LibGuides and Web-Based Library Guides in Comparison: Is There a Pedagogical Advantage?

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LibGuides and Web-Based Library Guides in Comparison: Is There a Pedagogical Advantage?

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This study investigates whether the platform used to deliver a tutorial matters in online information literacy instruction and assesses the overall quality of an information literacy tutorial assignment given to an undergraduate survey class. The study asks whether there is any pedagogical advantage between information literacy tutorials created in the LibGuides library guide creation software and tutorials created as Web pages. This research question is relevant to current studies of online information literacy tutorials, particularly given the increasingly dominant but under-researched position of LibGuides in the academic library world for delivering guides and tutorials. Two separate groups of students completed LibGuides and Web page versions of the same information literacy tutorial assignment in a university undergraduate communication course. Survey results of these 89 students indicated that both the LibGuides and Web page platforms deliver online instruction content effectively and achieve learning objectives almost equally well. Results also indicated content areas within the assignment that could be strengthened.

KEYWORDS   information literacy, LibGuides, Web page tutorials, online instruction, online tutorials, undergraduate students, pedagogy

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INTRODUCTION

Inspired by increasing interest among librarians from the 1970s onward in helping patrons become information literate, many university libraries now include pathfinders, guides, tutorials on using library services, and other information literacy (IL) tools on their Web sites. These tutorials are often created in-house and can be either general or discipline-specific. They frequently begin as scanned copies of paper guides.

The creation of these online IL instruction materials requires a certain degree of technological skill on the part of the librarian. It is not feasible for a library to give the assignment of digitizing and maintaining a variety of discipline-specific materials to one librarian, or to rely on the library Webmaster to handle the assignment. There has been an ongoing need among librarians to be able to create online guides while avoiding the learning curves associated with Web-based technologies.

This need is often filled by LibGuides, the primary proprietary guide-creation platform within the library world released by Springshare in 2007 (http://springshare.com/). Individual LibGuides pages are flexible in allowing libraries to include their own branding on guides' headers and in allowing librarians to customize content. They do, however, follow a uniform architecture, consisting of standardized header features: tabs, drop-down menus at the top of the screen, and either one, two, or three columns for content display.[1] In contrast, with enough time and skill devoted to its design, an HTML or XML-based Web page can look however the librarian wants it to.

These two methods of designing Web-based library guides parallel each other in the contemporary library world. Does one method have any pedagogical advantage over the other, or do both methods achieve approximately the same results when instructing students on library use? To answer this question, two different versions of the same IL assignment were given to 25 sections of an undergraduate communication course at California State University Chico (CSU Chico) during the fall of 2012. One version of the assignment was created in LibGuides, and the other consisted of a series of Web pages.

For this study, the literature on LibGuides, online IL tutorials, and the methodologies used to assess them was reviewed. Following these summaries is a presentation of the methodology used in this study and the results of a tutorial assessment survey. This article concludes with a discussion of those results, including a comparison of the survey results gathered using the two tutorial platforms, a discussion of the strengths and weaknesses of the tutorial assignment itself as well as a plan for strengthening it, and a discussion of future research directions.

71   LITERATURE REVIEW

72 While librarians have recognized the value of contemporary IL for decades,
73 universities have more recently recognized a need to take an active role
74 in IL initiatives in their curricula, and they have placed library faculty at
75 the center of these initiatives. IL intervention enables students to become
76 lifelong learners, strengthens university curricula, and helps universities meet
77 accreditation standards. The increased centrality of IL to university education
78 has led to bodies of literature on diverse aspects of IL instruction, particularly
79 regarding online instruction.

80 ## IL Definitions and Standards

81 The emergence of IL in university education has created broad initiatives to
82 define and standardize the concept. These initiatives include, among others,
83 the ACRL Information Literacy Competency Standards for Higher Education
84 (2000).
85   The ACRL standards (2000, para. 1) define IL as "a set of abilities to
86 'recognize when information is needed and have the ability to locate, eval-
87 uate, and use effectively the needed information.'" These standards further
88 present IL as enabling a person to do the following:

89 • Determine the extent of the information needed;
90 • Access the needed information effectively and efficiently;
91 • Evaluate information and its sources critically;
92 • Incorporate selected information into one's knowledge base;
93 • Use information effectively to accomplish a specific purpose; and
94 • Understand the economic, legal, and social issues surrounding the use
95   of information, and access and use information ethically and legally.
96   (para. 2)

97 While there are individual differences between the definitions and standards
98 set forth in the other initiatives, they all generally embody the same points
99 as those presented by ACRL.
100   These initiatives have informed many of the online IL tutorials that came
101 into existence during the 2000s. Bradley Brazzeal (2006), for example, dis-
102 cussed applying initiatives to online research guides in general. Ada Emmett
103 and Judith Emde (2007) specifically analyzed the application of the ACRL
104 standards to IL assessment.

