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Subject Guides in Academic Libraries: A User-Centred Study of Uses and Perceptions

Les guides par sujets dans les bibliothèques académiques : une étude des utilisations et des perceptions centrée sur l'utilisateur

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Abstract: This paper reports on the results of a qualitative research project that investigates how students use subject guides, and what students like and dislike about subject guides. Through in-depth interviews with 11 university students, it was found that students want subject guides that are clean and simple, and although students do not use subject guides often, they might use them more if subject guides were more specifically customized to meet their needs. In the context of designing subject guides for students, one size does not fit all, and librarians should consult with students and faculty to assess their needs and wants to create guides that are more useful, and more used.

Keywords: subject guides, LibGuides, user-centred, qualitative, academic libraries

Résumé : Cet article présente les résultats d'un projet de recherche qualitative qui s'est penchée sur les façons qu'ont les étudiants d'utiliser les guides par sujets, et sur ce que les étudiants apprécient et n'apprécient pas dans les guides par sujets. À l'aide d'entrevues en profondeur avec onze étudiants universitaires, il est apparu que les étudiants souhaitent des guides par sujets qui soient clairs et simples, et que s'ils n'utilisent pas fréquemment les guides par sujets, cela pourrait changer si ceux-ci étaient conçus pour satisfaire leurs besoins. Lorsqu'on conçoit un guide par sujet destiné aux étudiants, la même configuration peut ne pas convenir à tous, et les bibliothécaires devraient consulter les étudiants et le corps professoral afin d'évaluer leurs besoins et leurs désirs, de façon à créer des guides qui soient plus utiles et plus utilisés.

Mots-clés : guides sujets, BibGuides, centré sur l'utilisateur, qualitative, bibliothèques académiques

Introduction

Most academic librarians have created subject guides in one form or another, whether they were printed "pathfinders" created years ago or web-based subject guides that are more popular today. They synthesize vast amounts of information about databases, websites, journals, and other sources, and list only the

most relevant sources for a particular subject. In an age of information overload, students and researchers alike have millions of potential sources at their fingertips. Certainly, no one would expect a new student to read through an A-to-Z list of all the databases available and then decide which is the best for a particular research problem. Thus it seems almost intuitive that providing a short list of links to the most relevant data divided by subject would be an important tool for students, new researchers, or researchers venturing into the literature of an unfamiliar discipline. However, in spite of the necessity and prevalence of subject guides, there is surprisingly little research on subject guides, particularly user-centred research. Furthermore, the little research that has been done suggests that students are not using subject guides.

This paper reports on a research study conducted at the two largest universities in Edmonton, Alberta, Canada: the University of Alberta and Grant MacEwan University. This study fills a void in the existing research by studying how students actually use subject guides and what students like and dislike about subject guides. This study benefits both LIS scholarship and practice by (a) providing new insight into how students are using subject guides, how subject guides affect information-seeking behaviour, and students' preferences for design and content; and (b) helping practitioners to create subject guides that better meet the needs of students.

Literature review

Student information seeking

There are many studies on students' information-seeking behaviour; in fact, such studies made up 19% of all literature on information seeking in 2006 (Case 2006). Research has overwhelmingly shown that undergraduate students search for information in the easiest possible way to complete research quickly (Given 2002; Leckie 1996; Urquhart and Rowley 2007; Valentine 1993; Warwick et al., 2009). In her study, Barbara Valentine (1993) even referred to the way undergraduate students search for information as "doing it quick and dirty" (302). Students also prefer using information that is freely available on the Web and found with Internet search engines over traditional library resources (Griffiths and Brophy 2005; Martin 2008; OCLC 2002). An Online Computer Library Center (OCLC, 2002) study found that 42% of students use search engines for every assignment compared to only 11% who use the library website for every assignment. A more recent study found not only that students do not like using library resources, but also that they do used only when they could not avoid it or when a specific assignment required the use of library resources (Warwick et al. 2009). Jason Martin (2008) further found that, in regards to this preference for information freely available on the Web over library resources, there was no difference between students who had attended an information literacy instruction session and those who had not.

