Internet Subject Guides in Academic Libraries

An Analysis of Contents, Practices, and Opinions

This article describes a research project to determine the uniqueness of Internet subject guides among Association of Research Libraries academic libraries. The authors examined guides in four subject areas (philosophy, journalism/communication, astronomy, and chemistry) at the Web sites of 112 libraries, collecting data on the number of links per guide, the arrangement of resources, the information included about the resources, the kinds of resources included, and the number of nonworking links. As a result of the examination of these guides, a number of questions emerged, which led to the creating of a survey mailed to the heads of reference services in each of the libraries. The authors discuss the results of their examinations and of the survey and make recommendations for further research.

Go to just about any academic library Web site and you will usually find a collection of electronic research guides for subjects represented in the parent institution’s curriculum. Librarians have reinvented this particular wheel over and over again, creating specialized guides for their users when guides already exist for the same subject areas on many other library Web sites. In addition, a plethora of Internet resource guides are available from a wide variety of other authoritative sources. They appear regularly in College & Research Libraries News, Issues in Science and Technology Librarianship, and Journal of Library Administration. As early as 1995, Louis Rosenfeld, founder of the Clearinghouse for Subject-Oriented Internet Resource Guides at the University of Michigan, edited a monographic series covering the areas of health and science, humanities, social sciences, business, and law.1 There are also numerous Web sites devoted to the “best of the Web” in given subject areas. Notable examples include Digital Librarian: A Librarian’s Choice of the Best of the Web and Chemistry 2000: Two Thousand of the Best Chemistry Sites.2

There are Web resources for professionals and Web resources for the general public. Specialized subject areas are typically represented by at least one meta site, and often there are three to four meta sites from which to choose (see guides by Huber, Kraus, and Banholzer).3

With all these options available, it is difficult to understand why so many individual libraries maintain Web resource guides for their patrons.

In their research on Internet subject guides, Morris and Grimes quote one librarian who probably speaks for many in justifying the creation of these guides at each institution: “Our Web pages tend to be local in focus, promoting good materials in our library.”4 Librarians are not only trying to create some order out of the chaos of the Internet, but they profess to creating unique guides specific to their particular users and their needs. As department heads who supervise faculty librarians involved in creating and updating these guides, the authors, concerned about the major time commitments involved, decided to find out just how unique these guides really are. In the process of

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answering this question, they learned much more about the production of and access to these resources.

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**Literature Review**

A search of the library literature turns up no research on the uniqueness of Internet subject guides, and only a handful of articles that focus on electronic resource guides in general. For example, Kapoun does an excellent job of describing traditional *print* pathfinders, providing guidelines for their construction and recommending a set of “universal pathfinder format guidelines.” He stops short of recommendations for electronic pathfinders.5 A similar article by Morville and Wickhorst takes librarians step by step through the process of identifying relevant sites for electronic guides, reviewing them for inclusion, creating a description for each site, selecting an organizational scheme, and designing and formatting the guide; they then outline publicity, feedback, and maintenance issues.6 The authors use the Argus Clearinghouse in their examples throughout the article.7 They conclude with the following thoughts:

Building a subject-oriented Internet resource guide is a challenging and time-consuming, yet highly rewarding experience. Librarians can provide a valuable service to their universities and to the global Internet community, simply by leveraging their traditional information management skills in this new environment. As the quantity of Internet information resources continues to grow exponentially, and one by one the search engines and Internet directories are crippled by information overload, these topical guides will become increasingly valuable in helping users to find information resources on the Internet.8

Dean’s article, “The Public Electronic Library: Web-Based Subject Guides,” seems on target, but the title is misleading.9 The article is really a description of the creation of a biology subject guide at the University of Wisconsin-Madison, a six-month task, based on four years of grant-related work. The process of creating the guide was managed by a steering committee and carried out by two information consultants working as content developers. The article also contains information on a user study and evaluation of their guide, including focus groups and faculty and graduate student evaluations. However, this was a unique project and few librarians have comparable resources to invest in the production of a resource guide. Still, given the time and effort described by Dean, is it any wonder librarians have questioned the amount of time and effort they put into Web guides?