IL Assessment

Lorrie Knight (2002) offered a compelling summary of why IL assessment is of value to libraries and universities: It supports a university's ability to be accountable for student learning (thus fulfilling its accreditation requirements), and it demonstrates that the library has developed a metric for measuring IL among students, that the library is functionally instructing these students on the principles of IL, and that the library is able to improve its instruction as needed. Debra Gilchrist and Anne Zald (2008) presented a methodology for applying these principles to a university's IL instruction in a practical and replicable manner.

Andrew Walsh (2009) wrote an extensive review of different methods used in assessing IL tutorials' efficacy in teaching students to be information literate. He found that many assessment methods drawing from constructivist pedagogy involve multiple choice questionnaires or short answer quizzes, though other methods included having students create portfolios, write essays, analyze bibliographies, or participate in simulation activities. Beyond these assessment mechanisms, Walsh mentioned two studies in which librarians observed students as they completed library search tasks and ten studies that incorporated self-assessment into the data gathered from students. Walsh did not treat these methodologies as mutually exclusive to each other, reflecting the fact that some methodologies were combined in individual studies.

Walsh did not address the most common construction of such assessment: the pretest/posttest construction, whereby students take a short quiz before beginning an IL tutorial and then retake the quiz after the tutorial to see if their research abilities improved. Carol McCulley (2009) and Kornelia Tancheva, Camille Andrews, and Gail Steinhart (2007) examined this construction. Both studies reviewed different assessment strategies, and described mixing these strategies together to forge an understanding of what their respective IL instruction programs do and where they need adjustment to further student learning. McCulley employed pre- and posttests, engaged in informal classroom observations and discussions with students, and included performance assessments such as short classroom presentations and annotated bibliographies in her assessment. Tancheva and colleagues did much the same thing, using pre- and posttests, focus groups, and Web-based surveys. Both articles measured knowledge-based and affective methods to assess student learning: measurements of whether or not a student learned and retained assignment content, and whether or not a student believed the assignment achieved its objectives. Tancheva and colleagues also used a third measure to assess gaps between instructor and student perceptions of IL comprehension. Judy Bell (2011) offered an in-depth examination of affective student assessment. These measures form the basis of the methodology used in this research project.

148   While the bulk of the literature on IL discusses assessment, follow-
149 ing the lead of Nancy Dewald (1999) in particular, a smaller but still sig-
150 nificant number of articles have discussed assessment of online tutorials,
151 specifically via university-developed tutorials (Tooman and Sibthorpe 2012;
152 Friehs and Craig 2008; Ivanitskaya et al. 2008; Zoellner, Samson, and Hines
153 2008).
154   Four studies (Su and Kuo 2010; Somoza-Fernández and Abadal 2009;
155 Yang 2009; Lindsay et al. 2006) offered comparisons of different tutorials.
156 Nancy Noe and Barbara Bishop (2005) assessed Auburn University's imple-
157 mentation of the Texas Information Literacy Tutorial (TILT), and Irvin Katz
158 (2007) evaluated iSkills, the forerunner of iCritical Thinking, a product of
159 the Educational Testing Service. Furthermore, there exists a non-institution-
160 specific inventory called Project SAILS, which some libraries have employed
161 to assess their IL tutorials (Rumble and Noe 2009). Yvonne Mery, Jill Newby,
162 and Ke Peng (2011) created an in-house instrument based upon SAILS, while
163 Cara Bradley and Leeanne Romane (2007) adapted SAILS to evaluate their
164 local implementation of TILT.
165   The IL tutorial assignment evaluated in this study was based upon el-
166 ements of the ACRL Standards. In terms of assessment, this study drew
167 on existing IL assessment models operating on both the knowledge-based
168 and affective measurement logics described by McCulley and Tancheva
169 and colleagues. The knowledge-based questions were modeled on those
170 developed by Mery and colleagues and were evaluated by three librar-
171 ians for validity. The questions corresponded to different ACRL (2000)
172 standards.

LibGuides

174 As noted previously, barriers to placing library guides online (requiring cer-
175 tain technical and Web design skills, maintaining the currency and relevance
176 of online guides, and employing generic tutorials such as TILT) have led
177 to the desire for more efficient methods of placing library guides online.
178 LibGuides has emerged during the past four years to offer librarians a sim-
179 ple, fast, and easy-to-use platform for creating online learning content. As of
180 now, over 60,000 librarians have used LibGuides to create online learning
181 content (Springshare 2013). LibGuides has become the primary proprietary
182 platform for guide creation within the library world (a position aided by the
183 lack of direct competitors). Donald Moses and Jennifer Richard (2008) noted
184 SubjectsPlus as a competitor, and Oregon State University developed Library
185 à la Carte, but being open source, these two platforms have substantially
186 different dynamics from LibGuides in terms of how a library would host and
187 maintain them. No other proprietary products have entered the market to
188 compete with LibGuides.

LibGuides combines the popularity of modular IL instruction with the desire to create, adapt, or reuse tutorials (or elements of tutorials) with ease, just as librarians would do with TILT. LibGuides also offers substantial technical advantages over Web-based tutorials. It is, for example, easier to embed instruction videos in LibGuides and share content between LibGuides than it is to perform these tasks with Web pages.

