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Library research and instruction departments are increasingly focused on improving and expanding their online subject guides. This case study examines analytic data from one year of subject guide use at a Research-I institution. A sample of over 110 total subject guides was analyzed. The subject guides were examined for indicators of information load, as measured by number of total resources on the multi-tab subject guides and number of pages in each subject guide. Resources in individual guides ranged in number from under ten to several thousand. The analytic data on the guides provides information on how students and other university affiliates used the guides, including time spent in each guide and page views. By correlating the number of resources and pages with the analytic data, preliminary conclusions about best practices for information load in subject guides were drawn, such as minimizing the number of pages in a guide.

Headings:

Academic libraries

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INFORMATION LOAD AND ITS EFFECTS ON SUBJECT GUIDE USAGE: A  
QUANTITATIVE CASE STUDY

by  
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## **Introduction**

Research guides, both in print and online, have been a key component of academic library reference services since the 1970s. In a recent study of Association of Research Libraries (ARL) members located in the United States, all 99 surveyed libraries provided easily accessible research guides from their library home page (Ghaphery & White, 2012). Research guides, a term which includes both course guides and subject guides, tend to be individually tailored to the resources available through a specific library. Even as far back as 2004, the creation and maintenance of digital research guides was an expected component of most subject liaisons' job duties (Jackson & Pellack, 2004).

The movement of research guides from a primarily print to a digital format means that, with the help of Web analytics, librarians can more concretely track how their user populations are using digital library resources. Up to this point, most publications about research guides have focused on qualitative measures of use, such as surveys and usability studies. There is a significant need for quantitative research on research guides, especially as new technologies provide affordances for tracking previously unavailable usage statistics (Ghaphery & White, 2012; Jackson & Pellack, 2004; Ouellette, 2011).

Subject guides are a subset of research guides, and are created by librarians in order to give users an introduction to the resources available in a specific field or discipline. They are not tied to any particular course, and often do not change dramatically between semesters. In the past, these guides have functioned both as

bibliographies and as more curated sets of resources. The amount of information present in a guide affects how users interact with the guide, including how long they choose to use the guide, and how many people choose to utilize the guide. In this paper, the amount of information present on the guide, in a general sense, is referred to as “information load.” This paper is a first attempt to collect and analyze data on information load in subject guides and how that affects how students use these guides.

Librarians spend significant amounts of time and effort in creating and maintaining subject guides. Best practices that lead to increased usage yields are necessary in order to ensure that librarians are spending their valuable hours in creating resources that meet demonstrated user needs and preferences. Quantitative data and analytics can provide that kind of return-on-investment information, as well as demonstrate trends in certain guides that see more usage. Previous literature has focused on design, access, and content; this study will engage with the information load literature to determine if amount of content has any bearing on subject guide usage.

Over the past two years, the University of North Carolina at Chapel Hill (UNC) Libraries has collected Google Analytics data on their subject guides. Statistics of interest include number of subpages within each subject guide, number of resources on each subpage, the average time users spent on a page, and unique pageviews.

Digital research guides come in many different flavors, with each of these types of guides having a very different look and feel. Different digital research guide platforms include LibGuides, Library à la Carte, and in-house HTML guides. Between 2010 and 2012, UNC Libraries hosted subject guides across all three of these platforms, providing a unique dataset.

In this case study, some correlation between these different measures of information load and usage were found. From these results, I then made preliminary recommendations about best practices for subject guide design.

## Literature Review

Subject guides grew out of the academic library tool known as the “pathfinder,” which was defined by librarians at the Massachusetts Institute of Technology as “a kind of map to the resources in the library; it is an information locator for the library user whose search for recorded materials on a subject of interest is just beginning” (Stevens, Canfield, & Gardner, 1973). These pathfinders were very structured finding tools that provided step-by-step instructions for researching in a discipline. While these guides did evolve over time to become less structured, very little was published on pathfinders during their inceptional period. A more significant body of literature appeared beginning in 1996, as librarians debated the merits of electronic and print research guides (Vileno, 2007). Today, “research guides are as commonplace as books in libraries” (Ghaphery & White, 2012), and there has been a considerable amount of literature written on how people use subject guides and best practices for creation.

As they have evolved, subject guides have been known by a variety of names, including “subject guides, research guides, research tools, pathfinders, electronic library guides or e-guides, Webliographies, Internet resource collections, resource lists, or subject portals” (Tchangalova & Feigley, 2008) . One key component in the definition of subject guides is that they are not specifically aligned with any particular course; instead, they are meant as a general overview of a research topic that could be used in many different contexts.