Building and maintaining Internet subject guides is a topic of interest to many librarians, but few appear to have done research in this area. Morris and Grimes have published two separate studies, both based on a survey of library online discussion groups and research university libraries in the Southeast.10 The two surveys appear to have slightly different target audiences but utilize the same instrument. Survey results show that while Internet subject guides are time-consuming to create and maintain, most librarians believe that such guides help their patrons find reputable and reliable Web sites. Survey responses indicate that few librarians know with any certainty whether and how their patrons actually use these guides. In addition, a majority of the librarians surveyed feel “unsatisfied” or only “somewhat satisfied” with how they themselves locate and identify Internet sites for subject guides.

In addition to examining the time and effort required to produce Internet subject guides, at least one author has examined the issue of quality standards for these guides. Dahl examines pathfinders on forty-five Canadian library Web sites and assesses their conformity with currently existing guidelines for printed pathfinders.11 Dahl argues that “specific guidelines must be created for electronic pathfinders because they pose particular problems that are not addressed in the current literature about pathfinders in general.”12 She stresses the importance of consistent formats, scope definition, readability, and usability, she concludes with the following recommendations:

- Ease of printing should be a consideration when creating electronic pathfinders.
- Very few of the pathfinders studied can be viewed in totality from a single location. This complexity of structure, though admirable . . . moves pathfinders away from their role of being a nonconfusing introduction to research and resources.
- If Web addresses for links are not given, it is difficult for them to be accessed from anywhere but inside the pathfinder itself.
- Because so much work is put into producing helpful and readily usable pathfinders, libraries should be careful not to hide them deeply within their Web sites.13

Whenever Web sites are evaluated, there is inevitably a discussion of usability studies. Lubans has conducted and described two interesting user studies on library subject guides. In his first article he states, “Because of the many irrelevant sites that come up in general searches, users value *portals* that help them cut through to the good stuff.”14 He also mentions results of a survey in which he asked student participants “to rate the library’s efforts in helping them find and use high-quality Web sites.”15 Two items received very high ratings in this survey: “a subject librarian’s home page list of what’s best,” and a “library produced directory of Web sites.”

In a follow-up article, Lubans focuses on the need for public libraries to provide subject Web pages in the same way academic libraries have. He says:
A bad sign for library Web pages: 46 percent of these [college-bound high-school] students rarely use library-provided Web information sources (including the library’s catalog). Only 27 percent occasionally use this library service. Admittedly, once these students are in college, their use of library Web pages may escalate. For those that do not go to college, it will be important for public libraries to steer them towards good resources. This 46 percent who rarely or infrequently use library provided access are our new nonusers.16

All of the articles reviewed give good tips for librarians creating subject guides, but none addresses the duplication of effort or uniqueness of resources appearing in academic library Web guides, or the perceived usefulness of these Web pages. Given the lack of research on these topics, the authors decided to conduct a two-part study involving both a review of existing Internet subject guides, and a survey of librarians involved in their creation and maintenance. The review would provide the researchers with actual data about the guides; the survey would provide additional information about the perceived value and use of these guides.

Methodology

In 2002 the authors undertook an analysis of e-resources or subject guides in selected subject areas appearing on the Web sites of member libraries in the Association of Research Libraries (ARL). Playing on their own disciplinary strengths, one librarian investigated subject guides in philosophy and journalism, while the other focused on astronomy and chemistry. These four subjects were selected to represent collections in the humanities, the social sciences, and the sciences. It was expected that there would be more guides in philosophy and chemistry, and fewer in journalism and astronomy because the former are part of most university curricula, while the latter may not be.

Once these subject areas were selected, the two librarians each visited the Web sites of the 112 ARL member libraries that are academic institutions with English as the primary language. At each site, they looked for subject guides or guides to electronic resources for their two subjects. Sites identified were recorded and tracked in databases maintained by the authors, noting the linked sites’ names, the sites’ URLs, and the library linking to that site. In this process, four databases were created, one for each subject area. Once all the sites were checked, the databases were then reviewed for duplications—sites with different titles but the same URLs.

As the researchers checked the sites, they also completed a worksheet for each site and resource page. They looked at the number of links on each site, the percentage of dead links, the arrangement of the resources, what types of resources were included, and whether or not there was an obvious link to the resource pages from the home page of each institution.

