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Homepages of Competing Academic Libraries: Prevalence of Content and Search Elements

Abstract

In this study we analyze the prevalence of library resource and services links appearing on our competitors' homepages. By doing so we identify some of the best content links and search features to include on our own redesigned homepage. We also discuss headings that may be used for categories or menus appearing on the homepage. Our competitors' menu systems and the movement to responsive webpage layout is also examined.

Introduction

Kutztown University is a medium-sized public liberal arts institution serving approximately 8,500 student and over the 500 faculty members. Our webpage was overdue for an update with the last total redesign occurring about 5 years ago. During the past few years we ran a number of usability studies and were very surprised to see how our students struggled to find materials through our website. This was particularly startling because the last iteration of our homepage focused on the student user. One suspected problem had to do with the terminology we were using in our menus and headings. We used term such as Quick Links, Library Services, and Research Tools. We suspected the user may be finding the terms rather vague and not helpful for navigating to a particular resource. In our next iteration of our webpage we wanted to employ the best heading terminology and the most useful content and search items, so that students could quickly find the information or resource that they needed. More importantly we wanted to discover if libraries are using headings that go directly to a resource without an intermediate page. Our new page would focus on these direct links rather than menus or headings that may or may not be understood by the user. As part of this effort we looked at the homepages of our competing institutions. Our competitors are not necessarily institutions of the same type or size, rather they were identified by our administration as institutions that most often received admission applications by students applying to Kutztown University.

We limited our study to library content links and search elements. We chose these elements because they are actionable items most sought after by library home page visitors. These items will get the visitor quickly to the solution they need to complete the library task at hand. We were not interested in links to our university homepage or other departments or offices. Nor were we interested in the use of graphics, videos and other ancillary elements. We realized that a competitor analysis was not a definitive way of deciding on the exact links to put on our page. After all, other institutions may not have some of the unique services that Kutztown University has. But we did want to produce a "straw man" -- a basic layout of links that we could test with our usability testing. The popularity of competitor links should be instructive. Most of our peer library have similar services and many similar resources.

Literature Review

Since the very beginning of the commercial Internet, librarians have been at the forefront of web usage and development. As information professionals, it is the librarian's nature to organize and access information in the most efficient way possible for their users. Kneip (2007) noted that "in the mid-1990's, libraries were leading the pack as institutions and organizations scrambling for a Web presence".

Various authors have looked at library webpage development. By comparing these studies one can chart the development of library web design over the past 30 years. Some studies treated the design of

the whole site; others focused on the homepages. Many research works focus on various elements on the page, not just the content links and search features. The availability of graphics, page counters, university links, etc. have been discussed.

Early on, Clyde noted in her 1996 study on homepage design principles that “the best preparation for creating a home page is for the library staff to spend some time ‘surfing’ the home pages of similar libraries or organizations. This activity will give staff an indication of what works and what does not, what is interesting to the online visitor and what is not, and what features make a home page easy and pleasant to use. Surfing around the pages of other libraries (and related organisations) will also provide some ideas about what might be included on the library’s own home page”. This practice of comparing home pages continues to be a predominant method in web page development to this day.

In 2000, Bradley Tolppanen et al. surveyed librarians at 133 medium-sized universities about their web pages – not just homepages. This study identified 31 core components present in over half of the libraries studied. Some of these components were very general in nature – photo, videos, graphics, etc. Statistics for Content Items were presented in a number of tables such as Library Information, Library Policies, Directories, and Forms.

Aharony’s 2012 article used web page archived in the Internet Archives to compare web page development of US library websites. Analysis of 31 library web sites revealed the following prevalences of Content Items in the site in 2010. The top items are listed below. Note that Library Sources and Library Services appeared on 100% of sites. This very interesting considering the vagueness of terms.

