Measuring Library Impacts through First Year Course Assessment

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Abstract

This study shows the value of library instruction in the building of first-year students' information literacy skills and it illustrates librarians as partners in leading student learning outcome assessment. Using research papers from a required first-year course, raters from units across the institution evaluated student information literacy (IL) skill development. Students performed at a "Proficient First Year" level for most information literacy skill areas. The authors found there was a significant correlation between IL skill development and participation in one or more library instruction sessions. For this reason, the authors posit that liaison librarians are in a stronger and more stable collaborative position when they can demonstrate that their work has positive correlations with student learning.

Keywords: information literacy; library instruction; academic libraries; help-seeking; assessment; first-year students

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Introduction

Institutions of higher education are increasingly requiring libraries to demonstrate their value through ties between librarian-led instruction efforts and advances in student learning. This assessment is important not only for improving library services, but also for demonstrating the impact of the library to accreditors, the alignment of library services to institutional priorities, and the integration of library services throughout the curriculum.

The authors of the present study investigated potential correlations between students' information literacy skill development and participation in at least one library instruction session. Results of the study illustrate librarians as leaders in the important area of student learning outcome assessment, and they demonstrate a positive association between library instruction and IL skill development. Projecting forward, public services librarians who demonstrate that their efforts improve student learning can more easily create deeper collaborative and engaging roles with faculty and curriculum personnel.

Literature Review

The increasing demand for assessment of academic library services is well-documented. The literature includes the wide variety of assessments used to measure the impact of library use and services on student success. The most common form of library instruction to be assessed is the one-shot, in which librarians work with individual instructors to design and implement IL goals in a specific section of a single course. According to Oakleaf and Kaske (2009, p. 277), accrediting bodies are increasingly acknowledging "the importance of information literacy skills, and most accreditation standards have strengthened their emphasis on the teaching roles of libraries." These authors also stress the importance of librarians choosing assessments that can contribute to university-wide evaluation and accreditation efforts.

In a 2015 report published by the Association of College and Research Libraries, Brown and Malenfant also argue for library assessments that align with institutional priorities and include participation from other campus departments and units. Projects of this nature are more useful and of higher quality than those that only impact libraries. This report

highlights findings from multiple libraries that participated in the Assessment in Action initiative, demonstrating that instruction programs have a positive effect on student success, particularly student grades.

One school that participated in the Assessment in Action program (2014), Kapi'Olani Community College, found that the majority of students met or exceeded expectations for proficiency in four areas of IL following library instruction: finding sources, utilizing core print Hawaiian Studies texts, using print or online indices, and determining if information met their research needs. The results also exposed areas where students did not meet the anticipated benchmarks, such as evaluating and citing sources. The data showed that additional library instruction increased the number of students who achieved proficiency in IL skills and improved student research confidence.

Other institutions have taken a variety of approaches to integrating IL into the curriculum and aligning student learning outcomes to institutional goals. Stowe (2013) described the process by which the Brooklyn campus of Long Island University implemented an outcomes assessment program aimed at two different courses: freshmen English composition and a core seminar. Students were given a pre-assessment, multiple-choice quiz prior to their first library session, and an identical post-assessment following their second library session. Librarians found that library sessions improved students' skills in several areas, including correctly identifying databases and their features, and defining an article abstract. Similarly, Colorado State University-Pueblo gave students an ungraded post-test after IL sessions (Seeber, 2013). The quiz measured student mastery of specific IL content, and the results were shared with the course instructor and other librarians. Seeber explained that sharing the results with the small audience built community with faculty who value IL, but limited the broader applicability of the results.

Lowe, Booth, Stone, and Tagge (2015) also examined librarian impact on student learning in the classroom, but did so through research papers drawn from first-year seminar courses across the five Claremont Colleges. Using a rubric that included three information literacy skill areas (Attribution – cited well; Source Evaluation; and Communication of Evidence – synthesized and integrated) and four levels of success, raters generated student scores that were then correlated with the amount of librarian involvement in the courses (e.g., helping write research assignments and teaching library instruction sessions). For all three information literacy learning outcome areas there was a significant correlation between librarian involvement and better developed IL skills. This phenomenon occurred all the way up to the moderate level of librarian involvement, but then the connection was not as great

for the high level of collaboration. Thus, there seems to be a "sweet spot" between too little and too much librarian/instructor collaboration.

