Many public libraries now have Web sites, which can be evaluated in regard to accessibility, usability, appearance, or content, among other criteria. This paper focuses on content. Sixty-six North Carolina public library Web sites were examined to see what subject matter they included, what form they took, who their audiences were, and whether the information was current.

The most frequent subject matter was information about the libraries themselves, followed by electronic resources. Many of the sites included local information, including social service listings or local history resources. Almost three-quarters of the library sites included information of more general interest, including Reader’s Advisory materials and Web links. Approximately a third provided user instruction materials, while five sites published unanticipated content, such as information about sister library programs.

Headings:

Web sites -- Evaluation
Web sites -- Design
Internet -- Public libraries.
Public libraries -- North Carolina
CONTENT, FORM, AND CURRENCY:
THE INFORMATION PROVIDED ON NORTH CAROLINA
PUBLIC LIBRARY WEB SITES

by
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Approved by:

___________________________
Advisor
Introduction

Most public libraries in the United States have a Web presence by now (Commings 26), but are they actually creating Web sites their user population might want to use? There are several aspects of the sites which could be examined, including usability, accessibility, and graphic design, but a focus on the content provided by public libraries on the Web seems particularly useful.

Why content? One of the major factors which keeps people coming back to a Web site over and over is the depth and usefulness of its information. This is part of what is referred to as stickiness, which is a measure of users' loyalty to a site (Fichter, 87). Other features relating to stickiness, according to Fichter, are an editorial viewpoint, current and relevant content, relationship building between the user and the library, niche content, and community building. Falk, in “Projecting the Library onto the Web”, agrees about niche content, stating that, “in general, what attracts Web users is material that is unique and unavailable elsewhere.” (395)

In this study, sixty-six North Carolina library Web sites were examined to see what subject matter was included, the form the content took, whether there was a clearly-intended audience, and whether the sites were kept up to date.
Literature Review

While public libraries have a large Web presence at this point, it is difficult to locate academic evaluations of the resulting sites. That said, a review of the existing literature, not limited to academic studies, revealed five basic kinds of sources about public library sites:

1. Instructions for and descriptions of creating library Web sites
2. Reviews of library Web sites
3. Examples of content provided in a number of libraries in the U.S. and abroad, or content which could be provided
4. Two studies of the content provided on public library sites
5. Studies of public library Web sites based on usability and design (Coombs; Clausen), and accessibility (Blake; Lilly).

There are two studies which deal with the information provided by public library Web sites: a study of international sites by Clyde and a master's paper by Brümmer and Åstrand.

Clyde's study actually covers both public library sites and school library sites, but for the purposes of this paper, only the public library results will be considered. She randomly chose fifty international public library Web sites and examined them over the course of one day, hoping to obtain a snapshot. This was explained as a requirement given the rate of change on the Web. Her findings are shown in the table on the next page.
While she didn't compare the quality of the sites with the sizes of their associated libraries, Clyde did find that, “while financial resources and a large staff were clearly of some value to a library that wished to develop an Internet presence, nevertheless some interesting and even exciting pages have been created in small public library services.” (552) Her conclusion was that there was broad variation in the information included on different public library sites. Clyde was especially concerned about those sites which lacked contact or location information (557).

It is hard to say much about the Brümmer and Åstrand paper, as it is predominantly in Swedish, with a brief English abstract. However, it appears that around one hundred library sites were evaluated, considering four aspects: form, content, structure, and user support. Recommendations were made for creating library Web sites. Clausen mentions this study (84) and describes one finding: that only a few libraries explicitly stated the purpose of their Web sites.

<table>
<thead>
<tr>
<th>Table 1: Findings from a study by Laurel A. Clyde</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents of public library home pages (n=50)</td>
</tr>
<tr>
<td>(Clyde, 552)</td>
</tr>
<tr>
<td>Feature</td>
</tr>
<tr>
<td>Name of library</td>
</tr>
<tr>
<td>Information about the library</td>
</tr>
<tr>
<td>Links to selected resources on the Internet</td>
</tr>
<tr>
<td>Interactive e-mail contact address</td>
</tr>
<tr>
<td>Address of the library</td>
</tr>
<tr>
<td>Links to resources about the local area/region</td>
</tr>
<tr>
<td>Date of the last update of the page</td>
</tr>
<tr>
<td>Link to the library catalogue</td>
</tr>
<tr>
<td>Link to local authority or other supervising agency home page</td>
</tr>
<tr>
<td>Links to Internet search tools/engines</td>
</tr>
<tr>
<td>Photograph or drawing of the library</td>
</tr>
<tr>
<td>Internet links for children</td>
</tr>
<tr>
<td>News about the library or library activities</td>
</tr>
<tr>
<td>Links to special collections of resources maintained by the library</td>
</tr>
<tr>
<td>Counter</td>
</tr>
<tr>
<td>Information about Internet access and policies at the library</td>
</tr>
<tr>
<td>Information about the Internet for library users</td>
</tr>
<tr>
<td>Link to local gopher or freenet</td>
</tr>
<tr>
<td>Access to other databases through the OPAC via the Internet</td>
</tr>
<tr>
<td>Book reviews, lists of recommended books, book club choices, local writer events, etc.</td>
</tr>
<tr>
<td>Internet tutorial</td>
</tr>
<tr>
<td>Information about online services in the library</td>
</tr>
<tr>
<td>Library rules/policies</td>
</tr>
<tr>
<td>Library mission statement or customer charter</td>
</tr>
<tr>
<td>Online reference desk for email enquiries</td>
</tr>
<tr>
<td>Information about CDROMs in the library</td>
</tr>
<tr>
<td>Links to HTML guides or information about creating a home page</td>
</tr>
<tr>
<td>Searchable Internet glossary</td>
</tr>
<tr>
<td>Annual report of the library</td>
</tr>
<tr>
<td>Electronic magazines</td>
</tr>
</tbody>
</table>
The remaining literature was mostly helpful in the consideration of the kinds of content which might appear on library sites, the form it might take, its audience, and the issue of currency.

