving the design of library sites for children. The use of intergenerational design partnerships would be an excellent way to improve design on many sites. We think that this would be particularly effective in a school media center setting, as school librarians have access to a large number of possible design partners. This would also give children more of an opportunity to be more involved in creating sites ostensibly designed for them. In the design partnership described by Druin et al., such partnerships were particularly important for children, who appreciated that they were being taken seriously by adults. This encourages children to participate, and makes them feel important. As one child in the study recorded in his journal, “My idea helped the team today. The adults saw we don’t need books on the screen. I was cool” (Druin, et al. 400).

Another recommendation that grew out of our examination of media center websites is more support for busy school librarians. This support should come at a district level, and should be tied closely to a district-wide emphasis on communication about Web design and maintenance. This kind of communication could keep all school librarians in a district up to date on content and design principles for children in their audience.

Finally, we recommend that all creators of library sites for children strive to bring more consistency to their sites in terms of audience. This includes more of a focus on age-appropriate vocabulary and an attention to the needs of younger users. It also includes being more aware of the design preferences of children, and creating sites that are likely to catch the attention of elementary-aged users.

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APPENDIX A. Websites in the Sample.

Institution	Location	URL
Public Library of Charlotte-Mecklenburg County	Charlotte, NC	http://www.plcmc.org/forKids/default.htm
Chapel Hill Public Library	Chapel Hill, NC	http://24.199.159.208/txp/?s=Children&id=98&pageClass=programs
Carteret County Public Libraries	Beaufort, NC	http://carteret.cplib.org/kids/index.htm
Alexander County Library	Taylorsville, NC	http://www.alexanderlibrary.org/kids.htm
Henderson County Public Library	Hendersonville, NC	http://www.henderson.lib.nc.us/hcplkids.htm
Jacksonville Public Library	Jacksonville, FL	http://jpl.coj.net/sites/kidstuffcover.html
Indianapolis-Marion County Public Library	Indianapolis, IN	http://www.imcpl.org/kids/index.html
Denver Public Library	Denver, CO	http://kids.denverlibrary.org/
Minneapolis Public Library	Minneapolis, MN	http://www.mpls.lib.mn.us/wfk/webforkids.asp
City of Mesa Library	Mesa, AZ	http://www.mesalibrary.org/kids/default.asp
Eastover Academy	Mecklenburg County, NC	http://hip1.cms.k12.nc.us/ipac20/ipac.jsp?profile=eo-kids
Mary Scroggs Elementary	Chapel Hill, NC	http://www.chccs.k12.nc.us/scroggs/media/
Newport Elementary	Carteret County, NC	http://www.carteretcountyschools.org/nes/mediacen/index.htm
Hiddenite Elementary	Alexander County, NC	http://www.geocities.com/trudy_goforth/media.html
Clear Creek Elementary	Henderson County, NC	http://www.henderson.k12.nc.us/ccs/media.html
Bayview Elementary	Jacksonville, FL	http://www.educationcentral.org/school/84/custom421.htm
Lew Wallace Elementary	Indianapolis, IN	http://www.107.ips.k12.in.us/MediaCenter/default.aspx
Columbian Elementary	Denver, CO	http://columbian.dpsk12.org/LMC
Putnam Elementary	Minneapolis, MN	http://putnam.mpls.k12.mn.us/Media_Center.html
Barbara Bush Elementary	Mesa, AZ	http://www.mpsaz.org/bush/library/index.html
Florida Electronic Library	Florida	http://www.flelibrary.org/special
DiSCus South Carolina	South Carolina	http://www.state.sc.us/scsl/discus/discuskids.html
Kentucky Virtual Library Kids	Kentucky	http://www.kyvl.org/html/kids/portal.html
Colorado Virtual Library	Colorado	http://kids.aclin.org/
Storyplace	Charlotte, NC	http://www.storyplace.org
America's Story	Washington, DC	http://www.americaslibrary.gov
International Children's Digital Library	n/a	http://www.icdlbooks.org
Internet Public Library Kidspace	n/a	http://www.ipl.org/div/kidspace
Magnolia for Kids	Mississippi	http://library.msstate.edu/magnolia/elementary
INSPIRE Indiana	Indiana	http://www.inspire.net/inskids.html

APPENDIX B. Full Criteria List.

