

CHAPTER 11

A Collaborative, Student-Centered Approach to Designing an Undergraduate Researcher Tutorial

Amanda Hornby, Jessica E. Salvador, Emilie K. Vrbancic, and Linda Whang

Introduction

This chapter describes the collaboration between the University of Washington Libraries and Undergraduate Research Program (URP) to create a flexible and scalable online tutorial focused on critical research and information skills for undergraduates. Working together as a team, the UW Libraries and URP created shared goals for the project that included centering student perspectives and needs, incorporating student voices throughout the tutorial, and making the final product as inclusive as possible for students, faculty, and staff. The project team solicited student input in tutorial content creation by means of interviews with undergraduate student researchers and key stakeholders who support them, and incorporated student voices by employing graduate student assistants as co-authors of content. The result is an inclusive and accessible online tutorial that allows students to tap into their prior knowledge and experience and independently gain research and information skills usually not taught in the classroom or laboratory setting. In our experience, cultivating partnerships and



intentionally involving and centering students throughout the curriculum development process takes time, but the effort ultimately results in a product with far greater reach, impact, and relevance to students.

Background

The University of Washington (UW) is a public Research I institution with a high rate of undergraduate research activity. The UW Seattle campus enrolls approximately 32,000 undergraduate students and 10,000 graduate students. Each year, more than 8,000 undergraduate students engage in some form of research experience, including independent study, paid and volunteer research positions, and course-based, capstone, and thesis projects. Despite the prevalence of undergraduate research activity on the UW campus, some students, especially first-generation, low-income, and marginalized student populations, face barriers to participating in research. These barriers include the lack of a common research curriculum for students across disciplines, differing levels of onboarding and support from faculty research mentors, and inequities in access to higher education and preparation for university-level research. Previous UW studies outlined challenges faced by key student groups—including students who were first-generation in college, American Indian and Alaska Native, from rural backgrounds, and students with financial aid—and recommended that individual staff and offices provide additional structured support to these groups.¹ Among the challenges that students expressed included navigating a large university, not feeling prepared, and the uncertainty of getting into competitive majors.² To help students navigate the path toward knowledge and experience with university-level research, teams from the UW Libraries and the Undergraduate Research Program (URP) joined to create a self-paced, online tutorial: UW Libraries Undergraduate Researcher Tutorial.³

Partnership

In the fall of 2018, the UW Libraries Undergraduate Student Success, Instructional Design, and Assessment & Planning teams began planning an undergraduate version of the Libraries Graduate Student Research Institute,⁴ a successful online tutorial for graduate students. The teams drew on their experience and interest in design thinking⁵ and participatory design⁶ to direct the project goals and prioritize stakeholders. Of utmost importance was the desire to intentionally include undergraduate students in the development of a new tutorial. Project values included taking an iterative approach to involving students and faculty with prototyping and feedback, engaging students throughout the entire project timeline, and leveraging long-term relationships and trust already established with campus partners. The team realized that a “build it and they will come”

model solely controlled by the libraries was not appropriate for this project.

The libraries project team sought a campus partner whose goals and values were fundamentally student-centered. The libraries project team reached out to URP in February of 2019 to gauge interest and capacity for collaborating on creating a tutorial. The libraries team knew that URP had a small staff with many support needs and believed an online research tutorial could be a mutually beneficial tool for supporting undergraduate students across disciplines. The libraries and URP had collaborated on events for transfer students but had never worked closely on a project to support our shared audience: undergraduate students interested or engaged in research opportunities. The initial meeting led to informational interviews with URP staff to gain insight into key issues in supporting undergraduate researchers and their mentors. Discussions also centered on what expertise each team could bring to the project. After coming together as one project team, we formalized common goals to guide the tutorial implementation:

- Create a sustainable, flexible, and adaptable online tutorial that will meet the needs of a variety of UW undergraduate student populations.
- Increase opportunities for student learning through a scalable online instructional tutorial focused on critical research and information skills.
- Center student perspectives and needs through direct involvement of UW research mentors, students, and stakeholders in tutorial content creation.

Central themes of our partnership emerged throughout our collaboration: shared goals and shared expertise. Coalescing around a shared set of goals and values helped us keep focus through the two years of project development, center student needs, and prioritize tutorial content. We also relied on subject matter expertise from both groups and leveraged our networks of students, staff, and faculty mentors to get broad stakeholder support for a sustainable and scalable product. True collaboration takes time, intention, and effort. While we experienced challenges in communication and different work cultures as well as a lack of similar initiatives at other universities, creating this tutorial has strengthened the libraries and URP partnership and given us a deeper understanding of research motivations and expertise, and strengthened our commitment to equitable student services and support.