1996 marked the beginning of an industry-wide shift over to electronic subject guides, as more information resources became available online and direct linking to those resources became an affordance that people expected from research guides. By 2000, in a survey of 59 libraries across the country, 88% of respondents reported that they were creating online-based subject guides. Of the 37 colleges and universities included in that survey, only one was not currently creating online subject guides (Morris & Grimes, 1999). A more recent survey of Association of Research Libraries (ARL) members indicates that it is highly unusual to find an institution of higher learning that does create their own electronic subject guides (Ghaphery & White, 2012).

One consistent complaint about subject guides over the years has been that they require a large investment of time in order to author, maintain, and manage (Gonzalez & Westbrook, 2010; Tchangalova & Feigley, 2008; Vilen, 2007). Since subject guides include such an expansive range of types and resources, some “subject specialists [feel] confused about what to include in research guides” (Tchangalova & Feigley, 2008). For this reason, there has been a significant amount of literature published concerning best practices for subject guide creation, mostly based on qualitative case studies. These user-focused studies will be discussed in the next section.

## **How Library Patrons Use Subject Guides**

When electronic subject guides first began to be widely adopted, Morris & Grimes noted that “few librarians know with any certainty whether and how their patrons actually use the guides” (1999). By 2004, 67 percent of survey respondents were collecting usage data, and a 2011 survey indicated that only about ten percent more had adopted some kind of evaluation method. There is no consensus on what might indicate



“a strong return on investment metric for research guides” (Ghaphery & White, 2012; Jackson & Pellack, 2004). Since that time, a number of surveys and usability studies have provided indications of both how and why academic library patrons choose (or do not choose) to utilize electronic subject guides.

In preparing for her own case study at San Jose State, Staley reported that a Duke University study found that, out of one thousand library patrons, 53% reported never using subject guides, with an additional 24% reporting “rare usage” (2007). Determining how often people use these subject guides is crucial, otherwise creating them may be consider “an exercise in futility” and “updating efforts may be a waste of precious time” (Strutin, 2008). Despite these low usage numbers, though, other research suggests that students are more likely to seek help from an electronic guide than from a real person at a traditional library service point (Galvin, 2005).

Researchers examining George Washington University’s subject guide usage noted that highly-used subject guides were “based on specific topics or class assignments, so they may appeal to students more than a broad- or discipline-based guide” (Courtois, Higgins, & Kapur, 2005). In the 2011 survey of ARL libraries, 75 out of the 99 libraries assessed included course guides as well as subject guides (Ghaphery & White, 2012) . An additional consideration in choosing to create course-specific guides over the broader subject guides might be that it makes is easier to “see what topics have a dearth of information and which items are out of date,” forcing librarians to stay on top of updating their guides (Strutin, 2008).

When students begin the search process, they often begin with Google—over 90% of students in a study at Santa Clara University chose to begin their research there (Strutin,

2008). Even when presented with usability test questions that were specifically designed to be answered by using library subject guides, students tended to turn to the open Web instead, indicating that “students have no idea what subject guides are” (Gibbons & Reeb, 2004).

Other research indicates that subject guide usage increases with marketing efforts from the library. Direct e-mails provided the strongest impact for increasing individual subject guide usage, though social media and listings on the library home page also were attempted (Foster, Wilson, Allensworth, & Sands, 2010).

Without additional context and guidance provided by librarians, a large number of students do not recognize the intrinsic value of subject guides for their research process (Courtois, Higgins, & Kapur, 2005). However, students who received library instruction tend to use subject guides more frequently and to have stronger positive feelings about online research guides (Staley, 2007). When students do use subject guides, research has found that their expectations of the guide and what they are finding in the guide do not match up, as “students are more interested in finding authoritative information from accepted experts (librarians and faculty members) rather than in using subject guides as a site for their own knowledge production” (Hintz et al., 2010). This implies that students are looking for more curated and targeted content on subject guides, as well as guidance in the research process, rather than a list of possible resources for them to use.

Certain design characteristics also impact how students approach using subject guides. In a usability study conducted at the University of Alberta and Grant MacEwan University, students highlighted three important themes that determined their willingness to use subject guides: clutter, labeling, and the general look and feel of the guide

(Ouellette, 2011). A study at the University of Maryland indicated that guides are most helpful to students when they are “dynamic, searchable, vivid, [and] simple” (Tchangelova & Feigley, 2008). For this reason, many sets of best practices and institutional sets of design standards have been proposed.

## **Librarians and Subject Guides**

Most librarians in public services, and almost all subject specialists, are now expected to create subject guides as part of their job duties. Librarians not only serve as the creators of subject guides, but also as users. Subject guides are frequently used as a guide for reference questions and as training materials for new staff members or to fill gaps in subject-area knowledge (Wakeham, Roberts, Shelley, & Wells, 2012).

