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Applying Instructional Design Principles to an Internship Curriculum

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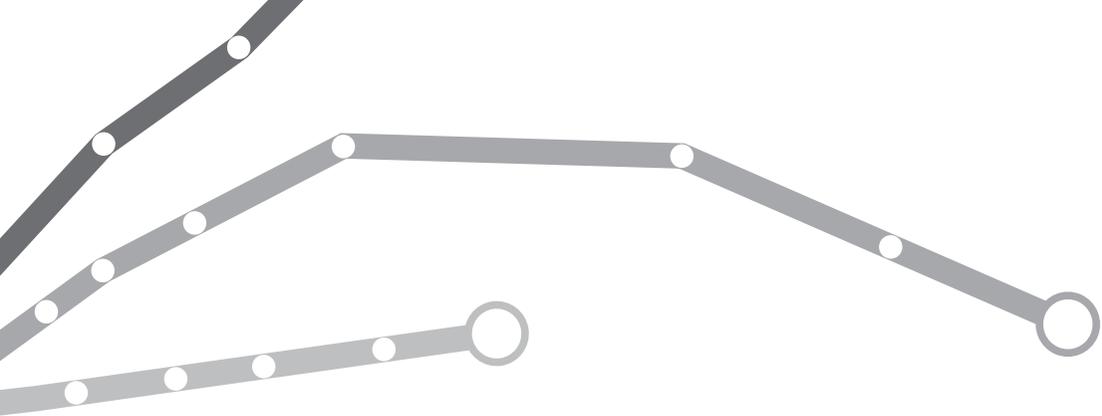*CUNY Brooklyn College*

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chapter 22

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Lee Ann Fullington and Matthew Harrick

Brooklyn College Library launched a pilot version of an undergraduate internship program for science librarianship in Fall 2015. The semester-long internship consists of a number of themed modules relating to various aspects of academic science librarianship. At the conclusion of the pilot version, our inaugural intern provided valuable feedback that we wanted to incorporate into the formalized version of the internship. In order to improve the internship curriculum and content, we applied instructional design principles—especially reflection—to evaluate and recalibrate the curriculum. By taking a more mindful approach for the next iteration of the program, we aimed to address flaws in the delivery of content based on the feedback from the original intern and our own reflections.

We reconceptualized our pilot version of the internship as a prototype, then applied instructional design principles to creating the new version. The term *prototype* is a better fit, as the term itself acknowledges that failure is implicit in the design, with an eye to improvement upon reflection.[1] In our original meetings to design the internship, we had acknowledged that some components of the internship would fail and that the intern's feedback would be instrumental in discovering how and when failures occurred. After the pilot, we were generally happy with the overall arc of the program. However, because we did not make enough time for discussion with or demonstration

of new skills by the intern, we had missed some key facets of librarianship and missed key moments to develop the intern's understanding of varying concepts and tools. We decided to take a semester to reflect on the program, to think through improvements we needed to make, and to decide what the execution of the improvements would look like. This chapter details our revision process using instructional design concepts to focus and improve the internship curriculum.

Institutional Setting

Brooklyn College is one of the twenty-four colleges and community colleges that comprise the City University of New York (CUNY) system, the largest urban public university system in the United States. The college has an enrollment of more than 17,000 undergraduate and graduate students, and the student body is comprised of more than 70 percent students of color, with Black and Hispanic students in the majority.[2] The School of Natural and Behavioral Sciences enrolls the most students (23 percent of undergraduates) and Psychology and Biology are the most popular majors.[3] The School of Humanities and Social Sciences, School of Education, Murray Koppelman School of Business, and the School of Visual, Media, and Performing Arts round out the list of schools. A single library serves our diverse student population. The library's ten reference and instruction librarians cover the broad range of disciplines at Brooklyn College. Reference librarians also participate in collection development for their subject liaison departments, conduct general instruction to our introductory composition courses, and perform a myriad of outreach activities.