Despite its popularity, there is sparse research on how university students use LibGuides and what benefits it affords them. Jacqueline Solis and Ellen Hampton (2009) mentioned LibGuides in passing, as if acknowledging that no research on the product had been conducted at that time. Since then, a flurry of articles have been published describing the implementation and use of LibGuides in libraries (Mokia and Rolen 2012; Gerberi, Hawthorne, and Larsen 2012; Roberts and Hunter 2011; Adebonojo 2010; Daly 2010; Glassman and Sorensen 2010; Gonzalez and Westbrock 2010; McMullin and Hutton 2010; Miner and Alexander 2010), but these articles offer little to no assessment of the value derived from these guides.[2] Amy Gustavson, Angela Whitehurst, and David Hisle (2011) began filling this gap in the literature by measuring students' responses to an IL tutorial presented in modular fashion via LibGuides. Karen Neves and Sarah Jane Dooley (2011) further filled this gap by examining the correlation between medical topics taught over the course of a semester and topics presented on their library's LibGuides. Sarah Anne Murphy and Elizabeth Black (2013) and Aaron Bowen (2012) presented data on students' reactions to LibGuides embedded in learning management system environments.

While there is a significant body of literature assessing IL presented in Web-based tutorials, the field is still open for assessment regarding IL presented in LibGuides tutorials. Even accounting for the technical advantages possessed by LibGuides, it is unclear whether LibGuides offers any pedagogical advantage over Web pages (or vice versa), or if both platforms are approximately equal in terms of presenting IL tutorials. Only two studies have compared learning outcomes between platforms, both of which predate the introduction of LibGuides (Tempelman-Kluit 2006; Salisbury and Ellis 2003). Julie Robinson and Don Kim (2010) compared LibGuides to three sets of guides created individually by different librarians, but they did not discuss pedagogies or learning outcomes. As such, a comparison of pedagogical value between LibGuides and Web pages is a new area of research.

METHODOLOGY

During the fall 2012 semester, CSU Chico served over 16,000 students, 93 percent of whom were undergraduates (CSU Chico 2013). This student population is served by the Meriam Library, a library of 1.25 million volumes with access to over 130 article databases.

230   The university's College of Communication and Education is divided
231   into two departments: Communication Design and Communication Arts and
232   Sciences. Communication Arts and Sciences further divides itself into two
233   programs: Communication Studies and Communication Sciences and Disor-
234   ders. CSU Chico's Communication Studies program offers a broad survey
235   course called Small Group Communication (Communication 132), which at-
236   tracts substantial numbers of first-year students. When this research was
237   conducted during the fall 2012 semester, there were 812 students enrolled
238   in the 25 sections of Communication 132.
239   As part of their coursework in Communication 132, students are re-
240   quired to participate in the Chico Great Debate, a day-long series of debates
241   involving CSU Chico students and members of the public. The topic of the
242   debate changes every semester, but it is always a controversial topic, and
243   the preparation for the debate always involves a significant amount of library
244   research.

245   ## The Communication 132 Library Assignment

246   Part of students' coursework in Communication 132 is tied into the Great
247   Debate. The Communication 132 IL tutorial assignment introduces students
248   to the concepts of IL. Before the library licensed LibGuides, the library as-
249   signment existed as a series of Web pages arranged in a linear progression.
250   The six sections of the assignment involve the following tasks, drawn from
251   the ACRL (2000) IL standards:

252   - Section one: Students identify keywords and main concepts in their pre-
253   sentation topic and arrange these keywords using Boolean operators.
254   - Section two: Students consider the process of distinguishing a scholarly
255   work from a non-scholarly one and evaluating information for quality.
256   - Section three: Students search Academic Search for scholarly articles on
257   their topic.
258   - Section four: Students search the library catalog for books on their topic.
259   - Section five: Students search for newspaper articles on their topic.
260   - Section six: Students prepare an annotated bibliography.

261   The Communication 132 instructors include a link to the page of instructions
262   for the assignment in their course materials (see Figure 1). This instruction
263   page leads first to a worksheet that students fill out as they progress through
264   the assignment and then successively through each of the assignment's six
265   sections.
266   Following CSU Chico's acquisition of LibGuides in 2009, the assignment
267   was updated and put into LibGuides form (see Figure 2). The objectives
268   of the assignment and much of its content remained the same, with the

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CMST 132
Library Assignment

The purpose of this assignment is to help you find credible, high-quality sources using the Meriam Library that will be of value in giving Great Debate presentations, and to prepare a three-source list of references.

The first component of this assignment you will see is the assignment worksheet, which is at the bottom of this page following these instructions. Past the assignment worksheet, you will proceed through a series of webpages comprising the seven sections of the assignment. You must print out the assignment worksheet, and then fill it out as you proceed through the assignment's pages.