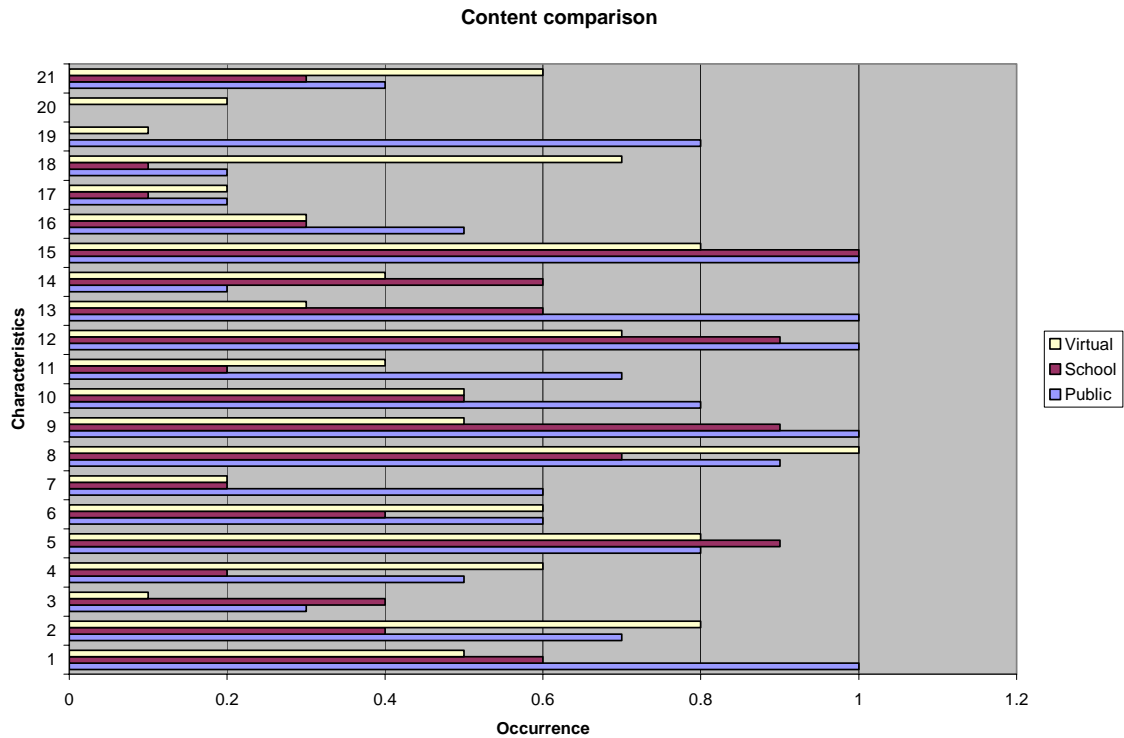
Content

1. Is the library site clearly geared towards children?
2. Does the site promote the library's programming and services?
3. Is basic information about the library included?
4. Is library news included?
5. Goal of the site (educational or entertaining)
6. Explicit purpose of site stated OR "About the Library" page included
7. Name of institution featured prominently
8. Prominent contact information
9. Library policies outlined
10. Link to catalog or collections OR catalog/collections are searchable from home page
11. Links to free Internet resources
12. Links to subscription databases
13. Link annotations
14. Links to educational sites, including homework help
15. Links to entertainment sites
16. Links to local resources
17. Link to parent institution home page
18. Links make use of relevant image icons for lower literacy users
19. Links arranged by subject categories
20. Age-appropriate reading lists
21. Tutorials or Guides
22. Help Link
23. Internet safety information
24. Information on the evaluation of Internet resources
25. Date of last update included
26. Age-appropriate vocabulary