Design and Development

In the process of forging our partnership, we identified phases to help us reach our goals for developing the tutorial. These phases included defining the scope, outreach, data collection and analysis, curriculum development, and implementation. At the forefront of all the phases was the focus on equity and inclusion.

We were cognizant of the need to be flexible in order to ensure that we captured the voices and needs of key stakeholders.

Defining the Scope

The scope consisted of identifying our goals for the tutorial and assessing our roles within each phase of the project to ensure that we reach our goals of an inclusive tool that is accessible and adaptable for various stakeholders across campus. The focus of the tutorial was to enhance student learning in research and information skills while centering student needs at various stages of their research and undergraduate experience. During this stage, we identified that the project would be informed by planning meetings and conversations between UW Libraries and URP staff, interviews with students and faculty members, feedback sessions with students and graduate student interns, piloting tutorial content modules in targeted courses, a campus-wide launch, and assessment.

Outreach

In the second phase, we identified key stakeholders for the undergraduate research tutorial and developed an outreach plan. Our stakeholders included undergraduate students, faculty mentors, and staff. We sought undergraduate students engaged in research and identified students who are part of the Undergraduate Research Leaders program as key informants for this project. The Undergraduate Research Leaders cohort is a group of students who support URP's mission to increase awareness and access to campus-wide research opportunities by connecting with peers and sharing their research experiences and how to connect with research at the university.

Outreach for students and faculty was conducted with the support of URP staff. Students and faculty were invited for interviews during the spring and summer of 2019. Students who participated in the interviews were compensated for their time with gift cards sponsored by the UW Libraries. The libraries team conducted the interviews with students and mentors.

Data Collection and Analysis

The libraries team conducted focused conversations with URP staff and UW librarians to uncover undergraduate research needs, support, and gaps in research instruction at the university. We conducted one-on-one interviews with faculty research mentors and undergraduate student researchers where we asked open-ended questions about their research process and the skills needed to conduct their research effectively. (See appendix for interview questions.) We interviewed faculty mentors and student researchers from a wide variety of disciplines to identify themes that resonated across subject areas. One major theme

that emerged was the ability to critically read and understand scholarly sources, which was mentioned by students and faculty in all disciplines and URP staff. This prompted us to develop a Strategic Reading module to specifically address this important skill. Other suggested topics that we incorporated into the tutorial include: balancing work, school, and research; publishing research; and managing imposter syndrome. These areas broadened the scope of the tutorial beyond basic information literacy to support student researchers more holistically.

To make the tutorial as accessible as possible, the teams found that the use of the Canvas LMS platform was preferred by interview participants over other online platforms. Canvas is widely used on the UW campus and has features that allow the tutorial to be asynchronous and self-paced. From the interviews, we learned that students were familiar with Canvas, preferred to have everything in one place, and they appreciated the Canvas modules feature. Faculty expressed a desire for content that could be broken up into modules that they may use and adapt as needed. Both groups also requested some form of credentialing or documentation of completion of the tutorial.

The libraries team also held focus groups with more than thirty undergraduate researchers in winter quarter 2020 where we shared early prototypes of tutorial modules and gathered feedback about content, presentation, what would motivate them to complete the tutorial, and their experiences with Canvas. These focus groups conveyed that it was important for students to have choices to learn strategies based on different levels of experience, and that also took into account discipline-specific approaches.

Curriculum Development

With the goal of creating an inclusive and accessible online tutorial with a student-centered tone that tapped into students' own expertise and prior knowledge, the UW Libraries team recruited several UW Libraries graduate student employees to help develop and co-author tutorial content.

Based on data collected from conversations with URP staff, librarians, faculty research mentors, and undergraduate student researchers, the teams decided on six content areas and developed Canvas modules for each one. Each five- to seven-page module includes an introduction, learning goals, reflection on prior knowledge and experiences, instructional content, activities that allow the student to apply what they have learned, and links to library and campus resources for getting help or further information. The graduate student co-authors were integral in centering inclusion and a student-centered voice throughout the tutorial and included several student-created videos to illustrate key concepts. Their unique perspectives as students and future librarians invited conversations about best practices for delivering information literacy instruction, activating students' prior knowledge through reflection, and multi-generational perspectives on themes like imposter syndrome, scholarship, and equity.