Subject guides today are hosted across a broad range of platforms, with LibGuides being by far the most prevalent. In a 2011 survey of college and research libraries, 69% reported using LibGuides, while a minority of libraries reported using customized open source systems, static HTML pages, homegrown systems, and other commercial systems (Ghaphery & White, 2012). The best practice literature suggests that content management systems (CMS), like LibGuides, provides important affordances in creating subject guides, as they make it easy to replicate content across guides (eliminating the need to build from scratch every time), produce a standard-looking set of guides, and minimize the amount of time that librarians need to spend in order to create a new guide (Glassman & Sorensen, 2010; Stitz, Laster, Bove, & Wise, 2011).

One common criticism of subject guides from librarians is that they take a large investment of time to create and maintain. In a recent survey, librarians targeted the need for frequent updating and the unknown level of use by students as serious negatives to

consider (Wakeham, Roberts, Shelley, & Wells, 2012). Librarians also indicated frustration in not receiving feedback on the guides from students and that usage measures are not revealing enough. For that reason, the literature urges librarians not to produce subject guides “from the pressure to produce...or ‘just to create them.’ Librarians need to weigh and consider all facets...before beginning” (Kapoun, 1995). Best practice literature provides a framework for librarians to work within, and many institutions have adopted their own set of guidelines to ensure consistency across subject guides, as well as to minimize the amount of time that librarians spend in building guides from scratch. However, there has been little written about information load best practices, which is the topic of the next section.

## **Information Load**

With the advent of the Internet, information scientists noticed a new problem—the concept of “information overload,” where, for the first time, people were presented with a huge quantity of relevant information, of varying quality. “Information overload” is defined as “a state of affairs where an individual’s efficiency in using information in their work is hampered by the amount of relevant, and potentially useful, information available to them” (Bawden & Robinson, 2009). In terms of librarianship, there is a related phenomenon called “reference overload,” where librarians provide too many resources to a user, creating a situation where the user is unsure which resources should take priority and the user is overwhelmed by the amount of information and resources available to them (Reichardt, 2006). Reichardt suggests that creating “resources guides” (i.e., subject guides) is one promising way to deal with reference overload, but many resource guides have too much information included and create the same problem.

When faced with too much information, people cope using a variety of cognitive strategies, including satisficing, chunking materials into related groups, and selective acquiring knowledge (J. Rudd & Rudd, 1986). In a study of everyday information seeking, users were found to employ two main strategies: filtering information or withdrawing from information sources that were perceived to include excessive information (Savolainen, 2007). In terms of implications for subject guides, this means that many users may choose not to use library-created subject guides if they are perceived to have too many resources and information included.

To address the implications of cognitive load theory, best practices for subject guides have been suggested. Relevant suggestions to resource selection include “provide links to a set of core journal titles or to a relevant subject heading,” “keep text to a minimum,” and “assist students in self-regulated learning strategies by breaking down the research process into smaller parts” (Little, 2010). In practice, this might mean creating more pages or boxes that break down the research process, and including fewer resources. In a study at Brigham Young University, it was found that limiting the number of labels associated with library resources improved response time on research questions for both librarians and students (Miles & Bergstrom, 2009). A similar limiting of resources in subject guides may also increase their utility and usage. However, up to this point, there have been no studies that examine resource selection and its implications for subject guide usage.

## Methodology

Google Analytics was installed on each of the University of North Carolina Libraries' subject guides, beginning in the 2010-2011 academic year. Subject guides were considered to be any guides listed on the UNC Libraries' subject guides page (<http://www.lib.unc.edu/guides/>). Only guides hosted on the UNC Libraries' main server ([www.lib.unc.edu](http://www.lib.unc.edu)) or the LibGuides server ([guides.lib.unc.edu](http://guides.lib.unc.edu)) were considered. This means that subject guides created by the Health Sciences Library (HSL) were not considered in this study, as the HSL maintains its own subject guides and analytics. Guides hosted on other servers, including [www.aging.unc.edu](http://www.aging.unc.edu), were excluded for the same reasons. Guides that were created for a specific course or meant to have a limited term of use were also excluded from this study.

Data for this paper were collected for the 2011-2012 academic school year, running from summer 2011 to spring 2012. 113 distinct subject guides were hosted on the UNC Libraries' site during this period, in one of three formats. Though UNC Libraries is moving toward putting all subject guides on the LibGuides platform, many subject guides were still hosted on the Library á la Carte platform or in an in-house HTML template.