Design

27. Text is large and readable
28. Text is not in all capital letters
29. Text color sufficiently contrasts background color
30. Solid background
31. Background fits in with overall design
32. Bright, eye-catching colors
33. Number of images included
34. Images are relevant to site
35. Images are non-generic
36. Photos included
37. Originally designed art included
38. Clip art included (this is a negative criterion)
39. Animation
40. Consistently placed menus
41. Navigation aids are above the fold
42. Breadcrumbs
43. buttons or arrows for navigation
44. links to other parts of site

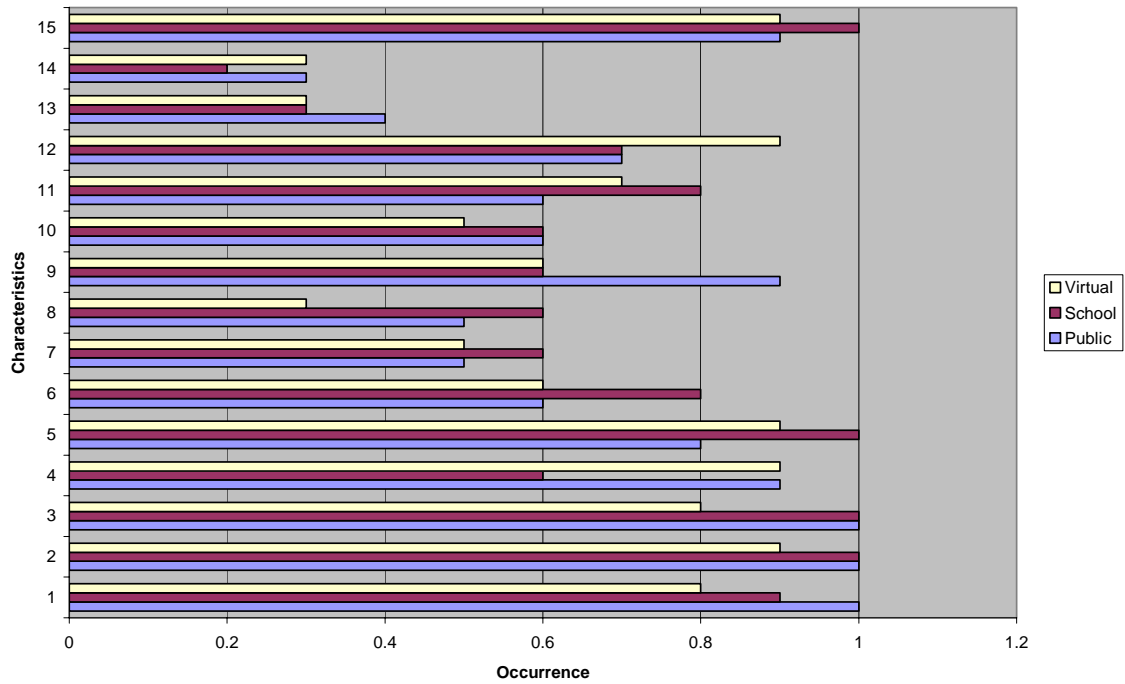
APPENDIX C. Results and Raw Data.



Characteristics:

21. Date of last update included
20. Information on Internet-resource evaluation
19. Internet safety information
18. Help or Ask-A-Librarian link
17. Tutorials or guides
16. Age-appropriate reading lists
15. Link to parent institution homepage
14. Links to local resources
13. Links to entertainment sites
12. Links to research-oriented sites (homework help, search engines, etc.)
11. Link annotations
10. Links to subscription databases
9. Links to free Internet resources
8. Link to catalog/catalog search box
7. Library policies outlined
6. Prominently placed contact information
5. Name of site or institution prominent
4. Purpose statement/About library link
3. Library news included
2. Basic information about library included
1. Promotes library services and programs

