



Survey of Web Developers in Academic Libraries

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A survey was sent to library Web designers from randomly selected institutions to determine the background, tools, and methods used by those designers. Results, grouped by Carnegie classification type, indicated that larger schools were not necessarily working with more resources or more advanced levels of technology than other institutions.

INTRODUCTION

A library Web site is an integral part of a library's identity. Many patrons visit a library's virtual location, its Web site, more than they visit its physical location. Library Web sites function as portals for research, marketing tools, and places for information about libraries. Today it is possible for students to conduct research for papers without ever stepping foot inside their academic library. They can ask reference questions virtually; conduct research in databases; and place interlibrary loan requests online, and in the case of articles, receive those items electronically. All of these functions utilize library Web sites, requiring those Web sites to be timely and easy to use.

In library literature, much has been written about individual libraries' Web site design, but less is known about the people who design those Web sites. In this study, the author took a systematic sampling of academic institutions and distributed a survey to those academic library Web team leaders. The purpose was to discover how library Web teams' staffing, background, tools, and professional development differ among various types of academic libraries. Since academic library Web sites are such an integral part of their libraries, it is important to know more about the people, tools, and methods used to create these Web sites.

REVIEW OF THE LITERATURE

The literature related to library Web site design and the people who design library Web sites fell into three main categories. The largest group of literature was concerned with how individual libraries have handled their Web site design, evaluation, and management. The second group included articles that analyzed groups of library Web sites and reported on norms found for those populations. However, the focus of the literature review was the third group, which included interviews and surveys of library Web designers.

Sandra Shropshire investigated how library Web sites are managed by conducting a case study of four institutions that included interviews with library Web designers. She wanted to find out how management concerns were handled.¹ She decided to focus on nonmembers of the Association of Research Libraries (ARL), investigated each of their Web sites ahead of time, and then went to each library during the fall and winter of 2001/2002. She interviewed all staff who were responsible for their library's Web design, and tailored the questions for each institution based on that library's Web site. Shropshire's interviews revealed many insights into Web management. She recommended including paraprofessionals on the Web committee; said that Web team members should have Web design included in their job description and performance evaluation;

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and found that the Web team leader should not be the person with the most technological skills, but rather the person with a clear idea of the “big picture.” In addition, “all of the libraries Shropshire studied had a presence on their institution’s web committee.”

Among studies that surveyed Web designers, Beth Evans studied Web page authors of “very large (7,500+ FTEs) public institutions” in 1997.² Her results showed that librarians (78.2 percent) were responsible for the creation of library Web pages more often than nonlibrarians (20.2 percent).³ Evans also asked Web page authors to identify their job title and found that most respondents wore different hats within the library and that Web design was just a portion of their job.

Evans also asked about collaboration and Web teams and found that about 84 percent of designers had collaborators.⁴ However, since the survey included only very large public institutions, this did not address how smaller institutions handle Web design.

Evans’s respondents indicated that they were largely self-taught (93.8 percent of librarians and 100 percent of nonlibrarians) although many had attended workshops or training sessions. “That home page authors have been trained through a combination of methods may explain the apparent contradiction here. Many may have first been introduced to a skill through a workshop and then continued to upgrade their abilities through self-instruction”.⁵ The survey also found that “institutions are more likely to support the continuing education of their employees by giving time for training than by giving monetary compensation”.⁶

One year later, Mary Taylor distributed a survey to ARL library Webmasters and received eighty-two responses.⁷ Like Evans, 78 percent of Taylor’s responding Web designers were librarians. Most (69 percent) of the librarians did not feel their library school education had adequately prepared them for Web design, mostly because their library education had taken place before Web design was an issue. However, of those who felt they had received an adequate library school education in terms of Web design, many (15 percent) felt that because they had learned how to organize information, they were prepared for Web design.⁸

Taylor also asked for respondents to list their job titles. “Over a third of the webmasters had either the words ‘Web,’ ‘WWW,’ ‘Electronic,’ or ‘Digital’ in their job titles.” For most Web designers, Web design was a smaller portion of their job because “almost 60 percent of those responding spent fifteen or fewer hours a week on their Web-related duties”.⁹

Table 1
Size of Library Web Teams (N=98)

1 Person	2-3 People	4-5 People	6-7 People	8-9 People	10 or More People
48 (49.0%)	28 (28.6%)	12 (12.2%)	6 (6.1%)	3 (3.1%)	1 (1.0%)

Of the ARL Web designers Taylor surveyed, 81 percent served as part of a Web committee, with a median of eight team members. All felt that librarians should have some role in developing library Web sites.