Three semesters' worth of analytics data was collected for this paper. The summer 2011 semester data included information gathered from May 10, 2011 to August 19, 2011. The fall 2011 semester data included information gathered from August 20, 2011 to December 31, 2011. The spring 2012 semester data included information gathered

from January 1, 2012 to May 4, 2012. Because the summer 2011 semester data covered a significantly shorter amount of time, and fewer students and faculty use the Libraries website during that semester due to decreased enrollment in summer classes, the data gathered from that time period were excluded from the final dataset, to avoid skewing the usage statistics.

Each of the 113 subject guides was reviewed to determine the number of different pages (or “tabs” in the LibGuides terminology) included in each guide. Additionally, the number of resources in each guide was determined. “Resources” is a broad term, and in this study included any links or references to sources outside of the guide itself. This could include databases, books, the library website, other research guides, citation guides, professional organization sites, or any other information source. For the purposes of this study, whether or not these resources were directly linked from the subject guide was not taken into account—all mentions of any type of resource were considered. These two factors were considered to be proxies for the information load, or amount of content, in each subject guide.

Google Analytics tracks a wide variety of information on web page usage, only a small fraction of which was considered for this analysis. For this study, analytics for “unique pageviews” and “time spent in guide” were gathered. According to the Google Analytics documentation, a “unique pageview...aggregates pageviews that are generated by the same user during the same session” (Google Analytics, 2013). That is, if a person views different pages within the subject guide during the same session, they are only counted once by the unique pageview measure. However, if a person returns to consult the subject guide multiple times in multiple sessions, then they are counted as a unique

pageview each of those discrete times. It does not count reloads or refreshes. A session is calculated by Google Analytics as a visit to the page (in this case, the subject guide and its subdirectories) that terminates after 30 minutes of inactivity or at midnight EST (Google Analytics, 2013). A specific user reentering the guide within a 30-minute period is counted as one unique pageview, but if that user returns to the subject guide 31 minutes later, that is counted as two unique pageviews.

“Time spent in guide” is equivalent to the Google Analytics’ “visit length” metric. Google Analytics measures this as:

$$\text{Visit Length} = (\text{time of last “engagement hit” of visit}) - (\text{time of first hit of visit})$$

where an “engagement hit” is an interaction with something on the page, such as a click on a link (Cutroni, 2012). It *does not measure* when an individual exits the page; rather, it measures how long the individual was interacting with the page. This is a key distinction to make. Average time spent in guide was measured in seconds to aid in data analysis, which did not recognize the minute-second default output from Google Analytics.

Once these four measures (page number, number of resources, unique pageviews, and time spent in guide) were collected, the data were cleaned to remove the title of the guide, the subject area it covered, and the type of platform that the guide was built on. One subject guide was removed from the data set at this point in the process; with over 3,000 resources included in the guide, it was a significant outlier and should be considered a bibliography rather than a subject guide.

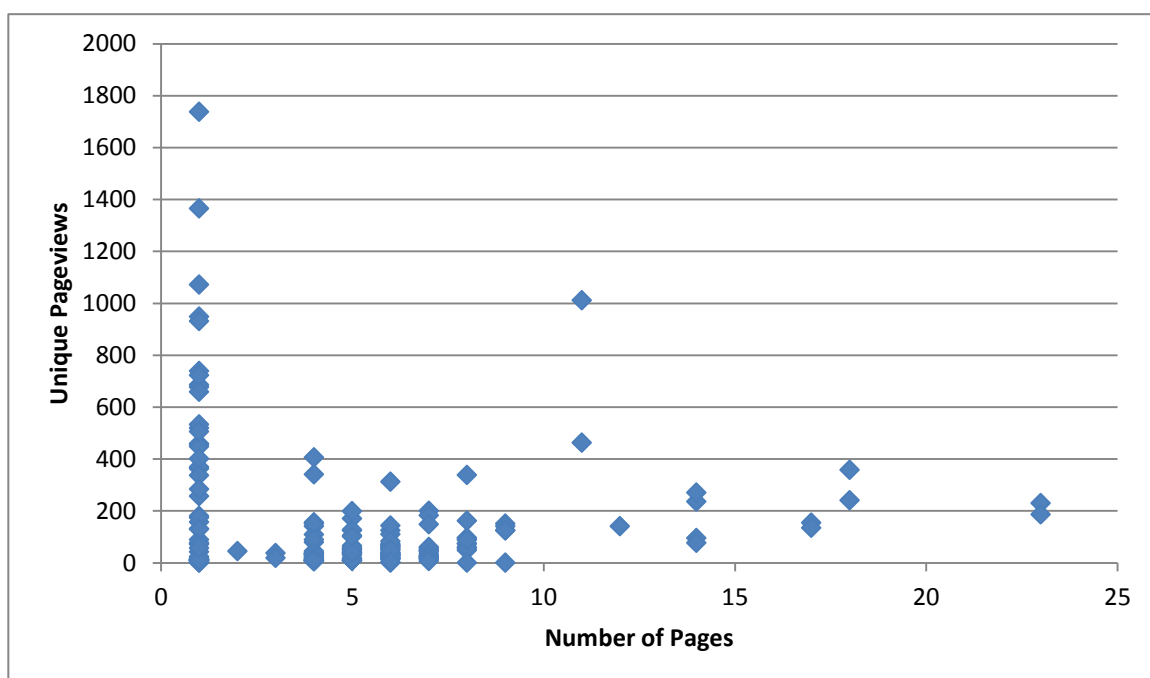
Data were analyzed by utilizing Microsoft Excel and Microsoft PowerPoint. The data were subjected to regression analysis using linear, exponential, logarithmic, and