Beyond one-shot or course-specific outcomes, Rockman (2002) describes the value in forming strategic alliances across campus, integrating IL into higher education curricula, and tying assessment to student learning outcomes. In addition to tracing the development of IL integration, Rockman describes a multi-campus approach within the California State University system. Here, the Council of Library Directors worked with campus organizations to create an Information Competence Work Group that brought together faculty, administrators, assessment coordinators, librarians, and general education faculty. This group developed IL instructional materials and provided faculty workshops, with the goal of integrating IL into the entire college curriculum. Asserting that performance- or problem-based assessments hold advantage over other types, this work group conducted a telephone survey of 3,309 students across all campuses about real-world information needs. Data was also collected on students' academic status, their comfort levels with writing papers, self-rated library skills, computer use, and reading comprehension. The researchers discovered that freshmen underperformed when compared to older students. The work group also conducted ethnographic research on students and faculty regarding their use of the online library resources. Rockman emphasizes that assessment is most useful when it examines performance-based demonstrations, when it is tied to clearly stated objectives, and when it can demonstrate how outcomes improve student learning.

The literature also offers many examples of matches between library instruction session participation and better grades. Soria, et.al. (2013, 2014) have conducted multiple studies that examined student help-seeking behavior and participation in library instruction, and the impact on first-year GPA and first-to-second-year retention. They found that students who used the library at least once during the first year had a statistically significant difference in GPA and were more likely to continue from their first to their second year (Soria, et. al., 2014). An additional study by the same authors also found that the strongest correlations between library use, GPA, and retention were connected to the number of library resources accessed, and to participation in library instruction (Soria, et. al., 2013). Additionally, a study conducted by Bowles-Terry (2012) found that there was a significant relationship between upper-level IL instruction and student GPAs upon graduation.

Other studies have sought to connect library instruction to specific student success measures. Vance, et.al. (2012) investigated the impact of instruction on student retention and first-year GPA. Studying two years of student data, they found that instruction did not

have a significant impact on retention from first to second year; they posit that it may be too difficult to isolate instruction as a single variable of impact. The study was successful, however, in finding a significant correlation between instruction and first-year GPA. According to their study, students who participated in library instruction earned a GPA on average 0.09 higher than their counterparts who did not receive library instruction. Wong and Cmor (2011) conducted a similar study at Hong Kong Baptist University, where they analyzed data for 8,000 students to see if library workshop attendance had an impact on students' GPA at graduation. They found that 24% of their sample groups showed a positive correlation between workshop attendance and GPA. More interestingly, they also found that attendance in more workshops equated to higher GPAs. Overall, they found that only one or two workshops had little impact on student GPA, but when students attended three or more sessions, a positive relationship between their GPA and instruction was more likely to exist. In conclusion, the literature demonstrates the continuing importance of measuring the impact of library instruction on different measures of student success.

Background

Washington State University is a public research institution, with about 30,000 students across multiple campuses. In 2009, WSU began planning for a major redesign of its general education program. A central question of the project was how to restructure World Civilizations, the only required course for all undergraduates. In fall 2012, the new UCORE (University Common Requirements) program began with Roots of Contemporary Issues (RCI), having replaced World Civilizations as the required undergraduate course. The UCORE system is centrally based on building student skill proficiency in the Seven Learning Goals and RCI addresses five of them, including information literacy (Washington State University, 2016).

About 20% of the RCI course grade is determined by a term-length research project. Although it has varied a bit across Washington State University campuses and the four years of RCI's existence, the project consists of four library research assignments (LRAs) and culminates in a final written paper. The LRAs are spaced evenly throughout the first three-quarters of the term, as students progress from general topic ideas to research questions to thesis statements. Students also find sources with particular formats (e.g., historical monographs, time period specific primary sources), describe how those sources help answer their research questions and/or inform their theses, and cite all supporting materials according to Chicago Style formatting. During the timeframe addressed in this paper,

