# Library Research Sprints as a Tool to Engage Faculty and Promote Collaboration

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**abstract:** To create more direct and equal collaborations with faculty, the University of Minnesota Libraries in the Twin Cities adapted a new model of engagement: the "Research Sprints." Research Sprints place librarians in direct proximity with faculty to rapidly and collaboratively work on a component of a research project in less than a week. In this article, we use a grounded theory approach, in which researchers review the data they have collected to find repeated ideas and then group them into concepts or categories, to analyze survey results from faculty and librarian participants across three iterations of Research Sprints. Research Sprints offer academic libraries an opportunity to build social capital with faculty but require strong project management to succeed.

## Introduction

Close collaborations between librarians and faculty may produce a variety of positive outcomes, including more effective alliances supporting larger institutional goals,[1] improving library services through course-integrated projects,[2] helping students develop their information literacy skills,[3] providing open educational resources for students,[4] and creating a space for faculty and librarians to collaborate.[5] However, it can be challenging for librarians to build these collaborative relationships, partly due to logistical issues related to the duration and proximity of the interaction. The University of Minnesota Libraries in the Twin Cities identify building collaborations with faculty as a strategic priority, and this project aimed to assess the effects of one such effort: "Research Sprints." This emergent model of engagement was originally developed by the University of Kansas (KU) in Lawrence.[6] Research Sprints place librarians in direct proximity with faculty to rapidly and collaboratively complete a component of a research or pedagogic project in less than a week. After implementing three iterations of Research

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Sprints at the University of Minnesota in two different contexts, the authors analyzed evaluation survey results from each iteration and present the analysis of these data.

## Literature Review

A wide variety of engagement models are represented in library literature; however, much of the literature dealing with librarian and faculty collaboration focuses on building connections through students;[7] instruction, courses, and curriculum;[8] or library spaces.[9] The idea of "embedded librarianship" is also an important and common strategy that seeks to bring librarians and library services to the user, repositioning those services into teaching, learning, and research, whether in-person or online.[10] Heidi Kristin Olsen reports on a project in which a research group included a librarian from the beginning, and so appropriate library services were determined more quickly, research was done more efficiently, and overall the team improved its research skills and knowledge of library resources.[11] However, the project lasted three years, which, for many librarians, is not a feasible timeline.

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Perhaps the most recognized and best-known librarian-faculty engagement strategy is the liaison librarianship model, which relies on librarian assets and expertise. Significant change in the academy, whether it is technological progress or a shift in the mission of the university, has defined new roles for library liaisons and requires strong relationships with faculty to succeed in these new roles.[12] Relationship building has become the core of liaison librarianship, with liaisons creating connections through their knowledge and subject expertise in an ever-changing information landscape.[13] However, forming an initial connection with faculty can be challenging, given the time constraints on librarians and faculty alike, who are expected to satisfy promotion and tenure requirements.

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Recognizing the time constraints of faculty and librarians, can libraries build a strategy that creates an immediate connection with a faculty member, embeds librarian expertise and resources directly into the project, and sets the stage for a lasting faculty-librarian relationship, all in a relatively short time? The Research Sprints model is one possible strategy. As Pamella Lach and Brian Rosenblum and the team of Benjamin Wiggins, Shanda L. Hunt, Jenny McBurney, Karna Younger, Michael Peper, Sherri Brown, Tami Albin, and Rebecca Orozco have shown, the sprints model may be a new form of engagement for librarians. This style of work is routine for information technology professionals in academia and has already been implemented by scholars in the digital

humanities.[14] In the field of software development, the model of rapid, communal work has its roots in the product development theory of Hirotaka Takeuchi and Ikujiro Nonaka, who encouraged companies to move from a system of individuals or departments passing components of a project to one another over the course of years to a style of fast-paced work in which a multidisciplinary team works together on a product from start to finish. They likened this approach to a rugby scrum, where the players pack closely together to gain possession of the ball. As a product development strategy, a scrum involves a team who work as a unit to carry an idea from inception to a prototype.[15] Over the course of the 1990s, software developers worked to operationalize Takeuchi and Nonaka's theory and, in 2001, codified the approach as a formal project management system in the book *Agile Software Development with Scrum*.[16] Within the scrum framework are "sprints," in which the development team works in a fixed time, usually from a week to a month, to craft a "usable and potentially releasable product increment."[17] Librarians, like software developers, are highly skilled, yet the bulk of their work is dedicated to supporting the projects of others. Sprinting in both cases reformats the development dynamic to make it more collaborative and time-bound, and intensifies and condenses the support work that otherwise could take months or even years.

