"Measuring That Which Is Valued": Implementing and Managing Efficient Formative Assessment and Evaluation of Library Instruction

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Abstract

Libraries can demonstrate value through evaluation and assessment. This study describes the development and piloting of a hybrid evaluation and assessment instrument in a Freshman Composition course at the University of South Dakota. The authors will discuss data analysis, reflection, and revision of the evaluation/assessment tool. The University Libraries are implementing scalable formative assessment and evaluation of library instruction using the Information Literacy Instruction Assessment Cycle and simple cost-effective delivery methods that allow quick and efficient collection and analysis of data in a variety of instructional settings.

Assessment and Evaluation

The academic community has recognized academic libraries "the heart of campus," yet today academic libraries struggle to remain "relevant" while facing the same kinds of scrutiny and demands for accountability as all of higher education (Oakleaf, *Value*, 11). Universities and colleges, and their constituent units, must demonstrate their contributions to student learning, using measurable or observable outcomes. Assessment can provide proof of student achievement to external constituents within and across institutions. Additionally, assessment affords data necessary to determine how well units are meeting institutional goals and to inform continuous improvement to better respond to institutional needs (Oakleaf, "Are They Learning?" 61-62). Academic libraries engage in assessment to demonstrate support of their institution's mission and their value to stakeholders (Daily). Library-internal reasons for assessment include "initiating and maintaining an ongoing discussion of student...learning, integrating assessment into the regular workflow,...and aligning the instructional work of the library with the mission of the overarching institution" (Oakleaf, "Writing," 81).

In higher education's current business-oriented funding models, students represent not only learners, but also customers. Libraries can demonstrate return on investment (ROI) through student-satisfaction surveys. Such evaluation can be a valuable source of data about the quality of information-literacy (IL) instruction and student affect, which plays an important role in learning (Schilling and Applegate 258, 262). It is a challenge to meet demands to assess student learning and evaluate instruction efficiently during one-shot library sessions.

Assessment and Evaluation in the University Libraries

Librarians at the University of South Dakota (USD) have additional reasons to engage in assessment and evaluation. As faculty, USD's librarians are required to undergo regular evaluation. This affords data on the quality of teaching and possible areas of instructional concern.

Since 2012 USD has embraced Responsibility Center Management (RCM), a budgeting model that "incentivizes" ROI by "assign[ing] all attributable costs and income to each academic unit; ...provid[ing] appropriate incentives for each academic unit to increase income and cut costs; and...allocat[ing] all costs of other units such as library or physical plant to each academic unit" (Yurtseven). As a designated support service center, the University Libraries (UL) are expected to "satisfy customer expectations" and develop "support center priorities" in response to "customer input" (USD Budget Allocation Model Advisory Committee). The UL currently provide output statistics (circulation, building use, etc.) as evidence of service. Evaluation and assessment of instruction can demonstrate customer satisfaction and show that the library is meeting the expectations of the academic units receiving instruction (Daily).

The UL's latest strategic plan emphasizes teaching excellence and assessment in recognition of their importance in demonstrating the library's value (University Libraries and Wegner Health Science Information Center 1-2). By nurturing evidence-based practice, the UL affirms its participation in USD's long-standing culture of assessment. Demonstrating effective teaching, academic achievement, and program success are important undertakings that justify library funding and situate the library faculty within legitimate institutional faculty activities.

Creating the Assessment Plan for Freshman Composition

Farkas, Hinchliffe, and Houk define a culture of assessment as "one where assessment is a regular part of institutional practice...a core part of what the library does, just like materials acquisition or reference service" (151). The UL Assessment Committee is currently mapping library resources and services to institutional needs (Oakleaf, "Are They Learning?" 68-69). The UL provide mandated IL instruction in several general-education courses, making instruction an obvious choice for assessment. Since all freshmen are required to enroll in Freshman Composition (ENGL 101) during their first semester, it could provide rich data on student learning of IL. Therefore, the librarians chose this course to pilot formative assessment of library instruction.