Much of the above research has been conducted with undergraduate students, but graduate students have also been found to prefer using Internet

search engines over formal library resources (George et al. 2006; Liu and Yang 2004; Liao, Finn and Lu 2007; Kim 2009). In one study Earp (2008) found that Internet search engines are the most important source of information for Master of Education students. Furthermore, graduate students also like to find information in the easiest and fastest way possible (George et al. 2006; Liu and Yang 2004). However, graduate students have their own unique information needs and their own patterns of seeking information. For instance, graduate students read more broadly across their disciplines and they frequently browse library shelves and relevant online literature rather than conduct precise searches (Barrett 2005). In addition, graduate students use citation chaining to expose themselves to new authors in their field, and they are more likely than undergraduate students to use their professors or peers to help them locate information (Barrett 2005; Earp 2008; George et al. 2006).

Both graduate and undergraduate students have different information-seeking behaviours depending on their discipline, location, or situation; unique information-seeking behaviours are exhibited by students in the humanities (Barrett 2005), education students (Earp 2008), distance students (Liu and Yang 2004), mature students (Given 2002), and international students (Liao, Finn, and Lu 2007). Furthermore, students enrolled in pure (i.e., more theoretical) disciplines engage in more information-seeking activities than students enrolled in applied disciplines (Whitmire 2002). Given the wide variety of information-seeking behaviours exhibited by students across different educational levels and disciplines, it follows that a one-size-fits-all approach of delivering reference service—including subject guide design—is ineffectual for academic libraries. Thus services and websites must instead be tailored to the information-seeking behaviours specific to students of particular disciplines (Whitmire 2002).

Subject guides

There have been very few research papers on subject guides and even fewer user-centred research studies. That is not to say that there is no literature on subject guides. The professional literature is full of case studies and practical papers on using LibGuides (McMullin and Hutton 2010; Judd and Montgomery 2009), comparing subject guide software (Moses and Richard 2008), improving subject guides, and using Web 2.0 technologies in subject guides (Corrado 2008; Strutin 2008). There are also a few theoretical papers in the academic literature (Little 2010). However, there are still very few research studies on subject guides.

Early studies

Up until the late 1990s when librarians began mounting their subject guides on the Web, there was not much research on subject guides (Vileno 2007). There were a few early studies on “pathfinders,” which is what print subject guides were often called. Marie Canfield (1972) argued that pathfinders should be logically structured finding tools that provide step-by-step instructions. The following year, she clarified this definition by describing a pathfinder as a “map

to the resources of the library” (Stevens, Canfield, and Gardner 1973, 41). In the 1980s, there were only a few additional studies conducted, which mostly focused on the readability of subject guides (Peterson and Coniglio 1987).

When subject guides became popular on the Web in the late 1990s, much of the research remained focused on readability, usability, and design issues. For instance, Andrew Cox (1996) evaluated new web-based subject guides and argued that the Web would improve subject guides by allowing hyperlinking and multimedia to be integrated into the guides. Cox then went on to argue for 13 design principles that he believed were essential for creating a good subject guide, including having short pages so students would not have to scroll, keeping the style and language consistent, simplifying the language and structure, and providing students with appropriate access points (Cox 1996, 46–47). A few years later, Candice Dahl (2001) argued that there needed to be further work to create subject guides that use simple language and simple design so that they are more readable and more usable for non-specialists. Dahl also suggested that there was a need for further research on how students actually use subject guides (2001, 237).

Subject guide use

Later studies focused on whether students are using subject guides. Morris and Grimes (2000) pointed out that, although librarians spend a lot of time and effort creating subject guides, only 44% keep statistics on how often those subject guides are used. Jackson and Pellack (2004), however, found that by 2004, 67% of libraries were keeping statistics. Reeb and Gibbons (2004) demonstrated that in a survey of one thousand Duke University students, 53% had never used subject guides and 24% rarely used subject guides. They argued, therefore, that most current subject guides are not optimized for students’ needs; they believed these tools would be used more if the subject guides were not general, discipline-based guides but, rather, specialized for a specific course and directly addressed the needs of the students in that course.

User-centred studies

It was not until 2003 that user-centred research began to be conducted, though unfortunately there are only four research studies that fall under this category. First, Trina Magi (2003) studied business students at the University of Vermont to compare the effectiveness of “web-based pathfinders” with traditional print pathfinders. Although she found that students preferred the print version, she also found that there was no noticeable difference between the quality of the bibliographies produced by the control group, who used print pathfinders, and that of the bibliographies produced by the second group, who used web-based pathfinders. Magi (2003, 685) concluded that further qualitative studies are needed to help identify ways to improve web-based pathfinders. A later study by Courtois, Higgins, and Kapur (2005) investigated user satisfaction with the subject guides at George Washington University’s Gelman Library. This was

a quantitative pilot study which asked only one question: “Was this guide helpful?” This survey was added to the bottom of every subject guide. Although the results were not statistically significant—the response rate was less than 2%–52% of respondents found that the subject guides were “very helpful” or “somewhat helpful,” while 40% of respondents replied that the subject guides were either “a little helpful” or “not helpful.”