During the summer of 2001, ARL conducted a study of its member libraries with a response from 62 of the 122 members.¹⁰ Fifty-seven percent of library Web authors did Web design on a full-time basis. In addition, some of the comments from this survey mentioned the importance of creating a Web team with “complementary skills in graphic design, programming, database design, systems administration, content editing, information architecture, usability, and project management”.¹¹

One article of interest that did not fit into any of the above categories was written by two librarians with experience developing nine different library Web sites between them. Veldof and Nackerud used their combined experience to come up with the “seven areas of expertise for successful Web site design in libraries”.¹² They argued that a successful Web designer or design team should be proficient in the following seven areas: project management, information architecture, usability, access for people with disabilities, graphic design, content creation, and programming.

RESEARCH QUESTION

The research question that was the impetus of this study was, “What are the backgrounds of different academic library Web designers and what tools and methods do they use?” The purpose of the study was to examine academic libraries of all sizes and types, to determine common practices used by different peer groups.

“What are the backgrounds of different academic library web designers and what tools and methods do they use?”

METHODOLOGY

The population group of all academic libraries in the United States was gathered using the 2005 Carnegie classification list.¹³ This list had the benefit of classifying institutions based

Table 2
Web Team Membership (N=110)^a

Librarians	Paraprofessionals	IT Staff	Students
91 (82.7%)	30 (27.3%)	24 (21.8%)	7 (6.4%)

^a The sum of percentages totals more than 100 percent because respondents were allowed multiple answers for this question.

Figure 1
Sharing of Web Teams by Institutions with Multiple Libraries (N=35)

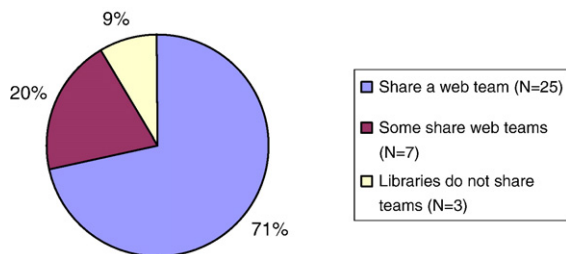
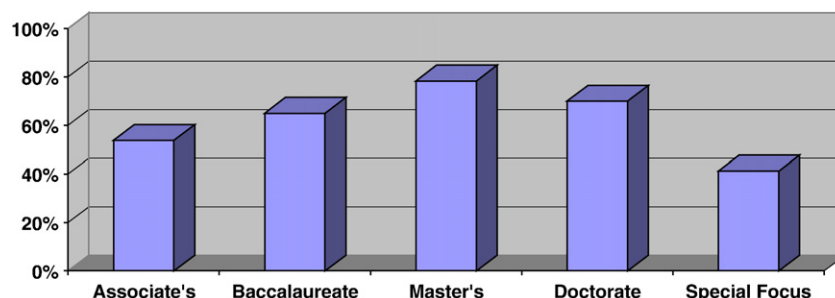


Figure 2
Self-taught Web Team Members by Simplified Basic Carnegie Classification (N=110)



on size and type, which allowed for comparisons between different institutions based on these classifications. At the time the data were gathered, there were 4384 institutions on the Carnegie list.

In order to gather a sample that would include all types of libraries, a systematic sampling using every twelfth institution was collected. Then, for each institution in the sample group, a Web search was performed to find their library Web site. Once their Web site was found, the author or a library student assistant searched for a contact name and e-mail address, preferably for the library Web designer. When contact information for the library Web designer was not available, contact information was gathered for an alternative person, in this order of preference: librarian, general campus Web designer, and then general campus e-mail contact.

Some of the 365 institutions had to be removed from the sample for various reasons. Some of the Puerto Rican institutional Web sites were in Spanish, one institution did not have a Web site at all, many of the institutions did not have library Web sites, and some made no mention of a library on their Web site. There were fifty-four institutions without libraries or library Web sites; thirty-four of those were two-year schools, and thirty-six were private, for-profit schools.