In drafting the Assessment Plan for Freshman Composition, the IL Coordinator utilized the IL Instruction Assessment Cycle or ILIAC (Oakleaf, "Information Literacy Instruction Assessment Cycle" 541). According to Oakleaf, "[t]he ILIAC encourages librarians to articulate learning outcomes clearly, analyze them meaningfully, celebrate learning achievements, and diagnose problem areas...result[ing] in improved student learning and increased librarian instructional skills" (539). The ILIAC consists of the following stages: reviewing program learning goals, identifying "specific, teachable, assessable" learning outcomes, creating and enacting learning activities, gathering data to check learning,

interpreting, reflecting, and enacting decisions based on the data; communicating results, and "clos[ing] the loop" by repeating the cycle for continuous assessment and improvement (543-546).

The IL Coordinator consulted the South Dakota Board of Regents' (SDBOR) *Baccalaureate General Education Curriculum* to determine IL learning goals. Freshman Composition partially fulfills the Goal #1 Writing requirement:

GOAL #1: Students will write effectively and responsibly and understand and interpret the written expression of others.

Student Learning Outcomes: Students will:

- A. Write using standard American English, including correct punctuation, grammar, and sentence structure.
- B. Write logically.
- C. Write persuasively, with a variety of rhetorical strategies (e.g., expository, argumentative, descriptive).
- D. Incorporate formal research and documentation into their writing, includingresearch obtained through modern, technology-based research tools. (SDBOR 2)

Additionally, ENGL 101 partially fulfills the Goal #7 IL requirement (SDBOR 4), whose student learning objectives correspond to ACRL's *IL Competency Standards for Higher Education* (10-14).

GOAL #7: Students will recognize when information is needed and have the ability to locate, organize, critically evaluate, and effectively use information from a variety of sources with intellectual integrity.

Student Learning Outcomes: Students will:

- 1. Determine the extent of information needed,
- 2. Access the needed information effectively and efficiently,
- 3. Evaluate information and its sources critically,
- 4. Use information effectively to accomplish a specific purpose, and
- 5. Use information in an ethical and legal manner. (SDBOR 4)

Course instructors, most of whom are English teaching assistants, certify their students' IL. Since course-grading rubrics do not include IL outcomes, it is unlikely that student grades reflect learning of IL concepts.

Currently, the UL facilitate library sessions for ENGL 101 that support the Research-Based Academic Argument (RBAA), a general research paper. The IL Coordinator created an assessment plan focusing on that assignment while attending ACRL's Assessment Immersion

in 2014 and subsequently refined it in consultation with the Instructional Services (IS) Librarian (see table 1).

Table 1 Draft Assessment Plan for ENGL 101

1.	Learning outcomes: What	Access information effectively and efficiently in order to			
	do you want the student to	find scholarly resources for an academic research paper.			
	be able to do?				
2.	Curriculum: What does	1. Choose appropriate resources/tools.			
	the student need to learn?	2. Use effective search strategies.			
		3. Refine the search strategy as needed.			
3.	Pedagogy: What type of instruction will enable the learning?	 Flipped instruction: Five online lessons and exercises on research skills, catalog searching, database searching, web evaluation, and academic integrity. In-class active learning: Short research demonstration followed by assignment-focused searching for resources, with a scaffold approach provided by library faculty. 			
4.	Assessment: How will the	Students write a "one-minute paper" as part of the student			
	student demonstrate the	evaluation of the session, selecting or summarizing the most			
	learning?	important thing they have learned in the session.			
5.	Criteria for evaluation:	XX% of students identify a useful search process or			
	How will I know the	resource that was taught during the library session. (The			
	student has done this?	percentage to be determined by benchmarking.)			

Source: Leibiger, Carol A. *Draft Student-Learning Assessment Plan for Freshman Composition*. Vermillion, SD: University Libraries, 2014. Print.