TABLE 1 Aharony (2012) Academic Library Websites	
Content Item or Search Element	Percentage of appearance on Websites
Bibliographic Databases	90.32%
Chat	77.41%
Feed back	74.19%
Hours	90.32%
Library Collections	80.64%
Library Instruction/tutorials/guides	93.52%
Library Selected Internet Resources	83.60%
Library Services	100%
Library Sources	100%
Mail to Librarians	87.09%
Ongoing projects	80.64%
OPAC	90.32%
Other reference sources (style guides, dictionary)	93.54%
Site Search	96.77%
Staff Directory	74.19%

In 2011, Jones and Leonard studied library web sites at 175 small bachelor granting institutions. He found that only 14 elements appeared on at least half of the sites. Like the study by Tolppanen et al. these items included many general elements such as images, university template and particular layouts.

Half of the items, however, were content and search related features including: Library Hours, Interlibrary Loan, Links to tutorials and guides, Staff directory, OPAC search, About, and Contact a Librarian. In addition Jones and Leonard identified the top Content and Search items found on the pages. The top 14 elements are listed in the table below with their frequency of appearance.

TABLE 2 Jones & Leonard (2011) Small BA College Library Homepages		
Content Item or Search Element	Percentage of appearance on Websites	Rank
About Section	55.4%	7
Contact Librarian	54.3%	8
Contact us	45.1%	11/12
Course Reserves	37.1%	16
E-Journals	46.3%	10
Help or FAQ	38.3%	15
Hours	85.1%	1
Interlibrary Loan	64.%	3
Library Instruction/tutorials/guides	60%	4
Link to University home page	82.9%	2
News	46.9%	9
Policies	40%	14
OPAC	58.9%	5
Other reference sources (style guides, dictionary)	44.6%	13
Portals by Subject	45.1%	11/12
Staff Directory	56.6%	6

Jones and Thorpe (2014) ran a similar study for medium-sized academic libraries in 2014. The most prevalent content and search elements are listed the table below. It is interesting to note that items are the same as those found in his 2011 research except for E-Books, which only appears Medium-Sized libraries' list. This can be explained in two ways. 1) E-books are more important for Medium-sized libraries. And/or E-books have gained greater importance in the 3 years between the two studies.

TABLE 3 Jones & Thorpe (2014) Medium Sized Academic Library Homepages		
Content Item or Search Element	Percentage of appearance on Websites	Rank
About Section	82.1%	4/5
Contact Librarian	67.7%	10
Contact us	64.5%	12
Course Reserves	69.6%	9

E-books	54.0%	16
E-Journal	66.1%	11
Help or FAQ	60.0%	15
Hours	94.6%	2
Interlibrary Loan	82.7%	3
Library Instruction/tutorials/guides	75.1%	7
Link to University home page	97.4%	1
News	68.1%	8
Policies	51.8%	17
OPAC	80.1%	6
Other reference sources (style guides, dictionary)	62.0%	14
Portals by Subject or subject guides	82.1%	4/5
Staff Directory	62.6%	13

In 2015 Thorpe and Lukes presented an analysis of web page design for 430 public libraries in the state of Indiana. Like two studies by Jones and his associates, Thorpe and Lukes included a list of frequently occurring Content and Search Elements. The top 14 Content Items for the Public Libraries are listed below.

TABLE 4 Thorpe & Lukes (2015) Public Library Homepages	
Content Item or Search Element	Percentage of appearance on Websites
About Section	65.9%
Ebook, Overdrive, Kindle or Nook Links	74.4%
Contact us	58.3%
Gifts, Donations	51.6%
Library Account links	43.9%
Library Programming links	48.0%
Local history / genealogy	50.7%
News	87.4%
OPAC	80.7%
Policies	64.1%
Portals by audience	39.9%

The 2014 study by Chow et al. investigated aspects of good website design. Instead of listing the prevalence of Content Items, the authors asked a number of good questions that get to the efficacy of the website. They sent questionnaires to 1469 university and public libraries and asked questions such as: does your website show your hours? Is there a link to your OPAC? Are News and Events listed? Is there a link to Special Collections?