After all of these institutions were eliminated, 288 institutions remained. A survey was created with thirty-five questions designed to learn more about the people creating library Web sites, the tools they use, and the resources and professional development afforded to them (see Appendix A).

Within the survey, it was necessary to ask respondents to identify their institution for two reasons. First, it allowed for matching the survey results to the appropriate institution, so that the relationship between the results and the size/type of institution could be taken into consideration. Secondly, since two e-mail requests were sent out per institution, it allowed those who responded after one e-mail to be removed from the list used for the e-mail reminder. To encourage frank responses, the participants were assured that their names or other identifying information would not be used in the published results.

The survey was posted to the Web during September 2006 using a commercial online survey utility. E-mails were sent to all of the contacts for each of the 288 institutions in the sample group, asking for their participation. Sixty-seven individuals filled out the survey after receiving the initial e-mail. Two weeks after the initial e-mail request was sent out, a follow-up reminder e-mail was sent to those people who had not

responded to the first request. The second e-mail elicited forty-three responses.

The survey closed in mid-October 2006, after being open for one month. In all, 110 institutions' contacts completed the survey, for a 38.19 percent response rate. In cases where someone from an institution filled out the survey more than once, the most complete response was used, and the other discarded.

PROFILE OF RESPONDENTS

The 2005 revision of the Carnegie classification is complicated, with thirty-three different levels of institutions in the basic classification category. Because the survey's responses only represented twenty-one of those categories, and some of those only had one institution in a category, the categories were combined into five simplified categories: associate's colleges (combining 14 categories), baccalaureate colleges (three categories), master's colleges and universities (three categories), doctorate-granting universities (three categories), and special focus institutions (nine categories). The special focus institutions that responded to this survey included six theological schools, five nonmedical health schools, three schools of art, two law schools, and one medical school. In this paper, the term simplified basic Carnegie classification refers to the combined classifications listed above.

The 110 Web developers who responded to this survey represented the following Carnegie simplified basic classifications: Thirty-nine (35.5 percent) associate's colleges, twenty-three (20.9 percent) master's colleges and universities; twenty (18.2 percent) baccalaureate colleges, seventeen (15.5 percent) special focus institutions, and ten (9.0 percent) doctoral-granting universities. One (0.9 percent) of the responding institutions was not classified under the 2005 basic Carnegie classification.

Table 3
Past Web Design Training for Team Members
(N=110)^a

College/Grad Class (Before Hire)	Professional Workshop	Full Class Taken After Hire (Audited or For Credit)	Other
41 (37.3%)	39 (35.5%)	7 (6.4%)	26 (23.6%)

^a The sum of percentages totals more than 100 percent because respondents were allowed multiple answers for this question.

Table 4
Continuing Education by Simplified Basic Carnegie Classification ^a

	Associate's (N=39)	Baccalaureate (N=20)	Master's (N=23)	Doctorate (N=10)	Special Focus (N=17)
Workshops	18 (46.2%)	7 (35.0%)	15 (65.2%)	7 (70.0%)	8 (47.1%)
None	11 (28.2%)	9 (45.0%)	6 (26.1%)	1 (10.0%)	7 (41.2%)
Other	10 (25.6%)	6 (30.0%)	6 (26.1%)	5 (50.0%)	4 (23.5%)
Full courses	6 (15.4%)	3 (15.0%)	1 (4.3%)	0 (0%)	0 (0%)

^a The sum of percentages totals more than 100 percent because respondents were allowed multiple answers for this question.

In terms of size, based on Carnegie's size and setting classification, twelve (10.9 percent) responses came from very small schools, thirty-nine (35.5 percent) from small schools, twenty-three (20.9 percent) from medium, seventeen (15.5 percent) from large, and two (1.8 percent) from very large sized institutions. Seventeen (15.5 percent) responses came from special focus institutions with no specific size classification.

The majority (61 or 55.5 percent) of responses came from representatives of public institutions. Forty-six (41.8 percent) represented private not-for-profit institutions, while the smallest number (three or 2.7 percent) were Web developers at private for-profit institutions.

