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Project RAILS: Lessons Learned about Collaborative Rubric Assessment of Information Literacy Skills

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abstract: Rubric assessment of information literacy is an important tool for librarians seeking to show evidence of student learning. The authors, who collaborated on the Rubric Assessment of Information Literacy Skills (RAILS) research project, draw from their shared experience to present practical recommendations for implementing rubric assessment in a variety of institutional contexts. These recommendations focus on four areas: (1) building successful collaborative relationships, (2) developing assignments, (3) creating and using rubrics, and (4) using assessment results to improve instruction and assessment practices. Recommendations are discussed in detail and include institutional examples of emerging practices that can be adapted for local use.

Introduction

Assessing student learning is a major focus of higher education institutions. Like disciplinary faculty who must prove that students learn the content they teach, academic librarians recognize that they need to provide evidence that students acquire information literacy skills. To demonstrate this impact on information literacy learning, academic librarians require a variety of assessment tools. One of the most important assessment tools is a rubric. A rubric is a "scoring

tool that lays out the specific expectations for an assignment. Rubrics divide an assignment into its component parts and provide a detailed description of what constitutes acceptable or unacceptable levels of performance for each of those parts."[1] For students, rubrics communicate what they need to learn, provide direct feedback, facilitate self-evaluation, and make scores meaningful. For librarians and faculty, rubrics communicate agreed-upon learning values, focus on standards and concepts, align with educational theory, and provide results that can be applied to improve instruction. In addition, rubrics give librarians an inexpensive assessment method that is usable over time or multiple programs, promotes valid and reliable scores, and offers descriptive data. Using rubrics can promote a deeper examination of priority student learning outcomes, facilitate reflection upon teaching practices, create a renewed focus on designing instructional activities that engage students and elicit authentic evidence of student learning, and strengthen library instruction teams.[2]

To investigate a rubric approach to information literacy assessment in higher education, the Institute of Museum and Library Services funded RAILS (Rubric Assessment of Information Literacy Skills). RAILS is a multiyear (July 2010–June 2014) research project that facilitated ten rounds of rubric research at nine institutions. The RAILS research design was a multistep process. Learning outcomes were defined by the Association of American Colleges & Universities (AAC&U) and the Association of College and Research Libraries (ACRL) and described using a rubric format. Librarians from nine institutions engaged in rigorous rubric training, tailored information literacy rubrics to their individual campus contexts, collected one hundred student learning artifacts for scoring, and collaborated with ten colleagues as raters. RAILS investigators normed the raters and then scored student artifacts; raters also completed surveys about their rubric scoring experience. One institution, Towson University, went through

the process twice, resulting in a total of ten sets of rubric scores and surveys. The investigators

then subjected the rubric scores for all 1,000 student artifacts and 110 rater surveys to statistical

analysis and drew conclusions based on the results.

RAILS research results have been disseminated in a variety of venues.[3] What has not

been shared as broadly are the lessons learned and key recommendations by the librarians who

spearheaded RAILS involvement at their institutions. As both leaders and participants in the

RAILS process, these librarians used their experiences to develop a set of recommendations for

rubric assessment of student information literacy skills. These recommendations, drawn from

four of the nine participating libraries, focus on four areas: (1) building successful collaborative

relationships, (2) developing assignments, (3) creating and using rubrics, and (4) using

assessment results to improve instruction and assessment practices. Each recommendation is

discussed in detail in this article, which includes specific examples of how emerging practices

developed at RAILS institutions and the potential benefits to other libraries of adopting these

strategies. Our unique contribution to the current body of best practices on information literacy

assessment is to bring together a series of practical recommendations based on the experiences of

a number of institutions, rather than relying on a single case study.

The applicability of these recommendations to other libraries is strengthened by the

diverse institutional contexts from which they are drawn. The four participating institutions

discussed here include: a private Catholic university with a full-time equivalent (FTE) of 3,470

(Dominican University in River Forest, Illinois); a branch campus of a state public institution

with an FTE of 4,200 (University of Washington (UW) Bothell); a large public university with

an FTE of 18,900 (Towson University in Maryland); and a private Christian university with an

FTE of 6,890 (Belmont University in Nashville, Tennessee). While the RAILS results previously

reported in other venues have been anonymized, librarians from these four institutions agreed on the value of sharing their specific experiences with the wider library community.

Building Collaborative Relationships

Faculty-librarian collaboration is often highlighted as a key component of effective information literacy instruction, and there is a substantial body of literature concerned with collaborative approaches to teaching and assignment design. In recent years, there has been an increase in case studies relating to team approaches to assessment of information literacy and research skills.[4] Fewer authors, however, have written specifically about collaborative approaches to rubric-based assessment.[5] An important component of the RAILS project involved the development of strategies to facilitate cooperation between faculty and librarians in the development and use of rubrics, and seven out of the nine participating institutions reported improved collaboration as a result of RAILS.[6] Examples from multiple RAILS institutions point to two key recommendations for building collaborative assessment relationships:

- **Start small:** Begin with existing relationships to build and strengthen assessment efforts.