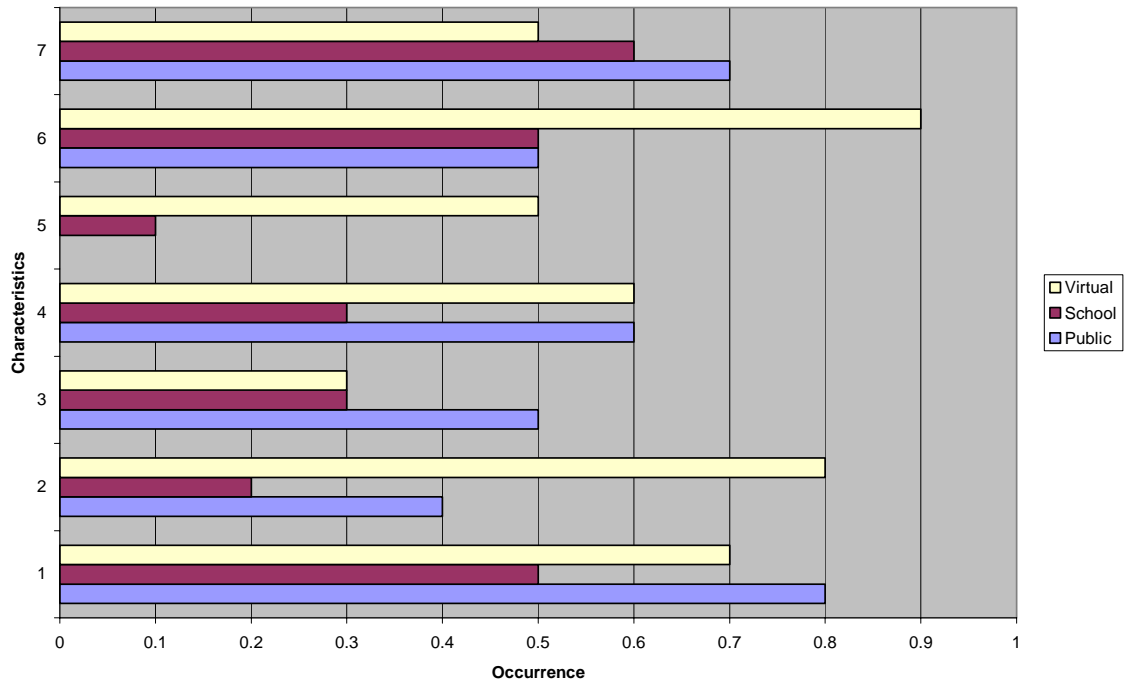
Design comparison



Characteristics:

- 15. Use of internal links
- 14. Use of navigation buttons or arrows
- 13. Use of breadcrumbs
- 12. "Above the fold" navigation elements
- 11. Presence of consistently placed menu
- 10. No clip art used
- 9. Use of cartoons
- 8. Use of photos
- 7. Use of non-generic images
- 6. Use of relevant images
- 5. Background fits overall site design
- 4. Use of solid-color background
- 3. Sufficient color contrast between text and background
- 2. No all-caps text
- 1. Large and readable text

Kid-friendliness comparison



Characteristics:

- 7. Links organized by familiar subject categories
- 6. Use of age-appropriate vocabulary and language
- 5. Use of animation
- 4. Use of bright colors
- 3. Inclusion of age-appropriate reading lists
- 2. Use of relevant icons for lower literacy users
- 1. Generally geared towards children