RESULTS

Web Editor Title

Respondents were asked for the job title of the person responsible for the Web site or Web design team at their library. In some cases, responses indicated that the developer had multiple titles. For example, one response was "Electronic Reference Resources and Web Development Coordinator and Art Librarian." Of the ninety-three responses to this question, sixteen titles include the word "Web," eleven included "electronic" (there was some overlap-titles with both Web and electronic), nineteen titles indicated a job classified in public services, six in technical services, and twenty-one had titles indicating the Director/University Librarian or Assistant Director was the person in charge of library Web design. Of the last group, twelve of the director/assistant director Web designers worked in very small or small libraries; but surprisingly, four worked in medium sized libraries, and two worked in large libraries. Three worked in special focus institutions that did not have a Carnegie size listing. Other titles that did not fit into any of the categories above were: librarian (six instances), Information Specialist, Technician I, and Library Technology Coordinator.

Multiple or Individual Libraries

The respondents were asked if their institution had multiple libraries and thirty-five (31.8 percent) said yes. Those thirty-five

were asked (1) if their libraries shared a Web team; (2) each had their own Web team; or (3) if some of their libraries shared, while others did not. The vast majority shared a Web team (see Fig. 1).

Two-year colleges were more likely (91.7 percent) to share a Web team than four-year or above institutions (60.9 percent).

Outsourced vs. In-House Design

When asked if their library Web site design was outsourced or if it was an in-house operation, 108 responded, and almost all (102 or 94.4 percent) used an in-house structure, while only six (5.6 percent) used an outside firm. All of the outsourcing libraries were either small or medium sized schools or special focus institutions. It may be that these six institutions did not have the resources necessary to create their Web sites in-house, and it was more cost effective to go outside their library than to train someone already on staff.

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Size of Web Team

Libraries that managed their Web design in-house were asked how many people served on the Web team. In many cases, there was no 'team' because library Web design was a one-person operation. In fact, of the ninety-eight people who answered this question, about half (48 or 49.0 percent) said that one person managed all Web design (see Table 1).

When Web teams existed, smaller teams were the norm. One might assume that the larger libraries would have large Web teams, but that was not always the case. Of the fourteen large or very large institutions, five (35.7 percent) had only one person

Table 5
Factors Considered When Selecting Web Team Members (N=110) ^a

Showed an Interest in Web Design	Had Taken Web Design Class(es)	Specifically Hired for Web Work	Graphic Design and Web Authoring Knowledge	Graphic Design, But No Web Authoring Knowledge	Other
47 (42.7%)	17 (15.5%)	17 (15.5%)	16 (14.5%)	3 (2.7%)	42 (38.2%)

^a The sum of percentages totals more than 100 percent because respondents were allowed multiple answers for this question.

handling Web design while four (28.6 percent) had Web teams of two or three people.

Web Team Membership and Responsibilities

Respondents were asked to select all types of staff that serve on the library Web team. Not surprisingly, librarians were the most commonly listed type of Web team member (see Table 2).

Special focus institutions were less likely to use librarians (11/17 or 64.7 percent) than other types of institutions (80/93 or 86.0 percent).

In terms of job responsibilities, for most Web team members, Web design was just one component of their job. Only five (4.9 percent) of the 103 responses to this question indicated that members were primarily Web designers, while eighty-six (83.5 percent) responses listed Web design as a smaller portion of the job; the remaining twelve (11.7 percent) answered other.

Web Team Training and Professional Development

Concerning past training for team members, 66 out of 110 (60.0 percent) said that at least some of their team members were self-taught. Team members at master's and doctorate granting institutions were more likely to be self-taught than members at associate's, baccalaureate, and special focus colleges (see Fig. 2).

In addition to self-training, participants were asked what other types of training their team members had received in the past. The two most commonly listed methods were a college or graduate school class taken before hire and professional workshops (see Table 3).

Interestingly, Web members at baccalaureate institutions were more likely to have taken a class in college or graduate school (14/20 or 70.0 percent) compared with other institutions (27/90 or 30.0 percent). The most commonly listed other training method was one-on-one instruction from the campus Web manager or IT staff.

Respondents were asked what types of continuing education or professional development related to Web design their team members received (see Table 4). The most commonly mentioned other continuing educational option was self-training: reading books, manuals, journal articles, and studying other Web sites.

Web Team Selection

Next, respondents were directed to select all answers that applied when asked how Web team members were chosen. The most commonly listed attribute for Web team member selection was having an interest in Web design (see Table 5). Web design is a constantly evolving field necessitating team members to keep up with technology. If someone with no interest in the field was forced into a Web team position, it would be unlikely that they would be willing to put forth the effort required to be successful in that role.