**Content**

Examination of the literature yields five categories of content which might be provided by public library Web sites: library-related information, community specific topics, general interest subjects, user education, and electronic services.

*Library-related information*

Library related information is, unsurprisingly, the largest category. Clyde lists a number of possibilities: contact information, location, address, news, special collections, a description of Internet access at the library, rules or policies, mission statements, and annual reports (552). Falk lists a number of further possibilities in “Library Web Site Innovations”: virtual tours, calendars, new book lists, FAQs (Frequently Asked Questions), and periodical lists (323-328). Many of these same ideas are repeated in articles by Commings (26), Coombs (121-123), Fourie (96-98), and Leiserson (82).

*Community Information*

Community information can include links to local organizations, descriptions of various local services and activities, and resources having to do with local history, including genealogy. This is a good example of niche content; one of the few sources of local information in a town is very often the public library, so if the library does not publish it, nobody else will, either.
In Lofback’s description of the creation of the Clearwater Public Library site in Florida, the section on local history particularly stands out. The library created this section in partnership with the Clearwater Historical Society, and created a number of online exhibits. (71) The reason for the completeness of the online content is explained in the following quote: “We further decided that our site should offer unique local content and information that was unavailable elsewhere, which allows us to contribute to the body of information on the Internet rather than just take from it.” (Lofback, 71)

A case study detailing the creation of a local history database is provided in Puacz’s “Bringing Archives to Life,” which details the creation of an obituary index, followed by county censuses, county timelines, county military history, and township histories. The creation and marketing of these resources led to an overwhelming response, demonstrating just how valued such niche content can be (36).

Another case study is provided in Holmes’s “Reaching the Whole Community through the Internet”. The article describes a Web hosting service for southwestern Pennsylvania Web sites produced by non-profit or government agencies (52). The TRFN network, which also provides a Web directory (53), is a service of the Carnegie Library of Pittsburgh. The emphasis is on local information, but this is supplemented by more general information where necessary. (52)

Other projects detailing online local resources similar to those mentioned above, including local history, online collections, and local architecture resources are reviewed in Falk’s “Projecting the Library on the Web.”

In an overview of European public library Web sites, the Hardens describe a number of sites which provide a sense of local context, whether it is an Icelandic community’s struggle with volcanic activity or the experience of a Croatian library in wartime (50).
**General Interest Content**

Under general interest information, Commings suggests providing resources having to do with current events, such as the Olympics (27); resources having to do with the terrorist attacks of September 11 come to mind as being of interest to many people. Other information of general interest could include information on a number of topics, ranging from government information to readers' advisory resources. Library-created Web directories and pathfinders would fall in this category.

Falk describes several subject guides (called “information clusters”) posted on public library Web sites in “Projecting the Library onto the Web”, among them literature, religion, and philosophy guides posted by the Memphis/Shelby County Public Library (396). In “Library Web Site Innovations”, he also suggests posting resource lists which contain both print and Web resources (324) and posting information which supports local book clubs (325). Clyde found that sixteen percent of the libraries she studied posted book reviews, book club choices, and other Reader’s Advisory material (556).

**User Instruction**

One of the goals of many librarians is to instruct the public in the use of information resources. This is something which can be partially accomplished through a Web site. User education might include guidance in using the Internet (Commings 27), or electronic versions of printed library guides (Cooper 52). Falk, in “Library Web Site Innovations”, suggests presenting online tutorials on a variety of topics, from using the library, to effective searching with Boolean logic, to using the Internet (328). Fourie suggests, as a potential objective of a Web site, providing access to basic instructional material on the use of the Internet (96).
Electronic resources

Electronic services could include access to the library catalog, circulation records, and other databases licensed or created by the library. Furthermore, electronic forms which allow users to renew or request books or which allow other library services to be requested over the Web would fall into this category.

In 1998, the Hardens found that Internet access to online catalogs was becoming the norm in Continental Europe (52), and close to half of the libraries which Clyde examined in 1996 provided similar access (552).

Audience

There are three basic groups of people which might make up the audience of a public library Web site: the public library’s geographic population base, the staff of the library, and the world at large. Most of the literature found in the process of this research ignored library staff, and focused more on the question of the local vs. the global audience.

Lofback states, in his description of creating the Clearwater Public Library Web site, that the local audience is of primary importance, since their municipal taxes paid for the library’s existence; Garlock and Piontek agree (92). Metz and Junior-Metz state that Web sites necessarily have a global audience, but that a public library Web site represents the entire local community (83-84).

Even if only the local audience is considered, it is important to remember that the needs of the local patron at home are likely to be much different from the needs of the patron who is physically in the library. In “Projecting the Library onto the Web”, Falk states that home users are unlikely to want to use a library’s list of links to the Internet at large. His suggestion for content for outside users is to provide detailed local information as well as other “information clusters” (395).
Currency

Do not promise what you cannot support...if you do not have the staff and time required to support collection development of Internet resources, then do not offer such a service on your Website. (Garlock and Piontek, 30)

The need for Web sites to remain current is almost universally acknowledged. This can cause problems for libraries that wish to include calendars, news, and announcements, or other information—such as a Web directory—which can easily go stale. If sites publish such information, yet don’t have the time to support it, it presents a negative image to Web site users. The above quote is the only advice found in the literature in terms of how to present only current, reliable information, and it doesn’t go into detail. Other articles admonish the reader not to provide outdated information, but give no details in methods of doing so. One of the aims of the research described in this paper was to locate ways for libraries to provide much of the information they would prefer to present, while still maintaining an infrequent update schedule for the site.