power models in PowerPoint. An  $R^2$ -coefficient of greater than 0.25 was considered to indicate an acceptable correlation.

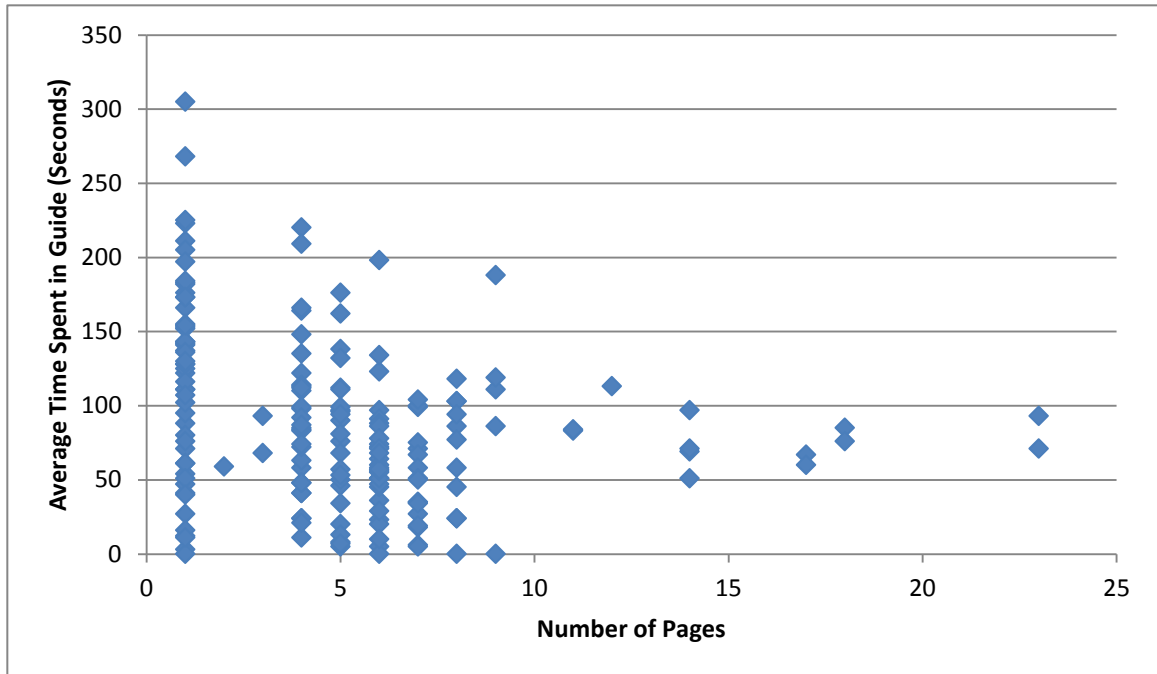
## Results & Analysis

The two indicators of information load on a subject guide, number of pages and number of resources, were individually graphed against the two indicators of subject use, unique pageviews and average time spent on page.