Table 6
Most Important Quality in a Library Web Designer
(N=102)

Organize Information Effectively	Web Authoring Skills	Graphic Design Skills	Other
65 (63.7%)	18 (17.6%)	6 (5.9%)	13 (12.7%)

Table 7
Knowledge All Team Members are Expected to Possess (N=110)^a

Web Authoring Software	Basic HTML Coding	Image Editing Software	Cascading Style Sheets	Java Scripting	Other
66 (60.0%)	64 (58.2%)	42 (38.2%)	25 (22.7%)	20 (18.2%)	40 (36.4%)

^a The sum of percentages totals more than 100 percent because respondents were allowed multiple answers for this question.

Some of the other reasons given for Web team selection included: "Because they are the only librarian who knows how to do it," "Not chosen; I just decided to create our web pages," and "Librarian committee member [selection was] based on computer aptitude."

Web Team Abilities and Knowledge

One theme that recurred in the library science literature related to Web design was the importance of organization. As Veldof and Nackerud said, "The organization or 'architecture' of the Web site is the one area where librarians have the home court advantage".¹⁴ The results of this survey showed that library Web designers value the importance of these skills more highly than any other when it comes to Web design, regardless of type of institution (two-year vs. four-year; size, or basic classification) (see Table 6).

When specifying what they meant by other, three responded that all attributes were necessary. Other responses included the ability to achieve consensus and to understand users. One person said, "at this point, we're thankful for willingness, we don't have the luxury of seeking skills."

Next, respondents were asked what basic knowledge all Web team members were expected to possess and were directed to select all appropriate answers. Web authoring software was the most commonly listed requirement, but basic HTML coding ranked almost as highly (see Table 7). With some of the Web authoring software available on the market today, it is possible to create Web sites without much HTML knowledge, but having HTML knowledge definitely helps when it comes to trouble shooting design problems.

Other responses included PHP, SQL, ASP, and "whatever I get good at."

Design Tools

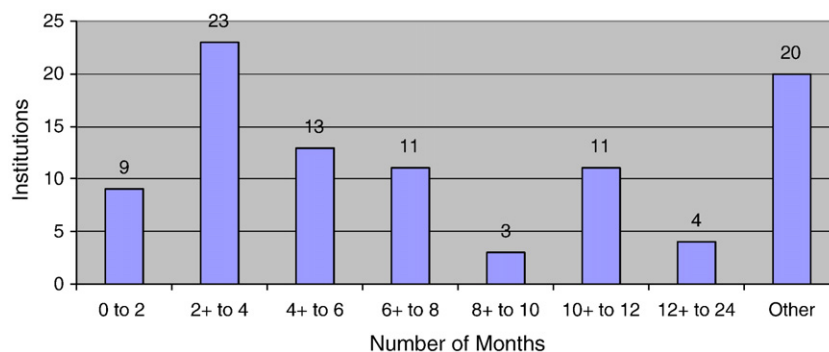
On some library Web teams, not every member has access to the same tools so two questions were asked to determine

Table 8
All Web Team Members Have Access to the Following Software^a

	Yes	No
Web authoring software (N=103)	65 (61.3%)	38 (36.9%)
Image editing software (N=102)	49 (48.0%)	53 (52.0%)

^a N is different for the two types of software because one more person chose to respond to the web authoring question than the image editing question.

Figure 3
Length of Design Process (N=94)



whether every team member had certain types of software (see Table 8). The fact that some team members did not have access to Web authoring software might indicate that those members served on the team in order to provide input in terms of organization or content, but not to create Web pages. Alternatively, those team members did not have software because they coded from scratch, but that seems unlikely considering the plethora of Web authoring software available.

In an earlier question, forty-eight stated their Web ‘team’ consisted of only one person, which means that some of the respondents who answered these two questions were responding for a team of one.

Design Process

Respondents were asked how long their design process took, from brainstorming to debut. The most common response was that the process took between two and four months, which is a short turnaround time for a complete Web design process including the brainstorming period (see Fig. 3). Most of the other responses indicated that the time varied or was unknown.