While the genealogy of Research Sprints is rooted in scrum project management and Google Ventures hosted a modified scrum sprint called a "research sprint" as early as 2014, the parentage of Research Sprints can be traced most directly to their only academic predecessor, "One Week | One Tool" at George Mason University in Fairfax, Virginia.[18] This model shares not only a Research Sprint's typical weeklong duration but also its direct proximity of faculty to research support staff. In bringing together these two populations for direct and sustained collaboration, "One Week | One Tool" advances a working relationship that makes the labor of research support directly visible to faculty, showcasing the depth and breadth of expertise that academics focused on research support (such as librarians) possess.

In 2015, building on the project management theories described here, the University of Kansas Libraries developed Research Sprints as a new model for building relationships with faculty.[19] KU's goals were to develop an improved type of user engagement and demonstrate the value of KU Libraries. The KU pilot was designed to use project management approaches, methodologies, and tools, and the originators both had extensive project management training. KU's analysis of its first Research Sprint iteration, comprised of three teams, found that the three participating faculty were very satisfied and felt that goals were met. The faculty had prior contact with the libraries and said they would seek help from the libraries in the future. The eight participating librarians felt that their team assignment was a good fit for their skills and expertise. KU's analysis of its first iteration of sprints focused on the use of the project management tools. The analysis found that the teams were largely unaware of the project manager's use of the tools, which each team customized to fit its own needs as the sprint progressed. The

**. . . the teams relied heavily on their project managers for definition of roles and responsibilities, team direction and structure, and documentation and tracking.**

broader project management findings showed that the teams relied heavily on their project managers for definition of roles and responsibilities, team direction and structure, and documentation and tracking. KU called for "robust and formal" staff training to ensure the success of the sprints.[20]

### Setting

The University of Minnesota Libraries adopted Research Sprints with similar goals of establishing connections with faculty, embedding librarian expertise and resources into faculty projects, and building lasting faculty-librarian relationships. The University of Minnesota (UMN), like KU, holds a Carnegie Classification as an R1 Doctoral Universities institution, one with "very high research activity." Its library is a member of the Association of Research Libraries. UMN is a public land-grant university, and its Twin Cities campus is the flagship institution in the University of Minnesota System. UMN has approximately 51,000 students and 4,000 faculty across 17 colleges and schools. The University of Minnesota Libraries have 12 locations across campus and over 300 staff members, including librarians, technologists, specialists, and operations staff.

This paper evaluates Research Sprints at UMN from May 2017 to May 2018. The mixed methods approach is both a process and outcome evaluation, reporting on three iterations in two different contexts, significantly building upon the scholarship of the original KU sprints team. In the next section, we provide an overview of the sprints, followed by the research methods and analysis.

## Development of Research Sprints at UMN

UMN consulted with librarians from KU, and the Minnesota pilot closely followed the KU model, utilizing the same selection rubric and evaluation survey, as well as adapted versions of the project management templates. Eligibility was limited to tenured, tenure-track, or clinical faculty. The libraries' communication team assisted the planning committee with campus-wide marketing to reach faculty in all subject areas. The libraries hosted an information session and offered individual consultations to help faculty imagine the types of projects they could propose, such as archival work, open educational resources development, data visualization, and grant proposals.

Each faculty proposal was evaluated for scope, originality, impact, feasibility, and fit with the libraries' goals. The number of teams selected for participation depended on the libraries' capacity. For the first iteration, 11 applications were received, and 7 were selected. Faculty whose proposals were not chosen were provided the names of several library staff who could assist them with their projects over time, but not as part of a Research Sprint. Library staff participants included liaison librarians, functional specialists, archivists, library assistants, and a handful of nonlibrary staff from other research support departments at the university

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(for example, spatial analysts and research support experts). Participants were chosen based on assigned subject liaison area (for example, public health, communications, or African American studies), skill set (for example, Web development, graphic arts, or instructional design), and in some cases, past areas of experience (for example, undergraduate degree or former work history). Generally, three to five library staff were assigned to a team. Each team was given a project manager who was responsible for the planning, organization, and execution of the sprint. For all but one sprint team, the project manager was a member of the planning committee. Prior to the sprint week, project managers arranged planning meetings for each team, allowing library team members to share their areas of expertise with the faculty member, guide the project toward a defined goal, adjust the scope if needed, and create expectations for the week. Depending on the individual team's needs, some groups' preparation included preliminary work for each team member, such as reading a background document or downloading software such as EndNote.