Our library internship programs are more than outreach initiatives; they also align with the college's strategic plan goals. One of the strategic themes is to "provide an outstanding educational experience for our students," and the action items include adding more "high-impact activities such as student internships…that support student success and prepare our graduates to work and service in a rapidly changing, interconnected world."[4] The Science Information Internship supports this goal, as we are exposing undergraduates to a potential career path that is overlooked by many science majors. Sciences faculty members, as well as our Careers Center staff, have been promoting the internship to students, and it is gratifying to have so much support from outside of the library.

The College also aims to "Foster a dynamic, responsive, and inclusive academic community."[5] Our library faculty are helping to "provide increased opportunities for collaborative student engagement with faculty" by involving the intern in responsibilities, such as creating research guides and assisting with collection development.[6] The internship is hands-on and gives the

intern real experience with academic library tasks that underpin the intellectual and curricular needs of the college.

Our internship was not created solely to match up with strategic planning goals. Recruiting science librarians has been traditionally difficult, and this internship also aims to help redress the imbalance by attracting potential science librarians from the undergraduate ranks.[7] Our Chief Librarian's original task for the reference and instruction librarians was to create a program to attract potential undergraduates to science librarianship, and the Science Information Internship was our solution.

Problem to Be Addressed

Our internship program aims to introduce undergraduate science majors or minors to the field of science librarianship as an alternative to a career in research or medicine, as most students are not aware of science librarianship as a career option. Since a bachelor's degree in the sciences is often a prerequisite for an entry-level science librarian position, drawing awareness to the field through the internship may help recruit new science librarians to the profession.

The internship is a one-semester immersive program organized with a modular curriculum. Each module took one to two weeks to complete, and the themes included: an introduction to science librarianship; the information landscape; reference and instruction; scholarly communication and Open Access Databases and related search tools; data and demographics; and research in LIS (for a detailed discussion of the pilot internship itself and the planning process, see Harrick and Fullington 2017[8]). Each week, the intern completed readings regarding various facets of science librarianship, completed hands-on exercises to practice new skills, and met with librarians to discuss issues related to each module's theme. Though our curriculum was robust with readings and activities, we neglected to craft weekly learning outcomes and assessments to guide not only the intern, but also the librarians working with the intern. It became quite evident through our intern's written feedback in the required weekly journal entries that our internship lacked focus. After the pilot concluded, we took the journal entries and used these, along with our own notes and reflections, to revamp the internship curriculum. The Science Librarian who supervised the internship had taken a short course in instructional design just after the pilot concluded and applied what she learned in the course to focus the curriculum.

By looking at the internship as a prototype, we reevaluated each module to make sure that it supported our original aim—to interest an undergraduate science major in a career as a STEM or Health Sciences Librarian. Each mod-

ule then needed to support this goal, and by adapting a "need to know" versus "nice to know" approach to the curriculum, we decided on which modules to keep and improve.[9] We also addressed gaps in the curriculum that we had missed in the original iteration, as we got bogged down in too much information about certain facets, and missed key responsibilities, such as collection development. By taking a big step backward and reworking the curriculum into more effective chunks, our internship gained focus and made much more sense to the next intern.

In our prototype version, we had thought we covered the key points of academic science librarianship and addressed these facets in the modules, thus building a solid curriculum for the intern to follow. What we neglected to account for was setting up ways to ensure the intern was absorbing, processing, and understanding the content and assignments. Our idealism in developing an engaging and fun curriculum, and our best intentions for essentially repackaging an MLIS degree into bite-size chunks that would inspire an undergraduate to become a librarian, fell somewhat short in execution as we mismanaged time allotments and failed to build in enough opportunities for discussion and demonstration of competencies with the intern. One of the intern's main criticisms was that he would have preferred to work more closely with librarians and have more time to ask questions and dig deeper into the underpinnings of what we do and why we do it as science librarians.

In order to address the problem of recruiting science librarians, the main aim of the internship is to interest an undergraduate enough in the field of science librarianship to pursue the career path. Thus, the curriculum should always connect with the intern's needs and as we reworked the syllabus, the question we had to keep asking ourselves was "will this information be useful to the intern in order to become a science librarian?" Our guiding principle became, "Does the intern really need to know this?" If the answer to this question was "yes," we would include the content in the program; if the answer was "no," we would put the content in the "nice to know" file and save it for later. If the intern shows an enthusiasm for a particular topic, the "nice to know" materials could be offered as a supplement to the curriculum, but would not be required.