Hybrid Evaluation and Assessment

Since ENGL 101 is required of all freshmen during their first semester at USD, there are usually over fifty course sections requiring IL instruction. Therefore, all eleven members of Reference, Research, and Instructional Services (RRIS), most of whom are library faculty, share this instruction. To assure uniformity and quality, the IL Coordinator engages in instruction design, providing a lesson plan and a LibGuide that functions as an instructional script (Leibiger, *LibGuides on Steroids*). Evaluation can supply data for faculty growth and improvement in teaching. The IL Coordinator decided to include evaluation and assessment in a single, scalable activity.

The IL Coordinator created and circulated a student-satisfaction and assessment survey in order to ensure buy-in from RRIS members. RRIS members discussed revision of the survey in a meeting. After all members had collaborated in its revision, the form became available for online use.

The evaluation consists of five questions eliciting feedback on observable behaviors associated with effective teaching and positive student affect (Arnold 8-12). Four items are

closed-response questions with five Likert-scale answers ranging from "strongly disagree" to "strongly agree." The fifth item is an open-ended question.

- 1. The librarian presented material effectively.
- 2. The librarian presented clear and accurate information.
- 3. The librarian answered questions competently.
- 4. Students had the opportunity to participate and/or ask questions.
- 5. How could the librarian have taught this session better?

A sixth question assesses student learning using a one-minute essay, a formative classroom assessment technique (CAT). CATs are "simple tools for collecting data on student learning in order to improve it...instruments that faculty can use to find out how much, how well, and even how students are learning" (Angelo and Cross 25). Like all formative assessments, CATs allow faculty to adjust instruction for the benefit of current students. CATs support reflective practice, constructivist teaching, and learning, benefitting students and providing faculty with opportunities for transformative professional and personal growth (Oakleaf, "Are They Learning?" 72-73). Angelo and Cross' *Classroom Assessment Techniques: A Handbook for College Teachers* and Broussard, Hickoff-Cresko, and Oberlin's *Snapshots of Reality: A Practical Guide to Formative Assessment in Library Instruction* are rich repositories of CATs., The RRIS team added a one-minute essay to the evaluation, reflecting the IL Assessment Plan:

6. What did you learn in this library session that you could pass on to fellow students or friends to help them complete this assignment better?

The hybrid evaluation/assessment instrument enables librarians to collect student reports of satisfaction and learning. Schilling and Applegate emphasize the need to use a variety of evaluation and assessment activities to collect rich data about library services (262). Gathering data about "participant reaction" and student reflection on learning are benchmarks of effective IL programs (ACRL, *Characteristics of Programs*). The hybrid tool reflects the dual nature of library services, which have functional and relational dimensions (Radford 222-224; Aldrich and Leibiger, "Face It!" 236; Leibiger and Aldrich, "Accounting for Face"). While librarians teach skills, instruction also creates and maintains a relationship between learners and the library. The questions addressing student satisfaction provide data on both instructional quality and student affect, while the one-minute essay is an efficient way to promote student reflection on learning (Schilling and Applegate 258). Placing the assessment question last allows students to leave the library session aware of what they have learned. The hybrid form is an efficient way to collect evaluation and assessment data given the limited time available for these activities during one-shot library sessions.

Using Technology to Implement Evaluation and Assessment

Instruction occurs in addition to RRIS members' departmental and liaison duties, which presents workload and scalability issues. The IL Coordinator addresses the instructional-planning workload by providing a teaching script and a LibGuide for use in instruction. When it was time to implement evaluation and assessment, the IL Coordinator and the IS

Librarian used technology to make evaluation and assessment efficient and easy for their colleagues.

Since RRIS uses a LibGuide for ENGL 101 sessions, the IL Coordinator embedded a link to an online evaluation/assessment form within the *Freshman English Research Guide*. The RRIS considered several online tools, including *Google Forms, EverNote*, and *NearPod*. However, since these tools collect responses into a single spreadsheet, they cannot protect faculty privacy. The IL Coordinator decided to use *Socrative*, a free online tool that for creating polls, games, quizzes, and CATs, for the online form. *Socrative* supports anonymous data collection, and the data can be stored in individual faculty accounts and exported by email or computer download using an Excel spreadsheet (Mastery Connect).