- **Think strategically:** Once existing relationships are mobilized in support of rubric development and use, take risks and reach out beyond current partnerships to build wider support for information literacy assessment both within and beyond the library. Also consider involving students in assessment activities.

Start Small

Given the scale of the RAILS project, librarians realized early on that the most important strategy for success is to work with established partners in information literacy instruction, both

within library walls and in the wider institutional environment. All of the librarians drew on existing collaborations to design assignments and rubrics and to recruit raters. These partnerships were wide-ranging, encompassing classes and assignments from nursing, pharmacy, women's studies, art history, biology, and first-year composition courses. Although the nature of these existing relationships varied, the common experience of RAILS participants indicates that starting small by partnering with one or two courses or faculty members not only provides a foundation for the successful implementation of collaborative rubric assessment activities, but also has significant benefits in terms of strengthening existing relationships.

The example of Dominican University highlights how existing collaborative relations can be leveraged to build and strengthen assessment activities. At Dominican, librarians are embedded in the core first-year English 102 composition course and offer two to three information literacy instruction sessions for each section of the course. Librarians work closely with composition instructors to design assignments and instruction sessions for these classes. At Dominican, information literacy is one of the undergraduate essential learning goals as well as a graduation requirement, which means that there are campus-wide incentives for faculty and librarians to partner on instruction and assessment of information literacy. Given the strength of these established relationships, it made sense for Dominican to target this course for RAILS project activities, and librarians focused on collecting annotated bibliography assignments from multiple sections of English 102. The library's instruction coordinator, in collaboration with the English department chair, composition program codirectors, and the instructional librarians led the design of the rubric and assignment at Dominican. All parties agreed to implement a rubric to assess student performance in the areas of search strategies, source evaluation, and writing skills. Most importantly for the collaboration process, the grading of student work was shared by

librarians and faculty using the same rubric. The faculty scored citations and writing style; librarians used the rubric to grade search strategies and source evaluation.

The experience of RAILS participants at Dominican illustrates a number of benefits to working with established partners: (1) the trust that already existed between librarians and faculty enabled librarians to suggest revisions to assignments and in-class activities; (2) it was easier for librarians to access and collect student assignments; (3) faculty were already convinced of the benefits of instruction and were invested in the ongoing improvement of that instruction through assessment. Drawing on existing partnerships not only eases the process of implementing collaborative assessment but also develops stronger and more meaningful relationships. At Dominican, co-grading student assignments using the collaboratively developed rubric strengthened communication between course librarians and instructors about shared goals for student learning. This partnership also opened the door to additional possibilities for teamwork. As a result of the RAILS work, Dominican's library instructional team developed an English 102 information literacy workshop and grading protocol designed to guide both full-time and adjunct faculty on best practices for working with the librarians on information literacy instruction.

Improved collaboration between faculty and librarians was not unique to Dominican. Many of the RAILS librarians noted that their existing partnerships were enriched by the collaborative development of rubrics and shared scoring of student work. As one librarian notes:

> The coordinator of the writing programs on campus has since invited us to take part in revising the writing assignments and rubrics for First and Third Year Writing. Although we've always had a good working relationship with the English faculty, they now view us as having even more valuable expertise regarding teaching and assessment, which will improve our collaborative efforts.[7]

Additionally, working with faculty on rubric development also helped librarians to further embed information literacy as an *assessed* outcome in targeted courses: at Belmont University, for example, information literacy outcomes for nursing and pharmacy courses were often identified and taught, but not formally assessed. Involving the faculty who teach these courses in the process of assignment design and rubric development helped to change this.

Think Strategically

Once librarians have recruited existing partners to participate in rubric development and collaborative assessment of student work, librarians should consider taking risks and moving beyond existing partnerships, both within and beyond the library. Because the RAILS project involved the collection of a significant amount of student work and the participation of ten raters from each institution, some librarians (especially those from smaller institutions) were required to look beyond their usual partnerships. While initially arising out of necessity, this broader view resulted in important benefits for librarians, faculty, and other colleagues. There are a number of approaches librarians can use to think strategically about how to recruit additional partners for collaborative assessment.

At the University of Washington (UW) Bothell, teamwork extended beyond the relationship between the lead librarian and faculty with whom she routinely worked, with the result that about 50 percent of the total amount of work was collected from classes taught by other librarian-faculty teams. This approach required additional effort on the part of the lead librarian to demonstrate the value of participating in the project, to meet with colleagues to discuss what might be possible to collect from their classes, to provide them with the materials needed to discuss the project with their faculty, and to manage the logistics of gathering student work. The library's director and head of instruction supported these efforts by helping to shape

the expectation of this work as a collective enterprise, rather than as a one-off project that was the sole responsibility of the lead librarian. UW Bothell's lead librarian also recruited the directors of the Teaching and Learning Center and the Writing and Comunication Center to act as raters for the project. In addition, a faculty member not associated with any of the courses being assessed also participated in the scoring of student work, because she was interested in promoting assessment of student learning outcomes more widely on campus.