The two later user-centred studies focused more on how students use subject guides. Shannon Staley’s (2007) research at San José State University concluded that the databases page is highly used but that students rarely use the subject guides for any purpose other than accessing databases. Staley also found that the majority of students who use subject guides find them either “very useful” or “somewhat useful,” and that students who receive information literacy instruction are more likely to both use subject guides and find them useful. On the other hand, the most recent user-centred study, conducted at the University of British Columbia, found that students’ greatest priority is having succinct guides with a clean and simple layout (Hintz et al. 2010). In addition, students do not like, and are skeptical of, Web 2.0 features in subject guides. Authors of both of these studies noticed the need for further research into subject guides, particularly the usage of subject guides.

All of the above studies were important to the designing of this project because they all indicate the need for further study of this topic, specifically the need for a qualitative study of students’ use of subject guides. Although these studies try to determine whether students are using subject guides or how useful they are, they are all quantitative studies. None of them attempt to answer the question of how students are using subject guides, and none of them use qualitative methods. This research project fills that gap in the literature.

Research questions

This research study explored the following four questions about how university students use subject guides:

- How do students use subject guides?
- How do subject guides affect the information-seeking behaviours of university students?
- What elements, if any, of subject guides do students dislike?
- What elements, if any, of subject guides do students like?

Method

This research project took place at the University of Alberta and Grant MacEwan University, in Edmonton, Alberta, Canada, from September 2010 to May 2011. Participants were recruited by responding to posters hung around the two campuses and by responding to a call for participants on the University of Alberta’s Graduate Student Association e-mail list. Three participants also volunteered through snowball sampling. Ethics approval was received from both institutions. Semi-structured interviews were conducted with 11 students from

the University of Alberta and Grant MacEwan University, each lasting between 45 minutes and one hour. The interview guide was divided into three major sections. The first section contained questions about how students typically find information, and used a critical incident technique. Students were asked to talk about a recent assignment they had completed that had required them to search for academic sources, to explain how they had decided where to find that information, and to explain what steps they had taken to find that information. In the second section, students were asked about their experience with subject guides; depending on if they had previously used subject guides, the interview guide differed. Students who had experience with subject guides were asked how they use subject guides to find information and which sections they regularly use. Students who had not used subject guides before were shown examples of subject guides in their discipline and were asked how, and if, they would use these to find information. Finally, in the third section, participants were asked about the features or sections of subject guides they had used or seen that they liked or found helpful, and then about those features that they disliked or found unhelpful.

All interviews were audio-recorded and transcribed by the author at a later date. Coding and analysis were based on the transcripts of the interviews. Each transcript was read twice and NVivo was used to code them; the data were analyzed for themes that addressed each of the four research questions. Allowing the themes to emerge from the data ensured that all themes on subject guides that were relevant to the research questions were included in the results.

Participants

For this study, there were a total of 11 participants, who ranged widely in their level of education and discipline. There were six undergraduate students and five graduate students. Their disciplinary backgrounds included open studies, biological sciences, anthropology, library and information studies, education, business, political science, medicine, and nursing. All were students registered at the University of Alberta or Grant MacEwan University at the time of their participation. The participants were given pseudonyms during the transcription stage; those pseudonyms will be used throughout this paper.

Limitations

The results of this study are somewhat limited. First of all, 82% of the participants (9 out of 11) were female; it is possible that male students have different search strategies or different likes and dislikes about subject guides. Another limitation is that this research only took place at two universities, both of which use the same program, LibGuides, for all of their subject guides. There may be a particular aspect of the policies at the University of Alberta Libraries or Grant MacEwan University Libraries or of the LibGuides interface itself that students dislike; therefore, the data may not be generalizable to libraries that use other subject guide programs or interfaces.

Findings and discussion

Student non-use of subject guides

The first research question to be answered by this study was, how do students use subject guides? This study found that students do not use subject guides, or at least not unless it is a last resort (also found by Reeb and Gibbons 2004).