Methodology

Our aim was to find which content links and search elements appeared most often on our competitors' homepages. We would then compare this with the studies mentioned in the literature review section. The most prevalent links would be considered as possible links on our newly redesigned home page.

For the homepage we decided to look at the most popular links being used by our competitors. We made the decision to limit our analysis to links appearing "above the fold". In other words we only considered those links that would appear on the homepage screen without scrolling. The thinking was that the most important links should be immediately obvious to the user. So a user will want to see the most useful links immediately without scrolling.

This decision also meant that we would be looking at the pages as seen from a computer. From our statistics we found that very few students were accessing our homepage from their phone or a mobile device. The overwhelming majority of users were visiting from a computer. So we were interested in examining only those items that would be seen on a computer screen without scrolling. We realized that this decision was a defining decision. We know that phone access to web pages is on the rise. Was our site showing low statistics for mobile because it simply wasn't made for it? The move to mobile access is certainly a growing one and we are well aware that our future site updates will have to look at this factor in depth. Also viewings of our competitors' web pages showed that a few of them had already moved to the tiled design of responsive web pages used to facilitate mobile viewing. And these tiled pages often contained a significant number of links "below the fold". Since our page redesign was very overdue, our mobile statistics were low and the overwhelming majority of our competitors were still using computer-based design, we felt comfortable in limiting the new design to a computer view.

All sites were viewed on Google Chrome on the default settings. This included a font size at the recommended "Medium" and a zoom setting of "100%". The default task bar and location bar were also present. All pages were expanded to the full screen size of the computer for these analyses. A ThinkCentre Computer was used. Its screen resolution was 1920 x 1080. (The recommended display size.)

Each college library homepage was maximized on the screen. Then a screenshot of the page was taken using Microsoft Windows 10 Snipping Tool. Each screenshot labeled with a name using the following schema: Accession number-institution name-date of download. For example, Lafayette University was labelled 1-Lafayette-2019-10-25. The screen shots were then pasted into a word document with narrowest possible margins. The screen shot was printed. Attributes were added to a spreadsheet and checked off in pencil on the printed copy of each homepage.

The analysis focused on library content links within the library website or links to direct library resources supplied by their vendors. We did not consider links to other parent university resources. Many of these university-wide links occur in the header of the page. They include links to the university homepage, university staff directory, admissions, etc.

A list of peer institutions was obtained from our administration. The peer institutions are those schools that were identified as our competitors. Students who applied to them had also applied to Kutztown University. They did not necessarily share attributes such as size, SAT score, or degree granting type. Most of them, however, are located within 120-mile radius of Kutztown University.

The following schools were identified as our competitors or peers

1. Albright College (Reading, PA)
2. Bucks County Community College (Newtown, PA)
3. Community College of Philadelphia (Philadelphia, PA)
4. Harrisburg Area Community College (Harrisburg, PA)
5. Holy Family University (Philadelphia, PA)
6. Lafayette College (Easton, PA)
7. La Salle University (Philadelphia, PA)
8. Lebanon Valley College (Annville, PA)
9. Lehigh Carbon County Community College (Schnecksville, PA)
10. Millersville University (Millersville, PA)
11. Montgomery County Community College (Blue Bell, PA)
12. Moravian College (Bethlehem, PA)
13. Penn State (State College, PA)
14. Radford University (Radford, VA)
15. Reading Area Community College (Reading, PA)
16. Rollins College (Winter Park, FL)
17. Rowan University (Glassboro, NJ)
18. Temple University (Philadelphia, PA)
19. University of Delaware (Newark, DE)
20. University of Massachusetts at Dartmouth (Dartmouth, MA)
21. University of Pittsburgh (Pittsburgh, PA)
22. Villanova University (Villanova, PA)
23. Widener University (Chester, PA)
24. York College of Pennsylvania (York, PA)

Results

Our analysis of the 24 home pages found that one page, Rowan University, employed a landing page instead of an actual homepage. The landing page routed visitors to one of three libraries. It is worth noting that the Rowan University page did include the following often used links which are listed in the table below: About Us, News, and Library Hours. But other common links just didn't appear. This being the case, Rowan University's page was excluded from the study. The results of our analysis of the remaining 23 homepages appears on the following two tables. Table 5 lists all the content links and search features appearing on our competitors' home pages 'above the fold'. Table 6 presents link statistics about the average and mean number of links.