Methodology

To determine which kinds of content are included in North Carolina library Web sites, it was first necessary to define both “content” and “Web site”.

Content

Content is a tricky word to define, but for the purposes of this study, it can be stated to be material placed on the site to inform its visitors. This study will classify content on the basis of two criteria: subject and level of completeness. Subject matter was grouped into six categories: information about libraries, local information (both historical and current), general interest information, user instruction, electronic resources, and other, which was meant to allow for unforeseen types of content. Within each of the categories, a brief
description of the actual information was made. For instance, library information from a
particular site might include hours, location, services, policies, and programs. In
retrospect, the latter descriptions would have been more straightforward if the author had
made a preliminary survey of the sites to gain experience with the procedures. The
categorization did become standardized, but it was necessary to go back to the earlier
sites examined and re-examine them so that a consistent analysis could be made.

Where content of a particular type was present, it was further categorized on the basis of
its completeness. To avoid subjective evaluations of coverage, “completeness” was
defined as the proportion of the information accessible from the library’s Web site,
without requiring the user to leave that site. The categories were:

A. Full content was available on the library Web site.

B. Links or references to information available elsewhere, categorized or not, but
with some form of annotation.

C. Links or references to information not provided on the Web site, but available in
the library or an external site. These references were categorized by topic.

D. Links or references as above, but they had no specific categorization or
annotation.

Again, it was necessary to re-examine the first sites seen in the study, since it took some
time to achieve consistent classification.
Unique Features

A site was described as having unique features if it had a form of content found on no other North Carolina public library Web site. A number of North Carolina public library sites had unique content; these are featured in the results.

Specific Content

In accordance with common standards for reputable Web sites, there were two pieces of information which were specifically sought on the sites: contact information of some sort (this could be an address—email or postal—or a phone number), and a revision date on the front page of the site.

Web sites

What is a public library Web site? At first, the definition of a public library Web site seems trivial: any Web site produced by or for a public library. However, regional and county public libraries often have an overarching site, with subsections for the separate branches. In these cases, the collection was defined as one site, rather than several individual sites. However, if the regional library clearly did not have control over its member libraries, then the sites were considered individually. This was determined by a combination of stylistic differences and different domain names (though the latter was not sufficient in and of itself). In other cases, a library might occupy a subsection of a local government's Web site. For these, only the library’s portion of the larger site was considered.

A further question was whether a Web site was really the library's official site. One of the initially-located sites specifically stated that it was not the official Web site for the library, and was dropped from the roster. Some sites which were located were not found
on the official list from the State Library of North Carolina, but were listed on various publicly-accessible Websites. The author felt that this was ample reason to include them, since the public was likely to find them and see them as official. Where two different URLs were available for the same site, and both still worked, only the more recent version of the site was considered.

Sixty-eight North Carolina public library Web sites had been located as of September 26, 2001 by means of four Web sites: the State Library of North Carolina's *North Carolina Libraries on the Web*, Berkeley SunSITE's *Libraries on the Web*, the *Google Web Directory*, and the *Google* search engine. Twelve North Carolina public library systems did not have Web sites at that time. The sixty-eight sites were examined between October 2, 2001 and November 1, 2001. Between September 26 and the beginning of the study, two sites became unavailable, changing the numbers to sixty-six and fourteen, respectively. One of the sixty-six was a regional site which did not include its members in its site, but three of those had individual sites, which were considered separately.

The lists of libraries are attached in Appendix A.

**Information not considered**

Only the top three layers of the sites were examined. This was the only usability factor examined. A standard recommendation on the Web for site design is the “three click rule”, which states that a site user should be able to find what they are looking for within three mouse clicks. This appears to be loosely based on research on human memory which states that people in general can remember (in the short term) about seven items, plus or minus three (Rosenfeld and Morville, 38). In any case, three layers made it possible to complete the study in a timely fashion, thus allowing something like a snapshot view of all North Carolina Public Library Web Sites.
In addition, two kinds of information omitted from this study, because of time considerations. While it is important to consider graphics in the creation of a site—especially given that many people are not textually oriented—this was not a focus of this project. Where graphics provided information rather than decoration, however, they were counted on the same basis as textual content. Furthermore, no distinction was made between adult and children's content.

Currency

The question of currency is most important when the content is ephemeral in nature. If a library has a schedule of events, a list of hot topics, or holiday hours, absolute currency matters more than if a library has a guide to their local history collection (which is presumably fairly static). Sites were examined to see if they had a revision date on the home page, or whether they contained information which was clearly either up to date or outdated. For example if a site announced that the summer reading program was about to begin or if the calendar didn’t include any information past September, then the site was considered to contain outdated content.
Results

Audience

In the majority of cases, it was not possible to determine the intended audience of the examined sites. In two cases, prominent Internet use policies were phrased in a way that indicated a clear expectation that site users were physically in the library. In four cases, the only significant content provided was the catalog, which would seem to indicate that the service population was the expected audience. Five sites clearly included their employees as part of their audience, since they included items designated for “staff”.

Content

The types of information were grouped into the six categories mentioned above. The completeness of each library’s content in each category was rated on the basis of the most complete example found on that site.