The IS Librarian created a *Socrative* "quiz" containing the evaluation and assessment questions. He also produced an Excel spreadsheet into which the *Socrative* data can be pasted; the spreadsheet assigns values from one ("Strongly disagree") to five ("Strongly agree") to each response to the closed-ended evaluation questions, allowing RRIS members to report individual and mean scores for their sessions. He copied responses to the openended evaluation and assessment questions into the spreadsheet as well.

During the spring 2015 semester, the IL Coordinator and the IS Librarian piloted the *Socrative* form in a convenience sample of nine ENGL 101 research sessions taught by the instructional team. The IS Librarian asked other RRIS members to use the *Socrative* form in at least one instructional session to develop comfort with and generate feedback about the form and the evaluation/assessment process.

Time on task and possible technological failure were RRIS members' greatest concerns when launching the pilot. Students quickly accessed and completed the form, thus affording an efficient collection of information that does not detract from time dedicated to active learning. In the library sessions incorporating *Socrative*, the technology only failed once, and the librarian was quickly able to reopen the form. RRIS was satisfied with the in-class evaluation and assessment. ENGL 101 faculty observed the activity with interest, and some perceived possibilities for integrating *Socrative* into their teaching. RRIS Initiated evaluation and assessment measures that contributed an additional positive result. The additional positive result is that librarians positioned themselves as instructional experts, modeling the use of online pedagogical tools. The library's obvious engagement with student learning reflected well on RRIS members as faculty and the library as a learning space dedicated to supporting the university's teaching mission.

Data Analysis, Benchmarking, Reflection, and Revision

In spring, 2015, the IL Coordinator and IS Librarian analyzed the evaluation and assessment data. Ninety-five students provided answers to the closed-ended evaluation questions indicating satisfaction, with ninety-four responses (99.5%) reflecting agreement (4) or strong agreement (5) with the evaluation statements (see table 2).

Table 2
Librarians' Closed-Ended Evaluation Questions (Mean Scores)

Evaluation Question	1. The librarian presented material effectively.	2. The librarian presented clear and accurate information.	3. The librarian answered questions competently.	4. Students had the opportunity to participate and/or ask questions.
Librarian				
IL Coordinator	4.7	4.7	4.7	4.6
IS Librarian	4.8	4.8	4.7	4.7

To determine whether these positive responses were the result of a halo effect (or its local variant, "South Dakota nice"); the investigators analyzed the responses to the open-ended evaluation question ("What could the librarian have done better?"). If students suggested a significant number of pedagogical improvements, it might call into question the high evaluation scores.

There were eighty-six useful answers to the open-response evaluation question. Sixty-six students (77%) offered positive comments. Half of these comments were coded "holistic positive" because students praised the librarians without mentioning any specific practice ("He did a great job"). Additionally, seven students mentioned effective explanations (five) or helpfulness of the librarians (two) as single factors in effective instruction (8% and 3%, respectively, see fig. 1).

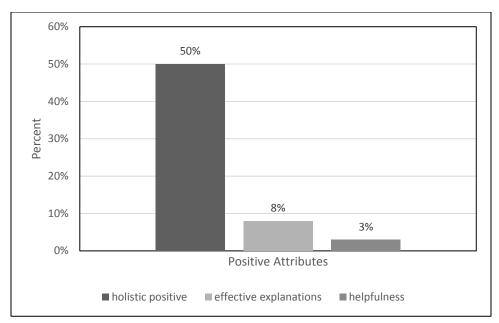


Fig. 1: Single Positive Attributes

An additional nineteen students (29%) praised the librarians' instruction in general (holistic positive) and mentioned specific aspects of the instruction that they considered effective (see fig. 2).

A total of 79% of students answering the open-ended evaluation question indicated satisfaction with the librarians' instruction. Students seemed to value effective explanations and helpfulness most; students mentioned other aspects of library instruction like attentiveness to students, clear instructions, friendliness, humor, modeling effective searching, and scaffolding learning in combination with these two factors or with a holistic positive response.