One successful strategy for building collaborations with those who may not be directly connected to IL instruction is to consider beginning with the evaluation of a skill that is relevant to as many campus partners as possible. At Dominican University, for example, librarians and faculty assessed for outcomes related to evaluating information sources critically, while participants at UW Bothell appraised skills relating to the legal and ethical use of information. Outcomes relating to the evaluation of sources and the ethical use of information interest a wide variety of campus stakeholders at Dominican, UW Bothell, and many other educational institutions. Selecting these outcomes ~~areas for assessment~~ meant that results were potentially relevant not only for the librarians and faculty directly involved in classroom instruction, but also for faculty, administrators, and academic support staff interested in the assessment ~~measurement~~ of critical thinking skills more generally (Dominican) and issues of academic integrity and plagiarism (UW Bothell). Taking this approach enabled librarians to forge and strengthen strategic collaborative relationships with a range of institutional partners.

Taking risks and building new partnerships requires a greater investment of time but pays significant dividends in terms of creating buy-in from a wider group of librarians, faculty, and other institutional stakeholders. In the case of UW Bothell, involving a number of librarians and faculty in the project meant that it was easier to recruit raters to assess student work: when it

came time to sign up raters, a number of librarians and faculty were interested in how their students performed, both within their own classes and in comparison to students in other disciplines and courses. Crucially, this project has prepared the ground for a more long-term, sustainable, and scalable process in which many librarians and faculty have a stake. In addition, the participation of the directors of the Teaching and Learning Center and the Writing and Communication Center provided a number of benefits for all parties. Librarians found that raters from outside the library were able to offer fresh insights into student's information literacy skills and to supply additional context for these skills in relation to other aspects of the curriculum. In turn, the directors of the Teaching and Learning Center and the Writing and Communication Center benefited from examining research papers from across the curriculum, which assisted them when consulting with faculty about assignment design. Both directors were also able to use the norming and rubric development experience from RAILS in other assessment contexts beyond the library, and, as a result of this successful collaboration, have now become permanent members of the team that annually reviews student work.

More generally, many RAILS librarians have noted that partnering with others beyond the library has been essential in promoting information literacy and assessment initiatives across campus. Forging these partnerships and raising the profile of library assessment expertise has also brought invitations to participate more fully in campus-wide initiatives to measure assess student skills learning. As a result of RAILS, one librarian noted: "I was invited to apply to be a member of the Student Affairs Assessment Team . . . I am now the first and only librarian on this team, which works to mentor departments in creating a culture of assessment."[8] As Iris Jastram, Danya Leebaw, and Heather Tompkins note, the very *process* of developing a collaborative, rubric-based assessment project (quite apart from the results themselves) can pay unexpected

dividends in terms of deeper campus-wide conversations about the place of information literacy in a curriculum.[9]

RAILS librarians learned a great deal about strategies for successful collaborative assessment as a result of their involvement in this project. Such joint efforts, however, come with a number of challenges. First, forging partnerships with faculty and embedding IL instruction into a curriculum is often a time-intensive and long-term process. Even in cases where librarian-faculty partnerships already exist, it can be challenging to move that partnership forward to involve the creation of assignments and rubrics and, beyond this, to assess student work collaboratively using a rubric. The initial time and effort required for this activity is often a significant barrier for many faculty and librarians. However, the cocreation of assignments and rubrics and collaborative assessment of student work may in fact be more efficient and effective in the long run. Rubrics can make scoring faster and easier over time and can provide robust data to demonstrate and improve student learning.

Second, librarians may also find it challenging to develop a single, shared assignment and rubric used across multiple sections of a course. Collaboration in this instance can often involve multiple librarians and faculty who each may have their own assignments and approaches to instruction and assessment. In such cases, it is effective to begin with as many willing librarians and faculty as possible, and then use results to demonstrate the success of a collaborative rubric-based approach to assessment. Many of the RAILS participants noted that it was valuable just to start the assessment process, even if it was small-scale and imperfect, because this work laid a solid foundation for the further development of collaborative efforts.

Despite successes in forging collaborative relationships with librarian colleagues, faculty, and other staff at our institutions, there was one notable absence in the RAILS partnerships:

students. There are currently few examples of student participation alongside librarians and faculty in evaluating student learning in information literacy.[10] For RAILS institutions, this was partly a function of time constraints, the scale of the project, and a lack of experience. While librarians need to follow best practices for protecting student privacy in cases where other students are involved in rating, there are also exciting opportunities to include a student perspective in the development and use of rubrics. Students involved in rubric assessment might also be better placed to help promote the value of information literacy instruction among their peers.

Developing Assignments

Robust collaborative relationships between librarians, faculty, and other partners are key to successful rubric assessment. In addition to developing a greater understanding about building these relationships, RAILS librarians also learned important lessons about the types of assignments that work most effectively for rubric scoring. RAILS librarians used a variety of assignments, including in-class worksheets, annotated bibliographies, search histories, and research papers. There are many examples of rubric use with these and other assignment types in the literature. Y. Malini Reddy and Heidi Andrade provide an overview of rubric use in higher education, including studies that assess concept maps, literature reviews, reflective writings, bibliographies, oral presentations, citation analyses, and portfolios.[11] Several studies advocate for authentic assessment, using rubrics to evaluate assignments already in place.[12] There are also a number of examples of rubric scoring of portfolios and annotated bibliographies.[13]

While these articles provide many useful case studies, there are few examples that help practitioners to select an appropriate assignment type for successful rubric assessment. The

lessons learned by RAILS librarians have led to the following recommendations for developing and selecting assignments:

- **Align outcomes, assignments, and rubrics:** Select, modify, or develop assignments that match the learning outcomes of the class and that provide concrete evidence of student performance.