The sprints took place over the course of four eight-hour days, two weeks after the end of the spring semester. The sprints opened with a brief welcome from the planning committee and introductions of each faculty member and the team's goals for the week. One change from the KU model for the UMN pilot was the space: to facilitate cross-team collaboration and create a greater sense of camaraderie, teams worked together in one large space with separate work areas, rather than in individual rooms. When the work was finished, the teams filled out evaluation surveys and went to a nearby restaurant for appetizers to celebrate.

Two rounds of Research Sprints were organized in this way. The second iteration took place in May 2018, with some variations. During the first iteration, librarian time was often split between teams; based on feedback, this arrangement was changed so that librarian participants were assigned to one team with opportunities for brief cross-consulting. The evaluation rubric and project management templates were streamlined. Additionally, the associate university librarians determined that librarian participation in the Research Sprints was crucial to the libraries, so library staff were required to participate unless they had a previously existing schedule conflict. Finally, the planning group hosted an orientation for library staff prior to the team meetings to set clear expectations and answer questions. The second iteration received 20 applications, and 6 teams were selected.

Another iteration of Research Sprints took place in January 2018, between the two spring iterations. The Provost's Grand Challenges Research Initiative (https://strategicplanning.umn.edu/grand-challenges-research), a campus-wide effort to advance the research goals of the university's strategic plan, approached the libraries and requested that Research Sprints be offered to research teams selected for the Grand Challenges. The libraries organized shorter three-day sprints for the research teams. In addition to the shorter length, the main difference for this iteration was that the faculty participants were selected by the Provost's Office rather than by the libraries.

Research Sprints are best made clear with concrete examples; following is a brief introduction to three teams, one from each iteration. (For a full list of all sprint projects to date, see the Appendix.)

### Pilot Sprints, May 2017

A faculty member from the Geography Department who had never worked with historical sources wanted to discover and evaluate government and archival data about the Gullah/Geechee people of the Southeastern United States and explore grant options for future research. The four people on her team were the government publications librarian, a spatial data analyst, a health sciences liaison, and the team's project manager; an additional two archivists participated as consultants. Together, the team identified and cataloged government data, surveyor records, maps, and archival materials on the historical relationship between city, county, state, and federal government and the Gullah/Geechee people. Though the sprint was largely exploratory and the support traditional, this foundational research informed a grant application that netted the researcher the university's largest internal funding award that year.

### Second Iteration of Spring Sprints, May 2018

A faculty member from the School of Public Health wanted to create a website to centralize freely available resources for international students studying for a master of public health degree and for faculty at Hanoi Medical University in Vietnam as part of a United States Agency for International Development grant. The website would act as a source of information for public health professionals in resource-poor countries and around the globe. Her team consisted of an instructional designer, an e-learning librarian, a project manager who was also the public health liaison, and a libraries research assistant with expertise in Web design. The group curated dozens of freely available resources, organized by eight public health topics (such as environmental health, biostatistics, and the like). They also curated and created tutorials on professional development skills (for example, how to build a literature search). The team built a custom website to house the resources called Free Access Public Health (http://publichealthaccess.org/). Finally, the team trained the faculty member to collect analytics on the website for future evaluation.

### Grand Challenges Sprints, January 2018

Four faculty members from pediatrics, sociology, law, and medicine hoped to use Hennepin County, Minnesota, as a strategic case study to better understand the bidirectional relationships between community supervision and health. The librarian team consisted of the project manager plus liaisons to medicine, pharmacy, psychology, and sociology. The team developed a search strategy for a scoping review of community supervision (parole and probation) and health, collected articles in a citation manager, trained faculty on how to classify in-scope and out-of-scope documents using a citation screening tool, and compiled an original dataset outlining the conditions of parole in each state from 1956 to the present and data on risk assessment tools for probation and parole from 1928 to the present. Librarians also assisted researchers in creating an online research profile page to display scholarly outputs.