Because a review of all the Web sites could not provide information about how these guides were maintained and what their perceived value was, a survey was conducted to provide this information. These surveys were e-mailed to heads of reference units in the corresponding ARL libraries, with several simple questions about their subject guides. (The survey questions are included in the appendix.) Of the 112 surveys distributed, 64 (57 percent) were completed and returned. Such a satisfactory return rate indicates a clear interest in the time spent on these resources. Respondents were asked to indicate whether or not they were interested in seeing the results when they were completed, and many requested this follow-up information precisely because they were examining the merits of their own subject guides.

Checking of the Web sites required a great deal of time but was completed in the first nine months of 2002. Surveys were e-mailed in September 2002, requesting return within two weeks. A reminder was sent to those librarians who had not responded in that time period. The data-gathering process, then, consumed almost an entire year’s time, and the researchers discovered that throughout the process, resource pages changed. When this happened, the changes were noted on the worksheets.

Results

Arrangement and Content of Guides

Navigating the subject guide pages proved to be an interesting exercise. There was a wide variety in the arrangement and layout of pages, font size, length, and annotations. The authors chose to examine several aspects related to arrangement of resources in the guides, accessibility of the guides from the library’s main home page, and what was included in the guides.

Several of the articles mentioned in the preceding literature review emphasized readability and ease of use as important features of library subject guides.17 However, they dealt principally with issues such as jargon and accurate headings, and only very generally touched on the issue of formatting. None of them addressed or recommended specific font types or page layouts to use or to avoid. Individual page creators often have strong personal preferences in the style they choose for their guides, and while the majority of the guides reviewed were easy to follow, several were very hard to read, with small fonts, multiple frames, glaring background colors, and busy pages full of crowded text and little white space. All these features leave a lasting impression on the user.

Location is an important factor in whether or not guides are used by patrons. Of the ARL library sites that
contained resource guides on the selected subjects, 62 percent provided links to their subject guides from their library home page and 25 percent were definitely not linked on their library home pages. Clearly, the majority of ARL libraries felt these resources were important enough to provide access to them on their main “entrance” page. On 14 percent of the sites visited, the guides were linked from the home page, but they were labeled in such a way that it was difficult to tell what they were. Patrons may search for things differently from librarians, but if trained librarians have difficulty determining what such a link means, then our patrons are probably even more confused.

The first consideration for the guides themselves was how they were organized. Were they arranged in specific categories (indexes, electronic journals, associations, general subject Web sites)? Were they simply alphabetized? Were they alphabetized within categories? The vast majority (83 percent) of subject guides were indeed arranged in categories. However, arrangement of resources in alphabetical order does not seem to be as important to page creators. Results showed that 61 percent were in alphabetical order while 30 percent were not. For the remaining 9 percent, the authors noted that in some cases, sources started out in alphabetical arrangement, but it appeared that as links were added, the arrangement broke down. This seems like a simple thing, but having a random arrangement can stymie patrons looking for a specific link.

Were resources annotated, thus indicating to patrons the importance of the resources or their limitations? Results related to this question were not clear-cut. Only 38 percent of the pages contained annotations for the sites they listed. A slightly smaller percentage (32 percent) did not provide annotations at all, and 30 percent provided annotations for some of their links but not others. Annotations varied tremendously in their detail, with some describing the content and relevance and others merely giving a word about the origin or scope of the site.

Were URLs included for the resources? Overwhelmingly, the answer was no. Only 33 (9 percent) of the 348 guides displayed an explicit URL near the hotlink. One guide provided URLs for most resources. Another guide provided URLs for free resources—but paid subscriptions only had direct links. Dahl, in her discussion of standards, had insisted explicit URLs were important. If a hotlink is malfunctioning, or entered incorrectly, the patron gets an error message. Likewise, if the patron prints the guide for future reference, the links are useless. One unique guide was a PDF (portable document format) version of a print guide. It was devoted entirely to Internet resources, but as a PDF file, it could not contain hot links; the guide creator thoughtfully provided URLs. Portals have also begun to have an impact on URLs, causing them to be long and complex. Clear examples of this are individual sections of the World Lecture Hall and the American Chemical Society Web pages. These complex URLs often lead to typographical errors when a user tries to type them into a browser, and the guide entries look odd if lengthy URL addresses are provided.