The UW Libraries Undergraduate Researcher Tutorial modules include

- strategic reading—strategies for reading academic sources, such as scholarly journal articles, in a variety of disciplines;
- evaluating information—strategies for evaluating scholarly, popular, online, and social media information sources;
- database and search skills—selecting a database and basic and advanced searching skills;
- citation management—citation styles and organizing and managing citations;
- publishing and sharing research—the publishing ecosystem and the rights and responsibilities of student researchers; and
- finding your balance—time management, communicating in academic settings, and managing imposter syndrome.

The tutorial supports the holistic UW research and learning experience by allowing students to tap into their personal identities and independently gain skills that are often not taught in the classroom or laboratory setting. Student self-assessment was built into each tutorial module. Students can track and reflect on their progress through a detailed Tutorial Action Plan, which is based on learning outcomes for each module. After completing the tutorial, students will be able to

- read scholarly texts for comprehension, meaning, and efficiency;
- select and apply a strategy for evaluating information sources;
- select and search an appropriate research tool based on their information needs;
- understand academic citation conventions and manage citations;
- examine and apply the rights and responsibilities of undergraduate student authors;
- utilize personal strengths to thrive in an academic environment; and
- get expert help.

The Tutorial Action Plan also serves as documentation for students to show to instructors or research mentors to demonstrate learning and completion of the tutorial.

Implementation

From our initial conversations, the tutorial was conceptualized as an online tool to be implemented via the Canvas site with modules for each learning goal. The libraries team completed the tutorial in August 2020, shortly after UW announced that most classes for the 2020–21 academic year would be held online due to the COVID-19 pandemic. The timing was useful for UW instructors who were in the process of converting their in-person classes to online.

URP staff hosted several online launch sessions for the tutorial, inviting instructors, advisers, and staff from across the university to learn about the tu-

torial and how to adapt and use it in their classes. Reception was very positive and the libraries' team was invited to present the tutorial to several classes in autumn quarter 2020. The libraries team also worked closely with cross-campus staff to pilot tutorial content in URP courses, and subject librarians were invited to use tutorial content in their instruction sessions for their departments. The tutorial is available to the wider UW community on the UW Libraries' website and in UW's Canvas Commons. Tutorial modules can be adapted by instructors and imported into other Canvas courses, or the tutorial can be completed independently as a stand-alone product.

Assessment

The tutorial assessment plan for the 2020–21 academic year focused on tutorial iteration and seeking undergraduate student feedback for tutorial improvement. The tutorial iteration stage included ensuring all tutorial content is inclusive and accessible, adding new content suggested by undergraduate student feedback, and editing existing tutorial content. During this stage, the libraries team taught tutorial content to undergraduate students, reflected on and documented where and how the tutorial was being used, and interviewed student researchers about their experiences with the tutorial. The tutorial content was taught by the libraries team in the Undergraduate Research Program, Ronald E. McNair Post-Baccalaureate Achievement Program, Educational Opportunity Program (EOP), and College Assistance Migrant Program (CAMP) courses. In spring 2021, we piloted a more formal learning assessment, co-designing a research assignment with CAMP instructors in order to map relevant tutorial learning goals to the assignment and working with CAMP instructors to evaluate a sample of the students' research projects.

Early assessments have indicated that the tutorial content and teaching positively impact student learning. We have learned from students that the tutorial allows them to build a flexible research skills toolkit based on their prior research experience, strengths, and gaps in library research skills and disciplinary research needs. Through our student learning assessments in courses, we saw UW students commenting on bias in the peer-review process, reflecting on their personal and academic use of information sources, and highlighting the benefits of metacognition and reflection, especially when experiencing feelings of “imposter syndrome” in research settings. Student learning goals for the Strategic Reading module included reading scholarly texts for comprehension and meaning, reading scholarly texts more efficiently, and improving student confidence in reading scholarly texts. Our student learning assessments with students in URP courses indicate that student confidence increased, as did reading efficiency, and that they were able to apply strategic reading concepts to their own research contexts.