- **Choose assignments wisely:** Consider the length and type of assignment when selecting student work for evaluation. Examples of two different types of assignments, from Belmont and Towson, illustrate how librarians can select or develop assignments for successful rubric assessment.

Align Outcomes, Assignments, and Rubrics

As with any instructional scenario, when librarians select assignments they should begin with the learning outcomes that need to be assessed. For librarians new to rubric assessment, one or two learning outcomes assessed using an in-class worksheet might provide a good start. For more experienced librarians, multiple learning outcomes might be appropriate, or outcomes that contain higher competencies in Bloom's taxonomy, which seeks to measure the competencies *remembering, understanding, applying, analyzing, evaluating,* and *creating*. If possible, librarians should consider turning an existing assignment into an assessment, or creating an assignment that can be authentically integrated into a course. At both Belmont and Towson, once librarians and faculty had identified the key course and session learning outcomes, librarians created assignments that enabled students to demonstrate their learning of these outcomes. From there, the participants created a rubric to assess how well students performed. In both cases, they based the assignment on an activity that was already happening in some form during instruction, but which was modified to provide raters with tangible evidence of student learning.

At Belmont, librarians assessed ACRL Standard 2, "The information literate student accesses needed information effectively and efficiently," for undergraduate nursing and graduate pharmacy courses in which students learn to search the medical literature. In a two-hour class, librarians taught search strategies during the first hour, and then students searched CINAHL (Cumulative Index to Nursing and Allied Health Literature) and the U.S. National Library of Medicine database MEDLINE, respectively, to find articles relevant to their research questions that also met specified criteria. For the RAILS project, short in-class assignments were created to assess specific skills such as Boolean searching, the use of controlled vocabulary, and limits. The artifact of student work for both courses was the search history and three selected articles, all e-mailed to the librarian directly from the database at the end of class.

Similarly, at Towson University, participants created a formal assignment to align with the information literacy learning outcomes for a core freshman seminar course. A two-page worksheet was used to capture students' learning during multiple face-to-face information literacy instruction sessions. The worksheet was a working document for students to use as their research process evolved. It asked students to break their research topics down into concepts, to brainstorm keywords, to select a database, to record their Boolean search strategies, to select an article, and to write a short paragraph explaining why that article was relevant to their research. Students were assessed for their abilities to search a database effectively (drawing on keywords and search strategies) and to evaluate an article for relevancy to their topic. Librarians collected the worksheet for grading and feedback, and made copies for use during the RAILS project. Participants rated each item on the worksheet according to the rubric.

While Belmont and Towson created new formal assignments (although both were based on existing in-class activities), Dominican modified an existing course assignment to align with

desired outcomes and rubrics, and UW Bothell used existing course assignments without any modification. There are benefits and challenges to each of these approaches, but the creation of new assignments or the modification of existing ones has proved valuable in the long term for librarians, faculty, and students at Belmont, Dominican, and Towson. For Belmont, this strategy ensured that the assignment and rubric were aligned and specifically assessed what the students learned during the library instruction session. In addition, this approach also created opportunities for librarians and faculty to begin their collaboration on the assignment with their learning goals clearly aligned. The example from Towson illustrates how a carefully designed assignment can serve both formative and summative assessment purposes (it was also useful as a research log for students). In the experience of the RAILS librarians, an important best practice is to view the development of assignments and rubrics as an iterative and interrelated process: some institutions created a rubric based on their learning outcomes and then designed or modified an assignment that provided evidence of student learning related to those outcomes; others identified outcomes manifested in existing assignments and then developed rubrics to enable the formal assessment of those outcomes. In both cases, assignments and rubrics were modified in parallel at many points along the way.

Choose Assignments Wisely

Librarians should consider selecting longer or shorter assignments for rubric assessment, depending on factors such as time constraints for scoring student work and their goals for the assessment activity. Librarians can use shorter, more focused assignments to make rubric scoring more manageable, or can select longer artifacts such as research papers to provide raters with the opportunity to examine the authentic final products of student work. Librarians at three of the four institutions drew on assignments that were concrete, focused, and shorter in length: database

search histories at Belmont; two-page research logs at Towson, and short annotated bibliographies at Dominican. In contrast, UW Bothell librarians assessed ACRL Standard 5, "Access and use information legally and ethically," and selected existing research papers from ten different courses, rather than creating an assignment specifically designed for the assessment activity. Papers ranged in length from five to twelve pages. The content of the courses and the assignment descriptions differed widely, but all the research papers provided examples of students' abilities to quote, paraphrase, summarize, and cite their sources in their work.