There were three reasons identified in the data why students do not use subject guides. The first reason was that students often did not know subject guides existed. Sandy said about subject guides, "It looks like there are a lot of good things [with these guides], but I haven't used them because I didn't know they were here." Nadia likewise said, "That's awesome, but only if [I] knew about it." Janet, who had only started using them recently in the first year of her Masters, added, "I had no idea these things existed in my undergrad."

Second, students stated that they do not use subject guides because they prefer finding information on the open Web through a search engine, mainly Google. As Nadia, a first-year science student said, "My first thing is Google, then Wikipedia. . . . It's [using library resources] more of a last resort." This, however, is not a surprising result as previous research has already shown that students prefer Google and information freely available on the Web over library resources (Griffiths and Brophy 2005; Martin 2008; OCLC 2002; George et al. 2006; Kim 2009).

Third, it was also found that students do not use subject guides because they do not feel they need to. Instead, students often have a preferred method or a preferred database that they use almost exclusively in their own discipline. For example, five participants stated that they have a preference for citation chaining from a source that they have already read rather than searching for articles on a database. Janet said, "It's like half the work has already been done for you." Also, many participants stated that they had a preferred database and that they simply find that database on the library home page rather than take the time to locate it through a subject guide. Erin said, "I almost always use Academic Search Complete, and then if I literally can't find anything in that one . . . then I will go to the subject guides." Sandy best sums up this theme in her comment: "In first year I figured out what resources that I liked and just haven't broadened."

There were three particular situations, however, in which students do use subject guides. First, students will use subject guides if they are stuck. Jessie said subject guides "might be helpful if I . . . didn't know where to start. . . . Maybe if it was 11 a.m. on the night before and I didn't have anyone to ask, then this would be valuable." This was echoed by Mary, who described using a subject guide as a "last resort." Second, students will also use a subject guide if they have to find information in a new discipline. Erin used subject guides only when her anthropology studies required her to find dental or geological resources. Janet discovered subject guides when she needed to find legal resources, with which she was not familiar. Ashlee would "go to the sociology subject guide and see what they recommend," when there were social elements to her research

that her favourite database did not address. Third, students will also use subject guides when their instructor specifically suggests that they do, as students are keenly aware that their instructors are the ones who determine the mark for their assignment. Jack explicitly said, "If my instructor mentioned it and told me these are the ones that will definitely help you, then I would come here to do that."

Although most academic libraries spend significant resources creating and maintaining subject guides, the participants in this study stated that they do not use them or that they would only use them in very specific circumstances. Students would prefer to not use subject guides and will only use them if they absolutely have to. Although it has been well established that students prefer Google to subscription library sources, this study also found that the participants preferred many resources and search strategies over subject guides, including databases recommended to them, databases that had worked for them in the past, free internet resources, or citation chaining from a known source.

How students use subject guides

Knowing when students use subject guides still leaves the question of how students actually use subject guides. Although most subject guides contain links to a wide variety of sources such as encyclopedias, websites, and sample catalogue searches, as well as helpful tips for searching and citation, the data suggest that students use subject guides almost exclusively for finding articles. Almost every participant who had used subject guides before answered that they go to subject guides just to find the best database for locating journal articles. Janet said, "That's why I go to the subject guide . . . just to find articles," while Trish said, "When I go there I just click on the one that says 'databases.'" In fact, most participants had only ever clicked on the tab leading to the database section of a guide. Jack perhaps best summarized the attitude of most participants when he said, "I didn't know these were all clickable tabs. Maybe I'd see if I was looking for those. But I'm just looking for articles so I don't want that information. It might be useful. But when I just want articles, I'm not looking around." The discovery that students mostly use subject guides for the databases section was not surprising, as it confirms Staley's (2007) work, which also found that databases are the most heavily used section of subject guides.

Though the databases are most popular, some students do occasionally use other sections. This has also been addressed in another study: Staley (2007) includes a lengthy discussion of the frequent use of other sections. However, the literature has not explored students' thoughts about the usefulness of those other sections. In this study, students who had used other sections liked particular ones, such as the citation help and dictionaries/encyclopedias sections. Those students who had not used them thought they would be helpful in the future. Students were also found to use subject-specific sections. For example, participants Dan and Gina noted how important the case law section is to a legal subject guide. In general, students gave positive comments about other sections, the only exception being the "find books" section, which many students found

unnecessary because a catalogue search box already exists right on the libraries' homepages.

