In a World Where... Librarians Can Access Final Research Projects Via The LMS

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Introduction

The librarians at McGill Library at Westminster College have a twenty-year history of working within the first year program, and an almost two year history (established in the Spring of 2014) of working as learning management system (LMS) administrators. In the Fall of 2015, we found ourselves in a position to more deeply understand the impact of our information literacy (IL) instruction within the first year program by combining aspects of embedded librarianship and blended librarianship with our outcomes-based assessment program.

We have long known that the academic first-year seminar is a perfect opportunity to introduce students to not only intentional IL instruction but also the higher expectations of college level research. Our recent experience demonstrates that new technological tools, especially the LMS, give us greater opportunities to more deeply integrate library-led instruction into the classroom and to directly assess student mastery of IL-related student learning outcomes.

Information Literacy within the First Year Experience

The incoming student's transition from high school to college is a crucial moment both academically and socially. Many colleges use first year experience seminars to ease this transition. For librarians, there are challenges to working with first year students: students are susceptible to information overload, they may not recognize how they will use these IL skills throughout their college careers, and they tend to overestimate their research ability. But there is also a unique opportunity in the first year seminar to work with students who are in the process of re-evaluating and re-adjusting their academic skills and expectations.

The introductory nature of first year information programs means that they can be more exploratory than many other instructional settings. As always, the time-crunch struggle is real but librarians at many institutions are able to take ownership of these first year IL sessions in a way that isn't possible with more disciplinarily focused session. This has translated to radical pedagogical shifts playing out within the context of first year instruction, as libraries have moved from scavenger hunts to simulated searching to active learning integrated into course material.[1] Within an hour, or two or three, librarians sometimes have the opportunity to more fully design and implement IL instruction as they would like to teach it. Librarians are often able to experiment with new technologies or constructivist approaches in a way that is not always possible in the on-demand "Can my class come to the library next Tuesday? I might send you the assignment." scenario with which we are all too familiar. Through this experimentation, a series of models and possibilities have emerged.

Some have found that multiple sessions of IL instruction within the context of the first year seminar may positively impact a student's confidence in using library resources and in their use of scholarly and other appropriate sources.[2] Others stay out of the classroom, and have had positive results with a completely online modular

IL, which is integrated into the LMS.[3] Others have cut the cord with the seminar and are making the case for fully online credit bearing IL courses to become a part of the first year curriculum.[4] Despite the different approaches described in these studies and many others, as a whole the literature strongly supports the idea that IL instruction in the first year is a crucial instructional opportunity, and we must all endeavor to create high-impact learning experiences within the context of our school's curriculum and culture.

At Westminster College, the first year experience includes the Inquiry 111 course, formally titled "Introduction to the Liberal Arts" but universally called "Inquiry." Although individual Inquiry courses may vary in material covered, class structure, and level of rigor, they are connected by a shared set of learning outcomes:

1. Articulate and Practice the values and methods of liberal arts education.
2. Engage, experience, and explain different ways of knowing.
3. Pursue interdisciplinary study and discussion of important issues.

In addition to these shared learning outcomes, Inquiry sections share a set of common required experiences. One of these experiences is Library Week, three sequenced class sessions (Monday, Wednesday, and Friday) of introductory information literacy instruction designed to help students start and complete a research assignment. Almost every student who graduates from Westminster experiences Library Week, where they begin to develop the skills that will serve them through capstone and beyond. Each Inquiry instructor brings their class to the library to meet with a librarian who leads them through a research assignment. Library Week is integrated into the course through an assignment that is due after the week concludes. For most sections, this assignment is a short research paper designed by instructors, the majority of whom use a template provided by librarians. This type of integration, along with the presence of the course instructor adds a level of legitimacy and importance to this experience.

Outcomes-Based Assessment of Information Literacy Instruction

Traditional post-class surveys may be a helpful tool to evaluate the librarian's performance-as-teacher, but these surveys do not deliver a complete picture of student learning. As teaching librarians move towards more constructivist approaches, where the role of instructor becomes "Helpful Guide" rather than "Deliverer of Knowledge," the question that guides the evaluation of sessions is no longer "How am I doing?" but instead "What are they learning?"