There are benefits associated with both longer and shorter assignment types, but RAILS data from all participating institutions point to greater reliability of rubric scores for shorter student artifacts. The relatively short, focused assignment used at Belmont was an ideal introduction to rubric assessment for Belmont raters. The raters included librarians and nursing and pharmacy faculty, most of whom were familiar with the courses and the assignment. As a result, the rubric evaluation process was quite manageable, with the norming and rating of student work all completed in one day. The benefits experienced by Belmont librarians and faculty in assessing shorter assignments are confirmed by other RAILS participants, including Dominican and Towson. Short, concrete artifacts enable raters to move through student work more quickly (and with much less fatigue), and, perhaps as a result, rubric scores are more reliable. The benefits of choosing research papers for UW Bothell librarians included providing an authentic learning experience for students and an opportunity for raters to engage with final research papers, which they do not always have the chance to examine. However, librarians can still experience these benefits and simplify the rating process by assessing two to three sample pages from research papers, rather than the entire assignment. This combination provides an authentic assessment while also improving the potential reliability of rubric scores.

For many of the RAILS librarians, the quality of the assignment affected how well students performed in the rubric assessment. The caliber of the assignment is vital to a quality assessment. Ideally, faculty and librarians should pilot assignments and then revise them before giving them to students for credit. Librarians at Belmont, UW Bothell, and other RAILS institutions are now more aware of the importance of advising faculty on the provision of detailed assignment prompts that provide students with clear guidelines. For any assignment type, librarians should meet regularly with faculty to review and improve the assignment and rubric. From worksheets to research papers to annotated bibliographies, many activities are appropriate for rubric assessment. The goals of the instruction program, the student learning outcomes of the class, and the time and staff available for the assessment should all be considered when selecting assignments.

Creating and Using Rubrics

Successful rubric assessment of information literacy skills hinges on fostering collaborations within and beyond the library, as well as selecting appropriate assignment types. Once librarians have developed partnerships and designed suitable assignments, the work of building and applying rubrics can begin. There are many useful guides to the development of rubrics that librarians can draw upon for their own assessment work. Dannelle Stevens and Antonia Levi suggest using the "four key stages in constructing a rubric," which include reflecting, listing, grouping and labeling, and application.[14] These steps help generate a rubric with appropriate criteria and clear descriptions for each key identifier. When using a rubric involving multiple raters, calibrating or norming a rubric helps "assure that individuals' ratings are reliable across different samples."[15] Despite these helpful blueprints for rubric development, the process of creating, norming, and applying rubrics may be a challenging prospect for those who have no

previous experience in this approach to assessment. This was certainly the case for the librarians from Towson, Belmont, Dominican, and UW Bothell, all of whom were relatively new to rubric assessment at the start of RAILS. The experiences of the RAILS librarians over the course of the project have resulted in two key recommendations for the effective creation and use of rubrics:

- **Tailor your rubrics:** Start by adapting existing rubrics, and then tailor rubrics to specific classes and assignments.

- **Norm, norm, norm!** Invest time in rigorous rubric norming to produce reliable scores and build shared expectations of student performance.

Tailor Your Rubrics

One of the aims of the RAILS project was to explore the possibilities of adapting the holistic AAC&U VALUE (Valid Assessment of Learning in Undergraduate Education) rubric to analytical rubrics that were tailored to specific institutional contexts and assignments. While holistic rubrics are "used to assess an artifact of student learning as a whole and provide a single, overall judgment of quality," analytic rubrics are "used to assess the component parts of an artifact of student learning and provide separate judgments of each component (criterion), as well as a summed total judgment."[16] Analytic rubrics provide more detailed data. The VALUE rubric for information literacy encompasses all of the ACRL information literacy standards. RAILS librarians did not adopt this rubric wholesale but selected the criteria most suitable for their own customized institutional rubrics. Starting with the VALUE rubric provided the librarians with ideas for descriptive language for each criterion that they could adapt for their own needs.

Dominican University focused on only one criterion from the VALUE rubric, "evaluating information and sources critically." Selecting just one criterion made the process of developing a specific rubric more manageable. This criterion was also aligned with the library's existing

annotated bibliography assignment, which requires students to select different types of sources and to evaluate them in terms of authority, reliability, relevance, and currency. Once the relevant category from the VALUE rubric was selected, librarians and faculty at Dominican began the process of tailoring the language and performance levels to their own assignments. The performance levels in the VALUE rubric associated with the "evaluation" outcome are expressed in broad terms (for example, "identifies own and others' assumptions and several relevant contexts when presenting a position"), and so librarians and faculty at Dominican made these standards more concrete, using specific criteria relating to the evaluation of currency, reliability, accuracy, and perspective. They also reduced the scoring scale from a four-level (1 - Benchmark, 2 & 3 - Milestone, 4 - Capstone) to a three-level scale (1 - Beginning, 2 - Developing, 3 - Accomplishing) for better differentiation among the scores.[17] Libraries should use clear descriptions for each rubric criterion and performance level when adapting an existing rubric. As a result of adapting the VALUE rubric to Dominican's specific learning outcomes and assignment, there were clear and direct links between the rubric and evidence of student performance in the assignments, which made the scoring process manageable for all involved.[18]