Assignment objectives:

The assignment objectives are to:

- Identify keyword(s) or main concept(s) in your Great Debate topic.
- Search library resources to find relevant information while avoiding irrelevant or less useful information.
- Use the library catalog to find a book's call number, and then use the call number to locate the book in the Meriam Library.
- Write citations for the articles and book you find over the course of the assignment using the American Psychological Association (APA) citation style. The APA citation style is used by many academic fields, not just psychology.
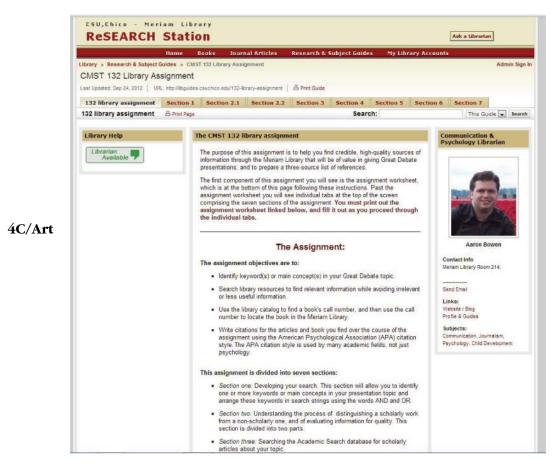
The assignment is divided into seven sections:

- *Section one:* Developing your search. This section will allow you to identify one or more keywords or main concepts in your presentation topic and arrange these keywords in search strings using the words AND and OR.

- *Section two:* Understanding the process of distinguishing a scholarly work from a non-scholarly one, and of evaluating information for quality. This section is divided into two parts.

- *Section three:* Searching the Academic Search database for scholarly articles about your topic.

- *Section four:* Using the library catalog to search for books about your topic.

- *Section five:* Searching for a newspaper article. Though they are non-scholarly, newspaper articles can offer useful information about your topic.

- *Section six:* Preparing an Annotated Bibliography. This section will allow you to properly cite the sources you find and organize them in an annotated bibliography. You will also write an annotation (a short paragraph

FIGURE 1 Screenshot of a section of the Web page version of the assignment. (Color figure available online).

269 worksheet and its six sections. The most significant adjustment was to the
270 architecture of the assignment's onscreen presentation: Rather than existing
271 as a series of Web pages, the assignment's sections became a set of tabs at
272 the top of the screen.

273   The primary purpose of the current research is to evaluate the extent to
274 which an assignment presented in LibGuides holds any pedagogical advan-
275 tage over the same assignment presented in Web page form. To this end, the

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FIGURE 2 Screenshot of a section of the LibGuides version of the assignment. (Color figure available online).

276 original Web page version of the assignment was brought back and updated
277 to reflect the current LibGuides version of the assignment. Each version of
278 the assignment had a unique URL. A link to one of the two assignment
279 platforms was included in the student coursework for all 25 sections of the
280 course. The LibGuides version was seen by students in twelve sections of the
281 course identified via randomly generated numbers between 1 and 25. The
282 Web page version was seen by students in the remaining thirteen sections.
283 In terms of instructional content, the assignment was identical between the
284 two platforms.

285 Experimental Setup

286 For the purpose of conducting the current research, a seventh section
287 was added to each version of the assignment, presenting students with a

288 sixteen-question survey on the students' IL knowledge and their reactions to
289 the assignment. More precisely, two duplicate versions of the survey, asking
290 the same questions, were added to the respective versions of the assignment.
291   Drawing from the knowledge-based and affective measurement log-
292 ics described by McCulley and Tancheva and colleagues, the survey began
293 with six knowledge-based questions corresponding to each of the first six
294 sections of the assignment. This set of questions was followed by five af-
295 fective questions and then five demographic questions. Drafts of all eleven
296 non-demographic survey questions and their responses were reviewed by
297 three librarians. Over the course of several reviews, consensus developed
298 as to which questions corresponded to different ACRL (2000) standards and
299 which answer constituted the "best answer" to a question.
300   The first page of the survey consisted of a statement mandated by
301 CSU Chico's Institutional Review Board that the survey was optional and
302 had no effect on students' assignment grade. As students were not required
303 to respond to the survey, many students decided to forego it. The survey
304 completed by students who had the LibGuides version of the assignment
305 received 53 responses, and the survey completed by students who had the
306 Web page version received 36 responses. The 89 combined survey responses
307 represented 11 percent of the total course enrollment.
308   Forty-seven of the 53 students who completed the survey from the
309 LibGuides version of the assignment responded to the demographic ques-
310 tions, with the exception of the question on gender, which received 45
311 responses. Of these 45, twelve were male (27 percent), and 33 were female
312 (73 percent). Of the 47 who responded to the other questions, 94 percent
313 were 18–20 years old, 79 percent were first-year students, and 91 percent
314 were not communication majors.
315   Thirty-two of the 36 students who completed the survey from the Web
316 page version of the assignment responded to the demographic questions. Of
317 these 32, seven were male (22 percent), and 25 (78 percent) were female. All
318 respondents were 18–20 years old, and all but one were first-year students.
319 Twenty-five (78 percent) were not majoring in communication.
320   Of the 79 total respondents to the survey's demographic questions using
321 both platforms, nineteen (24.1 percent) were male, 58 (73.4 percent) were
322 female, two (2.5 percent) did not indicate a sex, and 76 (96 percent) were
323 18–20 years old. Also of these 79, 68 (86 percent) were first-year students.
324 Furthermore, only six (8 percent) of the 79 were majoring in communication,
325 and none were minoring in communication.