Zald and Gilchrist have described the natural relationship between backwards design and authentic assessment.[5] In order to understand what students are learning, we must first articulate our expectations before designing instructions and assessments that help students learn and demonstrate these skills. This way of looking at assessment is in line with the larger shift in assessment that continues to unfold in the library and across campus.[6] Throughout this process, librarians have greater opportunities to demonstrate their service to the educational mission and continue to develop as teachers. As a profession and as individuals, we are creating a repository of assessment strategies and a deeper understanding of the potential benefits and costs of each.[7]

At Westminster, we have historically employed the attitudinal survey. This survey asked students to assess the librarian's performance and also their beliefs about their own learning and skills at the conclusion of Library Week. Though these surveys assisted in adjusting the individual librarian's teaching practice, they were not able to capture actual student progress. During Fall 2014, we tried a more objective approach. We assessed student source selection by conducting a citation analysis on first-year research papers written immediately after Library Week. Did students cite enough sources? Did they cite enough scholarly sources? Did they cite mostly scholarly sources? We were obsessed with their bibliographies that year. This approach was helpful, but was still not able to capture data on most of the learning objectives we had for our first-year students. It was also challenging to gather the final papers from dozens of courses and professors in order to conduct this analysis.

In 2015, we expanded the scope of our authentic assessment efforts in several ways. We recovered from our citation obsession and worked together to assess student learning in three main areas. We wanted to know if first year students could develop an appropriately focused topic, if they were able to identify scholarly sources to support the development of their ideas, and how they integrated those sources. Were these first year students able to summarize and synthesize, or were their papers a haphazard quilt of direct quotes and transitions? Although accessing the material was as simple as a few clicks, we learned the painful truth about authentic assessment: It takes an enormous amount of time. We also gained an appreciation for a less painful truth: If you like the people you work with, and you go through this process together, you can laugh at a lot of hilariously terrible papers… not that we're the sort to ever do that.

Blended & Embedded Librarianship

Two unique but interconnected roles that are becoming more typical for academic libraries are "Embedded Librarian" and "Blended Librarian". An "Embedded Librarian" is a librarian who is placed in a nontraditional environment with the hope of creating a new access point where they can potentially impact a student's research process. One popular type of embedding is having a librarian as an active and collaborative participant within a particular course's LMS environment. The librarian may provide students with resources and tips as they work through an assignment, or make themselves available through an online chat feature for one-on-one assistance. This embedding sends a message to the student that research is an important component of the course itself, and the librarian is an accessible resource for that research.[8]

A Blended Librarian is an information professional who combines the traditional skill-set of a librarian with those of instructional technologists and instructional designers.[9] Being "Embedded" is an opportunity and a point of contact. Being "Blended" is a way of thinking and working that can help you make the most of your points of contact, whether they are purely online, face-to-face, or somewhere in between.

As the librarians at McGill Library were writing a position ad for a new Instruction librarian, we were thinking about how these two emerging trends complement one another. A librarian who knows and uses some of the skills of an instructional technologist can actively create new opportunities for working with faculty to incorporate research and technological tools into a course. The instructional design mindset of the blended librarian makes them able to leverage their opportunities within technology-rich or face-to-face instruction in a student-centered, effective way. And when our new Instruction Librarian was hired, we were thrilled to have a colleague who was just as comfortable teaching a faculty member how to build a quiz in the LMS as they were teaching a first year student how to navigate our discovery layer.

The merger of our institution's library and IT departments presented additional opportunities to explore the intersections of teaching and learning with libraries and technology. A new instructional technologist position was created and was located in the library. In the Spring of the year we merged, we began the process of implementing a new LMS. We created an LMS end-user support team, composed of the instructional technologist and two librarians. All members of the instructional team serve as LMS administrators and provided all faculty training and support. This arrangement, while slightly stressful for the librarians who were adding a new area of responsibility to already very full positions, positioned us to deliver IL content and to conduct outcomes-based assessment of our instruction in ways that would not have been possible otherwise.

Process: The Design

At Westminster, the process of designing instruction and assignments for Library Week has always been an iterative and collaborative process. Librarians meet with faculty to discuss subjective reactions (ours, and those of

professors and students) to content and assignments, and to review course evaluations and any other assessment data that have been collected. This is usually accomplished during three established workshops held throughout the academic year (August, January, and May). Discussions at these workshops are usually robust, and center on learning objectives, instructional content, and assignments. Librarians use this faculty input when making revisions to the program each year.