students were asked to find a contemporary newspaper article and specialized encyclopedia entry on their topic (LRA I), two books addressing the historical roots of their topic (LRA II and IV), an article from a scholarly history journal, and a documentary (e.g., historical newspaper article) or non-documentary (e.g., speech, letter, diary, interview) primary source (LRA III). LRA IV required students to submit a bibliography of their collected sources and an outline of their essay organized around a finalized thesis, and to use Chicago Style footnoting. Final essays were five to ten pages in length and featured a systematic account of historical roots of a contemporary issue across time and geographic regions. Beyond the specific structural description of the RCI final papers, it is generally valuable to note that the use of final research papers to perform assessment is advantageous as it measures actual student learning objects that are tied to course and institutional learning outcomes (Rockman, 2002; Lowe, et al., 2015).

The development of the LRAs was a collaborative undertaking between the RCI Program and the Library Instruction Team. During fall term of 2011, an RCI instructor and an instruction librarian wrote the rough drafts of the LRAs and final essay guidelines. All RCI instructors and public services librarians were given opportunities to comment on the materials. In the 2014-2015 year, the number of section offerings across the campuses was 78 and student enrollment was over 4,600. Library staff and faculty helped by assisting students at public services desks and through classroom instruction. The impact of the latter on student learning is the main focus of this study.

Methods

This paper focuses on work involving student papers from 2014-15. The assessment project was led by the library liaison to the RCI program and its director. These two principle investigators were joined by six RCI instructors, two RCI graduate student teaching assistants, the History Department's Assessment Coordinator, and an English Composition/Writing Program representative. This group was paid to participate in the study with Office of Undergraduate Education funding.

A spreadsheet of the population of RCI students from academic year 2014-2015 (just over 4,600 students) was created and a random selection was drawn with weighted sampling toward the Vancouver regional campus. The researchers wanted to be sure the numbers of the Vancouver campus subjects were adequate for statistical analysis. The total number of student papers in the study was 244. Papers were anonymized, uploaded to a central

electronic space, and distributed to ensure every document was rated twice: once each by two different raters.

The assessment rubric utilized for the project was drafted by mapping RCI research assignment goals to both course level and UCORE (university level) IL learning outcomes. The RCI librarian consulted a few final essay grading rubrics previously developed by RCI instructors and several AAC&U VALUE rubrics. The rubric took final shape during a two-hour norming session where raters individually examined two student essays, and mutually discussed scoring rationales and ideals.

In its final format the rubric (see Appendix) addressed the following IL learning outcomes:

- Thesis Development: A defensible argument and organizational framework for the essay
- Argument Building: Relevant and convincing historical evidence to construct an argument
- Historical Context: Historical aspects (social, economic, political, etc.) beyond the United States
- Source Type Integration: Scholarly, historical, and relevant sources for chosen topic
- Source Analysis: Awareness of the relationship between the nature of sources and conclusions that can be drawn
- Ethical Source Citation: Complete and accurate formatting (Chicago 16th Notes/Bibliography)

Each of these learning outcomes included five potential levels of achievement: Absent, Minimal, Emerging, Developing, and Competent. Mean average student performance was compared across the IL learning outcomes. This study is similar to Lowe, Booth, Stone and Tagge (2015) in that it used a rubric to examine final student research papers after a library instruction session. However, an advantage to the present study is that all students completed the same assignment for the same course, and raters included both a librarian and teaching faculty.

During the inaugural RCI year, there were no in-person library instruction sessions on the Pullman campus, as online tutorials were expected to meet any student research training needs. By the third year (2014-15), however, 33 of the 54 (61%) RCI sections included at least one library session. Many of the sections had one class period for each LRA, while others had just one or two sessions total. The most commonly addressed topic during the sessions was how to find a historical monograph, followed closely by how to locate history

journal articles and primary sources. All of the sessions had the same basic format, a brief introduction to the LRA and finding particular resource types, followed by time to individually search for materials online and throughout the physical spaces of the library. In order to accommodate RCI sections with 50 to 75 students, the instruction sessions are taught in a classroom with 40 library computers, plus there is a large perimeter area where students used their laptops.

During the 2014-15 academic year, all RCI classes (n=9) on the Vancouver campus received library instruction sessions. The standardized session was taught by one of three librarians during the second week of the term. While the session content addressed finding all the various kinds of materials required across all of the LRAs, it was also focused on having students use a topic relevant newspaper article and specialized encyclopedia entry to develop their research questions.