Raw Data for Public Libraries

	Charlotte Public Library	Carteret County Public Library	Chapel Hill Public Library	Alexander County Public Library	Henderson Public Library	Denver Public Library	Jacksonville Public Library	Minneapolis Public Library	Indianapolis Public Library	Mesa Public Library
Clearly geared towards children	yes	no	yes	no	No	Yes	Yes	Yes	Yes	Yes
Promotes library's programs and/or services	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes	Yes
Basic information about library included	yes	yes	yes	yes	Yes	Yes	no	no	no	Yes
Library news included	yes	yes	yes	no	No	no	no	no	no	No
Primary goal: education or entertainment?	education	education	education	education	Education	Both	Educ	educ	educ	Educ
Explicit purpose of site stated	yes	yes	yes	no	No	Yes	no	no	no	Yes
Name of site or institution prominently included	yes	no	yes	yes	Yes	Yes	No	Yes	Yes	Yes
Prominently placed contact information	yes	no	yes	yes	Yes	no	no	no	Yes	Yes
Library policies outlined	yes	yes	yes	no	Yes	no	Yes	no	no	Yes
Link to catalog/collections OR catalog/collections searchable from home page	yes	yes	yes	yes	Yes	Yes	Yes	Yes	no	Yes
Links to free Internet resources	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes	Yes
Links to subscription databases	yes	yes	no	yes	No	Yes	Yes	Yes	Yes	Yes
Link annotations	yes	yes	yes	no	No	Yes	Yes	Yes	Yes	No
Links to research-oriented sites (i.e., homework help sites, search engines, etc.)	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes	Yes
Links arranged by subject area	yes	no	yes	no	yes	Yes	Yes	no	Yes	Yes
Links to entertainment sites	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes	Yes
Links to local resources	yes	no	no	no	No	no	no	no	no	Yes
Link to parent institution home page	yes	yes	yes	yes	Yes	Yes	no	Yes	Yes	Yes
Links make use of relevant image icons for lower literacy users	no	no	yes	no	No	Yes	Yes	no	no	Yes
Age-appropriate reading lists	yes	no	yes	no	No	Yes	no	Yes	Yes	Yes
Tutorials or guides	no	no	no	no	No	Yes	no	no	no	Yes
Help Link	yes	no	no	no	No	Yes	no	no	no	No
Internet safety information	yes	no	yes	yes	Yes	Yes	no	Yes	Yes	Yes
Information on evaluating Internet resources	no	no	no	no	No	no	no	no	no	No
Date of last update included	yes	no	yes	no	No	no	Yes	Yes	no	no
Age-appropriate vocabulary	no	no	no	no	no	Yes	Yes	Yes	Yes	Yes

	Charlotte Public Library	Carteret County Public Library	Chapel Hill Public Library	Alexander County Public Library	Henderson Public Library	Denver Public Library	Jacksonville Public Library	Minneapolis Public Library	Indianapolis Public Library	Mesa Public Library
Text										
Large and readable	yes	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes
Avoids all capitals	yes	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes
Text color sufficiently contrasts background color	yes	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes
Background										
Solid Color	yes	yes	yes	no	no	Yes	Yes	Yes	Yes	Yes
Fits in with overall design	yes	yes	yes	yes	no	Yes	no	Yes	Yes	Yes
Bright colors	no	no	yes	no	no	Yes	Yes	Yes	Yes	Yes
Images										
Number of images	19	8	11	6	6	38	16	14	18	33
Images are relevant	no	no	yes	yes	no	Yes	no	Yes	Yes	Yes
Images are not generic	no	no	yes	yes	no	Yes	no	Yes	no	Yes
Photos included	yes	yes	no	yes	no	no	no	no	no	Yes
Cartoons included	yes	yes	yes	yes	yes	Yes	Yes	Yes	Yes	Yes
Clip art included	no	yes	no	no	yes	no	Yes	no	Yes	No
Animation	no	no	no	no	no	no	no	no	no	No
Navigation										
Consistently placed menu	no	no	yes	no	no	Yes	no	Yes	Yes	Yes
Navigation aids are above the fold	yes	no	yes	no	no	Yes	Yes	Yes	Yes	Yes
Breadcrumbs	no	no	no	no	no	Yes	Yes	no	Yes	No
Buttons or arrows for navigation	no	no	no	no	no	Yes	no	no	Yes	Yes
Links to other parts of the site	yes	yes	yes	no	yes	Yes	Yes	Yes	Yes	Yes