One of the most difficult aspects of evaluating and making changes to the Library Week program is an ongoing discussion of IL learning objectives that are both appropriate and most important for first year college students. In general, Library Week is designed to address information needs of undergraduates in the first year of their college experience. And we are lucky in that faculty at our institution overwhelmingly agree that IL objectives are important to communicate to first year students. They value these important critical thinking skills, and believe that IL complements the stated purpose of the first-year Inquiry course, which is to "help [first-year students] establish a strong foundation of intellectual skills and values that will serve [them] well throughout [their] college education and beyond."[10] The difficulty, then, lies in the establishment of which objectives and outcomes to focus on in the three one-hour sessions that comprise Inquiry Library Week.

For many years (through 2014), the following list of IL learning outcomes for first year students guided our instructional design for Library Week, and these objectives were communicated to faculty teaching the course at the workshops each year.

By the end of their first academic year, Westminster students should be able to:

- Understand the purpose and navigation of the library
- Assess the quality and reliability of information
- Discern among types of materials
- Conduct effective searches
- Narrow topics
- Cite sources and avoid plagiarism
- Formulate appropriate research questions
- Identify and locate reference works, journal articles, and books using the online catalog/discovery system
- Distinguish between popular and scholarly sources
- Navigate the physical and virtual spaces of McGill Library
- Evaluate a source's appropriateness to a particular task/assignment
- Recognize that there are ethical and legal components of information usage

However, as we continued to discuss, assess, and make changes to the program, it became increasingly clear that all of these essential skills can't be learned in one week and needed to be further developed. We learned the necessity of focusing on what we feel is most important (and most attainable) during this first crucial college library experience. For the purposes of the current iteration of the program, the learning outcomes for Inquiry that we have identified for Library Week are:

- Students will have an emerging understanding of academic research, and what will be expected of them over the next four years
- Students will begin to formulate appropriate research strategies
- Students will be able to identify the context and major concepts of a topic
- Students will be able to identify and locate scholarly resources within the physical and digital space of the library
- Students will be able to distinguish between scholarly and popular sources

- Students will be able to critically read scholarly sources and identify relevant information
- Students will feel comfortable asking a librarian for research assistance

Library Week is meant to help students make the leap into college-level research by providing a baseline of skills and practices that first year that students need but often lack. As part of the design process, we adjusted the learning objectives to make them more specific and measureable.

With these clarified objectives, and our new-found access to the LMS, in mind, we designed three days of instruction and assignments. A brief outline is included in Figure 1.

FIGURE 1 Library Week Outline, Fall 2015			
	Class Content	**Assignments**	**Learning Objectives**
Before Day 1		Students will be assigned/ choose from a list of 'preliminary topics' Students find 3 sources on their 'topic' and submit through D2L	
Day 1 (Monday)	Introduction to librarian and library Peer/self evaluation of sources (using D2L survey) Using web sources to focus topic Critically reading sources	Complete three "Reading to focus" sheets and submit through D2L Use original sources to think of two potential focused topics. Submit through D2L.	Identify background and major concepts of an issue in order to knowledgeably enter into different dialogues. Ask questions about what you read in order effectively engage with material.
Day 2 (Wednesday)	Introduction to scholarly sources and peer review Using discovery search to find sources relevant to research question Critically reading a peer-reviewed article	Find at least three peer-reviewed sources, and submit through D2L. Read the abstract to confirm that they are useful.	Form a search strategy in order to effectively find relevant information. Articulate the difference between popular and scholarly sources in order to find the most effective perspectives for your purpose.
Day 3 (Friday)	Students practice synthesizing sources as a class (what to do with disagreeing sources) Citations	Read your sources and complete active reading worksheets. Submit through D2L.	Summarize the main points of an argument in order to think critically about different positions. Categorize arguments and information from different sources in order to synthesize ideas from multiple perspectives. Reflect on the week in order to take command of your own learning.
After Day 3		Final Paper Research Reflection paper	

We made several choices in order to attempt to focus students on the objectives we selected as important and attainable. First, we decided to have students either be assigned topics, or choose from a list of possible topics. Formulating a topic is clearly an important skill, but most first-year college students seemed to struggle with choosing from the entire universe of possibilities. Many students have had little exposure to 'scholarly research' and struggled with picking topics with arguments in the scholarly literature. A "wrong" topic often led to a student struggling to find resources and constantly playing catch-up. Some students would choose topics such as "love," while others would choose "my high school," both of which are tricky topics for your first research paper (for very different reasons).