326   RESULTS

327 ## Knowledge-Based Survey Questions

328 The six knowledge-based questions were modeled on those developed by
329 Mery and colleagues, who created an in-house instrument based on Project
330 SAILS. The percent correct for each question is shown in Table 1.

TABLE 1 Percent Correct for Each of the Knowledge-Based Survey Questions

Question	Percent correct LibGuides version	Number of students LibGuides version (total)	Percent correct Web page version	Number of students Web page version (total)
1. For your Great Debate research, you are considering researching the effects of the current economy in the U.S. on higher education. Choose the search string that you think would best locate resources on this subject.	39.2%	51	25.7%	35
2. You are searching for information on the economic impact of wind energy, and you need to find accurate, unbiased information. Which of the following Web sites would be the best resource?	72.0%	50	80.0%	35
3. Where would you look to find scholarly journal articles for your Great Debate research?	83.7%	49	77.1%	35
4. How are books arranged in the library?	78.4%	51	91.4%	35
5. When researching the border fence along the U.S. and Mexican border, which source would provide the most reliable current information?	31.9%	47	17.1%	35
6. Read the citation that follows. What conclusion can you come to?	73.9%	46	67.6%	34

331   The first of these six questions was designed to measure the student's
332 knowledge of the beginning of the research process, specifically, the stu-
333 dent's knowledge of forming a search string. It corresponds to the "Deter-
334 mine the extent of information needed ability" in the ACRL (2000) standards.
335 The question read,

336   For your Great Debate research, you are considering researching the
337   effects of the current economy in the U.S. on higher education. Choose
338   the search string that you think would best locate resources on this
339   subject:

340 • Effects and current and economy and higher and education and USA;
341 • Effects current economy higher education United States;
342 • The effects of the current economy on higher education in the United
343   States;
344 • Effects and higher education and United States [best response].

In terms of which string would best locate resources, the second response was intended to be rejected as the best way to locate resources due to its lack of Boolean operators. Also to be rejected was the third response because of its use of natural language. Of the remaining two responses, "Effects and higher education and United States" was intended to be the correct answer, because it is the most concise. Thirty-nine percent of the students from the LibGuides group and 26 percent of students from the Web Page group chose the correct response. The remaining students' responses varied greatly, independent of platform use; at least six students from each group chose each of the other responses.

Responses to the next three questions garnered more uniform responses. Corresponding to the "Evaluate information and its sources critically" ability in the ACRL (2000) standards, the second survey question was designed to measure students' abilities to evaluate information critically with regard to selecting the most authoritative source. It read,

> You are searching for information on the economic impact of wind energy, and you need to find accurate, unbiased information. Which of the following Web sites would be the best resource? (You can view each link to get a better idea of the type of content each page produces):

- The *Wikipedia* page on wind power (http://en.wikipedia.org/wiki/Wind_power);
- The U.S. Department of Energy homepage (http://www.eere.energy.gov/) [best response];
- The General Electric page on wind turbines (http://www.ge-energy.com/wind);
- The *Wall Street Journal* editorial page (http://online.wsj.com/public/page/news-opinion-commentary.html).

The U.S. Department of Energy homepage was correctly picked by most students using both platforms as having the most accurate and unbiased information. Students were generally able to identify the answer based upon their completion and comprehension of section two of the assignment, regardless of which version they saw.

The third, fourth, and fifth questions all correspond to the "Access the needed information effectively and efficiently" tenet of the ACRL (2000) standards. The third question concerned a student's ability to select the best source for finding a journal article:

> Where would you look to find scholarly journal articles for your Great Debate research?

384   • A library database such as Academic Search [best response];
385   • Education.gov;
386   • The library catalog;
387   • LibraryArticles.org.

388   Most students answered this question correctly as well, regardless of plat-
389   form.
390   Question four assessed a student's knowledge of how books are orga-
391   nized in the Meriam Library:

392   How are books arranged in the library?

393   • By call number [best response];
394   • By author;
395   • Alphabetically by title;
396   • By most current year.

397   The LibGuides version of the survey received a lower proportion of
398   correct responses (78 percent) than the Web page version (91 percent).
399   The phrasing of question five appeared to challenge students,
400   obscuring the measurement of pedagogical advantage. The question
401   read,

402   When researching the border fence along the U.S. and Mexican border,
403   which source would provide the most reliable *current* information?

404   • *Wikipedia*, an online encyclopedia;
405   • *The Journal of International Relations*, a scholarly journal;
406   • *The U.S.-Mexican Border in the Twentieth Century*, a book in the Meriam
407   Library catalog;
408   • *The New York Times*, a newspaper [best response].