Resources and Technologies Used

One of the purposes of this survey was to discern what resources and technologies different academic institutions employ. When asked whether they use a database driven system (one that creates lists of resources on the fly), ninety-four people responded: twenty-five (26.6 percent) said yes and sixty-nine (73.4 percent) said no. Regarding content management systems (CMS), about one in four (24/94 or 25.5 percent) had adopted this software. There were some significant differences between institution types in terms of database driven and content management systems (see Table 9). While

doctorate granting institutions were most likely to utilize database driven systems, they were least likely to use content management systems.

Predictably, the use of these two tools was also correlated to institution size (see Table 10).

According to Daniel J. Cohen and Roy Rosenzweig, “[T]hose contemplating more complex sites need to think about more involved technical infrastructures, especially the possibility of organizing expansive resources through databases...”.¹⁵ Larger institutions generally have more complex Web sites, and therefore have a greater need for a database driven system. With the exception of the two very large institutions, the larger the institution size, the higher the percentages of users rose for database driven systems. Conversely, content management systems often are more useful for smaller libraries because they allow staff to create Web content without much Web design knowledge. For smaller libraries that do not have the staff needed to create and maintain a Web site from scratch, the CMS allows them to do more with less, and the data from this survey showed that the smaller institutions were more likely to use CMS than larger institutions.

“With the exception of the two very large institutions, the larger the institution size, the higher the percentages of users rose for database driven systems.”

Only seven out of ninety-four (7.4 percent) had adopted RSS (Really Simple Syndication) feeds into their Web site to allow patrons to follow library news or monitor changes on the library

Table 9
Users of Database Driven and Content Management Systems by Simplified Basic Carnegie Classification^a

	Associate’s	Baccalaureate	Master’s	Doctorate	Special Focus
Database driven systems	5/35 (14.3%)	6/18 (33.3%)	5/20 (25.0%)	7/9 (77.8%)	2/12 (16.7%)
Content management system	7/34 (20.6%)	5/17 (29.4%)	11/21 (52.4%)	0/9 (0%)	1/13 (7.7%)

^a N is different for the two types of systems because different numbers of people chose to respond to the two questions.

Table 10
Users of Database Driven and Content Management Systems by Institution Size ^a

	Very Small	Small	Medium	Large	Very Large
Use database driven system	1/8 (12.5%)	9/37 (24.3%)	7/20 (35.0%)	6/15 (40.0%)	0/2 (0%)
Use CMS	3/8 (37.5%)	12/36 (33.3%)	5/20 (25.0%)	3/15 (20.0%)	0/2 (0%)

^a N is different for the two types of systems because different numbers of people chose to respond to the two questions.

Web site. This survey did not ask whether participants utilize blogs on their Web sites; it may be that a lot of libraries do not create their own RSS feeds, but rather use blogging tools that have RSS feeds built into them.

Accessibility

An issue that Web developers grapple with is making Web pages that are accessible to those with disabilities. Survey respondents were asked how their institution directs them in terms of complying with The Americans with Disabilities Act (ADA) Web accessibility requirements. The associate's and master's level institutions surveyed had significantly more direction in terms of ADA compliance than other institutions (see Table 11).

Usability Testing

Another hot topic in Web design is usability testing and so the last set of survey questions dealt with usability testing methodology. First, respondents were asked if they employed usability testing during their Web site design phase. Given the abundance of literature concerning the importance of usability testing, it was surprising that a minority of the responding institutions (44 or 46.8 percent) utilized this tool (see Table 12). According to Steve Krug, "if you want a great site, you've got to test... Testing always works, and even the worst test with the wrong user will show you important things you can do to improve your site".¹⁶

Those institutions that utilized testing were given a set of follow-up questions. First, they were asked how big their usability testing group was. Forty-three responded, with smaller groups being the norm (see Table 13).

According to Jakob Nielsen, a test with five users will discover the majority of problems, and after the fifth user, "you are wasting your time by observing the same findings repeatedly but not learning much new".¹⁷ This survey did not

ask whether the usability test subjects were split into multiple testing groups for different prototype iterations; which if that was the case, would explain why some of the institutions had such large groups.

Concerning compensation of usability test groups, most libraries (75.0 percent) did not compensate (see Table 14).