Raw Data for School Library Media Centers

	Newport Elem. (Carteret County, NC)	Eastover Elem (Mecklen-burg County, NC)	Mary Scroggs Elem. (Orange County, NC)	Hiddenite Elem. (Alexander County, NC)	Clear Creek Elem. (Henderson Cty., NC)	Columb-ian Elem. (Denver, CO)	Bayview Elem. (Jackson- ville, FL)	Putnam Elem. (Minne-apolis, MN)	Barbara Bush Elem. (Mesa, AZ)	Lew Wallace (Indian- apolis, IN)
Clearly geared towards children	No	Yes	Yes	Yes	No	No	Yes	No	Yes	No
Promotes library's programs and/or services	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No
Basic information about library included	Yes	No	No	Yes	Yes	No	No	No	Yes	No
Library news included	Yes	No	No	No	No	Yes	No	Yes	Yes	No
Primary goal: education or entertainment?	Education	Education	Education	Education	Education	Education	Both	Education	Education	Education
About the Library page	Yes	No	No	No	No	No	No	No	Yes	No
Name of site or institution prominently included	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Prominently placed contact information	No	No	No	Yes	No	Yes	No	No	Yes	Yes

Library policies outlined	Yes	No	No	No	No	No	No	No	Yes	No
Link to catalog/collections OR catalog/collections searchable from home page	Yes	Yes	Yes	No	No	yes	Yes	Yes, BUT the link is broken	No	Yes
Links to free Internet resources	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Links to subscription databases	No	No	Yes	No	Yes	Yes	Yes	No	No	Yes
Link annotations	No	No	Sometimes	No	No	No	No	Sometimes	No	No
Links to research-oriented sites (i.e., homework help sites, search engines, etc.)	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Links are arranged by subject areas	Yes	Yes	Yes	N/a	No	Yes	No	No	Yes	Yes
Links to entertainment sites	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No
Links to local resources	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Link to parent institution home page	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Links make use of relevant image icons for lower literacy users	No	Yes	No	No	No	No	No	No	Yes	No
Age-appropriate reading lists	Yes	No	No	Yes	No	No	No	No	Yes	No
Tutorials or guides	No	No	No	No	No	No	No	No	Yes	No
Help Link	No	Yes	No	No	No	No	No	No	No	No
Internet safety information	No	No	No	No	No	No	No	No	No	No
Information on evaluating Internet resources	No	No	No	No	No	No	No	No	No	No
Date of last update included	No	No	No	No	No	Yes	No	Yes	Yes	No
Age-appropriate vocabulary consistently used	No	Yes	Yes	Yes	No	No	Yes	No	Yes	No

	Newport Elem. (Carteret County, NC)	Eastover Elem (Mecklen-burg County, NC)	Mary Scroggs Elem. (Orange County, NC)	Hiddenite Elem. (Alexander County, NC)	Clear Creek Elem. (Hender-son Cty., NC)	Columb-ian Elem. (Denver, CO)	Bayview Elem. (Jackson- ville, FL)	Putnam Elem. (Minne-apolis, MN)	Barbara Bush Elem. (Mesa, AZ)	Lew Wallace (Indian- apolis, IN)
Text										
Large and readable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Avoids all capitals	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Text color sufficiently contrasts background color	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Background										
Solid Color	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Fits in with overall design	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bright, eye-catching colors	No	Yes	No	No	No	Yes	No	No	Yes	No
Images										
Number of images	9	~25	2	8	2	3	11	17	Over 100	9
Images are relevant	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Images are non- generic	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Photos included	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Cartoons included	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Clip art included	Yes	Yes	No	Yes	No	No	No	No	No	Yes
Animation	No	Yes	No	No	No	No	No	No	No	No
Navigation										
Consistently placed menu	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Navigation aids are above the fold	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Breadcrumbs	No	Yes	No	No	No	No	No	Yes	No	Yes
Buttons or arrows for navigation	No	Yes	No	Yes	No	No	No	No	No	No
Links to other parts of the site	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Raw Data for Digital/Virtual Libraries