Seventeen students (20%) offered suggestions for improving library instruction; the most frequently mentioned recommendations included changing the pacing of the sessions (3 students or 19%), providing longer sessions, and offering more database searching tips (2 students or 13% apiece). Individual students suggested detailed explanations of library resources, longer interactions with librarians, active-learning opportunities, and changes in librarian behavior (see fig. 3).

Three students also commented on relational categories, i.e., affect and values. Two noted that they valued research databases or library resources because of instruction. An additional student noted a pleasant interaction with a librarian ("She said I look like Bob Dylan. I am thoroughly pleased with this.").

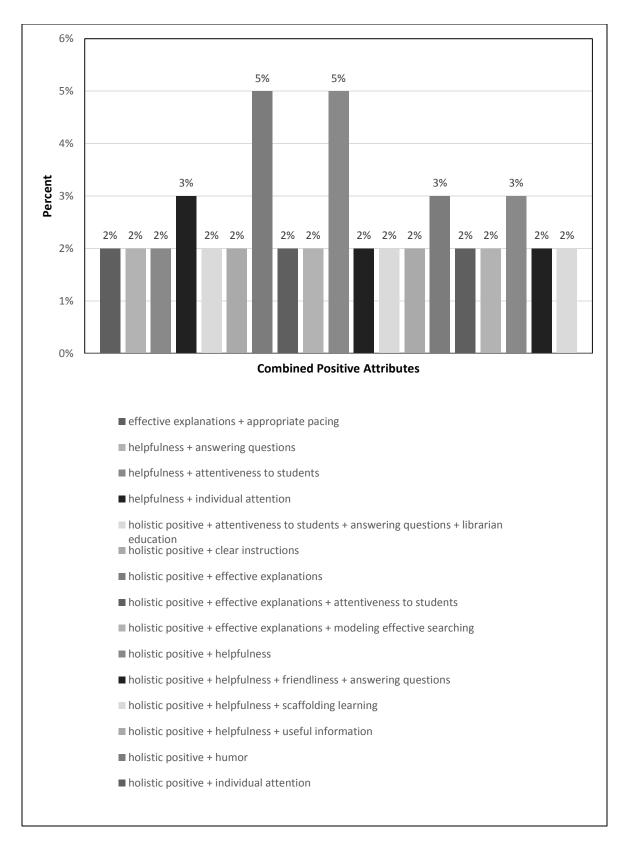


Fig. 2: Combined Positive Attributes

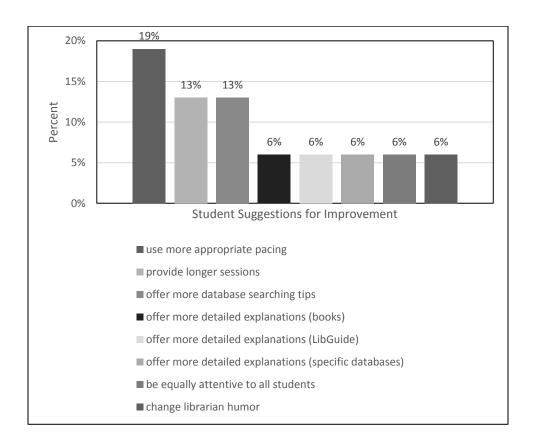


Fig. 3: Suggestions for Improvement

The investigators analyzed the assessment results for benchmarking and revision. The nine library sessions yielded seventy-nine forms with useful assessment data. Content analysis generated three themes: learning research skills (sixty-seven responses), using research resources (sixty-eight responses), and improved affect or values (four responses). Forty-four students (66%) indicated that they had learned how to search (54%) or had improved their searching skills (12%). Fig. 4. displays research-related skills identified by students.

Seven students (10%) indicated that they had learned or improved in searching and at least one other skill (see fig. 5). Students overwhelmingly (76%) identified searching as a skill that they had learned or improved upon because of the library instruction.

All but one student reported having learned to use online library resources to do research (see fig. 6). Twenty-eight students (41%) indicated that they had used the research databases, while two mentioned having used the library catalog (3%).