## Methods

This project is designed as a mixed methods study focusing on a qualitative paradigm. It provides an in-depth look at three iterations of the Research Sprints and presents primarily qualitative data. The analysis relies on rich descriptions and contextual information to develop a grounded theory. As a primarily qualitative study, this project does not aim to reach generalizability. Instead, it strives for transferability (that is, that the findings will be applicable to similar projects and contexts). This paper lays the groundwork for comprehensive evaluation of sprints and establishes a baseline for future comparisons.

### Participants

Participants in this evaluation included all faculty, research assistants, library staff, and other campus professionals who participated in the three iterations of Research Sprints. Research assistants were invited by faculty and the term *research assistant* is used broadly: they ranged from undergraduates to graduate students, community partners, and senior divisional staff and had varying degrees of participation in the sprints. Research Sprints planning committee members, who were also project managers, did not take the surveys and were not included in any analysis. The project managers who were not on the planning committee did take the surveys, and their data are included in these analyses.

### Procedure

Evaluation surveys were collected on the last day of the sprint. In May 2017, time was set aside at the end of the day for participants to complete the evaluation electronically in Qualtrics,[21] while participants in the Grand Challenges and May 2018 sprints filled out paper surveys. Paper surveys were entered into Qualtrics by student workers. If participants were absent on the last day of the sprint, the survey was sent to them electronically the following week. The survey took approximately 15 minutes to complete.

### Measures

The survey instrument used to evaluate the Research Sprints was developed by KU and utilized by the University of Minnesota with permission. The faculty and research assistant survey had 48 questions, while the library staff survey had 37 questions. Topics covered timing of the sprints, expectations, planning activities, project management tools, space, and networking opportunities. Additionally, the librarian survey asked whether they would participate in future sprints, whether the sprints fit their skill set, and the time commitment required. The faculty survey asked about past and future use of the libraries, marketing of the sprints, and level of satisfaction with outcomes. There were short answer, Likert scale, and paragraph-form questions.

Because the Provost's Office handled most of the logistics of the Grand Challenges teams (timing, marketing, application process), those questions were excluded for that iteration. We also eliminated inquiries about networking (given the shortened three-day sprints) and project management tools (due to low use of the tools except by a project manager). Thus, the Grand Challenges faculty survey had 31 questions and the librarian survey 27 questions. The surveys informed both process and outcome assessments.

A document analysis was performed to enhance the process assessment. Meeting notes, tracking logs, and reports were analyzed for categories that might support or deny themes discovered through survey analysis.

### Data Analysis

A mixed methods approach to data analysis was used, with qualitative analyses being supplemented by basic descriptive statistics. Qualitative data (paragraph-form responses) were uploaded to NVivo 12 Pro and analyzed using a grounded theory approach. Two authors (Jenny McBurney and Shanda Hunt) coded data together, actively finding consensus, for two iterations of surveys (faculty and librarian surveys from May 2017). At that point, a coding scheme was developed, and McBurney completed the coding for the remaining surveys. The coders reconvened to develop categories from codes and discuss relationships between them. They presented the analysis to all authors, and, based on the team's experiential knowledge and document analysis, pulled out emergent themes to develop a theoretical framework.[22] Both quantitative (numerical) and qualitative (textual) data are reported in the "Results" section and interpreted in "Discussion."



## Results

A total of 19 research teams participated in the UMN Research Sprints: seven in May 2017, six as part of the Grand Challenges, and six in May 2018. The authors collected 49 surveys from faculty and research assistants and 86 surveys from library staff. The breadth of the projects is described in Appendix A.

There was a high survey response rate for each iteration of the sprints. The response rates for faculty and librarian surveys during each of the three iterations were: May 2017 sprints, 91 percent and 78 percent, respectively; Grand Challenges sprints, 60 percent and 72 percent, respectively; and May 2018 sprints, 100 percent and 74 percent, respectively. Overall, the response rates for faculty and librarian surveys across all iterations were 77 percent and 74 percent, respectively.

Survey responses provided insight into the logistics around hosting Research Sprints. Marketing efforts were most successful via university news sources (campus-wide online publication distributed by central communications) (48 percent). Faculty expressed a variety of reasons for applying. Many applicants were motivated to kick-start a summer research project or new research endeavor for which they needed librarian skills. Others were inspired by the excitement expressed for their project by librarians. A few noted that their peers at other schools have embedded librarians, and Research Sprints mimicked that model. Additionally, "the application was painless and the potential benefit extremely high" (faculty, May 2017).