Students' streamlined use of subject guides is not due to a dislike of the other information; rather, students are busy and simply want to find articles for their assignments as quickly as possible. Just as students primarily use subject guides when they are stuck, they will primarily use the other sections if they don't know where to go next for information. As Dan said, "I have explored the tabs and personally I keep things simple. Unless I really need more information, I just go straight to databases."

How do subject guides affect information-seeking behaviour?

The second research question on how subject guides affect the information-seeking behaviours of university students was the most difficult to answer. This question arose from the literature review, where Staley (2007) suggests further research to discover the role subject guides play in helping the information seeking of students completing their assignments. However, the data suggests that there was a false assumption behind this question—namely, that the existence of subject guides must impact the way that students seek information.

In fact, it was found that subject guides do not affect how students seek information. Instead, students want subject guides simply to help them search the same way that they always have searched, only more effectively. As discussed previously, students generally find a preferred method of finding information and they stick with it; therefore, rather than erroneously assuming that the very existence of subject guides influences the information seeking of students, academic librarians should conduct research on how students in their subject area prefer to find information. Using the results of their research, they can then customize their guides to help students more effectively and efficiently use the tools with which they are already familiar.

Student perceptions of subject guides

When asked if there was anything that students particularly liked or disliked about the subject guides they had used or seen, students' answers varied widely; however, a few common themes did emerge. The highest priority for students was that the guides had clean and easy to use designs; this echoes the findings of Hintz et al. (2010). This particular theme can be divided into three major problems that students found in subject guides: (1) clutter; (2) unclear, inconsistent, or confusing labels; and (3) the general look and feel of the guide.

Clutter

The most consistently noted problem with subject guides is that students are overwhelmed by clutter. Jessie pointed to the University of Alberta's religious studies subject guide during her interview, which has 21 tabs on three rows, and commented, "I look at that and I'm like too many tabs, it's too busy, I want no part of that." Jack also stated that subject guides need to be clean and have fewer tabs because "with so many things to take away attention, extra tabs

is just another.” When asked to elaborate, he added, “There isn’t a set amount of tabs [that I would want to see]. Just as long as they are useful or there is a purpose, not just random tabs.” It is not only the number of tabs that students find clutter subject guides but also the number of databases or links on a page, particularly as this increases the amount of scrolling needed to review the page. Jack, for example, admitted that he “wouldn’t scroll down unless I really had to.” This is consistent with Web-usability studies that found that Web users in general scroll only if they believe it is worth their time (Neilson 2010), and also with Hintz et al. (2010) who found that University of British Columbia students prefer less scrolling when using subject guides.

Fixing the problem of students being overwhelmed by library subject guides is no easy task. It requires finding a perfect balance between brevity and maintaining enough breadth and depth to ensure that the guide is useful for students’ and faculties’ diverse research interests. This in turn requires librarians to have a solid understanding of both the subject area and the research interests of faculty. One solution is to make the guides more specific by creating more course guides and splitting the guides for larger disciplines into sub-disciplines. Jessie, a second-year MA in anthropology student, feels overwhelmed by the University of Alberta’s anthropology subject guide, which had 64 databases at the time of the interview. Rather than having a single anthropology guide with so many databases, Jessie felt that it would be both possible and better to divide the guides by the four sub-disciplines of anthropology (physical, cultural, and linguistic anthropology, and archaeology). For example, an archaeology guide could have enough breadth for students working in that sub-discipline by listing relevant databases, such as geology databases, without being cluttered with listings of databases relevant only to students working in another sub-discipline, like cultural anthropology. This finding confirms both what other research has found as well as other participants’ comments that they would use course guides more frequently or at least prefer guides to be divided by sub-discipline (see also Courtious, Higgins, and Kapur 2005, 195; Reeb and Gibbons 2004, 126).

That is not to say that all students want less content on the subject guides to make them more minimalist. On the contrary, students in this study were generally satisfied with the amount of content that the guides presently have but found the presentation of that content overwhelming or difficult. Participants made frequent comments about this, such as Janet’s comment that “you (i.e., subject guides) can have a lot of information, but how you present it is what keeps it from being either overwhelming or manageable.” Students offered various suggestions, such as to simply “condense it” (Nadia), because as Sandy noticed, “a lot of these tabs are redundant.” For instance, some subject guides have both a journals tab and a databases tab, or have tabs that could be conflated under drop-down menus organized by theme. Another suggestion is to put the top three databases on the homepage of the subject guide so that students see them right away. Although previous research has shown that students want clean and simple guides, suggestions emerging from the data of this study were able to explain just how important clean and simple guides are (see Hintz

et al. 2010); students, especially students new to the research process, are easily overwhelmed by too many choices and use subject guides to quickly guide them to a few of the best resources. Therefore, subject guides should contain a limited number of high-quality resources rather than comprehensive lists of everything available to students.