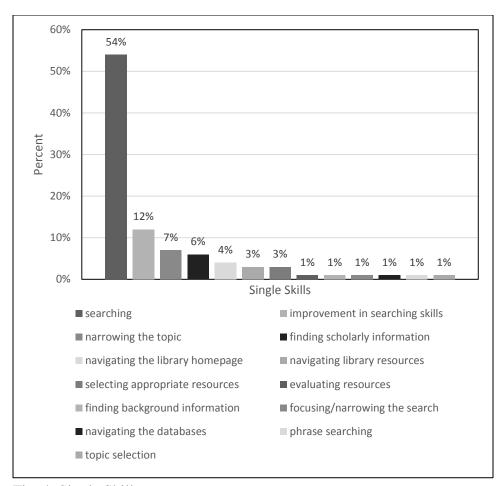


Fig. 4: Single Skills

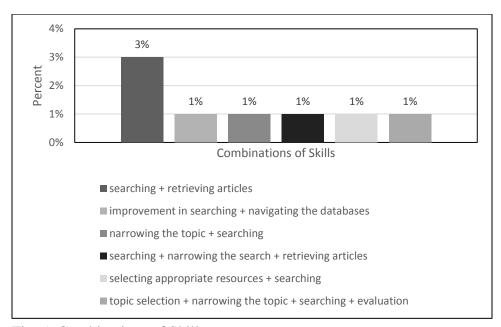


Fig. 5: Combinations of Skills

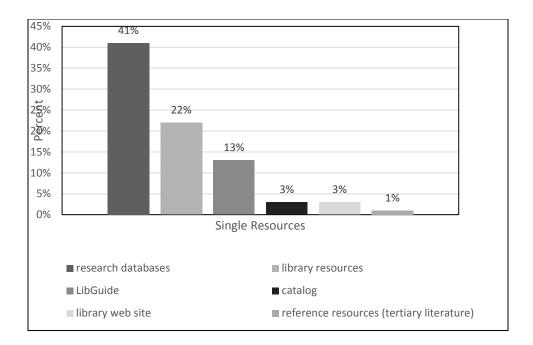


Fig. 6: Single Resources

Seven students (10%) stated that they had used both the library catalog and the research databases, both of which were part of the instruction they received in the library sessions (see fig. 7). Twelve students (16%) mentioned having used a LibGuide, either alone or in combination with other library resources.

Finally, four students indicated changes in affect and values. Three mentioned increased value of research databases (2%) and research skills (1%), and a fourth student indicated greater confidence in searching, an affective change.

Discussion

Students reported strong satisfaction with the instruction they received in both the closedand open-ended evaluation questions. Since instructional librarians implemented the pilot, high scores might be due to their experience and proficiency in IL instruction, and it would be inappropriate to use only their scores for benchmarking. It will be necessary to expand the ENGL 101 evaluation to the entire course and to other RRIS members for benchmarking purposes.

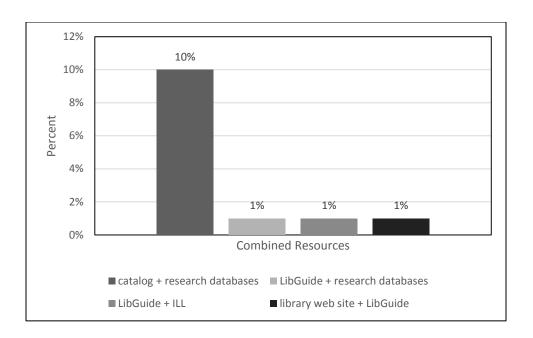


Fig. 7: Combined Resources

Seventy-nine percent of students indicated that they were pleased with the instruction; half of the students who responded went no further than a holistic positive statement, and 29% reported at least one effective teaching practice in addition to their general statement of satisfaction. Other students who provided only one positive teaching practice mentioned either effective explanation or helpfulness; other student responses mentioned these two behaviors combined with other effective practices in. Students indicated seventeen positive instructional practices in their answers.

Since almost 80% of responses contained holistic positive reactions to instruction, it is possible that students' responses reflect "South Dakota nice." The librarians might find it necessary to revise the open-ended questions to discover specific practices that satisfy students.