409   Only 32 percent of students using the LibGuides version answered correctly,
410   while 17 percent of the students using the Web page version chose the
411   correct response.
412   Question six revealed broad consensus on the correct response from
413   both versions of the assignment. Corresponding to both the "Incorporate
414   selected information into one's knowledge base" and the "Understand the
415   economic, legal, and social issues surrounding the use of information, and
416   access and use information ethically and legally" abilities in the ACRL (2000)
417   standards, this question was designed to assess student recognition of a
418   citation. The question read,

419   Read the citation that follows. What conclusion can you come to?

420   Morio, H., & Buchholz, C. (2009). How anonymous are you online? Ex-

421   amining online social behaviors from a cross-cultural perspective. *AI &*

422   *Society, 23*(2), 297–307. doi:10.1007/s00146-007-0143-0

423   • This is a primary source;

424   • This is a scholarly article [best response];

425   • This is a book chapter;

426   • This is a letter to an editor.

427   Seventy-four percent of the students using the LibGuides version answered

428   correctly, while 68 percent of the students using the Web page version

429   answered correctly.

430   ## Affective Survey Questions

431   In this section, survey respondents were presented with five questions de-

432   signed to measure their affective response to different aspects of the as-

433   signment. The questions asked students to rate their experiences with these

434   aspects on a four-point Likert scale. The first three questions asked students

435   to rank the ease, clarity, and convenience with which they were able to

436   conduct library research after having completed the assignment:

437   Having completed the 132 library assignment, please rate how easy or

438   difficult you find the following aspects of conducting library research:

439   Having completed the 132 library assignment, please rate how clear or

440   unclear you find the following aspects of conducting library research:

441   Having completed the 132 library assignment, please rate how convenient

442   or inconvenient you find the following aspects of conducting library

443   research:

444   Drawn from each of the assignment's six sections, the aspects the students

445   were asked to rate were

446   • Identify keyword(s) or main concept(s) embodied in the Great Debate

447   topic;

448   • Understand the distinction between scholarly and non-scholarly works;

449   • Search for and find relevant scholarly articles while avoiding non-scholarly,

450   irrelevant, and/or less useful information;

451   • Use the library catalog to find a book's call number, and then use the call

452   number to locate the book in the Meriam Library;

453   • Search for and find relevant newspaper articles;

454 • Write an annotated bibliography, including APA citations, for the articles
455   and books you find over the course of the assignment.

456 A response of "1" on the scale indicated that a student found the assignment
457 very easy, very clear, or very convenient, whereas a response of "4" indicated
458 a student found the assignment very difficult, very unclear, or very inconve-
459 nient. Table 2 shows the average responses tended toward easy, clear, and
460 convenient for most aspects, and the responses of the LibGuides and Web
461 page platform users were similar.
462   The final two affective questions employed the same six assignment-
463 based attributes but adjusted the criteria measured by the Likert scale. In the
464 first of these questions, the scale measured the degree of increase in knowl-
465 edge for each attribute. In the second, it measured the degree of increase in
466 satisfaction with engaging in each attribute. The scale remained 1–4 for each
467 question, ranging from "Very significant increase" to "No increase."
468   The two question prompts read,

469   Rate the extent to which your knowledge of different aspects of using the
470   Meriam Library has increased from before you completed the 132 library
471   assignment:

472   Rate the extent to which your satisfaction with different aspects of using
473   the Meriam Library has increased from before you completed the 132
474   library assignment:

475 Each prompt was followed by the six assignment-based attributes. The at-
476 tributes and average responses are presented in Table 3. Again, the responses
477 across platforms were quite similar.

DISCUSSION

479 The results of the first knowledge-based question showed a need to adjust
480 and clarify the portion of the assignment on selecting topical search terms.
481 The existing design of the section explains Boolean operators and has stu-
482 dents begin their research process by developing a search string. Revised
483 content should expand upon this base to include strategies for thinking
484 about topics within the Great Debate topic to form the basis of a research
485 agenda, and strategies for considering potential topics before devising dis-
486 cussion operators and search strings.
487   Despite the pedagogical need to adjust the first section of the assign-
488 ment, the survey results indicated that regardless of the platform used, stu-
489 dents were confused about how to formulate search strings.

TABLE 2 Average Ratings for Ease, Clarity, and Convenience of Completing the Assignment

	LibGuides version			Web page version		
	Easy	Clear	Convenient	Easy	Clear	Convenient
Identify keywords of main concept(s) embodied in the Great Debate Topic	1.9%	1.7%	1.7%	1.9%	1.8%	1.8%
Understand the distinction between scholarly and non-scholarly works	1.9%	1.9%	1.8%	1.9%	1.8%	1.8%
Search for and find relevant scholarly articles while avoiding non-scholarly, irrelevant, and/or less useful information	2.3%	1.9%	2.0%	2.2%	1.9%	2.0%
Use the library catalog to find a book's call number, and then use the call number to locate the book in the Meriam Library	2.0%	1.8%	1.8%	2.0%	1.8%	1.9%
Search for and find relevant newspaper articles	2.1%	2.0%	1.9%	2.0%	1.7%	1.8%
Write an annotated bibliography, including APA citations, for the articles and book you find over the course of the assignment	2.4%	2.0%	2.0%	2.5%	2.2%	2.4%

Note: Ratings were assigned on a scale of 1–4, with 1 being "Very Easy" and 4 being "Very Difficult"; "Very Clear" to "Very Unclear"; and "Very Convenient" to "Very Inconvenient."