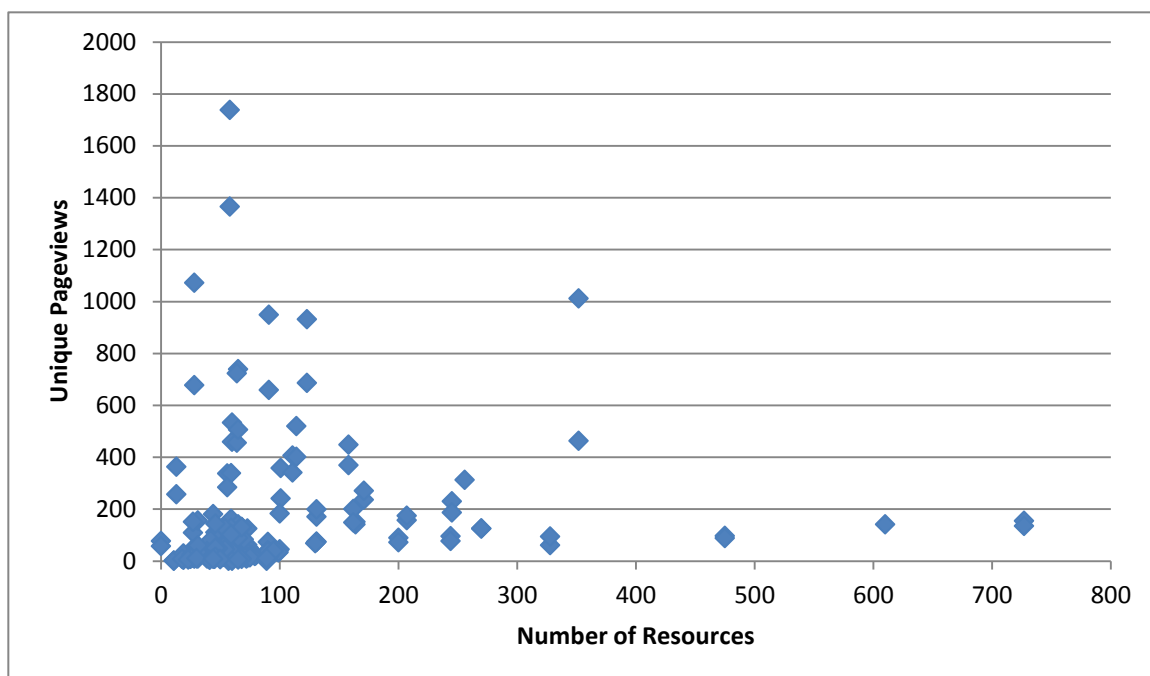
**Table 1: Number of Pages and Unique Pageviews in Subject Guides**

59.1% of the subject guides reviewed for this study contained five or fewer pages, and there was an average of 5.1 pages or tabs per guide. 28% of subject guides had just one page or tab.



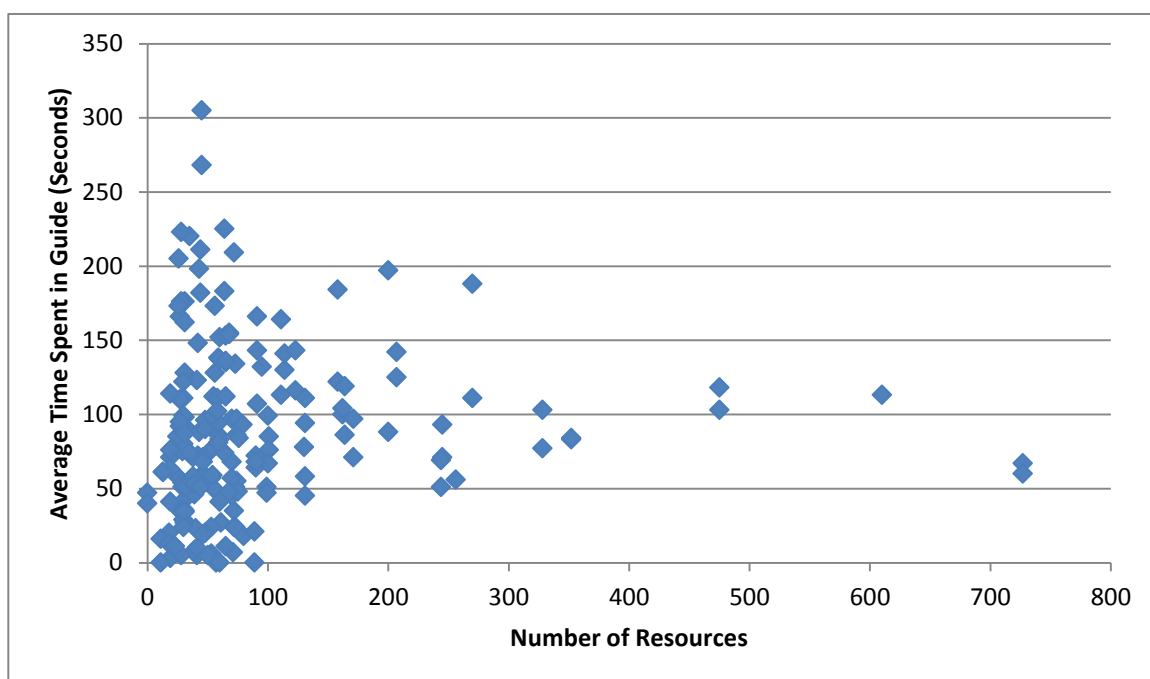
**Table 2: Number of Pages and Average Time Spent in Subject Guide**

In plotting the relationship between number of pages and average time spent in the subject guide (measured in seconds), 88.1% of the data fell within a range of below 10 pages or tabs and under an average of 200 seconds (3 minutes, 20 seconds) in the guide.