Unclear Language

According to the data, the second major problem with subject guides is that tab labels are often unclear, inconsistent, or confusing. Specifically, participants took issue with the inconsistent labelling of the tab or section of the subject guide where they find articles. There is rarely a standard label for this tab: Common labels include “databases,” “articles,” “find articles,” “legal databases,” or “journals.” Students who use the guides almost exclusively to find quickly the best database become frustrated or annoyed if they are unable to quickly locate where the databases are. In addition, some guides contain both a journals or e-journals tab, which contains a list of relevant journals for that subject, and an articles tab, which is where students will find a list of relevant databases. Trish said, “I wouldn’t know that I could have gone to the database tab and looked up ERIC and had 1,500 journals versus the 5 that are listed on the e-journals tab.” In another specific case, Sandy, a fourth-year medicine student, noted that the labels of the medicine guide’s tabs were “clinical resources,” “find articles,” and “evidence based medicine.” She noticed a lot of repetition of databases under each tab. She found this confusing because “evidence[-based] medicine should encompass articles and clinical resources. That’s what evidence-based medicine is. I don’t understand why there are so many tabs and why they are labelled the way they are.”

Other students commented that tabs labelled “journal impact factors” and “instruction request” confused them. Students generally do not understand jargon from the LIS field, nor do they necessarily understand shorthand codes for the names of local libraries. For example, Trish commented on her confusion that the location of reference books was marked with “HSS” and “EDUC.” During the interview when she realized these meant Rutherford Library (the humanities and social sciences library) and H. T. Courtts Library (the education library), she stated, “That isn’t very clear. What is HSS if you aren’t from here?” This was very frustrating for the participants of this study. Trish goes on to explain her frustration with this anecdote:

It’s kind of like, I’m sending you out to buy groceries in Japan. You have no idea how to read Japanese labels and you kind of have an idea that they have food there and then the things that you pick up and you look on the can are things that you think, “I’d never eat this.” So like. Where do you start and how do you know that that says “beans” and not “octopus eyeballs”?

Like Trish, Cindy also shared how poorly labelled tabs can inhibit students’ information seeking when she admitted that she had never explored the other tabs because she did not know what they contained based on their labels. It

is easy to see how students could quickly become confused by inconsistent labelling. While the meanings of those tab labels may be clear to library staff within the system, they seem to both confuse and discourage many students from the undergraduate to the PhD level who do not understand what they mean. This may result in such students simply leaving the library website. Library staff who are creating subject guides would do well to think carefully about how clear the language they are using would be to a new student. Conducting focus groups or usability testing with the user group could also be useful for avoiding such confusion.

Look and feel of subject guides

The last major problem about guides not being clean and simple involves the design of the navigation and the general look and feel of the guide. Overall, students do not like the tab navigation system of LibGuides at all both for aesthetic reasons and because left-side local navigation menus have become quite standard on the web. Both Janet and Dan commented that left-side navigation menus look cleaner and more modern. The MacEwan students mostly found this to be an issue, due to the fact that MacEwan subject guides use a brightly coloured global navigation menu on the left side of every guide. Three of the four MacEwan students interviewed (Dan, Cindy, and Mary) commented that their eyes were drawn immediately to the left-side navigation menu because of the bright colour and larger font size, and all three admitted that they had originally not even noticed that the tabs were there or that they were clickable because "all the tabs look the same" (Cindy). Mary didn't think to look at the tabs because the navigation menu was so bright. Dan explained that tabs look very outdated: "It looks kind of 90s. . . . I'd rather see navigation on the left side than the tabs. . . . The tabs look outdated and I get the idea that the information is outdated. . . . I haven't seen tabs on websites in years, it doesn't instill trust that this is current." Although it might seem like a minor issue, the outdated look of many subject guides may make students want to go elsewhere. Although the purpose of this study is not to be a Web-usability study, it is worth recommending here that practitioners create subject guides according to standard Web-usability principles and conduct usability testing with their client group.