The authors were interested in the types of resources included in these guides. For instance, did the pages include links to indexes appropriate to the subject area? Overall, they did (70 percent). Another content question was whether the pages included e-journals or e-books. The majority (62 percent) did contain links to e-journals appropriate to the subject area. There was considerable variation in whether the library provided e-journals within the guide itself, linked to a separate list of e-journals, provided a selective list based on the subject of the guide, or simply recommended the most popular e-journals. In most cases, the arrangement and contents of the science and social science pages were almost identical. When looking at e-journals and e-books, however, there were very different results between them. More of the social sciences pages (84 percent) provided links to e-journals than the science pages (56 percent), but far fewer of the social sciences pages contained links to e-books (13 percent) than the science pages (43 percent).

The authors also looked at age of the guides, but page revision dates proved unreliable. Web page authoring software now helps page creators by generating dates automatically when anything changes on the page, such as link URL changes, correction of typographical errors, header or footer changes. Subject guides that are generated on the fly do not contain any reliable update/revision dates.

Uniqueness of Resources

One of the primary reasons given for libraries to have their own sets of electronic resource guides is that “[l]ibrarians tend to tailor the guides to their schools’ curricula or to perceptions concerning patrons’ needs.“20 As indicated in table 1, there were a substantial number of links that were included by only one library. Results in this study showed that a range of 65 to 73 percent of the links were unique. Unique links ran the gamut from general reference tools to nonlocal tutorials, full-text free journal articles on a variety of topics, nonlocal associations or companies, and sub-domains within a larger site. Examples include a link to the search page for the Royal Society of Chemistry, specialized calculation Web sites (“Calculated logP of 140 drugs and pesticides, structures and calculations”), and general calculation sites (Astronomy Formulas).

Without a doubt, some of the unique resources can be attributed to local-interest links, such as a local chapter of a professional association. In journalism, for instance, 7 percent of the unique links were local resources such as local TV and radio stations, newspapers, and government pages. In journalism and other areas, guides showed evidence that they were somewhat tailored to the programs at their universities. If a philosophy program was strong in logic and
Table 1
Results of Internet Guides Review

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Astronomy</th>
<th>Chemistry</th>
<th>Journalism</th>
<th>Philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of libraries with guides</td>
<td>78</td>
<td>95</td>
<td>78</td>
<td>98</td>
</tr>
<tr>
<td>in the subject area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of unique URLs found</td>
<td>1,922</td>
<td>3,577</td>
<td>2,381</td>
<td>1,107</td>
</tr>
<tr>
<td>Median number of links per guide</td>
<td>32.5</td>
<td>42.5</td>
<td>56</td>
<td>37</td>
</tr>
<tr>
<td>Average number of links per guide</td>
<td>47</td>
<td>79</td>
<td>97</td>
<td>65</td>
</tr>
<tr>
<td>Largest numbers of links by any one institution</td>
<td>435</td>
<td>1,133</td>
<td>1,113</td>
<td>415</td>
</tr>
<tr>
<td>Number of resources linked to by only one library</td>
<td>1,393</td>
<td>2,489</td>
<td>1,734</td>
<td>724</td>
</tr>
</tbody>
</table>

computer applications, the guide for that discipline at that library would include more resources in this area.

Yet examination of these guides indicated that links unique to a library went beyond mere tailoring of resources to its parent school’s curriculum. Librarians linked to a large percentage of unique resources that would likely have been of use to any other institution’s program and thus might well have been included in any guide in that discipline. For example, only one guide for astronomy listed Astronomy Formulas (www.ijqjacobs.net/astro/astrofor.html) and Planetariums (www.explorespace.com/links/Planetariums_in_the_USA). And in the area of chemistry, only one guide listed Chemsoc: National Chemistry Societies (http://www.chemsoc.org/societies/society.html).21 These all seem to be sites of interest to anyone working in these fields, yet no other ARL librarians in the country deemed them important or worthwhile for their own guides.

In addition, numerous resources were questionable. They may have been resources the library wanted to promote even though only tangentially related to the subject area (such as a link to INSPEC and Dow Jones in a philosophy guide, and Bartlett’s Quotations on a chemistry page). Table 2 shows examples of unique resources that seemed to bear little relation to the actual subjects of the guides in which they were listed. Many of the unique resources were dead links. In astronomy, the unique links that were dead were 7 percent, in chemistry, 5 percent, in journalism, 5 percent and in philosophy, 10 percent.