According to Elaina Norlin, "a rule of thumb is that if it will take more than thirty minutes to conduct the usability test, you will probably need some form of incentive for participants. For cases like these, librarians have used food, free printing cards, T-shirts, library book bags, etc., to entice participants".¹⁸

As would be expected, undergraduate students were the most commonly listed members of library usability testing groups (see Table 15). The percentage of institutions that utilized graduate students for usability testing was deceiving because the associate's and baccalaureate level institutions skewed that number. Predictably, since those institutions did not have graduate students, they did not use them for usability testing. Removing associate's and baccalaureate institutions left twenty schools, so 50 percent of respondents with graduate students utilized them during testing.

DISCUSSION

One of the purposes of this survey was to discover the differences concerning Web design between types of institutions. One question before this survey was taken was whether institutions offering higher levels of education would have more resources for Web design and training. The results were mixed.

When looking at the results for associate's colleges, fewer of their Web designers were self-taught than baccalaureate, master's, and doctorate institutions. More of their Web members took full courses to learn Web design than master's or doctorate universities, although master's and doctorate institutions were

Table 11
Institutional Direction Regarding ADA Web Accessibility Requirements by Simplified Basic Carnegie Classification

	Associate's (N=33)	Baccalaureate (N=19)	Master's (N=20)	Doctorate (N=9)	Special Focus (N=12)	Total (N=93)
Required	12 (36.4%)	1 (5.3%)	6 (30.0%)	0 (0%)	1 (8.3%)	20 (21.5%)
Recommended	6 (18.2%)	2 (10.5%)	6 (30.0%)	3 (33.3%)	0 (0%)	17 (18.3%)
None, comply on own	6 (18.2%)	3 (15.8%)	2 (10.0%)	3 (33.3%)	2 (16.7%)	16 (17.2%)
None, so not a priority	5 (15.2%)	10 (52.6%)	1 (5.0%)	2 (22.2%)	5 (41.7%)	23 (24.7%)
Other	4 (12.1%)	3 (15.8%)	5 (25.0%)	1 (11.1%)	4 (33.3%)	17 (18.3%)

Table 12
Usability Testing Adopters by Basic Carnegie Classification

Associate's	Baccalaureate	Master's	Doctorate	Special Focus	Total
14/33 (42.4%)	10/18 (55.6%)	10/21 (47.6%)	6/9 (66.7%)	4/13 (30.8%)	44/94 (46.8%)

more likely to send their team members to workshops. More associate's schools surveyed required ADA compliance than any other type of institution. The answer to why associate's institutions were ahead in some areas of Web design may lie in their course offerings. Associate's colleges tend to offer more computer technology and Web design courses than other types of institutions. Because of this, their library Web designers may have more access to Web courses and to students trained in Web and graphic arts who can help with Web projects.

An area where associate's colleges fell behind other types of schools was software available. All other types of institutions were more likely to use database driven systems content management systems. In addition, associate's colleges were less likely (58.3 percent) to provide Web authoring software to all Web team members than baccalaureate (75.0 percent) and master's (78.3 percent) institutions.

This survey was built on the assumption that most libraries operated with a multiple person team model. Since 51 percent of the institutions had teams running their Web site, this assumption was technically correct, but barely. Some institutions may have defaulted to a one-person operation because they did not have the personnel available for teams, but there may be other reasons for having a single person in charge of Web design. A respondent commented that teams have trouble agreeing, while if only one person is in charge of Web design, they can "get it done and forget about it."

Other comments came from participants who were frustrated by the state of their Web site presence:

- I desperately wish that our Web site could be tended regularly by someone with the skills and determination to make it extraordinary. As the portal to the library, it should be the most winning, winsome presence that we can possibly create. And it isn't, simply because we don't have the skills or staff to make it so. That, to me, is a big frustration.
- [I] wish we had [the] staff to enable us to develop a more extensive Web site for the library. Our site needs a major revision for a more professional appearance.

While the respondents quoted above realized their sites needed improvement and wanted change, another respondent seemed to be somewhat apathetic about the state of his/her Web site, "I put everything [on the Web site] I [think] the students

might need to know (since I'm on campus only 40 hrs/week), with no concern about how it looks or conforms to popular web design standards." All three of these comments speak to the importance of providing support in terms of staff, money, and professional development for Web design because lack of support can cause frustration and apathy.