Description of the Project

Our second intern was an undergraduate mathematics major. One of the modules that required heavy recalibration before our second intern began was the instruction module. We reworked this module to include hands-on work crafting research guides using the newly-acquired LibGuides software. We gave the intern readings to orient herself to the competencies needed for instruction across STEM disciplines. After a discussion with the supervising

librarian, the intern began drafting content for a student-centered instructional research guide for math, including a page for study guides and links to tutorials for brushing up on tough topics. By using learning objectives to focus the module, and aligning the objectives to an assessment assignment, the intern used new skills, in conjunction with her own expertise as a current math major, to create content that was relevant and useful to her peers.

STEM module for Reference and Instruction:

Schedule:

11 a.m.–12 p.m.	Readings on information literacy and instruction in STEM, types of scientific literature
12–1 p.m.	Discussion with librarian about readings, LibGuides, instruction
1–3 p.m.	Begin working on content for math research guides

Learning goals:
- Become familiar with the basic components of library instruction and information literacy for the sciences.
- Distinguish between the different types of scientific scholarly output.

Learning objectives:
- Describe resources appropriate for a Math LibGuide and the role of LibGuides in library reference and instruction.
- Articulate the roles of the library and librarians in the Science Information landscape.

Assessment:
- Create draft content for a Math Research Guide.
- Collaborate on draft lesson plan for chemistry library instruction session with librarian.

At our institution, library instruction sessions for science subjects are not often requested. We had the good fortune this past semester, however, that a chemistry faculty member requested a session on conducting searches for literature reviews. The Science Librarian worked with the intern on how to prepare for an instruction session, construct example searches, and frame the content for the session. The intern observed the session, and afterward, the Science Librarian and intern debriefed the delivery of content, questions from the attendees, and instruction style. By taking part in behind-the-scenes preparation, as well as being present for the delivery, the intern participated in the full cycle and experienced this facet of science librarianship up close. The readings assigned to the intern, regarding types of scientific literature, underpinned the rationale for what was included in the lesson plan and how the librarian approached the structure of the lesson.

We had also missed in our prototype internship any discussion of collection development as we got sidetracked and added too much material about other facets of librarianship. For the new and improved version, we added a module about collection development that included a few key readings requiring about one hour to read, time for a discussion with the Science Librarian about how we select materials for the library, and hands-on work identifying monographs to purchase for the mathematics collection.

We dispensed with non-essential readings and exercises in other modules to streamline the curriculum and make room for this module, which gives the intern experience with a major responsibility of subject liaison librarians. By thinking through what the intern needs to know about collection development and creating an assessment that allowed her to put the new skills into practice, the module had a clear focus and outcomes that underpinned the overall aim of the internship.

STEM module for Collection Development:

Schedule:

11 a.m.–12 p.m.	Readings regarding collection development/donor letters
12–1 p.m.	Discuss CHOICE cards, math faculty book request emails, gift fund, etc. with Science Librarian
1–3 p.m.	Begin selecting math materials using Gift Fund

Learning goals:
- Select materials that support the math curriculum and student needs.

Learning outcomes:
- Using CHOICE cards, Amazon, book reviews, and the course bulletin, identify relevant books and study guides to purchase for math.

Assessment:
- Make selections for purchase using math gift fund.

By having an assignment that used the new skills in conjunction with the intern's prior knowledge, the intern completed the project with a sense of accomplishment and understanding of what academic librarians do, and with the satisfaction of contributing to a more relevant collection for other math majors. The Science Librarian and the intern collaborated to make selections: the intern's expertise regarding the needs of other students in the math program and her experience having taken the courses (and thus a direct knowledge of the college's math curriculum) aided in making better-informed selections for the collection. By aligning the learning outcomes and assessment and sticking to the "need to know" approach, the module became more focused, and the end result was useful not only to the intern, but also to the librarian.