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Librarians and faculty alike appreciated the collaborative work space, which allowed opportunities for cross-group collaboration:

> The ability of librarians to bounce ideas off each other was key to the progress that we made.
>
> (faculty, May 2017)

> There were a lot of opportunities for impromptu consultations, which were a great way to take advantage of expertise in the room.
>
> (librarian, Grand Challenges)

Generally, the four-day length of the May sprints was ideal for all, with a few suggestions for three or five days. The time of year, just after spring semester, was excellent for faculty (90 percent) but less so for librarians (61 percent):

> This was a PERFECT time—immediately after the conclusion of the semester, before the holiday weekend, and before many of us head out for the summer for other research projects, etc.
>
> (faculty, May 2017)

> No weeks are good weeks. But we make it work.
>
> (librarian, May 2017)

In contrast, fewer found the timing of the Grand Challenges during winter break convenient—73 percent of faculty and 70 percent of librarians. The libraries had no control over the schedule. The shorter, three-day timing was satisfactory.

Other survey responses were grouped into three broad themes: (1) project planning and management, (2) expectations, and (3) engagement (see Table 1).

### Project Planning and Management

Project planning activities included an information session, consultations by request, sprints orientation for librarians (Grand Challenges and May 2018), preliminary team meetings, and individual work. While 71 percent of faculty did not attend the information session, and 62 percent did not request a consultation before submitting their proposal, those who did participate in one or both sessions found them helpful. Additionally, the preliminary meeting with the whole team, facilitated by the project manager, was helpful or very helpful for both faculty (67 percent) and librarians (69 percent). A quarter of the faculty did not attend those meetings, likely due to scheduling conflicts or lack of a meeting. Some sprints required work by librarians, faculty, or both prior to the sprint week (for example, uploading existing materials into the project folder or providing a list of the literature found to date). Of the 80 percent of faculty who were asked to do work in advance of the sprint, 58 percent said the amount was appropriate; of the 90 percent of librarians who were asked to do work in advance, 77 percent said the amount was appropriate. In general, the Grand Challenges participants felt less prepared, likely due to the timing of their research: "We were not at a point where we could have done more" (faculty, Grand Challenges). Some Grand

**. . . the preliminary meeting with the whole team, facilitated by the project manager, was helpful or very helpful for both faculty (67 percent) and librarians (69 percent).**

# Table 1.

Survey responses about Research Sprints project planning and management, expectations, and engagement

| Question | Response | Librarian (N = 64) | Faculty (N = 36) |
|---|---|---|---|
| **Project planning and management** | | | |
| Was the project a good fit for your skills and experience? | Yes | 80% | NA |
| | No | 8% | NA |
| | Neutral or no answer | 13% | NA |
| How helpful was the information session? | Somewhat helpful, helpful, or very helpful | NA | 29% |
| | I did not attend | NA | 71% |
| How helpful was the individual consultation you received in advance of submitting your application? | Somewhat helpful, helpful, or very helpful | NA | 38% |
| | I did not attend | NA | 62% |
| Was the amount of work and preplanning that you were asked to do in advance of the Research Sprints appropriate? | Yes | 77% | 58% |
| | No | 8% | 11% |
| | I didn't do anything in advance of the week | 9% | 20% |
| | Neutral | 6% | 11% |
| How helpful was your team planning meeting held the week before the Research Sprints? | Helpful or very helpful | 69% | 67% |
| | Somewhat helpful | 20% | 0% |
| | I did not attend | 9% | 25% |
| | Neutral | 2% | 8% |

| | | | |
|---|---|---|---|
| **Expectations** | | | |
| Were you and your team able to accomplish what you had originally hoped? | Everything or more than everything | NA | 89% |
| | Some of what I hoped | NA | 11% |
| Did the Research Sprints meet your expectations? | Met or exceeded expectations | 75% | 91% |
| | Met some expectations | 17% | 3% |
| | Did not meet expectations | 0% | 0% |
| | Neutral | 8% | 6% |
| **Engagement** | | | |
| How would you rate the quality of the team of librarians you worked with? | Excellent | NA | 92% |
| | Good or average | NA | 8% |
| How would you rate the expertise of your team of librarians? | Excellent | NA | 89% |
| | Good or average | NA | 8% |
| | No answer | NA | 3% |
| How would you rate the quality of the partnership you formed with your team of librarians? | Excellent | NA | 78% |
| | Good or average | NA | 22% |
| During the last academic school year, how often did you seek help from UMN Libraries to help with your research, scholarship, or teaching? | Never | NA | 39% |
| | 1–2 times | NA | 33% |
| | 3+ | NA | 28% |
| After the Research Sprints, how likely are you to seek help from UMN Libraries for a future research or pedagogic project? | Likely or extremely likely | NA | 94% |
| | Somewhat likely | NA | 3% |
| | Not likely | NA | 3% |