Table 3 shows the three top resources listed in the various disciplines. In astronomy, 50 percent of the guides reviewed listed AstroWeb, and almost 50 percent listed the American Astronomical Society. The National Institute of Standards and Technology (NIST) Chemistry WebBook was listed on 75 percent of the Web pages reviewed. These numbers are similar for the other two subject areas. Only three of the sites were listed for each category, but duplication is common. Table 3 also shows that professional society links are listed in a high percentage of subject guides.

Thus the authors concur that having individual guides at each library does often serve as an opportunity for the library to tailor its guides to the specific programs at a its university. Yet, the authors also found many unique links that could have been useful for just about any program in that subject area and other unique links that were tangential to the subjects covered.

Survey Results

The survey was meant to supplement the actual review of all the Internet subject guides. Ten questions were in the survey that was e-mailed to each institution, as indicated in the appendix. In addition, respondents were invited to add comments at the end of each question to clarify their responses. The first question asked if librarians at their institutions develop e-resources/subject guide Web pages in subject areas relevant to their responsibilities. All sixty-four respondents answered yes. Some indicated that these guides include both print and electronic resources. Others indicated that not all areas are covered by these guides, since their librarians do not have expertise in all areas—they are done selectively and reflect the curriculum at their particular institutions.

A related question asked if librarians are expected to create e-resource guides for all areas of their curriculum. In this case, thirty-four (54 percent) responded yes. One librarian explained, “Our guides are more or less voluntary. We have subjects that do not have a corresponding subject guide.” Another answered that managers decide which guides are priorities. One respondent answering negatively commented that they did not have such expectations but hoped to in the future.

If librarians in all of these cases are expected to produce such guides (and presumably keep them updated), the researchers wondered if the resulting guides were used in librarian evaluations. Here the answers were a little different. About half, or 51 percent, of those responding said that librarians’ evaluations are not influenced by the quality of their guides. Those who answered yes qualified their answers in several ways. “[The quality of guides is] one of many factors that may be included in performance reviews, particularly if a librarian is developing an important site.” “They are not directly evaluated, but those who tend to take this responsibility more seriously may receive a higher evaluation.” And finally, “No, but the guides are often included in personnel packages for promotion, tenure and reappointment.” Judging by the authors’ experience, these types of
Table 2
Sampling of Questionable Resources Listed in Only One Guide

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Internet Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astronomy</td>
<td>Book Review Digest (subscription database)</td>
</tr>
<tr>
<td>Astronomy</td>
<td>Human Origins and Evolution in Africa (<a href="http://www.indiana.edu/~origins">www.indiana.edu/~origins</a>)</td>
</tr>
<tr>
<td>Astronomy</td>
<td>Guide to Job Interviewing Resources (<a href="http://www.quintcareers.com/interv.htm">www.quintcareers.com/interv.htm</a>)</td>
</tr>
<tr>
<td>Astronomy</td>
<td>The Scout Report (<a href="http://scout.cs.wisc.edu">http://scout.cs.wisc.edu</a>)</td>
</tr>
<tr>
<td>Astronomy</td>
<td>U.S. Census Bureau (<a href="http://www.census.gov">www.census.gov</a>)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Britannica Internet Guide (<a href="http://www.britannica.com">www.britannica.com</a>)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Biograph.com (<a href="http://www.biography.com">www.biography.com</a>)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>NASA RECON Database (subscription database for aerospace)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Prosess Industriens Landsforeining1 (<a href="http://www.pil.no">www.pil.no</a>)</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Secondary School Educators (<a href="http://7-12educators.about.com">http://7-12educators.about.com</a>)</td>
</tr>
<tr>
<td>Journalism</td>
<td>SULAIR Medieval Studies (www-sul.stanford.edu/depts/srg/medieval/engtrans.html)</td>
</tr>
<tr>
<td>Journalism</td>
<td>Bibliography of Asian Studies (subscription database)</td>
</tr>
<tr>
<td>Journalism</td>
<td>Child Abuse and Neglect (subscription database)</td>
</tr>
<tr>
<td>Journalism</td>
<td>My Netscape2 (<a href="http://my.netscape.com">http://my.netscape.com</a>)</td>
</tr>
<tr>
<td>Journalism</td>
<td>Oxford English Dictionary (subscription database)</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Dow Jones News Service (subscription database)</td>
</tr>
<tr>
<td>Philosophy</td>
<td>INSPEC (subscription database)</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Poetical Works: John Keats (<a href="http://www.bartleby.com/126">www.bartleby.com/126</a>)</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Libweb (<a href="http://sunsite.berkeley.edu/libweb">http://sunsite.berkeley.edu/libweb</a>)</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Mother Jones.com (<a href="http://www.motherjones.com">www.motherjones.com</a>)</td>
</tr>
</tbody>
</table>