TABLE 3 Averages for the Questions on Knowledge of and Satisfaction with Using Library Resources

	LibGuides version		Web page version	
	Knowledge	Satisfaction	Knowledge	Satisfaction
1. Identify keyword(s) or main concept(s) embodied in the Great Debate topic	2.0%	2.1%	2.2%	2.1%
2. Understand the distinction between scholarly and popular works	2.0%	2.2%	2.1%	2.0%
3. Search for and find relevant scholarly articles while avoiding non-scholarly, irrelevant, and/or less useful information	2.1%	2.1%	2.2%	2.1%
4. Use the library catalog to find a book's call number, and then use the call number to locate the book in the Meriam Library	2.0%	2.0%	2.2%	2.2%
5. Search for and find relevant newspaper articles	2.1%	2.1%	2.2%	2.2%
6. Write an annotated bibliography, including APA citation, for the articles and book you find over the course of the assignment	2.2%	2.3%	2.2%	2.3%

Note: Ratings were assigned on a scale of 1–4, with 1 being "Very significant increase" and 4 being "No increase."

The most common incorrect response to the third knowledge-based question was "the library catalog," indicating confusion about the differences between databases and the catalog. The confusion was roughly uniform between the two platforms; most students recognized the scholarly, authoritative resources and chose to search them (thus reinforcing section two of the assignment), but they had difficulties determining which academic resource searches what type of content. This finding parallels emerging research on discovery search systems such as EBSCO Discovery Service (Sarah Williams and Anita Foster 2011; Jody Fagan et al. 2012), which highlights the need for libraries to articulate the nuanced distinction between searching for articles in a database and for books in an online catalog.

The majority of the students responding to the fifth knowledge-based question seem to have overlooked the italicized word "current." Rather, they may have followed the principles presented in section two of the assignment and selected the most authoritative resource (choosing the book on the U.S.-Mexican border because it is more specific to the topic than the *Journal of International Relations*, even though both are scholarly). If so, this question further reinforces the pedagogical success of section two of the assignment, especially in that the Wikipedia response attracted so little attention, even while obscuring measurement of the pedagogical success of section five across each platform.

511   On the Web page version of the assignment, students chose the "book"
512   response 63 percent of the time, as compared with 40 percent on the
513   LibGuides version. It is unclear what caused this difference between the
514   two versions of the assignment, specifically why the book was chosen as
515   a substantially more attractive option than the others among the students
516   using Web page version of the assignment, whereas this question elicited
517   more mixed results from those who saw the LibGuides version. However, it
518   is clear that despite the librarians' consensus on the question's phrasing and
519   answer choices, the question must better emphasize currency as one of the
520   factors in selecting a response. With this issue in mind, the question might
521   be better written with a parenthetical:

522   When researching the border fence along the U.S. and Mexican border,
523   which source would provide the most reliable *current* information (i.e.,
524   within the past three months)?

525   Including the publication date of the book (1999) would offer additional
526   context for deciding which source is best for current information.
527   The first three affective questions revealed little difference between re-
528   sponses from either platform. For the question on ease of conducting library
529   research, the responses and averages are similar for both respondent groups
530   and indicate students' overall ease in completing the assignment, with the
531   partial exception of sections three and six, which proved somewhat more
532   challenging for students in each group. For the question on convenience, the
533   averages are smaller numerically than the averages for the question on ease,
534   demonstrating students on average found the assignment clearer than then
535   they found it to be easy. Furthermore, despite a slightly greater variation in
536   averages for the clarity of the newspaper question, the averages again show
537   little variation between the students who completed the different versions
538   of the assignments. The responses to the third question are also similar for
539   each version of the assignment, with the exception of the averages with the
540   final attribute, indicating a need for further explanation of annotations and
541   APA citations in section six of the assignment.
542   While the responses to the first of the final two affective questions fell
543   mostly into the "significant increase" category for both platforms, students
544   using the LibGuides version did trend toward better success in learning
545   the assignment's material. It is possible that the tabular construction of the
546   LibGuides version provided clearer visual context, with the tabs for schol-
547   arly articles, books, and newspaper articles all visibly demarcated from each
548   other, an idea paralleled by Kate Pittsley and Sara Memmott's findings (2012).
549   This context may not have been as clear in the Web page version, which
550   displayed the sections one at a time in linear fashion. In the second affective
551   question, students expressed greater dissatisfaction with section six than with
552   the rest of the assignment (LibGuides users' and Web page users' satisfaction

553 indicators are both 2.3), reinforcing the finding that the assignment's expla-
554 nation and task of creating an annotated bibliography requires adjustment
555 and clarification.