Challenges participants noted that the first day was spent planning for the days ahead instead of delving into projects. For one team of three faculty, the preliminary meeting with the librarians was the first time they had met in person. For all iterations, librarians who did not attend the planning meetings felt out of the loop. Some observed that the planning needed to be well structured to be effective.

Faculty felt well guided by their team of librarians, and a number thanked their project managers by name on their surveys. The Grand Challenges teams, in particular, felt that the librarian team assembled for them was a good fit. Faculty across all iterations described the group organization as successful and the sprints as well organized, and they appreciated the workflow. Librarians also felt there was good project management of the daily activities and strong leadership. Many comments highlighted the ability of the librarians to advise on the scope of the project:

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> There were also multiple perspectives from librarians with a range of expertise, which helped to open other possibilities.
>
> (faculty, May 2018)

> I was overambitious once we got into the week, [but] we were able to narrow the expectations.
>
> (faculty, May 2018)

> It pushed me to focus and exposed me to some possibilities.
>
> (faculty, May 2018)

> The initial goals may have been a bit too broad, but we refined them by the end.
>
> (librarian, May 2018)

While 80 percent of librarians felt that the team they were assigned to was a good fit for their skills and expertise, 8 percent felt the opposite, and 12 percent did not reply or had no opinion on the matter. This—coupled with other project management challenges—led to some frustration for librarians:

> I was called in at the last minute. Hopefully I was able to contribute to the person's project, but being part of the activity earlier on would have helped.
>
> (librarian, May 2017)

> I couldn't make two of the preplanning meetings. I really wish I did. There were fundamental problems with how the project was conceived that I could have weighed in [on] ahead of time.
>
> (librarian, May 2018)

> My experience in a previous sprint was very well aligned with my skills, but this sprint was much more difficult.
>
> (librarian, May 2018)

> We did waste a day attempting to do something three team members with relevant expertise advised was not possible but were asked to do regardless by the rest of the team.
>
> (librarian, May 2018)

Additional comments stressed the need for focused project management (referring to the first iteration, which split the project managers' time) and more daily planning. Additionally, a few library staff members left the sprint team for periods during the sprint without prior notification, and two staff members did not show up for their assigned sprint, which challenged the project managers.

### Expectations

Both librarians (92 percent) and faculty (94 percent) indicated that the Research Sprints met their expectations, combining the categories of met some, met all, or exceeded expectations, and some felt neutral. Many faculty were elated:

> This was a wonderful experience. Please continue to offer this opportunity!
>
> (faculty, May 2017)

> I could not believe the amazing hard work and unselfish focus on our needs!
>
> (faculty, Grand Challenges)

> This was a career-changing experience. I truly believe that!
>
> (faculty, May 2018)

> This was a dream come true. This kind of intense support for creative artists is rare and precious.
>
> (faculty, May 2018)

Faculty indicated that the team accomplished everything or more than they had hoped (89 percent):

> We constructed my project website and brought its development forward as far as could reasonably be expected in four days. Plus, had productive discussion for approaching my original "second objective" subsequent to the spring.
>
> (faculty, May 2017)

Still, for all sprint iterations, several participants noted a need for follow-up work for their projects after the sprint week itself (40 percent).