The experience of librarians and faculty at Belmont University offers an additional illustration of the necessity for creating rubrics tailored to specific assignments. At Belmont, the tasks were slightly different for the pharmacy and nursing students, but the same rubric was used for both assignments. The pharmacy students searched for information on individual topics and selected articles to use in their research papers. The nursing students searched using the same topic rather than individual research topics. While the pharmacy assignment provided a more authentic experience for the students, the nursing prompt was designed to be more complex and challenging and perhaps better tested the students' emerging search skills. Even the slight

variations in the assignments produced different results when the same rubric was applied to both assignments, with the nurses scoring lower than the pharmacy students. This points to an important lesson: when assessing specific skills such as search strategies, the language of the rubric should be tailored for each unique assignment.

There are multiple benefits to starting the rubric development process by adapting an existing rubric and then tailoring it to specific assignment requirements. Adapting existing rubrics enables librarians and faculty to build the expertise and confidence needed to build new rubrics from scratch. The VALUE rubrics are an excellent starting point for librarians and disciplinary faculty who are new to rubric assessment. The VALUE rubrics have recognition among faculty, which can help to create immediate buy-in. Once librarians and faculty have selected the most suitable elements of existing rubrics for their own needs, they have a solid foundation for creating detailed, tailored analytic rubrics. The analytic rubrics have the benefit of increasing the validity of scores among multiple graders. Using clear and inclusive descriptions for each rubric criterion can help to ensure the consistency of grading among various instructors and librarians, because there is less room for individual interpretations of rubric language as it is applied to student work. Tailoring these analytic rubrics to each unique assignment, in turn, also helps to ensure robust scores. Raters can see direct evidence of student performance in artifacts, and librarians and faculty can feel more confident about using data to revise specific assignments, instruction, or both to improve student learning. Once a rubric is established, librarians can easily modify and adapt it to a range of other assignments and contexts, thereby saving time in the long run.[19]

Norm, Norm, Norm!

After libraries have customized or developed a rubric, the norming process is the next must-have component for a reliable and valid rubric assessment. The norming process model includes the following steps:

1. Think aloud through scoring several examples.

2. Ask raters to independently score a set of examples that reflects the range of services libraries produce.

3. Bring raters together to review their scores to identify patterns of consistent and inconsistent scores.

4. Discuss and then reconcile inconsistent scores.

5. Repeat the process of independent scoring on a new set of examples.

6. Again, bring all raters together to review their scores to identify patterns of consistent and inconsistent scores.

7. Discuss and then reconcile inconsistent scores. Repeat this process until raters reach a consensus about applying the scoring rubric. Ordinarily, two to three of these sessions calibrate raters' responses.[20]

In Step 1, the lead librarian is the "role model," and shares his or her mental process aloud with the participating raters regarding the use of the rubric criteria in scoring. Steps 2 to 4 offer raters the opportunity to try out the rubric on their own by going through the same thinking practice with their peers. The aim of the process is to come to a shared understanding of the language and application of each rubric criterion.[21] For raters who do not have rubric assessment experience, librarians should leave more time for Steps 1 to 3, because it may take additional time for raters to become comfortable with the process. This may also require the facilitator to devote time prior to the norming session to work with individual raters to familiarize them with best practices of rubric assessment. Steps 5 to 7 repeat the prior steps for raters to establish the habit of using the rubric consistently throughout their scoring.

RAILS librarians had varying experiences of the norming process. Dominican University selected raters from instructors and librarians who had rubric assessment experience and who had worked closely together in the classroom. This helped to make the norming activity run more smoothly. Although the raters came from different departments, they had some previous experience of this kind of teamwork and felt comfortable with expressing their reflections on using the rubric. At Belmont, the process also went smoothly, but faculty and librarians did discover during norming that they had different priorities for the assignment. Librarians were more focused on teaching the search process as an intellectual exercise, while faculty concentrated on the end product, the quality and relevance of the sources selected. Both student learning outcomes were important to each group, but the discussions had during norming clarified the expectations of faculty to librarians and the value of the information search process to faculty. As a result, the norming discussions were more extensive, as these issues were clarified before actual rating of student work began.

One of the key benefits of norming is that it increases the reliability and validity of results, in that there is a greater potential for raters to apply the rubric consistently to student work. As the example of Belmont illustrates, norming directly addresses the issue of raters who come to the process with different expectations of student learning and potentially varying interpretations of the rubric language. The possibility for faculty, librarians, and others to articulate shared outcomes for student learning is one of the most powerful products of the norming process. An additional benefit of engaging in rubric norming is that it often lends itself to team-building and greater buy-in for the assessment process. Norming a rubric as an instruction team encourages participants to reflect on their own teaching, to engage in conversations in order to articulate shared priorities for student learning, and to offer colleagues

valuable feedback on ways to improve instruction.[22] It is important to note that each time a rubric

is used to score student work, raters should participate in the collaborative norming process. This

expands participation and experience among colleagues while also serving to continue the rubric

editing process. The RAILS rubric norming process was quite time-consuming and even an

emotional experience for some participants, but the consensus-building norming conversations

are an essential element which ensures consistent and reliable application of the rubric to student

work.