<table>
<thead>
<tr>
<th>Subject of Content</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Total</th>
<th>Nothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library Information</td>
<td>63</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>63</td>
<td>3</td>
</tr>
<tr>
<td>% of libraries</td>
<td>95%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>Electronic Resources</td>
<td>51</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>59</td>
<td>7</td>
</tr>
<tr>
<td>% of libraries</td>
<td>76%</td>
<td>8%</td>
<td>0%</td>
<td>6%</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>Local Information</td>
<td>31</td>
<td>13</td>
<td>3</td>
<td>12</td>
<td>57</td>
<td>9</td>
</tr>
<tr>
<td>% of libraries</td>
<td>47%</td>
<td>20%</td>
<td>5%</td>
<td>15%</td>
<td>86%</td>
<td>14%</td>
</tr>
<tr>
<td>General Information</td>
<td>12</td>
<td>21</td>
<td>10</td>
<td>5</td>
<td>48</td>
<td>18</td>
</tr>
<tr>
<td>% of libraries</td>
<td>18%</td>
<td>32%</td>
<td>15%</td>
<td>8%</td>
<td>73%</td>
<td>27%</td>
</tr>
<tr>
<td>User Instruction</td>
<td>12</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>20</td>
<td>46</td>
</tr>
<tr>
<td>% of libraries</td>
<td>18%</td>
<td>12%</td>
<td>0%</td>
<td>0%</td>
<td>30%</td>
<td>70%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>61</td>
</tr>
<tr>
<td>% of libraries</td>
<td>6%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td>8%</td>
<td>92%</td>
</tr>
</tbody>
</table>

* Number of libraries = 66
The most common kind of information on the sites was information about the libraries themselves. Sixty-three (95%) of the sites had something of this kind. This was also the only category which always had full text of some sort (when it contained anything at all), even if it simply took the form of library hours and contact information.

The second most common category was electronic resources. Fifty-nine (89%) had at least one item in this column. This usually consisted of full access to the catalog or a link to NC LIVE, a collection of subscription resources to which North Carolina public libraries have access.

Local information was close behind electronic resources, with fifty-eight (88%) of the sites including some information of local or regional interest. Most of the information in this category consisted of links to Web sites for local organizations or genealogy, followed in numbers by descriptions of the local history collections at the libraries.

General interest information was the fourth most common category. Forty-eight sites (73%) presented content which was less localized. Most often, these sites were providing Web links, but a fair number published articles or other full-text information.

The least common of the predefined categories was user instruction, with twenty sites (30%) publishing pathfinders or other research guides, or providing some guidance in using the Internet.

Five libraries (8%) had content which didn't fall into any of the predefined types. The bulk of this could be defined as a new category: information about the Web sites themselves. However, there were two items which could not be easily categorized.

Further details about the content included follow:
Information about the library itself

As stated above, almost all, or sixty-three, of North Carolina's public library sites had information about the library on their Web sites. All of these listed hours for some or all of their branches. All but one of the sixty-three listed their location(s) and contact information. Ten libraries included full maps or directions, an eleventh included an annotated link, and a twelfth included a plain link to an external site with a map.

The next most common information in this category had to do with schedules: fifty-two libraries included some form of calendar, whether a list of holiday closings or a schedule of programs. Nineteen percent (ten) of these were out of date, with announcements of the beginning of summer reading programs, or no information later than September.

Forty-six libraries published details about their policies. Forty-three included a full explanation of at least one of the library's policies (most often circulation or Internet); two had brief explanations, and one had a link to fourth-layer pages containing the policies.

Forty-five (68%) libraries described the services and collections (aside from local history) available in their physical locations. Twenty-five of these were fairly detailed descriptions, eighteen were much briefer summaries, and two included unannotated links to descriptions of their services. A related resource on six sites was a page of answers to Frequently Asked Questions (FAQ) about library services.

Almost half the library Web sites (thirty-two) acknowledged their Friends of the Library groups. Thirty of these included full descriptions, one included a summary, and one mentioned the group's existence, but nothing more. Further information on the public's contributions to libraries was provided on ten sites which included information on
fundraising or donations, and five sites which discussed volunteering. Unique content in this area was the announcement for the Rowan Friends' Literary Road Trip⁵.

Another popular topic was library-specific news. Twenty-six libraries posted newsletters, announcements, press releases, or awards on their sites. All but three of these postings were the full text of a library newsletter or a long description of some newsworthy event. Three libraries posted bare links to library news information.

A third of libraries (twenty-two) wanted the public to understand the management structure of the library: all of these libraries described their organization in some fashion, usually by posting a list of the board of trustees, and often including a board meeting schedule. Charlotte-Mecklenburg included the most unusual item in this area, providing a chart depicting the hierarchy of the county's library system⁶.

Nearly as many sites described the history of their libraries: eighteen (of twenty) posted full descriptions, one had a brief summary, and another posted a link to a page otherwise too deep in its structure to be considered.

Eighteen sites included their library's mission or standards, all but one of these in full text. The remaining site provided a link to a page that was four layers deep. In a similar vein, nine (14%) sites posted their long-term plans, eight of these in full text. Six included reports—annual, quarterly, or otherwise. Again, all but one were full text, and the remaining site had a link to a fourth level.

Seven sites (11%) provided links to other libraries, primarily in North Carolina, though one site included a link to the Library of Congress as well. Three sites provided annotated links, while four provided plain links. Links to individual branches were not counted in this grouping, since the linked pages were considered to be part of the same site.
Five sites posted library information for their staff: three included full text procedures manuals; two included sections which required staff logins, and one library included Web links for staff in its links page. (One library had one each of the first two items listed.) Four sites included information for potential staff, listing job openings at their library.

Five sites posted lists of new books and other materials. Similarly, three libraries posted lists of their periodicals holdings: two as full text resources, and one as a link to a list too far down in the site structure for this study.

Two sites posted several photos and descriptions of their libraries, creating virtual tours.

Other unique content in this area was varied. Durham County Library included a section on an upcoming library bond referendum. Cumberland County Public Library & Information Center provided a “Welcome Brochure” in both Spanish and English. Harnett posted a technical description of their online catalog system. Finally, Charlotte-Mecklenburg provided a detailed description of their publishing company, Novello Festival Press.