The tutorial has been well-received by UW faculty and staff, with instructors assigning students the whole tutorial or specific tutorial modules across all disciplines and departments. During the 2020–21 academic year, we tracked over 36,000 views in the open Canvas tutorial and over fifty downloads of individual modules in UW Canvas Commons by staff and faculty. Given the initial success of tutorial implementation, we will maintain our campus partnerships and continue to engage stakeholders, such as undergraduate students, for ongoing tutorial evaluation and improvement. Future assessment will include seeking expert input on the accessibility and inclusivity of tutorial content from UW colleagues and exploring how to extend our formal student learning assessment in collaboration with undergraduate student programs in 2021–22.

Reflection

At the start of this initiative, we convened multiple stakeholders, including undergraduate students, faculty, and staff, and we included graduate students as critical thought partners in the curriculum development process. Our timeline took about a year and a half of design and development. This was in part a result of our goals to be intentional about including insights from various stakeholders across campus and being cognizant of how the academic calendar impacts the capacity for campus members to engage in this process. In addition, various factors introduced by the pandemic contributed to delays in the development and implementation of the project.

The implementation of the tutorial occurred in the midst of a campus-wide transition to online learning in response to the COVID-19 pandemic. While this may seem to be opportune timing to debut an online tool, it was also challenging as staff and faculty were working extensively transitioning all operations to online while managing changes in their personal and work routines and facing critical decisions to safeguard their health and that of their loved ones. It is hard to ascertain whether integration of the tutorial would have been accelerated if staff and instructors had fewer stressors to manage during this time.

We have found that the tutorial benefits the UW Libraries' instruction program by expanding online offerings for undergraduate students, supporting the libraries' online learning plan with a concrete curriculum, and helping to deepen the conversation about undergraduate information literacy between librarians and instructors and programs on campus. Librarians have incorporated select tutorial modules into their teaching and referred departmental faculty and instructors to the tutorial. As we move forward with a hybrid approach to teaching and learning, any online or in-person instruction to undergraduates can be supplemented by tutorial modules and associated teaching materials.

Moving forward, we will continue to teach modules in URP courses and follow up with other research-focused programs to offer instruction led by libraries

staff. As we learn more about tutorial use, review student products, and make improvements to the tutorial, we will continue to determine what assessment plans are needed for the 2021–22 academic year, such as a more formalized tutorial learning assessment. We hope to increase tutorial adoption across the UW undergraduate curriculum and three UW campuses through expanded communication and outreach and to better track who is using the Canvas tutorial.

As a team, the partnership and tutorial project has changed how we approach our work, including adjusting our workflow with the understanding that true collaboration takes time and is critical to the success of student-centered programming. We have enhanced our skills in working as virtual teams with students, increased skills in project management, and implemented a more collaborative communication process with partners and other stakeholders. We have permanently changed our approach to content creation—we now work with students to shape content and tone and are committed to compensating students for their time and expertise.

Recommendations and Best Practices

Our recommendations include nurturing partnerships with cross-campus programs/units, including key stakeholders in tutorial design and development phases, and considering various modalities for access to achieve the most flexibility in online learning. A key recommendation for others wanting to engage in similar partnerships is to seek out natural partners (e.g., academic libraries and undergraduate research programs) at your institution and take the time needed to build relationships and understand each other's goals. Before embarking on a large-scale project or collaboration, such as our tutorial project, we recommend creating shared goals with partners for the project itself and revisiting the goals along the way. Another recommendation is to work closely with your partners to center student perspectives and needs through direct involvement of stakeholders—in our case, research mentors and undergraduate students.

Conclusion

The experience of developing, implementing, and assessing the collaborative undergraduate researcher tutorial demonstrated that involving and centering students in curriculum development creates a product with greater impact and requires an investment of time and intentionality. We acknowledged how important it is to work with—and compensate!—students to understand their perspectives and invite students to be instrumental contributors to the content. Having strong collaborations between the libraries and the Undergraduate Re-

search Program helped the tutorial reach academic departments across the UW Seattle campus and share the message that the UW Libraries is committed to supporting student confidence in their library skills and research endeavors—a message that continues to resonate with student and research partners across campus.

Appendix

Faculty Research Mentor Interview Questions (Pre-Tutorial Creation)

1. What undergraduate research projects are you currently supporting/working with? How many students do you work with? What is your research setting?
2. What skills do you expect student researchers to have coming into the research lab/project/team? What skills do you expect student researchers to have developed upon completion?
 - a. What support do you provide your student researchers in developing these skills?
 - b. Do students need to do library research in order to be successful in your research lab/project/study?
 - c. What skills do you nurture/help them develop?
 - d. Where do you see them experiencing challenges in the research process, start to finish?
3. What support would you like to be able to provide undergraduate researchers but don't have the capacity or time? (What gaps in support do you see for students?)
4. Anything else you'd like to add?