Twenty percent of students suggested improvements in library instruction. The IL Coordinator and IS Librarian will consider ways in which to provide more information, more active learning, and more interactions with librarians during one-shot library sessions. The positive and negative comments relating to librarian interactions and behavior suggest that librarians need to be more sensitive in their interactions with students, since some librarian behaviors might impede learning.

Since the goal of the instruction was for students learn to find resources for their RBAA papers, the assessment results indicate success. Seventy-six percent of students indicated that they had learned or improved in searching skills due to library instruction. It is gratifying to see that students identified searching and other relevant aspects of research as important learning outcomes of the session.

The open-ended assessment question generated valuable data about resource use. While a majority of students indicated that they learned or improved in searching skills, not all students who noted having used a resource specified that they had learned anything in doing so. Future assessment cycles could pilot more specific one-minute essay questions that elicit both skills learned and tools used. The investigators noted a discrepancy in the use of tools. Significantly, more students reported having used research databases (41%) than the library catalog (3%), while seven students (10%) searched both. Since books are valued in ENGL 101, the librarians could revise the instruction to focus more on their usefulness (as students suggested in the open-ended evaluation question).

Since students accessed resources using the *Freshman English Research Guide*, it is not surprising that sixteen percent mentioned having used a LibGuide, either alone or in combination with other library resources. While LibGuides are used both to scaffold student learning and as instructional scripts, it is a concern if students see LibGuides as information resources on a par with library homepages and their resources, rather than as mediators of information resources for beginning researchers. Future instruction will continue to use LibGuides; however, librarians should transfer the focus of instruction from LibGuides to library resources so that students will be able to find scholarly information when LibGuides are lacking.

Given that the assessment question was open-ended, it was gratifying that a majority of students noted having learned or improved in searching using specific library resources, thus demonstrating that they achieved the goal of the session. Some students provided assessment data with details about skills learned and tools used. To encourage more students to provide this rich data, librarians should begin instruction with goals naming skills and tools, so that students reflect on those goals in the assessment. Librarians included themselves in the course LibGuide to ensure they all communicated the same instructional goals.

Several students indicated changes in affect and values because of library instruction. One student reported increased confidence in searching, and another student experienced pleasure during an encounter with a librarian. Five students noted changes in values, i.e., valuing research skills, library resources, and research databases. Library instruction goals need to include the functional and relational dimensions of library services. Therefore, future library learning goals will contain functional, affective, and value statements enabling students to reflect on both their increase in learning (cognitive growth) and improvements in affect and values (relational growth) as a result of library instruction.

Conclusion: Future Developments

This study has traced the implementation of efficient, scalable hybrid evaluation and assessment in one-shot instruction in a small academic library, using the ILIAC and simple technology. Students indicated satisfaction with library instruction and assessment demonstrated that more than three quarters of the students learned or improved in searching, the goal of the instruction. These results suggest that benchmarks could be set at 80% for both evaluation and assessment of instruction. The next iteration of assessment will expand this process to the fifty or more sections of ENGL 101 in the fall 2014 semester, in which all RRIS members teach.

Freshman Composition is the first course in the UL's developmental IL program. Students receive IL instruction in Advanced Composition, Introduction to Literature, and Introduction to Speech courses. Because the UL performs mandated instruction in these required courses, it can address different ACRL IL Standards in each course, varying the instruction and maintaining student interest. Each course requires different CATs to reduce student assessment fatigue. By the end of the general-education curriculum, students will have experienced instruction and assessment in all of the ACRL IL Standards. The IL Coordinator will consult with the respective course coordinators to determine how quickly to introduce evaluation and assessment measures into various courses.

Another valuable result of evaluation is the inventory of teaching practices associated with student satisfaction. The IL Coordinator will share this data with RRIS members to help them reflect on their teaching and develop effective instruction practices. UL's next phase of faculty evaluation can include student satisfaction data to supplement student evaluation with a direct measure of instructional quality. UL is currently discussing whether peer evaluation is a logical next step in their evaluation and assessment efforts in the UL.

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