**Table 3: Number of Resources and Unique Pageviews in Subject Guide**

In the 113 subject guides reviewed, there was an average of 90 resources in each guide. On average, subject guides had 17.65 resources on each page or tab.



**Table 4: Number of Resources and Average Time Spent in Subject Guide**

81.2% of subject guides evaluated contained fewer than 100 resources in the total guide, and 41.4% of subject guides contained fewer than 50 resources.

Four different types of regression models were applied to each of these x-y plots to determine the presence of correlation. The R-squared values indicate goodness of fit of the regression model.

	Number of Pages and Unique Pageviews	Number of Pages and Average Time Spent in Guide	Number of Resources and Unique Pageviews	Number of Resources and Average Time Spent in Guide
Linear Regression	0.017	0.291	0.017	0.006
Exponential Regression	0.013	0.140	0.108	0.024
Logarithmic Regression	0.092	0.273	0.045	0.022
Power Regression	0.003	0.158	0.233	0.059

**Table 5: R-Squared Values for Regression Models**

## Discussion

Only one of the regression models for correlation between information load, as measured by number of pages and resources in a guide, and usage, as measured by unique pageviews and average time spent in a subject, met the significance cutoff of an R-squared coefficient of 0.25 or larger. In all of the scatter plots, clustering of data points, especially in the bottom-left quadrant of the charts, led to weak correlations. For example, in Table 1, 28% of the data points were clustered at an x-value of 1. This clustering of data points overshadows the correlation.

Additionally, in all four of these correlation models, there are several data points located on the far ends of both the x and y axes. There are no systematic reasons to exclude these points from the dataset; however, because of the pronounced concentration of data points at one end of the spectrum, these data points lead to correlation models with relatively low R-squared values.

That said, this study did find two areas with some correlation. For a linear regression, number of pages and average time spent in a subject guide had a correlation of 0.291, meaning that 29.1% of the data points could be predicted with a linear model (see Table 2). The negative slope of this correlation model indicates that as number of pages increase, the average amount of time that a user spends in a subject guide decreases. In contrast to the majority of the design literature written about subject guides, this study indicates that fewer pages may lead to increased time spent in a subject guide.

Additionally, number of resources and unique pageviews in a subject guide demonstrated a correlation using a power regression—23.3% of the data points could be predicted with a power model. This power regression indicates that unique pageviews drop dramatically after a certain number of resources present in the guide are reached.

## **Limitations**

This study was quite small—only 113 subject guides were examined, and only over a period of one year. This dataset is too small to make broad generalizations for subject guide development (for example, there is not enough data to indicate what number of resources constitutes “too many,” as the vast majority of the subject guides—81.2%—held their resources to below 100).

Three different subject guide platforms are used at UNC, which may have some bearing on both design and usage. Those differences were not controlled for in this study.

The measures used in this study to indicated usage were unique pageviews and average time spent in guide. There are certainly many other factors that may contribute to these variables, including page layout, promotion of subject guides in instruction sessions, number of students enrolled in classes in various disciplines addressed by different subject guides, how often the subject guide is updated, specificity of the topic covered in the subject guide, and complexity of the content.

Using Google Analytics, the measures for unique pageviews and average time spent in guide are imperfect, as outlined in the methodology section. Unique pageviews may count the same person revisiting a subject guide multiple times (including the librarian who created it), and average time spent in guide only considers time spent up until the last interaction with the page in a 30-minute time period. That means that a user

who interacts with the guide, reads something on a different tab for 31 minutes, and then returns to the guide, is being counted as two unique pageviews and creates a lengthy data point for time spent in guide, which is not necessarily reflective of engagement with the guide.

## **Implications for Practice**

With these limitations in mind, this study does begin to suggest several implications for practice. The literature indicates, and this study supports the premise, that less is more when it comes to subject guide creation. Subject guide users, according to this case study, tend to spend more time in guides with fewer pages, and they tend to use subject guides more often if they have less resources included. When creating a subject guide, librarians should consider the core needs of their users and then address the subject guide to meet those needs, not necessarily including all relevant information for a given subject area. When creating best practice documentation, libraries may want to consider encouraging librarians to limit the number of pages and resources included in each guide.