Using Results to Improve Instruction and Assessment

What happens after all the work of recruiting partners, creating assignments, and developing,

norming, and applying the rubrics? While it is a given in library assessment literature that results

should be acted upon in meaningful ways, the experience of RAILS librarians indicates that

following up on findings remains a significant challenge. Factors such as a shortage of time, the

absence of a "culture of assessment" within a library or an institution as a whole, and librarians'

lack of confidence in data analysis and presentation skills can all make the prospect of acting on

rubric results seem daunting.[23] Despite these challenges, all four RAILS institutions discussed

here used rubric data to improve classroom instruction, student assignments, their information

literacy program, their assessment processes, or all four. The lessons these RAILS librarians

learned from their experience of "closing the loop" yielded two key recommendations relating to

the use of results to improve instruction and assessment practices:

- **Start small (again):** Librarians do not have to begin by having big conversations

with multiple stakeholders about their results: informal, ongoing reviews of findings with a few

key partners can still produce significant improvements to student learning.

● **Communicate and document:** Share results and also improvements, and continuously document changes to instruction, assignments, and the assessment process.

Breaking down the imperative to "act on results" into concrete and manageable actions can make the process more sustainable and less intimidating for librarians embarking on this work.

Start Small (Again)

Even taking a small amount of time to examine rubric results with a few partners can pay significant dividends in terms of instructional and programmatic improvements and continued buy-in from library and institutional collaborators.[24] Examples from both Dominican and Belmont point to concrete strategies that can assist librarians in overcoming the barriers to acting on assessment results. In both cases, these approaches led directly to the use of findings to improve student learning. At Belmont, the results of rubric assessment did not have to be shared out widely or formally in the first instance for meaningful change to occur. Based on RAILS findings, a small number of Belmont librarians and faculty reviewed the learning outcomes and the assignments for both the nursing and the pharmacy courses, and made significant changes to the nursing IL curriculum. Faculty and librarians determined that the learning outcomes and the assignment were more suited to a different course, and the library instruction session was accordingly moved to that more appropriate course. The search history assignment has now been integrated into a larger portfolio assignment, in which students must document their research process including their search strategies. The portfolio is assessed using a rubric that includes criteria on accessing information, and it is graded by nursing faculty.

Building a review of results, assignments, and the rubric into an ongoing practice is another key to using results effectively. Dominican and Towson, for example, now hold regular

meetings to review assessment data, rubrics, and assignments. Dominican University librarians meet each semester to go over student scores on annotated bibliography assignments. Librarians identify those areas in which students are struggling in the outcome related to selecting and evaluating information sources, and then recommend specific action. In fall 2014, librarians noted that few students achieved the "accomplished" level on criteria that assess students' ability to evaluate their source's methods of data collection. To improve the students' ability to identify research methods and the means used to gather evidence presented in various publications, librarians created a tutorial and quizzes with Prezi presentation software.[25] These are embedded in workshop LibGuides and assigned as homework after the first library workshop. Librarians review the answers and address questions in the following library session. All the instructors partnering with Dominican librarians on this course were willing to assign either participation points or extra credit points to the students who completed the homework.

The examples of both Belmont and Dominican illustrate the ways in which ongoing discussion of results among a few faculty and librarian partners can bring about significant improvements to instruction and student learning. This approach can enable librarians to gain experience analyzing and interpreting rubric results with a small group of trusted colleagues, and to pilot changes to instruction based on the findings. Building the review of results into meetings on an ongoing basis (even if it is just once or twice a year) can also help to ensure accountability for acting on the findings. To make the process of using results more manageable, librarians should consider sharing results with a small group, making changes based on those outcomes, and then communicating results and actions more widely to other institutional stakeholders.

Communicate and Document

RAILS librarians also built up strategies for communicating results more widely and for documenting improvements in an ongoing manner. At Towson, student learning assessment data are shared with library colleagues, included in the library's assessment report, and reported via the institutional assessment management system. At UW Bothell, librarians create annual student learning assessment reports, which include a short executive summary and a longer report with a full discussion of results and recommendations. These reports are shared with all librarians and the relevant academic departments. Results and highlights of improvements to instruction are added to an assessment LibGuide, which is used by the library director and the head of teaching and learning when discussing the library's assessment program and contribution to teaching and learning on campus.[26] As Meredith Farkas notes, "The visibility of assessment results and their impact continually keep the focus on student success," and on the library's role in fostering that success.[27]

It is also critical to track and document ongoing actions and changes based on assessment results. At UW Bothell, librarians developed a spreadsheet that captures notes about changes to instruction, assignments, rubrics, and the assessment process. Notes are continuously added, sometimes months or years after the initial evaluation, and provide a useful reference point for reporting on assessment activities. This spreadsheet also provides librarians with the opportunity to record any anecdotal or qualitative feedback they have about changes to instruction. This approach lends itself to a sense of assessment as an ongoing, iterative process of continuous improvement and ensures accountability in terms of "closing the loop." In short, while it is key to use results to improve instruction and assignments, it is also important that these improvements are actually documented and made visible to stakeholders who are invested in the assessment process.