	TABLE 5 Content Link or Search Feature	Number of libraries using the link	Percentage of libraries using the link
1	Search box for library catalog and/or federated search	20	87%
2	Search Federated	19	83%
3	A-Z Databases	16	70%
4	Hours	16	70%

5	Search Catalog (Books...	16	70%
6	Find a Journal	15	65%
7	Guides	15	65%
8	Contact a librarian, ask, consult	14	61%
9	Reserves	13	61%
10	Services	13	57%
11	About	12	52%
12	Study Room	12	52%
13	Chat	11	48%
14	ILL	11	48%
15	News	11	48%
16	Search Federated Advanced	11	48%
17	Special Collections (archives ...	10	43%
18	Library Account	9	39%
19	Research	9	39%
20	Faculty	7	30%
21	Site Search	6	26%
22	Policies	5	22%
23	Search Articles	4	17%
24	Printing	3	13%
25	Renew your items	3	13%
26	Quick Links	2	9%
27	Social Media	2	9%
28	Tutorial Writing Center	2	9%
29	Special Labs or media Centers	2	9%
30	Library Careers	1	4%
31	Library Tutorials	1	4%
32	Mission / Vision	1	4%
33	Request forms	1	4%
34	Search E-books	1	4%
35	Search videos	1	4%
36	Using the library	1	4%
37	OERs (Open Educational Resources)	1	4%

TABLE 6	
Average and Mean Number of Links or Other Features	
Facet	Number of Links
Average number of links or search features	19
Average number of unique links or search features	16
Mean number of links or search features	17
Mean number of unique links or search features	16

Highest number of links or search features	33
Highest number of unique links or search features	24

Of the 23 homepages, only three seemed to be moving towards the tiled format that is popular with responsive webpage applications. These sites had a substantial amount of content that fell below the fold. See Table 7.

An additional eight institutions employed menus that need to be activated to view other links or features. We only included links in the analysis if they appeared during the initial load the homepage. Links in pop-up, mouse-over and accordion menus were not included in the study. The following sites employed these types of menus containing library content or the tiled format.

TABLE 7 Pages with items below the fold or 'hidden' in menus	
Feature	Institutions
Accordion Menus	Community College of Philadelphia, Reading Area Community College
Mouse-over Menus	Radford University, University of Pittsburgh, Villanova University
Pop-up Menus	La Salle University, Rollins College, University of Delaware, University of Massachusetts
Tiled format for Responsive Webpage	Lafayette University, Lebanon Valley College, Widener University

Discussion

From the outset our study focused on those links that are apparent to the user when the page loads without scrolling. These links should be the most relevant features and the quickest way to get the user to the actual tool required to resolve their need.

From our data we concluded that a search box for the catalog or federated search was the most important feature on the home page. It was certainly the feature most prominently displayed by our competitors. The two studies by Jones and his associates (Jones & Leonard, 2011) (Jones & Thorpe, 2014), however, found the search box to be the fifth and sixth most prominent features for small and medium-sized libraries respectively.

It is interesting to note that 5 of the top 6 features concerned the finding of books and or journal articles. This was not surprising, rather it showed these items to be core features provided by a library web site. The outlier, Hours, which ranked fourth in our study, also made sense as a core feature on any library website. In both of Jones' studies, Hours appeared as a top feature ranking first for small and second for medium-sized library websites. From the two studies by Jones and his associates, Hours was arguably the most important feature on the homepage of small or medium-sized library. Our data affirmed its importance.