Undergraduate Student Researcher Interview Questions (Pre-Tutorial Creation)

1. Tell us a bit about yourself—your major/your field or discipline, and your research setting.
2. Walk us through, from beginning to end, a brief overview of your research process.
3. Follow up with additional questions probing for more information about specific points, needs, skills, etc.
 - a. What's one skill you learned (or a benefit) as a result of doing this research?
 - b. What challenges did you experience in the process, or what parts of the research process were most challenging and why?
 - c. Are there specific skills that you felt you needed to do your research? How did you develop these skills?
4. Anything else you'd like to add?

Notes

1. Sean Gehrke et al., *UW Seattle Undergraduate Retention and Graduation Study 2019*, University of Washington Office of Educational Assessment (2019), https://www.washington.edu/assessment/oea_retention_2019/; Catharine Beyer et al., *UW Undergraduate Retention and Graduation Study*, University of Washington Office of Education Assessment (2014), http://depts.washington.edu/assessmt/pdfs/reports/OEAReport1401.pdf?_ga=2.260168459.785531111.1626721546-1102500148.1620166549.

2. Gehrke et al., *UW Seattle Undergraduate Retention*; Cassady Glass Hastings, *Mapping the First Year Experience*, University of Washington First Year Programs (2019), <https://fyp.washington.edu/faculty-staff/shared/advising-orientation-assessment-reports/first-year-experience-project/>.
3. “UW Libraries Undergraduate Researcher Tutorial,” University of Washington Libraries, accessed July 27, 2021, <https://www.lib.washington.edu/types/researcher-tutorial>.
4. “Graduate Student Research Institute,” University of Washington Libraries, accessed July 27, 2021, <https://www.lib.washington.edu/services/uwcontinuumcollege/graduate-student-research-institute>.
5. Linda Whang et al., “Understanding the Transfer Student Experience Using Design Thinking,” *Reference Services Review* 45, no. 2 (2017): 298–313, <https://doi.org/10.1108/RSR-10-2016-0073>.
6. *First Generation College Student Participatory Design, Winter 2020*, University of Washington Libraries Assessment & Planning (2020), <https://www.lib.washington.edu/assessment/projects/assessment-project-summaries/first-generation-participatory-design-project>.

Bibliography

- Beyer, Catharine, Angela Davis-Unger, Nana Lowell, Debbie McGhee, and Jon Peterson. *UW Undergraduate Retention and Graduation Study*. University of Washington Office of Education Assessment (2014). http://depts.washington.edu/assessmt/pdfs/reports/OEAReport1401.pdf?_ga=2.260168459.785531111.1626721546-1102500148.1620166549.
- Gehrke, Sean, Angela Davis-Unger, LizAnne Ngo, and Jeremy Caci. *UW Seattle Undergraduate Retention and Graduation Study 2019*. Office of Educational Assessment, University of Washington (2019). https://www.washington.edu/assessment/oea_retention_2019/.
- Hastings, Cassady Glass. *Mapping the First Year Experience*. University of Washington First Year Programs (2019). <https://fyp.washington.edu/faculty-staff/shared/advising-orientation-assessment-reports/first-year-experience-project/>.
- University of Washington Libraries. “Graduate Student Research Institute.” Accessed July 27, 2021. <https://www.lib.washington.edu/services/uwcontinuumcollege/graduate-student-research-institute>.
- . “UW Libraries Undergraduate Researcher Tutorial.” Accessed July 27, 2021. <https://www.lib.washington.edu/types/researcher-tutorial>.
- University of Washington Libraries Assessment & Planning. *First Generation College Student Participatory Design, Winter 2020*. 2020. <https://www.lib.washington.edu/assessment/projects/assessment-project-summaries/first-generation-participatory-design-project>.
- Whang, Linda, Christine Tawatao, John Danneker, Jackie Belanger, Steve E. Weber, Linda Garcia, and Amelia Klaus. “Understanding the Transfer Student Experience Using Design Thinking.” *Reference Services Review* 45, no. 2 (2017): 298–313, <https://doi.org/10.1108/RSR-10-2016-0073>.