**Electronic Resources**

The most commonly included electronic resource was the online catalog: fifty-three sites mentioned it in one form or another. Fifty-one (77%) libraries provided full access to the catalog through their Web site or through a link to the telnet version. One other Web site's link to its catalog was not functional the day the site was visited, and so it was not counted as full access; the last site provided instructions on how to dial in to the catalog using a modem. Two of the sites which provided full access to catalogs had no other content.

Fifty-three of the sites examined provided some mention of the NC LIVE service. North Carolina public libraries are part of the NC LIVE consortium, which has licensed use of
many databases and other subscription resources. North Carolina residents may either access NC LIVE from terminals in their local library or obtain a password from their public library and access NC LIVE from home. Ten library sites provided longer explanations of the service, explaining its purpose and how to access it from home. The most comprehensive of these was from Durham County Library. Twenty-four libraries either provided a link with a brief explanatory annotation or provided brief annotations with direct links to individual NC LIVE resources. Seventeen libraries provided a bare link with no explanation, in many cases using only the NC LIVE icon with no associated text. Two libraries mentioned NC LIVE on their site without a link, implying that access was restricted to the library's terminals. Thirteen sites didn't mention it at all.

Nine libraries provided links to licensed databases not available from NC LIVE, all but two of which provided annotations.

Other electronic resources provided by fifteen sites were Web forms to allow users to access library services over the Internet. Most such forms were for reference questions, hold requests, or renewals, but three forms were unique: Charlotte-Mecklenberg provided a form to allow library patrons to request books to be delivered by mail (for a charge) and also had another form for more long-term research assistance; Wake County provided a form allowing teachers to notify branch libraries when there were upcoming assignments which would require use of the library by students. The resulting database is searchable by librarians, students, and teachers alike. Unfortunately, there were indications that the submission process wasn't working properly. A convenient feature on the Greensboro site was a page which brought together links to all the Web forms on the site.
Unique features in the area of electronic resources were Charlotte-Mecklenburg's customizable Web portal—Brarydog—and Wake County's “send this page to a friend” feature—found at the bottom of most pages on the site.

**Local Connections**

Fifty-eight of the Web sites in this study included some sort of local context. In six cases, they couldn't help but do so, since they were part of a local government’s Web site which perforce included links to local government information. Nonetheless, these links were counted, since there was a possibility that the libraries in question would have included the links in any case.

There were two broad categories of local information found in these sites: historical and current. Some of the information was related to the library's own holdings, while other resources were accessed by linking to external Web sites.

*Local History*

Thirty of the sites included their local history collections (usually a North Carolina Room or Collection). Nineteen wrote long descriptions of the collections and services offered, ten wrote short summaries, and one mention was only a link. If there was more text in that case, it was on the fourth level of the site, and therefore outside this study's purview. As part of the collection descriptions, two sites included full-text research guides and a third provided a link to a guide one layer too deep for this study. One local history room posted its newsletter, and two local history rooms sold local history books.

Twenty-two sites provided researchers with links to external genealogy or local history Web sites. Six posted descriptions of or links to county Genealogical Societies.
Seven libraries had online exhibitions of digitized photos or the full text of some library resources. One site included links to library-produced resources. Some exhibitions were clearly designed to allow genealogy or local history researchers to do research online, as in the case of Craven County's site: their online local resources\(^{16}\) included abstracts of old wills, a list of Swiss immigrants (New Bern had been a Swiss colony), and abstracts of Craven County apprentice bonds. Other exhibitions had a broader appeal, as in the case of Charlotte-Mecklenburg, which created a separate site on their county's history\(^{17}\), including the full texts of several books on area history. In a similar vein, the Guilford County Library's site included a virtual tour of historic Greensboro\(^{18}\), with text and recent photos of historic sites. Brunswick County Library did not yet have an online exhibition, but described an ongoing oral history project concerning World War II.

Seven libraries wrote brief histories of their areas. Brunswick County Library's site is particularly interesting in this regard. The main page's sidebar loads a different random segment from the local history summary with an associated photograph each time the page is visited. The full summary includes a bibliography, which serves as a useful research guide.

Seven libraries included links to NC ECHO, the main page of which states that it is an online guide to the special collections of North Carolina's libraries, archives, and museums.

Two Web sites asked their users questions. In one case, the library knew the answers, and in the other case it was requesting information from the site’s users, so the functions were rather different. Charlotte-Mecklenburg's local history site included a quiz\(^{19}\), while Ashville-Buncombe asked if anybody recognized the subjects of some unidentified local photographs\(^{20}\).
Current Local Information

Not only did many North Carolina public libraries cover local history on their Web sites, but many more included more current information, from social services to local government to the weather.

Several sites included a variety of library publications in this category. One library published a local calendar of events. Seven included the full text of county facts or community notebooks. Two more wrote descriptions of their notebooks or included a form organizations can use to provide information to the library; and one had created a large list of links with local information, organized by subject, but with no annotations. Forsyth included a description of their referral service and described the references they had created for sale.

Fifty Web sites (76%) included at least one link to external sites dedicated to current local, regional, or state information. When these links were grouped by subject, they were sometimes kept in a category of their own, and sometimes included under more general subjects (e.g. government, health, business). Twenty-four of these sites annotated at least one of the links, ten sites simply categorized them, and sixteen listed the links with neither annotation nor categorization.

Two libraries described their physical surroundings: Pender County by linking to the current weather for its town, and the other by describing the location of the area in reference to the rest of the state. On a related note, the Wake County Library site provided a link from its home page to the county's Geographical Information Service (GIS) Department.
**General Interest Information**

Information placed in this section actually falls into two smaller subcategories: truly general information and literary information—mostly in reference to Reader's Advisory services or material. Forty-eight libraries had information falling into at least one of these subcategories.