1. Link was to the Norwegian language version of the page; an English language version is also available.
2. The site was accessible during the study but has since become defunct.

Table 3
Internet Resources Linked Most Often to Guides

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Internet Resource</th>
<th>Number of Libraries Linking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astronomy</td>
<td>AstroWeb (<a href="http://cdsweb.u-strasbg.fr/astroweb.html">http://cdsweb.u-strasbg.fr/astroweb.html</a>)</td>
<td>39</td>
</tr>
<tr>
<td>Astronomy</td>
<td>American Astronomical Society (<a href="http://www.aas.org">www.aas.org</a>)</td>
<td>37</td>
</tr>
<tr>
<td>Astronomy</td>
<td>NASA Astrophysics Data System (<a href="http://adswww.harvard.edu">http://adswww.harvard.edu</a>)</td>
<td>32</td>
</tr>
<tr>
<td>Chemistry</td>
<td>NIST Chemistry WebBook (<a href="http://webbook.nist.gov/chemistry">http://webbook.nist.gov/chemistry</a>)</td>
<td>71</td>
</tr>
<tr>
<td>Chemistry</td>
<td>ChemFinder.com (<a href="http://chemfinder.cambridgesoft.com">http://chemfinder.cambridgesoft.com</a>)</td>
<td>69</td>
</tr>
<tr>
<td>Chemistry</td>
<td>WebElements (<a href="http://www.webelements.com">www.webelements.com</a>)</td>
<td>62</td>
</tr>
<tr>
<td>Journalism</td>
<td>Lexis/Nexis Academic University (subscription database)</td>
<td>35</td>
</tr>
<tr>
<td>Journalism</td>
<td>American Communication Association (<a href="http://www.americancomm.org">www.americancomm.org</a>)</td>
<td>24</td>
</tr>
<tr>
<td>Journalism</td>
<td>Vanderbilt University Television News Archive (<a href="http://tvnews.vanderbilt.edu">http://tvnews.vanderbilt.edu</a>)</td>
<td>23</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Philosophers Index (subscription database)</td>
<td>54</td>
</tr>
<tr>
<td>Philosophy</td>
<td>The American Philosophical Association (<a href="http://www.apa.udel.edu/apav">www.apa.udel.edu/apav</a>)</td>
<td>45</td>
</tr>
<tr>
<td>Philosophy</td>
<td>Stanford Encyclopedia of Philosophy (<a href="http://plato.stanford.edu">http://plato.stanford.edu</a>)</td>
<td>44</td>
</tr>
</tbody>
</table>

Guides can take a significant amount of time to produce and keep current, yet the survey results indicate that all this work is only minimally considered in librarian evaluations.

Keeping up with URL changes is an important and time-consuming aspect of maintaining subject guides. At the researchers' institution, an automated link checker is run every month to check all of the sites listed in the guides. But this was not a standard practice among the libraries in this survey. Of the libraries surveyed, thirty-four (54 percent) used automated link checkers; twenty-nine (46 percent) did not. In several cases, respondents said that it was the responsibility of the guide's owner to ensure the validity of the links on the pages s/he creates. Comments also indicated that often paraprofessional staff or student workers checked the links on a regular basis. One librarian responded that librarians checked links themselves, "or wait[ed] for patrons to complain." A few said they had used automated checkers in the past but had discontinued their use, giving no supporting explanations. Others said they relied on both automated checkers and reports from users. One librarian added a lengthy comment saying that "we... encourage our librarians to write links that connect to the records for resources in our catalog rather than directly to the resources themselves. When Web resources are represented in our catalog, an automatic link checker program checks their URLs." Unfortunately for patrons, this means it takes two clicks to get from a link on the resource guide to the actual Web page listed.