Some library Web designers faced issues related to mandates from campus Web committees. One person commented that their campus-wide group originally wanted the library to use their template, but "fortunately we were able to use an alternative to the template they required." Another respondent had a similar experience:

- We were responsible for our own web site when I first arrived, but about 3 years ago they went with a university-wide system. Unfortunately the library was not one of the areas where they got input. Our usability is much less than it was when we had a freer hand in things and my need to redesign something quickly is hampered because of permissions issues.... I've told them we need more input this time around since what the library needs to offer is quite different from other areas of the university.

To librarians and other library Web designers, it may seem obvious that a library Web site is complicated and needs to be regularly updated; requiring more autonomy and control than most other campus departments, but this is not always understood by campus Web committees. For that reason, it is important for the library to be represented on, or have a close working relationship with, campus Web committees so that library interests are not forgotten.

CONCLUSION

Assumptions about library teams and resources cannot always be made based on library size or type. Although associate's colleges were ahead in areas such as ADA compliance and providing Web team members with full courses on Web design, doctorate and master's institutions sent their members to more workshops and were more likely to use database driven and content management systems.

Few people-hours were allocated for Web design at many institutions. Almost half of the libraries surveyed had only one person to do Web design, and the majority of Web

Table 13
Number of Usability Testers (N=43)^a

1-5	6-10	11-15	16-20	21-25	46-50	More than 50
14 (32.6%)	16 (37.2%)	5 (11.6%)	3 (7.0%)	2 (4.7%)	1 (2.3%)	2 (4.7%)

^a 26-30, 31-35, 36-40, and 41-45 were all available options that were not selected.

Table 14
Means of Compensating Usability Test Groups (N=44)^a

No Compensation	Food	Money/Gift Certificates	Other Compensation
33 (75.0%)	3 (6.8%)	5 (11.4%)	5 (11.4%)

^a The sum of percentages totals more than 100 percent because respondents were allowed multiple answers for this question.

Table 15
Usability Test Groups Include the Following Categories of People (N=44)^a

Undergraduates	Staff	Faculty	Grad Students	Community Members	Other
32 (72.7%)	31 (70.5%)	23 (52.3%)	10 (22.7%)	4 (9.1%)	3 (6.8%)

^a The sum of percentages totals more than 100 percent because respondents were allowed multiple answers for this question.

designers managed Web work in conjunction with other responsibilities.

“Almost half of the libraries surveyed had only one person to do web design, and the majority of web designers managed web work in conjunction with other responsibilities.”

When there were multiple people on a Web team, not all of them actually created Web pages. Almost 37 percent of respondents answered that not all members of their Web team had Web authoring software, suggesting that those who did have the required software shouldered the majority of the responsibility for Web page creation.

This survey found that many academic institutions had not implemented usability testing, despite the evidence of benefits of such testing. The majority of those who had implemented usability testing did not compensate their testers.

Web team members were usually selected because they showed an interest in Web design, not because of any particular skill. A decisive majority of library Web designers surveyed felt that the ability to organize information effectively was the most important quality someone in their position could possess.

There are areas of this study that warrant further exploration. This study utilized a systematic sample, taking every twelfth institution from the Carnegie classification list. In order to have more even distribution, a similar study using a stratified sample would be useful. For a stratified sample, institutions would be separated by type and then a random sampling would be taken from within each group. This way, the sample group would still be random, but each type of institution would have more equal representation. Because of the unevenness of the institutions represented in this survey, the findings are exploratory. A more evenly distributed sampling group would result in a more accurate representation of trends by institution type.

One of the difficulties with this survey was designing it in a way that would make it applicable to many different Web site design operations. At the end of the survey, a few people commented that their library was not organized the way the survey was designed because most questions referred to a Web team when they had a one-person operation. Another suggestion was to include options for different versions of Web site redesign so that respondents could talk about what they had done in the past as opposed to what they hope to do in the future. While it would be difficult to design a

survey that could address every eventuality, future studies should include questions that do not assume a multiple person team.

As Web design is constantly evolving, future studies can address updates in technology, as well as discover trends in training and team composition. Considering the amount of time and effort that goes into creating the library Web sites for the 4384 Carnegie institutions, further study into issues concerning Web design models is warranted.

APPENDIX A. SUPPLEMENTARY DATA

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.acalib.2007.12.005](https://doi.org/10.1016/j.acalib.2007.12.005).

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