*General*

Unsurprisingly, the bulk of information in the more general subcategory came in the form of links to external Web sites. Such links were provided by forty-three libraries. Twenty-eight of these annotated at least one link; twelve organized their links by subject but annotated none of them, and three provided plain links with no information aside from the site's name. Of the sites which provided annotations, one provided Web search engine forms and links to no other sites. Of the forty-three sites which provided these general interest links, five included current events links, usually on the front page, and mostly in reference to the events of September 11, 2001. Of particular interest was the set of links provided by Cumberland County\(^{22}\), which linked to the ALA's collection of sites on September 11th.

Two sites provided a monthly feature: Onslow posted an article for kids on the reasons leaves change color\(^{23}\) with a related resource list, and Southern Pines published a monthly business feature\(^ {24}\).

Two sites provided other unique content in this area. Hickory published a staff column series\(^ {25}\), which was apparently also printed in a local newspaper: these columns were written by different librarians and covered a range of topics, often having to do with a librarian's perspective on current events. This falls into Fichter’s category of information which provides an editorial viewpoint (87).
Literary Information

In the area of readers' advisory, nine libraries provided book reviews and book lists. Five of these were full text: some were written by librarians and others by library patrons. Four other libraries provided links to external Web sites: one included annotations, two divided them by category, and one simply listed plain links. Four libraries provided access to online book clubs through *Chapter-a-Day*.

Unique content in this area was provided by two libraries: Braswell posted “Tips for Raising Readers,” and Pamlico included poetry written by a local teen.

User Instruction

Not many libraries included any form of user instruction on their sites, but twenty had some content in this subject area. Seventeen included online tutorials or other Internet guides: seven sites with full text, eight with annotated links, and one with the most basic kind of link. Of particular interest was Durham’s guide to accessing library services from home, which included links to other relevant content on the site, from the catalog to Web forms.

Four sites posted or linked to research guides: two in full text, one with annotations, and one with a plain link. For instance, Gaston-Lincoln published research guides including both web links and books from the library on a range of topics, from genealogy to buying a car, while New Hanover wrote a guide for children on how to use the library for homework research.
Other Content

This category includes types of information which were not foreseen at the beginning of the study. Only one real new category was identified in this section: information included on a Web site about that site (meta-information).

Meta-Information about the Site

Three library sites included a page listing all the information to be found on each site; two of these took the form of alphabetical indexes, while the other was what is often called a site map: a depiction of the structure in outline form. Furthermore, the Hickory site provided a list of new information added to the Web site, in date order, allowing regular visitors to view only the most recent updates.

Five sites provided means for searching the entire Web site, which can aid users of large sites in following the three-click rule. One of these search features was really provided by the county government hosting the site, in which case it would be possible to find results from the non-library sections of the overall site. This could be either a positive or a negative feature, depending on the nature of the search.

Two sites provided “guest books” or suggestion forms allowing visitors to make comments about the Web site. For people having difficulty with the catalog, Wake County Public Libraries also provided technical support information.

Several of the sites examined made explicit provisions for the needs of their Hispanic or their visually challenged population. Nine included at least some Spanish content, while two provided links to sites which will translate from one language to another. In the latter case, according to the Hispanic Virtual Reference Desk at East Carolina University’s Joyner Library, it is important to remember that Web translation services are
usually only successful in conveying the gist of a page. Two sites made it clear on their home pages that they were concerned with the ADA compliance of their pages: Hickory included a “Bobby approved” seal\textsuperscript{31}, while Catawba explicitly stated that their pages comply with ADA guidelines for Web sites.

\textit{Uncategorized}

Two libraries included sister libraries on their sites, describing the libraries in question and providing links to the sister Web sites. Cumberland's site also included a scrapbook from the most recent high school exchange trip to the sister library’s town of Avold, France. Southern Pines' sister is in Lithgow, Australia. While libraries' links to local information provide a sense of local context, these Sister Library links show a global connection.

The other piece of uncategorizable content was the result of a library’s use of a free Web hosting service: pop-up advertisements appeared on every page.

\textit{Currency}

What would seem to be the obvious method of determining currency is the presence of a revision date on the home page of a site. This method turned out not to be reliable in the case of this study. Thirty-six library sites had a revision date on the first site. Of these, 32 were in the current year (2001) and twenty-six showed revision dates of September onward. Nonetheless, four of the latter contained announcements of summer reading programs or calendars which did not continue past August. A total of six of the sites with dates from 2001 were out of date. Four sites showed revision dates between 1997 and 2000; of these, only two were obviously out of date, though it is entirely possible that some of the information on the other two sites was also dated, though less clearly so. For
instance, in the case of the site last updated in 1997, it was entirely possible that the library hours had changed, but there was no way to tell.

Thirty sites didn’t post a revision date on the front page (though some had dates on second- or third-level pages). Of these, six were clearly updated within the month before the study, and four contained information which was clearly out of date. The currency of the remaining twenty sites was not clear: no information could be identified as being out of date without knowing that the information had changed.

**Methods of keeping current without frequent updates**

Several libraries avoided the issue of currency in their calendars by posting the schedule of events for the entire year. This presupposes that the schedule is known far in advance, but it does reduce the frequency of needed updates from monthly or quarterly to yearly.

Other libraries used a clever way of posting story times or holiday hours which needs even less frequent updating. In the case of story times, stating that they take place every Tuesday at 1 pm, between Labor Day and Memorial Day, is far more generalizable than listing the specific dates. Similarly, posting only the names of the holidays and not the dates for which the library is closed results in a page which only needs to be updated if the list of holidays changes. The risk in both of these cases is that the schedule may change without the person responsible for the Web site being informed of the change.