Although the desire for clean and simple website design was a major theme that arose out of the data, a few minor themes also arose. Several students at both institutions commented that subject guides are not marketed very well, in terms of both their availability and their contents. As stated previously, while students had used subject guides to find databases, many were surprised by other subject guide content such as statistics and online encyclopedias relevant to their discipline, and wished they had known about them earlier. No suggestions on how to better market subject guides arose from the data. However, students suggested that they would use subject guides if their instructors suggested them, so encouraging faculty to promote subject guides to their students could be an effective marketing method. Furthermore, research has shown that

students who have attended an information literacy session are more likely to use subject guides (Staley 2007, 129). Thus, librarians should also actively promote subject guides both in library sessions and at the reference desk.

When students were asked what they like about subject guides, the answers varied strongly. This variation led to the conclusion that students all want very different things. This conclusion is a theme of the research; that is to say, it was discovered through the course of this study that one size does not fit all, and that students have very different information needs depending on their subject of study or where they are in their education. Furthermore, every discipline is different, each with its own sub-divisions and set of users who have different information needs. As Janet points out, “a ‘genre’ tab won’t work in law, and a ‘find legislation’ tab won’t work in an English guide.” Guides, therefore, need to be specifically customized to the intended audience. Librarians who create and maintain subject guides cannot necessarily follow a static template, or copy from another guide. If they wish to create guides that are more helpful, they need to conduct focus groups or speak with their intended users in order to better understand their specific information needs.

Conclusions and suggestions for future research

This research was successful in its goal to gain new insights into how students actually use subject guides and into what elements of subject guides students like and dislike. It was discovered that students rarely use subject guides for any purpose other than to find databases. This has important implications for practice, as many guides do not lead students directly to the most relevant databases for their subject. Equipped with this finding about students’ use of subject guides, librarians should emphasize the databases either by making the databases section the default page or linking to the top three databases directly from the homepage.

This emphasis on the databases is not meant to say that all other sections are completely unused. Although content should be limited to reduce clutter, it was also found that students would use other sections of subject guides if they are stuck or if an instructor tells them to use a certain section. Which sections to include in a subject guide are institution and subject specific, and subject guide creators should conduct their own research with both students and faculty to ensure that the content they include is the most relevant to their users. However, since most students are using subject guides simply for finding the best database, these links should be emphasized for easy access with the least amount of clicks.

In addition, it was found that students want clean and simple guides that are free from clutter and confusing language. To address this preference, practitioners can begin to improve their subject guides by using fewer tabs so that the subject guide does not appear so overwhelming, and by better organizing content within each section so that students do not have to scroll. There are multiple ways to do this. First, librarians should remove unnecessary content and reduce redundancies by combining sections. Second, librarians should create

more specific guides by dividing existing guides according to sub-discipline if possible, especially since students prefer more specific guides. Third, librarians should carefully edit their subject guides to ensure that they are free from unclear language or confusing labels; user testing can help clarify the meaning that students, faculty, and others assign to the labels librarians choose.

When in doubt, the best solution is to conduct focus groups or usability testing in order to better understand the unique needs and preferences of the intended user group. Users have different needs depending on their discipline or education level or both, and one size does not fit all. Therefore, librarians need to take the time to gain an in-depth knowledge of both the disciplines for which they are responsible and the specific needs of their users. Although this is a challenging and time-consuming task, the data from this study suggests that it might be only way to create subject guides that are more useful to students and used more often than current study guides.

While the themes from this research have uncovered new information about how students use subject guides as well as their perceptions of subject guides, confirming these themes quantitatively in future research would be useful. This could be done by, for example, looking at usage statistics. In addition, given that most students stated they do not use subject guides, a study that examines librarians' perceptions of subject guides would contribute to a better understanding of the importance placed on subject guides at many academic libraries. Do librarians make subject guides with students in mind, or are subject guides made as tools for other reference librarians? How often do librarians use subject guides when providing reference help for a discipline outside their own expertise? Do reference librarians who use subject guides have different likes, dislikes, and wants than students? To date, studies have not examined librarians' perceptions of subject guides, and thus this is an area for unique and important research. Finally, as this research only focused on students, conducting research on faculty members' perceptions of subject guides would be very enlightening. As students are not the only users of subject guides, understanding faculty perceptions would help librarians create guides that are more customized and more useful to users at all academic levels.

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