This question was related to another on the survey: Are all the resources in your guides cataloged? At the researchers' institution, all entries appearing on electronic resource pages must be cataloged. This results in pages not being available as quickly as the librarians who created them would wish, but it also ensures that they are automatically checked for inaccurate links. It also means that Web sites can be retrieved in online catalog searches. Only nine (15 percent) of librarians surveyed responded that all the resources on their guide pages were cataloged. Most (85 percent) said they were not. However, there were qualifications. In several libraries, some of the Web sites are cataloged, but most are not. One librarian responded that "all purchased e-journals and databases are catalogued. Many no-fee resources are also catalogued, but not all." One realistic librarian cautioned that "All is always a risky word," perhaps implying that in theory they should all be cataloged, but may not be for various reasons.

Two questions on the survey were very similar and had to do with standardizing guides or having a policy for their formatting. In both instances, the results were similar. Thirty-eight (61 percent) said their guides are standardized, while
are starting to do a lot of chat-based reference; we rely on the subject guides as part of this reference service because the person staffing the chat line may or may not be familiar with the subject area of the question.”

Of those who responded that they did not find the guides worthwhile, comments also varied. One librarian indicated that “administration has not encouraged us to do this. They’d rather we focus on desk duty and instruction.” Someone who obviously did pay attention to usage statistics said, “The statistics for these pages indicate that, with a couple of exceptions, they are virtually unused.” Another librarian echoed the thoughts that had prompted the researchers to undertake this project: “There’s so much duplication of effort and reinventing the wheel when each library requires librarians to do this kind of work.” A couple respondents remarked that their libraries were in the process of automating the process by putting the resources into a database “upon which users can do a search and from which subject pages will be generated on the fly.”

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**Conclusion**

As stated in the introduction, the authors undertook this research to determine whether or not the Internet subject guides examined did actually reflect unique resources relevant to specific curricula within an institution. The results indicate that a majority of the sites listed were linked to only one library. However, based on an examination of these unique links, it could be argued that they often were not specifically related to a particular emphasis in the curriculum. Often, they were only vaguely related to the subject areas they were listed with and were either of questionable quality or no longer active.

Lubans contends that “students still experience problems in using the Internet, and we are the best profession and in the best position to help them... For 46 percent of students, the quality of Internet information can be problematic.”22 Librarians are better trained to evaluate Web sites than most patrons, especially students; however, many of the links found in this study indicate that quality of information is still a problem, even in guides created by librarians. Quality and value are judgment calls; however, many of the ARL guides seemed to link to anything that might be potentially of value to a user. The result can be a hodgepodge of cluttered pages.

Examination of Internet resource guides raised other questions for the researchers, and the survey they conducted was an attempt to answer some of them—especially those that related to the process of producing and maintaining the guides. A basic question was whether or not librarians were expected to create these guides; 100 percent of those responding to the survey said yes. As to whether or not there were guides for every subject area represented in an institution’s curriculum, the answers varied; it seemed
to depend most heavily on whether librarians were available to develop them. And even though these guides take a great deal of time to create and maintain, they count very little in evaluations of the librarians who do them.

As for the guides themselves, how easy was it to find them on the libraries’ home pages? A small majority of the libraries did link to these resources from their main library page. However, many did not, and some that did were not very clear about naming what they were linking to. If librarians want their users to rely on the Web resources they have carefully chosen rather than simply relying on Google searches, then their selections should be easy to locate on their libraries’ Web sites; even though the librarians often know what a particular link refers to, users often will not.

The Internet subject guides studied varied tremendously in their formats and arrangements, both among different libraries and within single institutions. Many were quite short, while others had twenty to thirty pages of links. Most were arranged in categories, making them somewhat easier to use than those that were not. However, the types of categories also varied—some guides were arranged by type of resource (such as indexes, e-journals, and associations) and others by subdivisions within a subject area (for example, modern philosophy, philosophy sites by philosopher, environmental philosophy, bioethics). This variation is understandable—disciplines will differ in the types of materials available and in the necessity for subdividing them. Thus, it may be useful for different subject guides to have different types of arrangements.

However, some standards should be maintained by all libraries. URLs should be included with links; in most of the sites examined they were not. Links should be up-to-date and active; many links were dead, and in the case of pages in PDF format, the links could not be used. Annotations can guide the user to the specific link that would be most useful; only about a third of the guides in this study included annotations for all the resources listed, and another third had annotations for some of them.