> We laid a strong foundation for an innovative research site. We will need to continue to iterate on the site and are excited to do so.
>
> (faculty, May 2017)

> Polishing this up—obviously, we want to deliver a "great" product, and the nature of the sprint seems like we settle for a four-fifths baked cake.
>
> (librarian, May 2017)

> I'm sure the faculty member will keep in touch with me. I don't think we are done. I think that is true of most of the projects. The faculty will expect more assistance.
>
> (librarian, May 2017)

> We will use the future weeks to make sure we complete the scoping review and write up the paper.
>
> (faculty, Grand Challenges)

> I think we need virtual follow-ups over the spring semester.
>
> (librarian, Grand Challenges)

> We need to schedule an extra meeting so I can learn how to edit the website and conduct analyses.
>
> (faculty, May 2018)

As evidenced by their remarks, participants had generally positive feelings about what they accomplished, stating that they did what they could within the time allotted. In some cases, limitations were outside the project managers' control: tools or technology not functioning properly, no access to a designer, or unavailability of a librarian with specialized skills. Occasionally, there were issues with faculty's inability to contribute to planning or attempting to broaden the scope mid-project. Some faculty members expressed that they did not know what they were getting into and, in some cases, were not well prepared for the sprint. These responses indicating confusion were more likely to come from faculty in the Grand Challenges.

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> Loved learning more about the libraries, what the librarians do, the collections that we have at the University of Minnesota. This is like a well-kept secret! Thank you!!!!!!
>
> (faculty, May 2017)

> I learned about so many library resources that I didn't know existed—that I'll use in the future (and tell my colleagues about).
>
> (faculty, May 2017)

> The librarians were very good at finding out our needs, finding documents, helping us to make the resources organized and clean. I learned a lot about searching and using library resources and databases.
>
> (faculty, Grand Challenges)

Faculty members listed a wide variety of skills they developed during the sprint week, including data visualization, Web design, "tech" skills, data management, mapping skills, where to look for resources, search strategies, finding and using archival materials and collections, different modes of collaboration, and citation management tools.

**Engagement**

Engaging with faculty was the primary aim of the Research Sprints, and this goal was largely accomplished. Faculty described both the quality and expertise of their team of librarians as excellent (92 percent and 89 percent, respectively), and 78 percent also rated the partnerships they developed with librarians as excellent. Faculty used a variety of positive terms to describe their teams, including *talent*, *energy*, *pleasant*, *wealth of knowledge*, *camaraderie*, *commitment*, *creativity*, and *patience*.

**After their participation in the sprints, 94 percent of faculty stated they were likely or extremely likely to turn to the libraries for future research or pedagogic projects.**

During the year prior to the Research Sprint, 39 percent of faculty had never sought help from the libraries to enhance their research, scholarship, or teaching, and 33 percent had done so only once or twice. After their participation in the sprints, 94 percent of faculty stated they were likely or extremely likely to turn to the libraries for future research or pedagogic projects. Numerous faculty and some librarians described the collaborative nature of the sprints as a highlight:

> [We were] able to collaborate with the faculty member over a period of time to really help with their project and get answers to questions along the way in a very timely manner.
>
> (librarian, May 2017)

> Very positive overall, great collaboration, developing connections with faculty, good will [to the] libraries, and recognition of libraries' expertise.
>
> (librarian, May 2017)

> As new faculty, this experience made me feel more integrated into the scholarly community at the University of Minnesota.
>
> (faculty, May 2017)

> This is the second time I'm partnering with the University of Minnesota Libraries. I cannot say more positive things about our libraries. Very knowledgeable colleagues who are passionate about what they do. Very creative [and] willing to help.
>
> (faculty, May 2018)

Overall, librarian responses were more positive for the first two iterations. While the sprint structure remained the same with small adjustments based on previous feedback, there was a shift in the attitudes of some librarians by the May 2018 iteration:

> Highly skilled people spending a lot of time on work that could be done by student assistants like de-[duplicating].

> Undergrads might be helpful (i.e., attaching pdfs and minor cleaning to Evernote, which would be a useful skill for undergrad to practice or for grad students who can be lured by food). But was not necessarily the most productive use of the more specialized, skilled team members.

One librarian was particularly unhappy and responded negatively to numerous survey questions:

> This has been a big disappointment. I don't doubt that [this] is useful for the faculty member, but goals could have been shaped/directed by team and then handed off to student research assistants . . . As it was, this sprint reinforced the role of the libraries as servile, support services. Not as active intellectual collaborators or peers.

> Completely rethink sprints and role of librarians.

> Don't recruit multiple librarians to do basic research that requires no subject expertise and very little skills beyond patience, good judgment, and creativity in effective searching.