Second, we used homework assignments, including a pre-Library Week assignment, to both assess students progress and to allow more time for students to actually practice the skills and thought processes we were teaching. In class, we used examples to demonstrate concepts and skills. In the homework assignments, we asked students to find, read, and to begin to reflect on sources—to practice with their own topics what we demonstrated and practiced during in-class activities. For example, on day three, we asked students to complete and turn in worksheets which asked them think about and compare the sources they found in their research. How did those sources agree or disagree? How might you use two different sources to speak to a single idea? We wanted to see evidence that they actually used the ideas presented to them in class to become better researchers and better writers.

And finally, we had lengthy discussions about the form of the final assignment to use as the culmination of Library Week work. What is the best way for students to practice the skills they have just learned? We decided to recommend that faculty assign a short, formal research paper as the final project, believing it to be the best way of giving students the opportunity to demonstrate what they learned. First, undergraduate student researchers at this introductory level are not particularly equipped to write a more involved piece of work. Since faculty members teaching the course would be reading and grading these papers, we did not want to add an additional burden to their workload for the Inquiry course, though many faculty do choose to use this short paper as a jumping-off point for a longer final research paper assignment. We also knew we would be reading each and every one of the students' final papers in order to conduct our planned assessment. We wanted to make sure that students felt that this assignment was important (and not just an add-on). Having Library Week so fully embedded into the Inquiry course is helpful, but having students simply complete an annotated bibliography or some other similar assignment would not have allowed us to work with the other IL goals that we identified as key. For example, using this short paper assignment would both force students to choose an appropriately narrowed topic, actually read and incorporate some research into their writing, and to save our sanity after reading approximately three hundred first-year student papers (it mostly worked!).

Throughout the entire design process of Inquiry Library Week, individual librarians worked with individual faculty to make their specialized and unique ideas and assignments work with the learning objectives the librarians and faculty members identified as key. In most cases, we try to agree on objectives, if not necessarily how to approach them in terms of assignment. There were some faculty who had their own objectives they wanted to incorporate, and we tried to make that a possibility, too. By working closely with the faculty teaching the Inquiry course, librarians have been part of the process for many years. Our partnership is possible because we are willing to be flexible and make changes when needed to make Library Week an integral part of the course.

Process: The Embedding

Knowing that two of our librarians would have administrative access to all Inquiry LMS course pages was a major factor in the design process. We would be able to design a module that could be inserted into each Inquiry course's page in our LMS, which presented some exciting and useful opportunities. We could control, to

a certain extent, both the distribution and integration of activities and assignments into the larger LMS course environment.

Having access to students through the LMS provided us with opportunities to provide IL materials directly to students (whereas in the past, we had to rely on individual instructors to communicate the Library Week assignments to students both before and after Library Week). Being able to have this communication channel allowed us to add some additional features to our IL instruction program that had not been feasible on a larger scale in the past. Also, having the Library Week materials embedded into the LMS, right next to all of the other important course materials (the syllabus, course readings, online quizzes, etc.), lent an additional layer of legitimacy to the student work being done at the library.

But most importantly to our outcomes assessment initiative, we knew that we could collect all student work through the LMS's assignment submission feature. This was a major influencing factor in our design of the 2015 Library Week program. Having access to student work was a major change—in the past, we did not easily have access to any student work. It relied on the Inquiry faculty member making additional copies of student work (either paper or electronic) and remembering to get those copies to us in the library. But with librarians as LMS administrators, we knew that all we would have to do to get student work throughout the process is ask the faculty member's permission to access it. With one "yes" from the instructor, we would have access to all intermediate work (homework) completed during and immediately after Library Week, as well as access to the final paper. Knowing that we would have this information allowed us to design activities and assignments throughout that would help us to both assist student learning AND gather valuable data about first year student learning in terms of our IL outcomes.

Process: The Assessening

By the end of Fall 2015, we were prepared to begin the assessment of students' Library Week work. Due to the careful planning of Fall 2015 Library Week—the integration of student learning objectives, homework assignments, and final research paper—we had a clear path forward in completing this work. We also crucially had all the necessary materials available to us, with librarians in the position of LMS administrators. However, there remained further planning and preparation necessary, in addition to the assessment itself. We first moved all student materials to a common area—a shared Google Drive folder—where all of the librarians could view them. We also created the assessment spreadsheets within the folder as well, in order to simplify the technical aspects of the assessment process.

Once we had all students' materials prepared for review, we decided to complete the assessment as a group for the topic and scholarly source areas in order to ensure intercoder reliability. We developed a routine meeting time (called the Assessening) to gather and assess students' work, all of us reading and evaluating the same material and coming to decisions as a group. The progression of assignments (and their learning objectives) were reflected in the Google Sheets that had been created for each area of assessment (topics, scholarly sources, and source use), which created a path for us to track individual students' progress through Library Week.