Lessons Learned

By not originally setting concrete learning outcomes for each module, we missed opportunities with our pilot intern for building competencies and, at times, we inadvertently overlooked huge facets of academic librarianship (for example, collection development fell by the wayside when we got sidetracked by adding extra data and demographics training to the modules). Had we thought through the learning outcomes and set tasks that tracked back to them, and had we used sound instructional design to underpin our internship curriculum, we could have avoided a number of such pitfalls and created a much better curriculum from the outset. Each semester that the internship is active, we will use feedback from the previous interns' journal entries and discussion sections of the modules to continually improve the curriculum. Reflection, then, is a key part of the development and course of the internship.

Adapting or Customizing this Idea

Many librarians participate in the education and mentoring of future librarians with internship programs. Applying instructional design principles to the curriculum design of such internships can make for a stronger foundation and smoother execution of these programs. Furthermore, many libraries may have programs for orienting new hires or training staff on certain tasks and procedures, and these programs could also benefit from being re-evaluated using instructional design principles.

Though the particular program outlined in this chapter was focused on an internship program for undergraduates, applying the instructional design principles to a graduate LIS internship program or a training program for new library hires would allow for the opportunity to rethink and re-evaluate the current content and processes for such programs, and would provide a platform for improvement. By setting specific outcomes for internship and training content, supervisors can ensure that the interns and new hires absorb key lessons, content, and procedures. Supervisors can solicit feedback from interns and trainees over the course of the program and, by placing emphasis on the evaluation component of the instructional design process, can continually improve content and its delivery. Learning from failures in the design of the content and integrating the improvements will strengthen the overall program.

If components of the training or instruction fail to be effective, incorporating feedback from the interns and trainees is a viable route for improving your program. The overarching question should always be: "What does the intern/trainee need to get out of the program?" Furthermore, if there are

skills or competencies they are expected to develop, building in time for assessing the acquisition of the skills or competencies for both the sake of the trainee and the program should not be overlooked. Taking the time to reflect and improve on each iteration and reassessing the "need to know" aspects strengthens the program and makes it more relevant to the person being trained.

Conclusion

Internship programs require a substantial investment of time and planning in order to be meaningful for the interns and their supervisors. By applying instructional design principles in the redesign of our prototype curriculum, we were able to better focus the content of the internship by deliberately identifying what was most important for the intern to know and understand. We used learning objectives to guide us as we developed exercises, tasks, and reading lists that worked together to allow the intern to develop key STEM librarian skills over the course of the program. Adopting an approach that includes the application of feedback and reflection toward the curriculum re-design makes for a much more considered and focused program.

Notes

1. Char Booth, *Reflective Teaching, Effective Learning: Instructional Literacy for Library Educators* (Chicago: American Library Association, 2011).
2. Brooklyn College Office of Institutional Planning, Research, and Assessment, *Brooklyn College 2015–2016 Fact Book* (2015), 7, http://www.brooklyn.cuny.edu/bc/offices/avpbandp/ipra/enrollment/factbook_1516.pdf.
3. Ibid., 7.
4. Karen L. Gould, *Strategic plan for Brooklyn College 2011–2016* (2011), 5, http://www.brooklyn.cuny.edu/web/abo_president/110501_StrategicPlan_2011-16.pdf.
5. Ibid., 6
6. Ibid.
7. Cecilia Brown, "Recruiting the Best," *Science & Technology Libraries,* 27(1–2) (2006): 41–53 (2006); Allison V. Level and Joanna Blair, "Holding on to Our Own," *Science & Technology Libraries,* 27(1–2) (2006): 185–202. 2006; Susan M. Vazakas and Camille Clark Wallin, "Where Are All the Science Librarians?" *College & Research Libraries News* (3) (1992): 166–171.
8. Matthew Harrick and Lee Ann Fullington, "Sprouting STEMs: Recruiting Future Science Librarians Through an Undergraduate Science Information Internship," *College & Undergraduate Libraries,* 24(1) (forthcoming) (2017).
9. Miriam Larson and Barbara B. Lockee, *Streamlined ID: A Practical Guide to Instructional Design* (New York: Routledge, 2014).

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