The top nine (9) most used links connected to specific functions or content items. They did not take the user to an intermediate page that has a collection of different items. "Services" was the first page that

necessarily connected to an intermediate page or menu containing several specific content items. As was stated earlier, we were interested in avoiding headings and menus such as Library Services or Library Resources due the vague nature of the wording. For example, would a patron consider Reserves or Interlibrary Loan as a Library Service or a Library Resource? Isn't it both or couldn't be? Since these general links do not appear near the top of our list, it was fair to conclude that libraries are targeting very specific tasks on their home page. Our data did not support Aharony's research which showed 100% of all libraries use Services and Research somewhere on their website (Aharony, 2012). Perhaps design has changed in the past eight years and/or these terms appeared often on subsidiary pages.

Our top 20 features, only included four (4) Content categories that necessarily go to indirect pages. They were Services, About, Research, and Faculty. The first two are used by about half of the libraries. The last two are used by about one-third. In addition to actionable items noted in our table the following terms were used as text headings having no hyperlinks: Services (two sites), Research (1 site) and Quick Links (one site). The Faculty link made sense in that it identifies a target audience. Our library webpage targets students, our main user population. Our second most important user base is the faculty and they do have specific needs that can easily be targeted. Also the About (or About Us) page is a well understood page in web design. Although it is not absolute proscribe as to what kind of information will go under About Us page, most users have a good general understanding about the types of information that goes under this heading. Items under this kind of heading usually include, library overviews, hours, maps, annual reports, and staff directories. It would be interesting to more fully analyze those items listed under this category. Perhaps the list of features varies more than we think. The content that would go under Research and Services is a bit more subjective. Research probably ranked high because a student needing to submit an assignment might be drawn to it. Students needing to complete a research paper or project would be drawn to this link. Services is somewhat more difficult to explain to a user. This was a concern on our page. Future research on these categories would be most enlightening seeing that they are used so often on library websites. It would be good to see which links are most often listed under these categories. It would also be good to do a card sort with students and faculty to see what links they think will appear in these categories.

Looking at Table 2, it was interesting to note that the page with the highest number of links was not the page with the highest number of unique links. The page with the highest number of links actually had 22 unique links, so that one third of their links were duplicates.

From the research we were able to identify the most likely content links and search features to use on our library home page. The first 20 links will serve as a straw man for the next iteration of our library homepage. Usability and other testing will be used to choose the specific links. Note that the list is only a straw man; one particular link will probably appear on home page even though it did not rank high in the study. Our library has a Makerspace that was initiated in 2016. This special service is an important service and probably appear directly on our homepage.

Conclusion

The study of webpage design elements was most useful in helping to construct a library homepage. As Clyde (1996) noted in the nineties, the comparison of library pages from similar institutions provides ideas about what might be included on one's own homepage. Content Element study is particularly helpful for insuring the user has an efficient and meaningful experience. The analysis of similar

institutions' and competitors' content elements and search features was useful for determining the most prevalent elements on a library's homepage. Comparing these results with other published studies of similar libraries and organizations was most instructive for deciding which content elements to include on a library homepage. Our current study yielded a list of the 20 most relevant direct links and search elements to include on a redesigned webpage. Most of these elements should be presented on the page as direct links to resources. In other words, the user should not need to manipulate the page by scrolling or activating a menu system to get to them.

The study also gave us ideas for additional areas of research that could be pursued. The grouping of links under general headings could be explored. What links are most often categorized under the headings of Research, Services, and About Us pages and/or menus? Or what types of items do users expect to find listed on these pages, menus or headings?

We also learned that web page studies must be completed rather rapidly. Homepages are constantly being updated by their owners to make them more efficiently and more interesting to the user. During the writing of this study two pages changed significantly and our data was updated according. Clyde (1996) noted this in her study as well.

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