Dates on guides proved to be a major concern. Librarians teach patrons to evaluate Web pages by looking at many features, including “last date updated” or the “created on” date. While it may be efficient for site managers to use authoring software that automatically changes the dates on pages, these dates are deceptive to users. Add to that the fact that most surveyed libraries did not remove outdated subject guides, and it becomes obvious that librarians are not always aware of the irony of the “value” they are adding to the Internet.

If librarians want to create guides that can be one-stop resources for their users, then they should include links to relevant e-journals, as well as appropriate indexes and abstracts and important Web sites. Most of the sites studied did include links to relevant online indexes and abstracts. However, there was a difference in links to e-journals; the guides in journalism and philosophy included a high percentage of e-journals, while only a small majority of the guides in the sciences included them. E-books were not usually included. It could be argued that, if e-books are cataloged, then there is no more reason to include them than to include print books in a collection. E-journals pose another problem, however. Even if a library catalogs its e-journals, there is often a separate listing of e-journals somewhere on the library’s site. Judging by reference questions that have come to the authors of this study, students prefer to use these lists because they only want to use journals they can access online. However, those looking for journals relevant to their research subjects find such lists of e-journals unmanageable. Therefore, Internet guides would be the logical place to find e-journals relevant to a specific subject area.

Usage data are another problematic area. Although a small majority (67 percent) of the survey respondents indicated that they did keep statistics on the use of their guides, it is not an overwhelming percentage. Comments included with responses to this question also indicated that many of those librarians who did keep statistics have done nothing with them. Although statistics on the number of hits for a site can be misleading, if a page has little usage, then would it not be logical to improve it and make it more visible? Or maybe there is no real need for a guide that receives little use.

Even given the problems creating and maintaining these guides, it is evident that most heads of reference services feel they are valuable. In the present survey, librarians indicated that they served a variety of purposes, both for users and staff. Therefore, it is likely that these guides will continue to be a part of most libraries’ Web sites. In time, many of them will probably be replaced by database systems that can create such lists on the fly. However, for now they will continue to be the responsibility of subject librarians at most institutions.

As a consequence of these findings, the authors recommend that further research should be undertaken in this area. For instance, how are librarians promoting these resources? Is there a way to make them more visible and more known to our users? Is there any correlation between the arrangement or format of these guides and their usage? How much overlap is there between the resources listed on a library’s guide and the links found on the Web sites of many discipline departments? This study has focused primarily on the guides themselves—how they are created, how they are organized, what they include, how up-to-date they are. Further consideration and research should tell us how we can make them more useful and truly valuable for helping our patrons find the best Internet sources.

References and Notes

1. Louis Rosenfeld, Joseph Janes, and Martha Vander Kolk, eds., The Internet Compendium: Subject Guides to Humanities Resources (New York: Neal-Schuman, 1995); Louis Rosenfeld, Joseph Janes, and Martha Vander Kolk, eds., The Internet Compendium: Subject Guides to Social Sciences, Business, and Law Resources

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Appendix: Internet Subject Guides Survey

1. Do librarians in your institution develop e-resources/subject guides pages in subject areas relevant to their responsibilities?
   - Yes
   - No

2. How do you ensure the validity of the links on your e-resources/subject guides pages? Do you use automated link checkers?
   - Yes
   - No
   - Other ways:

3. Is the format/content of your e-resources/subject guides standardized?
   - Yes
   - No

4. Do you have a policy for the formatting of them?
   - Yes
   - No

5. Are all the resources listed on your guides cataloged?
   - Yes
   - No

6. Are librarians expected to do e-resources/subject guides for all areas?
   - Yes
   - No

7. Are librarians evaluations influenced by the quality of their guides?
   - Yes
   - No

8. Do you keep statistics on the use of these pages?
   - Yes
   - No

9. Do you remove guides which become outdated if there is no one to update them?
   - Yes
   - No

10. Do you think creating and maintaining these pages is worth the time and effort they require?
    - Yes
    - No

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(8) Morville and Wickhorst, “Building Subject-Specific Guides,” 32.


(12) Ibid., 227.

(13) Ibid.


(15) Ibid., 69.


(22) Lubans, “Act or React,” 209.