Results

For five of the six IL-related student learning outcomes: Ethical Source Citation (M = 3.21, or average on a 1 to 5 scale), Source Type Integration (M = 3.13), Argument Building (M = 2.95), Historical Context (M = 2.89), and Thesis Development (M = 2.62), students performed at the Emerging or "Proficient First Year" level. Students performed at Minimal or "Developing First Year" level on the Source Analysis outcome (M = 2.28).

Of the 244 students in the study, 159 (65%) attended at least one RCI library instruction session, while 85 (35%) had none. Statistical analysis was undertaken examining whether students who had at least one library instruction session did statistically better in terms of IL skill development across the six IL learning outcomes. Rather than conducting a t-test, the authors used Ordinary Least Squares regression modeling (Wood, 2004). This choice was made to control for which campus students attended because the likelihood of having a library session differed across the two campuses. Having library instruction correlated with significantly higher scores in: Argument Building (p<.05), Source Type Integration (p<.05), and Ethical Source Citation (p<.01). The three IL ability areas without a significant relationship were Thesis Development, Historical Context, and Source Analysis (see Table 1).

Table 1: Regression estimates of IL skill performance on library instruction participation and campus location

	Thesis Development		Argument Building		Historical Context		Source Type Integration		Source Analysis		Ethical Source Citation	
	b	(se)	b	(se)	b	(se)	b	(se)	b	(se)	b	(se)
LI Yes	.05	.10	.20*	.10	-.01	.13	.25*	.11	.06	.11	.36**	.12
Campus	.00	.11	.17	.11	.28	.15	.10	.13	.29*	.12	.35*	.14
constant	1.59	.07	1.78	.07	1.84	.10	1.94	.09	1.17	.08	1.89	.09
N=244; * = p<.05; ** = p<.01; *** = p<.001												

Discussion

Ethical Source Citation, both in terms of final bibliographies and internal footnotes and citations, was a strength of the students in their final essays relative to most of the other learning outcomes. The authors speculate that this is the result of students practicing across the four LRAs while getting instructor and/or TA feedback during each stage. LRA 4 featured two specific questions about the footnoting in Chicago Style, which gave students timely guided practice for creating their soon-to-be-submitted final essay. While source citation was not part of the demonstration portion of the library instruction sessions, it was commonly addressed during the individual work periods. Students frequently had detail-oriented queries about how to use Chicago Style.

It was encouraging to identify the direct correlation between student participation in one or more library instruction sessions and higher scores on the IL skill development rubric. The two parts of each library session matched well with the patterns in student achievement. Concerning the Source Type Integration outcome, the session-opening librarian demonstration helped students focus on the most appropriate database(s), keywords, search strategies, and source type/date limiters. There were also discussions about the characteristics of historian-produced sources, and what makes scholarly, primary, or secondary sources. This finding substantiates the work from Johnson (2011), which showed students incorporate more scholarly works into their writing after library instruction. Regarding the Argument Building outcome, the library sessions helped guide students to relevant historical and scholarly materials. Each session included discussion between students, instructors, and librarians about the usefulness of specific sources.

The Thesis Development and Historical Context outcomes lacked significant correlation to library instruction. This is a logical result because the emphasis of the sessions was on finding and interpreting gathered items, not on creating the framework for the paper, nor focusing on historical figures and events. While the Source Analysis outcome seemed like a logical fit for library instruction, the RCI interpretation of "nature of sources" refers to demonstrating an understanding of how a source's authors/publishers and the piece itself connect to the larger body of literature in the disciplinary area. At the first-year level, students characteristically score low on this outcome. Accordingly, this is not a central focus of RCI.

Conclusion

The authors believe this study bolsters the literature concerning the impact of IL instruction on student learning outcomes. The study is comprehensive (i.e., institution-wide with samples from the entire first-year class), and it includes direct assessment of student IL skill development based on performance. However, the study has some limitations. There was some variety in the content of RCI library instruction, especially across campuses and in the total number of sessions students attended. Unlike the Lowe, Booth, Stone, and Tagge (2015) study, the authors of this paper did not look at the number of library sessions or measure any other librarian/instructor collaboration outside the classroom. Additionally, the researchers did not know if the students whose papers were rated were present for their library session(s). Although an average of 75-95% of the students enrolled in any RCI course section attend library sessions, it is possible that students with analyzed papers were absent. In terms of the statistical analysis, this limitation may be offset because if the sample students did not receive library instruction, this serves to underestimate the positive effects of library instruction.