	Florida Electronic Library	DiSCus South Carolina	Kentucky Virtual Library Kids	Colorado Virtual Library	Story Place	America's Story (Lib Congress)	Intl. Children's Dig. Lib.	Internet Pub.Lib. Kidspace	Magnolia for Kids	INSPIRE Indiana	
Clearly geared towards children	N	N	Y	Y	Y	Y	Y	Y	Y	N	70% Y
Promotes library's programs and/or services	Y	N	N	N	Y	Y	Y	Y	N	N	50% Y
Basic information about library included	Y	Y	Y	N	Y	Y	Y	Y	N	Y	80% Y
Library news included	N	N	N	N	N	N	Y	N	N	N	10% Y
Primary goal: education or entertainment?	Education	education	both educ. & ent.	educ.	entertainment	both educ. & ent.	entertainment	both	education	both	
Explicit purpose of site stated	Y	N	Y	N	Y	Y	Y	N	Y	N	60% Y
Name of site or institution prominently included	Y	Y	Y	N	Y	Y	Y	Y	N	Y	80% Y
Prominently placed contact information	Y	Y	N	N	Y	N	Y	Y	Y	N	60% Y
Library policies outlined	N	N	N	N	N	N	Y	Y	N	N	20% Y
Link to catalog/collections	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100% Y
Links to free Internet resources	Y	N	N	Y	N	N	N	Y	Y	Y	50% Y
Links to subscription databases	Y	Y	Y	N	N	N	N	N	Y	Y	50% Y
Link annotations	Y	Y	Y	N	N	N	N	Y	N	N	40% Y
Links to research-oriented sites (i.e., homework help sites, search engines, etc.)	Y	Y	Y	Y	N	N	N	Y	Y	Y	70% Y
Links organized by subject	N	Y	N	Y	N	Y	N	Y	N	Y	50% Y
Links to entertainment sites	N	N	N	Y	N	N	N	Y	N	Y	30% Y
Links to local resources	Y	Y	N	N	N	N	N	Y	N	Y	40% Y
Link to parent institution home page	Y	Y	Y	N	Y	N	Y	Y	Y	Y	80% Y
Links make use of relevant image icons for lower literacy users	Y	N	Y	Y	Y	Y	Y	Y	N	Y	80% Y
Age-appropriate reading lists	N	N	N	N	Y	N	Y	Y	N	N	30% Y

Tutorials or guides	N	N	Y	N	N	N	N	Y	N	N	20% Y
Help Link	Y	Y	N	Y	Y	Y	Y	N	N	Y	70% Y
Internet safety information	N	N	N	N	N	N	N	Y	N	N	10% Y
Information on evaluating Internet resources	N	N	Y	N	N	N	N	Y	N	N	20% Y
Date of last update included	N	Y	Y	N	Y	N	N	Y	Y	Y	60% Y
Age-appropriate vocabulary	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	90% Y

	Florida Electronic Library	DiSCus South Carolina	Kentucky Virtual Library Kids	Colorado Virtual Library	Story Place	America's Story (Lib Congress)	Intl. Children's Dig. Lib.	Internet Pub.Lib. Kidspage	Magnolia for Kids	INSPIRE Indiana	
Text											
Large and readable	N	Y	Y	N	Y	Y	Y	Y	Y	Y	80% Y
Avoids all capitals	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	90% Y
Text color sufficiently contrasts background color	Y	Y	Y	N	Y	Y	Y	Y	N	Y	80% Y
Background											
Solid Color	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	90% Y
Fits in with overall design	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	90% Y
Bright, eye-catching colors	N	N	Y	N	Y	Y	Y	Y	Y	N	60% Y
Images											
Number of images	13	7	24	17	9	28	35	16	10	17	av=17.6
Images are relevant	Y	N	Y	N	Y	Y	Y	Y	N	N	60% Y
Images are not generic	N	N	Y	N	Y	Y	Y	Y	N	N	50% Y
Photos included	N	N	N	N	N	Y	N	Y	N	Y	30% Y
Cartoons included	N	Y	Y	N	Y	Y	Y	Y	N	N	60% Y
Clip art included	Y	Y	N	Y	N	N	N	N	Y	Y	50% Y
Animation	N	N	Y	N	Y	Y	Y	Y	N	N	50% Y
Navigation											
Consistently placed menu	Y	Y	Y	N	N	Y	Y	Y	N	Y	70% Y
Navigation aids are above the fold	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	90% Y
Breadcrumbs	N	N	Y	N	N	N	Y	Y	N	N	30% Y
Buttons or arrows for navigation	N	N	Y	N	Y	N	Y	N	N	N	30% Y
Links to other parts of the site	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	90% Y