Engaging in a collective discussion of results and recommendations, and ensuring that changes are documented, leads to improvements in instruction and assessment and also fosters ongoing dialogue between librarians and faculty. This dialogue is critical to sustaining buy-in from busy faculty, librarians, and other campus partners, who are more likely to engage in the assessment process if they know they will have the opportunity to discuss (and use) results and recommendations. In addition, ensuring that the data are analyzed and that recommendations are shared widely can also lend a library assessment program greater credibility at the institutional level.

Conclusion

Participation in the RAILS project and the subsequent ongoing use of analytic rubrics to guide instruction and assessment have been a transformative experience. The process of building collaborative relationships, developing assignments, creating and norming rubrics, assessing student learning, and using and communicating results is time-consuming and challenging. However, the time devoted to these tasks was instructive and has yielded significant long-term benefits and time savings. While the RAILS project itself required some programmatic rigidity that may not carry over fully into routine assessment practices, the lessons learned through the project are transferable to other institutions and can be scaled to a variety of library instruction programs. These lessons have potential value to librarians undertaking student learning assessment because they are grounded in experiences from a variety of institutions, rather than a single case study.

The shifting culture of assessment in higher education has led academic librarians to examine how they assess their impact on student learning and the missions of their institutions. In the article titled "Are They Learning? Are We?" Megan Oakleaf calls for librarians to move

beyond assessment of individual student learning outcomes to a larger scale evaluation of the impact libraries are making on their institutions. Oakleaf encourages librarians to commit to an active teaching role on campus, to develop student learning outcomes, to map those outcomes to institutional goals, and to document the assessment process.[28] As librarians gain instruction and assessment proficiency, the notion of quantifying library value by reporting information literacy learning performance to entities outside the library is a more attainable goal. Arguably, a rubric-centered information literacy instruction and assessment program managed by librarians, and one which might include departmental faculty members as well as other individuals in a campus community, is a solid starting point. A collaborative rubric-centered approach to scoring can serve to demystify assessment processes and provide a catalyst for instruction librarians to embrace and participate in institutional efforts to measure and document evidence of student learning. Using rubrics builds a natural organization scheme into the collection of data about student learning, which makes analysis and reporting more efficient.

RAILS participants gained essential training and experience that enabled instruction teams to meet their information literacy goals. For the RAILS institutions that did not have significant previous experience using rubrics, participation in the RAILS project made assessment goals more tangible and practical. The immersive nature of RAILS participation facilitated a quick yet steep learning curve among participants, and in most cases, that deeper knowledge and experience has transferred readily to other applications. Building an information literacy assessment program requires a comprehensive understanding of assessment practices. Maintaining such a program and evolving toward a culture of assessment requires collegial engagement. Sustaining ongoing cycles of assessment for a range of information literacy

instruction scenarios while accommodating shifting assessment priorities would be a difficult endeavor without the team approach afforded by the RAILS experience.

For some RAILS participants, the experience was a catalyst for librarians to contribute to university-level assessment efforts. Librarians armed with a greater understanding of assessment processes and an appreciation for the benefits of examining student learning can join larger university assessment conversations with more confidence. Sitting on university curriculum and assessment committees is a tangible way for librarians to contribute to university initiatives and to ensure that information literacy remains among institutional student learning priorities. Already, the multidisciplinary nature of academic librarianship affords valuable cross-curricular insight and experience. This wide and unique lens facilitates librarians' examination of our institutions' broader curricular issues, specific courses, and particular assignments. Substantive assessment experience can only enrich that exchange.

Appendix

Checklist of Best Practices for Collaborative Rubric Assessment

Building Successful Collaborations

- **Start small:** Begin with existing librarian and faculty relationships to build and strengthen assessment efforts.

- **Think strategically:** Ask yourself, who else on campus might be interested in this learning outcome and this student work? Once existing relationships are mobilized, take risks and reach out beyond current partnerships to build wider support for IL assessment within and beyond the library. Consider involving students in scoring activities.

Designing and Selecting Assignments

- **Align outcomes, assignments, and rubrics:** Select, modify, or develop assignments that match the learning outcomes of the class and that provide concrete evidence of student performance.

- **Choose assignments wisely:** Consider the length and type of assignment when selecting student work for assessment.

Creating and Norming Rubrics

- **Tailor your rubrics:** Start by adapting existing rubrics, and then tailor rubrics to specific classes and assignments.

- **Norm, norm, norm!** Invest time in rigorous rubric norming to produce reliable scores and build shared expectations of student performance.

Using and Communicating Results

● **Start small (again):** Librarians do not have to begin by having big conversations with multiple stakeholders about their results: informal, ongoing reviews of results with a few key partners can still produce significant improvements to student learning.

● **Communicate and document:** Share results and also improvements, and continuously document changes to instruction, assignments, and the assessment process.

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