The lack of a pre-assessment baseline is another potential limitation. One might argue that researchers should know the quality of student IL skills prior to library sessions. While this line of reasoning has merit, it would have been quite difficult to do pre-testing. In order to make a pre-assessment match the post-assessment, the librarian authors along with the rater group of faculty instructors would need to have collected and analyzed pre-assessment research papers. This is unrealistic in terms of time and cost. It might also be possible to administer a simpler objective tool as a measure of pre-assessment IL skill development, but that would lack any connection to the final essay rubric rating project described in this paper. If it were reasonable to believe there were pre-existing differences between people who did or did not have library instruction, then a pre-assessment would be key. However,

there are no such conditions of note. Two central differentiating factors present in this study are different class sections and instructors who may care more about research skill development, but student baseline IL skills would not be substantially impacted by this.

Despite these limitations, this study has a reliable methodological structure. The authors plan to broaden the study to include all four years of RCI's lifespan to date, creating larger samples for potentially more valid conclusions, and perhaps revealing changes or trends over time. The researchers also aim to collaborate with Office of Assessment of Teaching and Learning, so student demographics and academic characteristics can be factored into the thinking about the best ways to nurture IL skills. Finally, further work will be done to determine if the positive correlation with more advanced IL skills was amplified with participation in more library instruction sessions.

References

Assessment in Action Program. American Library Association. (2014). *Kapiolani Community College: Project description.* Retrieved from https://apply.ala.org/aia/docs/project/5325.

Association of American Colleges and Universities. (2013). *Information literacy VALUE rubric.* Retrieved from http://www.aacu.org/value/rubrics/information-literacy.

Bowles-Terry, M. (2012). Library instruction and academic success: a mixed-methods assessment of a library instruction program. *Evidence Based Library and Information Practice*, 7(1), 82-95. http://dx.doi.org/10.18438/b8ps4d.

Brown, K., & Malenfant, K.J. (2015). *Academic library contributions to student success: documented practices from the field.* Retrieved from http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/contributions_report.pdf.

Johnson, C., Anelli, C.M., Galbraith, B.J., & Green, K.A. (2011). Information literacy instruction and assessment in an honors college science fundamentals course. *College and Research Libraries, 72*(6), 533-47. http://dx.doi.org/10.5860/crl-166.

Lowe, M. S., Booth, C., Stone, S., & Tagge, N. (2015). Impacting information literacy learning first-year seminars: A rubric-based evaluation. *portal: Libraries and the Academy, 15*(3), 489-512. http://dx.doi.org/10.1353/pla.2015.0030.

Miller, S. & Murillo, N. (2011). Why don't students ask librarians for help? Undergraduate help-seeking behavior in three academic libraries, In: L.M. Duke & A.D. Asher (Eds.), *College libraries and student culture.* Chicago: American Library Association, 49-70.

Oakleaf, M. & Kaske, N. (2009). Guiding questions for assessing information literacy in higher education. *portal: Libraries and the Academy*, 9(2), 273-286. http://dx.doi.org/10.1353/pla.0.0046.

Pellegrino, C. (2012). Does telling them to ask for help work?: Investigating library help-seeking behaviors in college undergraduates. *Reference and User Services Quarterly, 51*(3), 272-77. http://dx.doi.org/10.5860/rusq.51n3.272.

Rockman, I. F. (2002). Strengthening connections between information literacy, general education, and assessment efforts. *Library Trends 51*(2), 185-198.

Seeber, K. (2013). Using assessment results to reinforce campus partnerships. *College & Undergraduate Libraries*, 20(3-4), 352-365. http://dx.doi.org/10.1080/10691316.2013.829366.

Soria, K.M., Fransen, J., & Nackerud, S. (2013). Library use and undergraduate student outcomes: new evidence for students' retention and academic success. *portal: Libraries and the Academy*, 13(2), 147-164. http://dx.doi.org/10.1353/pla.2013.0010.