As an illustration of the assessment process, in the topic area we began by looking at a student's pre-Library Week homework, having either chosen their own topic or been assigned one. We then stayed with the same student and reviewed their narrowed topic ideas from Monday. Not only did we list what these narrowed topics were, but we also assessed whether they were in fact narrower than the original topic, or if they were completely different, and so on. We moved on to the same student's Wednesday's homework to assess the status of the topic: had they chosen one of their previous narrowed topic ideas, or changed to something else? We then read the student's final paper to determine what their final *stated* topic was, as well as whether or not this reflected the content of the paper. By this point, we had now traced one student's topic from before they even got to the library

all the way through to the final paper, the student having (hopefully) read about, discovered scholarly sources on, and developed their own thoughts on a final topic, whether or not it was related to the original topic.

We conducted the process described above for each student in Inquiry, for the topic as well as the two scholarly source assessment areas. For the source use area, we ended up using a different workflow. While we worked together to assess a few sections' students to get a common feel for the assessment process in this area, we then divided up the remaining sections to complete individually. This decision was made both for practical, time considerations, as well as for the fact that this assessment area was more straightforward. Rather than having to review multiple assignments and compare them to each other, we only had to read the students' final papers to assess their source use.

By the end of the assessment process, we were able to review direct measures of both individual- and class-levels of learning during Library Week. Thanks to our progressive homework assignments, we were in fact able to measure each step of learning in addition to the final outcome. Having measures of both students' progress and their final outcome is essential to effectively using all of this assessment work to guide modifications of the next year's Library Week. For example, we could ask the question, how are we doing in our efforts to teach students how to develop an appropriate research topic? To answer that, not only do we have students' final research topics to review, but we can also see how their topics changed over the course of the week. If and when we discover a common problem area, we can not only address the direct in-class activities and homework assignments, but also related areas—did the introduction of scholarly sources create a problem for students' topics? With librarians involved with student learning in everything from technology—via LMS administration—to their final work—via group assessment—we are well-positioned to better understand and provide for students needs.

Results

In the Fall of 2015, we rethought how we planned, integrated, and assessed our information literacy first year program. We sought to measure how direct IL instruction impacted how first year students found and used information in short research paper.

We collaborated with faculty to agree on core student learning outcomes for Library Week and separated the "Need to Have" from the "Good to Have," which helped us focus our goals and design instruction that addressed the most critical library-related IL skills that students would need throughout their college experience.

Because some librarians also served as LMS administrators, we were able to easily access student final papers and librarian-designed assignments that students had completed throughout the week. Taken together, this information allowed us to measure student progress throughout the week and see connections and stumbling blocks, rather than just seeing where students ended up, we could develop a picture of what they learned, when and how they learned it, or where they went wrong. The process of developing that picture, while time-consuming, was made easier with the use of a centralized repository of student work and spreadsheets (we used Google Drive). Having everything in one place and accessible to all allowed us to work together and alone as needed.

Our ability to compare results on a course-by-course basis allowed us to see larger patterns, and confirmed our long-held suspicion that one of the most important factors that contributes to student success is shared learning objectives between course instructor and librarian and an assignment that requires the skills that are being developed. Students were more likely to select an academic topic and use and integrate scholarly sources if the instructor's assignment rewarded those things, and more likely to become frustrated if those skills were irrelevant to their assignment. We learned that in order to see trends across all members of the first year class (as we had hoped), it is important to have consistency across assignment requirements.

After this process, we were able to bring data to planning meetings with faculty. Sharing and discussing that data helped us have a more productive conversation than one that relies only on student perceptions, instruc-

tor opinions, and gut feeling. This deeper understanding allowed us to better communicate with instructors, and make informed, evidence-based decisions about what we would revise in time for Library Week 2016. We adjusted our student learning outcomes, instruction, and assignments to focus more on skills that seemed to have the greatest impact on student success, such as choosing and sticking with an appropriately focused topic.

Going forward, we will continue to use this type of assessment continue to adjust our goals and teaching methods to more effectively meet student needs. When possible, we would like to implement similar design processes and use of the LMS within other discipline-specific instruction. Although the design and assessment process can be time consuming, and will not always be met with enthusiasm from collaborators, the data in-hand is a powerful tool for communication and continues professional development.

Notes

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