Rather than trying to keep a large number of external links up to date, Davidson Library posted a link for government information to the list of links maintained by the Academic Affairs Library Reference Department at the University of North Carolina - Chapel Hill. For a small library with fewer staff and a smaller budget, linking to a larger, stable organization's work is an easy way to provide access to reputable sites with current URLs. The advantage to using the links from UNC (or other large North Carolina
libraries) is that links to North Carolina information are included, which helps maintain a more local flavor. Furthermore, the librarians at UNC’s Davis Library who maintain the page in question encourage other libraries to make use of it (Moss). It is also possible to use this method for special populations. Wilson County Library linked to the Hispanic Virtual Reference Desk\textsuperscript{33} from Eastern Carolina University’s Joyner Library. Other libraries used the same technique for children, linking to the Start Squad Web site,\textsuperscript{34} which was specifically designed for the purpose, from the North Carolina State Library. This allows a library to provide links to web sites appropriate for children (pre-school to middle school) without having to spend a lot of time making sure that the links remain appropriate or that they don’t go stale.

**Missing Content**

Three sites (5\%) had pages which were essentially blank (they included a standard header with navigation to other parts of the site and no page-specific content), and four (6\%) sites had broken links to pages which, given their URLs, should have been part of the library sites in question.

**Outstanding Libraries**

There were three libraries which had full content in every category, including the Web site information category. The latter usually took the form of a site index or site search, necessary because the sites in question were so large. The three libraries were Charlotte and Mecklenburg County Public Library, Hickory Public Library, and Wake County Public Libraries. The presence of Charlotte and Wake in this group is not a surprise, given that the former is from the largest city in North Carolina, and that Wake County contains the state’s capital. Two other libraries had full content in the original five categories: New Hanover County Public Library and Rowan Public Library.
Conclusion

Whatever its features or appearance, a Web site is useless unless it provides meaningful content. Public libraries need to consider this when designing and maintaining their sites. Some libraries clearly have not: I have seen many public library Web sites from around the world (including some of those consulted for this study) which provided only a photo of the library, a list of the hours it is open, and basic contact information. While this is certainly useful information, it does not inspire return visits to a site. At the very least, providing niche content in the form of local information would make such sites more useful.

Furthermore, a particularly glaring problem was the number of sites with obviously out of date content. More libraries need to make sure that time-sensitive material such as calendars is kept up to date.

It is my hope that public librarians from anywhere (not just North Carolina) will be able to use my work (and the library Web sites reviewed herein) as a resource for ideas for improving the content of their Web sites, whether by broadening their intended audience, including more useful information or services, or by working out a way of keeping their sites current without regular, frequent updates.
Notes

1 For a more academic treatment, see the Fourie and the D'Angelo and Little articles. Other articles in this
category were by Commings, Leiserson, Lofback, Still. Books in this area include Garlock and Piontek,
and Metz and Junion-Metz.

2 Both Falk articles, the Puacz article, and that by the Hardens fall into this group.

3 Cooper and Pratt both wrote articles which suggest subjects of information, though in the case of Pratt,
the suggestion is made in the larger context of libraries and community networks.

4 Also known as bibliographic instruction.

5 <www.lib.co.rowan.nc.us/Friends/FriendsAtlantaTrip.htm>. The trip included visits to authors’ homes, a
play, and a presidential library in northern Georgia.

6 <http://www.plcmc.lib.nc.us/aboutus/organizationchart.htm>

7 <http://www.durhamcountylibrary.org/bond.htm>

8 <http://www.cumberland.lib.nc.us/english_welcome_brochure.htm> and
<http://www.cumberland.lib.nc.us/comm_rel/Revised%20Welcome%20Brochure%20Files/Spanish%20Welcome%20Brochure.htm>

9 <http://www.novellofestival.net/>

10 <http://www.durhamcountylibrary.org/reference/nclive.htm>

11 <http://www.plcmc.lib.nc.us/catalog/libByMail.htm>

12 <http://www.plcmc.lib.nc.us/sharedPages/ResearchSupport.htm>

13 <http://lnWeb01.co.wake.nc.us/Web/library.nsf/AssignAlert?OpenForm>

14 <http://www.greensborolibrary.org/About/act.htm>

15 <http://www.brarydog.com/>

16 <http://www4.coastalnet.com/community_orgs/cpclibrary/resources.html>

17 <http://www.cmstory.org/>

18 <http://www.greensborolibrary.org/downtown/>

19 <http://www.cmstory.org/quiz/>

20 <http://www.librarybuncombe.org/sondley.htm>

21 <http://www.forsythlibrary.org/community.html>

22 <http://www.cumberland.lib.nc.us/tragedy.htm>

23 <http://co.onslow.nc.us/library/childrensfeatureoct.htm>

24 <http://www.sppl.net/business_brief.htm>

25 <http://www.ci.hickory.nc.us/library/columns.htm>

26 Library patrons who sign up for the service receive a portion of a chapter of a popular book by e-mail on
weekdays; the e-mail is created so that it comes from the library’s address, but the library doesn’t have to
Many Web sites are not accessible to users with disabilities. Bobby is an automated, free validation service that runs tests on a Web site to see whether it is accessible. For more information, see the Bobby Web site at <http://www.bobby.org/>.
### Appendix A: List of North Carolina Public Libraries