Soria, K.M., Fransen, J., & Nackerud, S. (2014). Stacks, serials, search engines, and students' success: first-year undergraduate students' library use, academic achievement, and retention. *Journal of Academic Librarianship*, 40(1), 84-91. http://dx.doi.org/10.1016/j.acalib.2013.12.002.

Stowe, B. (2013). Designing and implementing an information literacy instruction outcomes assessment program. *College and Undergraduate Libraries*, 20(3-4). 242-276. http://dx.doi.org/10.80/10691316.2013.829363.

Vance, J.M., Kirk, R., & Gardner, J.G. (2012). Measuring the impact of library instruction on freshmen success and persistence: A quantitative analysis. *Communications in Information Literacy, 6*(1), 49-58.

Washington State University. (2016). *Undergraduate Graduation Requirements: Seven Learning Goals and Outcomes.* Retrieved from https://ucore.wsu.edu/assessment/learning-goals/.

Wong, S.H.R., & Cmor, D. (2011). Measuring association between library instruction and graduation GPA. *College and Research Libraries,* 72(5), 464-73. http://dx.doi.org/10.5860/crl-151.

Wood, B.D. & Park, Sung Ho. (2004). Ordinary Least Squares (OLS), In: M.S. Lewis-Beck, A. Bryman, & T.F. Liao (Eds.), *The SAGE Encyclopedia of Social Science Research Methods.* Thousand Oaks, CA: SAGE Publications, Inc., 767-777. http://dx.doi.org/10.4135/9781412950589.n675.

Appendix: Information Literacy Assessment Rubric – RCI Final Paper Assessment Project 2014-15

	Absent	Minimal (middle of first year)	Emerging (end of first year)	Developing (middle of undergraduate years)	Competent (end of undergraduate years)
Thesis Development	Does not establish a thesis.	Thesis is implicit, incomplete, or unclear, lacking organizational structure and direction for the essay.	Thesis is somewhat clear, presents an argument, and while ineffective or unclear, attempts to provide an organizational structure and direction for the essay.	Thesis clearly identifiable articulated and provides a defensible argument and organizational framework and direction for the essay.	Thesis represents a very thoughtful research question, and sets out a very clear framework for the rest of the essay.
Argument Building	No use of historical evidence to build arguments.	Minimal use of historical evidence to build arguments, or evidence presented is largely irrelevant or largely unconvincing.	Builds arguments using historical evidence unevenly. Relatively split between convincing and unconvincing, relevant and irrelevant.	Builds arguments using historical evidence that is mostly relevant and convincing.	All historical evidence used to build arguments is relevant, strong, and convincing.
Historical Context	No inclusion historical context.	Mentions at least one aspect of historical context beyond the U.S. (which may include cultural, social, economic, gender, political, intellectual or education) – without development.	Partially develops at least one aspect of historical context beyond the U.S. (which may include cultural, social, economic, gender, political, intellectual or education) -- with limited success.	Develops at least one aspect of historical context beyond the U.S. (which may include cultural, social, economic, gender, political, intellectual or education).	Develops two or more aspects of historical context beyond the U.S. (which may include cultural, social, economic, gender, political, intellectual or education).
Source Type Integration	No use of scholarly, historical, or relevant sources.	Few sources scholarly, historical, or relevant to chosen topic.	Most sources scholarly, historical, or relevant to chosen topic.	Most sources scholarly, historical, and relevant to chosen topic.	All sources scholarly, historical, and relevant to chosen topic.

Source Analysis	No use of sources No analysis offered.	Treats sources superficially, but identifies the nature of sources.	In some cases, shows awareness of the relationship between the nature of sources and the conclusions that can be made from them.	Shows general awareness of the relationship between the nature of sources and the conclusions that can be made from them.	Competent and consistent awareness of the relationship between the nature of sources and the corresponding conclusions that can be made from them.
Ethical Source Citation	No citations included.	Some necessary citations included, but many are incomplete, poorly formatted, and/or missing.	Necessary citations included, but incomplete and/or poorly formatted.	Necessary citations included and complete with minimal formatting errors.	Necessary citations included, complete, and have correct formatting throughout.