556   The almost equal performances of survey respondents on the two ver-
557 sions of the assignment show the LibGuides and Web page platform differ-
558 ences were not a significant factor in student learning. In responding to the
559 knowledge-based questions, users of both platforms were confused about
560 the same concepts, while the majority of users were in agreement on cor-
561 rect choices and concepts. In responding to the affective questions, survey
562 responses showed similarities in perceptions between the two groups.

563   As an IL tutorial, the Communication 132 assignment greatly improved
564 students' understanding of the distinction between scholarly and non-
565 scholarly sources, and their ability to search for articles and books. These
566 successes were apparent in both groups; there were minimal differences re-
567 ported in student abilities, with just slightly higher increases in IL skills and
568 satisfaction among LibGuides platform survey respondents.

569 ## Limitations and Future Directions

570 Though the survey respondents represented a broad cross section of under-
571 graduates from different majors at the beginning of their university career
572 (and more critically, were not likely to be significantly different from their
573 peers who did not complete the survey), the low response rate to the sur-
574 veys may render the results ungeneralizable to other universities. As such,
575 incorporating strategies to enhance the survey response rate, such as those
576 discussed by Florian Keusch (2012); Jerold S. Laguilles, Elizabeth A. Williams,
577 and Daniel B. Saunders (2011); Juan Sánchez-Fernández, Francisco Muñoz-
578 Leiva, and Francisco Javier Montoro-Ríos (2011); and Dirk Heerwegh (2006),
579 would benefit future assessment of the Communication 132 assignment, both
580 by improving the response rate and by extension, determining whether or
581 not the respondents are generalizable to the total student enrollment in the
582 class.

583   Following from the research design proposed by Mery and colleagues,
584 this study would further benefit from additional survey questions to draw
585 from when conducting its knowledge-based assessment. Questions could be
586 pretested with students to minimize the prospect of student error caused
587 by question design. Also, multiple semesters of data collection could bet-
588 ter support the reliability of the scores and the validity of the question
589 pool. To this end, the Meriam Library is clarifying sections of the assign-
590 ment that caused student confusion and is developing further assessment
591 questions.

592   In terms of content design and phrasing of the questions, this study will
593 help the Meriam Library improve the assignment. The sections on forming a
594 search statement and on writing an annotated bibliography in particular will

benefit from the creation of new content. Two librarians are developing a stand-alone guide to writing annotated bibliographies.

Other revisions and enhancements following from these observations include placing a site map on each page of the tutorial assignment and making the individual elements of the pages easy to find, similar to Roy Degler and colleagues' recommendations (2012). Both parts of the current section two are switching places with the current section one. With this switch, students will encounter the material about critically evaluating sources before they encounter the section on selecting a research topic and forming a search statement. The newspaper section will include selected news content relating to the Great Debate topic delivered via RSS feed. Plans are underway to design and record a series of Meriam Library-specific IL videos for the 132 assignment as well as other IL assignments at CSU Chico.

A new feature of the IL online instruction landscape, discovery software such as EBSCO Discovery Service (EDS), blurs the distinction between searching for articles and searching for books. This blurring must be addressed in current and future IL instruction, as it will only continue to gain salience within the academic library world. To this end, the Meriam Library is developing an instructional video on EDS and redesigning sections three and four of the 132 assignment to incorporate the video and other EDS-related content, a modification that will also be useful in updating other assignments and tutorials within the library.

The pool of knowledge-based questions will continue to be expanded and tested. Where testing reveals that a question is unclear or requires modification, such as with the current news question in this study, the question will be adjusted. Such adjustments will enable the librarians in the Meriam Library to design questions with increased validity and reliability as they continue to assess the Communication 132 assignment and other library assignments at CSU Chico.

CONCLUSION

LibGuides fits well and has a role to play in the ongoing quest for quality online IL instructional content, though it is not the only element that adds to the quality of an online learning experience. From a technical standpoint, it certainly enables librarians to create online learning content with more ease than with static Web pages. Web pages can be customized to fit a librarian's preferences with enough work, but LibGuides greatly reduces the technical and temporal barriers to completing that work.

From a pedagogical standpoint, LibGuides has value, though not necessarily any more so than any other platform, including static Web pages. Regardless of platform, the survey results for both student user groups are

positive overall. While the results suggest room for improvement in different components of the assignment, these improvements are not created by pedagogical differences between the two platforms considered in this research.

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NOTES

1. Springshare has announced that LibGuides will have the option of having a header box span content in multiple columns in 2014.

2. In addition to discussion of the implementation and use of LibGuides, other articles have analyzed unique aspects of the product or ways of using it. Kathryn Yelinek and colleagues (2010) described the process of replacing their main library homepage with LibGuides. Tony Stankus and Martha Parker (2012) compared and analyzed nursing LibGuides from fifty schools, concluding that there is a lack of a standard design practice for LibGuides due to individual librarians' preferences (and also presumably informed by individual university environments). Alec Sonsteby and Jennifer DeJonghe (2013) conducted a usability study on LibGuides at their university, and similar to Stankus and Parker, they concluded there is currently no consensus on a standard usability design of LibGuides. Susan Metcalf (2013) described using LibGuides as a collection development tool.

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