**With Web Sites:**

<table>
<thead>
<tr>
<th>Library</th>
<th>URL</th>
<th>Type</th>
<th>Date visited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albemarle Regional Library</td>
<td><a href="http://albemarle-regional.lib.nc.us/">http://albemarle-regional.lib.nc.us/</a></td>
<td>Regional</td>
<td>10/6/01</td>
</tr>
<tr>
<td>Alexander County Library</td>
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<td>10/6/01</td>
</tr>
<tr>
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<td>10/6/01</td>
</tr>
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<td>10/2/01</td>
</tr>
<tr>
<td>Burke County Public Library</td>
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<td>10/2/01</td>
</tr>
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</tr>
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<td>10/2/01</td>
</tr>
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<td>Chapel Hill Public Library</td>
<td>[<a href="http://www.ci.chapel-hill">http://www.ci.chapel-hill</a> nc.us/TownServices/library.htm](<a href="http://www.ci.chapel-hill">http://www.ci.chapel-hill</a> nc.us/TownServices/library.htm)</td>
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<td>10/6/01</td>
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<td>10/17/01</td>
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<tr>
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<td>[<a href="http://www.nwrl.org/">http://www.nwrl.org/</a>]</td>
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<td>10/14/01</td>
</tr>
<tr>
<td>Library</td>
<td>URL</td>
<td>Type</td>
<td>Date</td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
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<tr>
<td>Onslow County Public Library</td>
<td><a href="http://co.onslow.nc.us/library/">http://co.onslow.nc.us/library/</a></td>
<td>County</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Pamlico County Library</td>
<td><a href="http://www.pamlico.net/library/">http://www.pamlico.net/library/</a></td>
<td>County</td>
<td>11/1/01</td>
</tr>
<tr>
<td>Pender County Public Library</td>
<td><a href="http://tlc.library.net/pender/">http://tlc.library.net/pender/</a></td>
<td>County</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Pettigrew Regional Library</td>
<td><a href="http://www.pettigrew.lib.nc.us/">http://www.pettigrew.lib.nc.us/</a></td>
<td>Regional</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Pine Bluff Library</td>
<td><a href="http://ils.unc.edu/~bergr/pinebluff/library/">http://ils.unc.edu/~bergr/pinebluff/library/</a></td>
<td>Branch</td>
<td>10/14/01</td>
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<tr>
<td>Pitt County</td>
<td><a href="http://www2.coastalnet.com/~cn4185/">http://www2.coastalnet.com/~cn4185/</a></td>
<td>County</td>
<td>10/14/01</td>
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<tr>
<td>Polk County Public Library</td>
<td><a href="http://www.publib.polknc.org/">http://www.publib.polknc.org/</a></td>
<td>County</td>
<td>10/14/01</td>
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<td>Randolph County Public Library</td>
<td><a href="http://www.randolph.lib.nc.us/">http://www.randolph.lib.nc.us/</a></td>
<td>County</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Roanoke Rapids Public Library</td>
<td><a href="http://www.roanokerapidsnc.com/library/">http://www.roanokerapidsnc.com/library/</a></td>
<td>Municipal</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Rockingham County Public Library</td>
<td><a href="http://www.rcpl.org/library/">http://www.rcpl.org/library/</a></td>
<td>County</td>
<td>10/14/01</td>
</tr>
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<td>Rowan Public Library</td>
<td><a href="http://www.lib.co.rowan.nc.us/">http://www.lib.co.rowan.nc.us/</a></td>
<td>County</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Rutherford County Library</td>
<td><a href="http://www.cmclibraries.org/">http://www.cmclibraries.org/</a></td>
<td>County</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Sampson-Clinton Public Library System</td>
<td><a href="http://www.sampson.cc.nc.us/publiclibrary/">http://www.sampson.cc.nc.us/publiclibrary/</a></td>
<td>County</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Sandhill Regional Library System</td>
<td><a href="http://204.211.56.212/">http://204.211.56.212/</a></td>
<td>Regional</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Southern Pines Public Library</td>
<td><a href="http://www.sppl.net/">http://www.sppl.net/</a></td>
<td>Municipal</td>
<td>10/14/01</td>
</tr>
<tr>
<td>Stanly County Public Library</td>
<td><a href="http://www.stanlylib.org/">http://www.stanlylib.org/</a></td>
<td>County</td>
<td>10/13/01</td>
</tr>
<tr>
<td>Transylvania County Library</td>
<td><a href="http://www.transylvania.lib.nc.us/">http://www.transylvania.lib.nc.us/</a></td>
<td>County</td>
<td>10/13/01</td>
</tr>
<tr>
<td>Union County Public Library</td>
<td><a href="http://www.union.lib.nc.us/">http://www.union.lib.nc.us/</a></td>
<td>County</td>
<td>10/13/01</td>
</tr>
<tr>
<td>Vance County</td>
<td><a href="http://www.users.vance.net/library/">http://www.users.vance.net/library/</a></td>
<td>County</td>
<td>10/13/01</td>
</tr>
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<td>Wake County Public Libraries</td>
<td><a href="http://www.co.wake.nc.us/library/">http://www.co.wake.nc.us/library/</a></td>
<td>County</td>
<td>10/31/01</td>
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<tr>
<td>Wayne County Public Library</td>
<td><a href="http://www.wcpl.org/">http://www.wcpl.org/</a></td>
<td>County</td>
<td>10/13/01</td>
</tr>
<tr>
<td>Wilson County Public Library</td>
<td><a href="http://www.wilson-co.com/library.html">http://www.wilson-co.com/library.html</a></td>
<td>County</td>
<td>10/13/01</td>
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</tbody>
</table>
**Without Web Sites:**

- Avery-Mitchell-Yancey Regional Library
- Bladen County Public Library
- Duplin
- Farmville Public Library
- Franklin County Library
- Halifax County Library
- Kings Mountain
- Lee County Library
- Mooresville Public Library
- Person County Library
- Robeson County Public Library
- Scotland County Memorial Library
- Warren County Memorial Library
- Washington - George H. & Laura E. Brown Library
Works Cited


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1 According to Clausen, this translates as “Libraries on the Internet: a Survey of the Form, Content, Structure and User Support in Library Home Pages.” (85)


*Emerald FullText*. Academic Affairs Library, UNC - Chapel Hill. 12 Nov 2001


*Expanded Academic Universe*. Academic Affairs Library, UNC - Chapel Hill. 14 Sept 2001