This study also demonstrates that there is some correlation between information load in a subject guide and its usage, but that it does not tell the whole story. Librarians need to consider the other factors outlined in the limitations session if they want to promote the maximum usage of their guides. A holistic program of best practices, incorporating not only judicious resource selection, but also design principles and promotion, would engage not only the conclusions from this study, but the previous subject guide literature.



## **Suggestions for Further Research**

As previously mentioned, this study was limited in scope and time. Additional, larger studies would likely have more data points at the margins of this dataset, and thus give us more robust regression models that could begin to predict usage based on information load statistics. Larger studies may also be able to control for subject area or design and layout differences.

Additional studies examining guide design and layout, promotion of subject guides in instruction or reference interactions, and subject areas addressed by subject guides may yield additional information about why users choose to interact (or not) with subject guides.

## **Conclusion**

The purpose of this study was to provide preliminary quantitative data in order to make recommendations for best practices. Academic librarians spend significant time and effort in creating and maintaining subject guides. Identifying ways in which to increase the usage of these digital learning objects would lead to a stronger return on investment. This case study offers preliminary results that indicate that information load in a subject guide does have some impact on usage, though more research is necessary.

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## Appendix I. Sample UNC LibGuide

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# Finding Cello Music

[Home](#) [Scores and Recordings](#) [Browse Shelves and Online](#) [Additional Resources](#) [Journals](#) [Purchasing Sheet Music](#)

### What is in this guide?



Welcome to the UNC Music Library! We hope you'll take advantage of this world-class collection for your course work and for your own pleasure. Use this guide to find library materials related to the cello.

- [Scores and Recordings](#) - How to search for specific works, artists, composers in the library catalog
- [Browse Shelves and Online](#) - How to find your way around the library stacks and the library catalog when you're not searching for a specific piece of music
- [Additional Resources](#) - More books, e-books, databases and websites related to the cello
- [Journals](#) - Journals UNC subscribes to that are related to the cello
- [Purchasing Sheet Music](#) - Links to sites specializing in cello music

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Figure 1: A representative example of a UNC LibGuide

## Appendix II. Sample UNC HTML Subject Guide






BUSINESS RESOURCES	
<b>Menu</b>	<b>Books</b> 
<b>Home</b>	<ul style="list-style-type: none"><li><a href="#">Quick Article Search</a></li><li><a href="#">Catalog</a></li><li><a href="#">E-Journals</a></li><li><a href="#">Google Scholar</a></li><li><a href="#">Site Search</a></li></ul>
<a href="#">Accounting</a>	<b>Search the Catalog</b>
<a href="#">Banking</a>	<input type="text" value="Keyword"/> <input type="button" value="Search"/>
<a href="#">Companies</a>	<a href="#">See all E-Book Collections</a>
<a href="#">Industries</a>	<a href="#">Catalog</a>   <a href="#">Advanced Search</a>   <a href="#">New Books</a>   <a href="#">Classic Catalog</a>   <a href="#">Search TRLN</a>   <a href="#">WorldCat</a>
<a href="#">Investment</a>	<b>General Business Resources</b> 
<a href="#">E-Commerce</a>	<b>Marquis Who's Who on the Web</b>
<a href="#">Marketing</a>	Provides biographies of over 1.3 million people of note, in the United States and around the world. <a href="#">[more info]</a>
<a href="#">Countries</a>	<b>Conference Board Business Knowledge Research Online</b>
<a href="#">Global Business</a>	Includes full research reports plus executive summaries on key business topics, surveys, and case studies of the world's most influential companies. <a href="#">[more info]</a>
<a href="#">View all databases</a>	<b>Economist.com</b>
<b>Contact</b> 	Website of one of the world's premier magazines. Covers politics, economics, business, technology, culture and the arts. <a href="#">[more info]</a>
	<b>Wall Street Journal</b>
<b>Citing</b> 	An indispensable source for business professionals, providing business and financial news coverage and personal and company profiles. <a href="#">[more info]</a>
<a href="#">Citing Information Tutorial</a>	<b>Historical Statistics of the United States: Millennial Edition</b>
	Contains quantitative historical information covering every dimension of American history: population, work and welfare, economic structure and performance, governance, and international relations, all from the earliest times to the present; data may be downloaded in Excel or CVS. <a href="#">[more info]</a>
	<b>International Directory of Business Biographies (2005)</b>
	Includes biographical and directory info for business people. Available in print and online
	<i>Off-campus access available only to UNC-Chapel Hill faculty, students, and staff.</i>
	<a href="#">More Article Databases</a>   <a href="#">Economics Research Guide</a>   <a href="#">Business Web Links</a>

Figure 2: Representative sample of UNC HTML subject guide