These comments show an emerging pattern among a handful of librarians who viewed the Research Sprints as an inappropriate use of their professional skills or time. In a few cases, librarian dissatisfaction rose to a level of visibility that disrupted the team and gained the attention of faculty and librarians alike: "Staff who don't participate—

how do we handle that in the future?" (librarian, Grand Challenges). Another librarian responded to a question about what did not go well during the sprints with "rogue librarians." Troublesome librarian behaviors ranged from coming and going without notifying their team, to complaining about other library staff in front of faculty, to arguing with the project manager about tasks they were asked to complete. As evidenced by all the data presented here, faculty were indeed engaged and pleased with the outcomes, but negative attitudes and behaviors of library staff are a concern when it comes to the success of Research Sprints.

## Discussion

The use of the Research Sprints model helped the University of Minnesota Libraries achieve two important goals: establish connections with faculty and embed librarian expertise and resources in faculty projects. The results also provide evidence that Research Sprints build long-term relationships between faculty and librarians. Overall, participants were satisfied with the management of the sprints and expectations were met, and most reported robust engagement with their team. These successes demonstrate that this model can be successfully implemented at a large research institution for a greater number of concurrent sprint teams. After analyzing the results of three iterations of sprints in two different contexts, three strong themes emerged: (1) Research Sprints build social capital, (2) success requires deliberate project planning and strong management, and (3) team dynamics are unpredictable. The following sections present an in-depth analysis of these themes, incorporating theories of social capital, scrum project management, and emotional labor to introduce future directions for research in this area.

**The use of the Research Sprints model helped the University of Minnesota Libraries achieve two important goals: establish connections with faculty and embed librarian expertise and resources in faculty projects.**

### Research Sprints Build Social Capital

As previously established, creating effective partnerships between librarians and faculty is challenging.[23] Using social capital as an operative concept for understanding the dynamics of these relationships provides a multitude of benefits, as it is intuitive, well-researched, and applicable to a variety of aspects of librarian-faculty interactions.[24] Social capital refers to the value of the network of social connections between individuals or social units and the support they provide.[25] In other words, building social capital improves networks and trust which, in turn, enhances the working relationship. The evidence presented in this paper points to Research Sprints as an effective model to build social capital with faculty and beyond, including greater engagement with the campus overall.

The University of Minnesota Libraries' Strategic Plan identifies four potential areas for building social capital, and Research Sprints related directly and indirectly to all

four: (1) advance university priorities for research, enabling Grand Challenges research and supporting researchers; (2) partnering in teaching and learning, reinforcing Grand Challenges curriculum and engaging educators; (3) supporting reciprocal engagement with external communities and leveraging the distinctive urban location of the university; and (4) embracing excellence and rejecting complacency in developing programs in support of university goals.

*Advancing University Priorities for Research*

Research Sprints allowed faculty to propel their research forward by offering them a team of information experts coupled with vast resources. Because of the success, the libraries were invited to participate in the 2018 Grand Challenges events, hosting not only Research Sprints but also informational luncheons and tabling events. The fast-paced, intensive format provided opportunities to make a lasting impression on the faculty participants and helped solidify the libraries as research partners. Sharing physical space with other collaborative teams led to the exchange of expertise across projects. For example, teams shared their expertise in bibliographic tools, website architecture, mapping and GIS (geographic information systems), government publications, scholarly communication, database knowledge, and technology with other teams. As new questions and issues emerged within projects, librarians identified relevant expertise in the room and consulted with those experts in real time.

**Research Sprints allowed faculty to propel their research forward by offering them a team of information experts coupled with vast resources.**

*Partnering in Teaching and Learning*

The Research Sprints proposals often had a pedagogical component or focus. The tangible products that resulted from the Research Sprints are currently being used in classrooms. For example, one of the original sprints was a "Choose Your Own Adventure"-style website for a course taught in the Carlson School of Management. Another sprint developed a map of underlying waters around the Twin Cities that is used in the College of Design to teach about sustainable building and architecture. The latter was also shared in an open platform so that this knowledge was freely available to anyone who might need it.

*Supporting Engagement with External Communities and Leveraging the Urban Location of the University*

An unexpected result of the Research Sprints has been a connection with communities outside the university. Community collaborators engaged in several sprints. One community partner requested that the libraries offer a sprint at their county-level organization. Also, when possible and appropriate, library staff championed for open access and succeeded in getting faculty to make sprint products freely available to the public.

**An unexpected result of the Research Sprints has been a connection with communities outside the university.**

*Embracing Excellence and Rejecting Complacency*

The libraries' values around resource allocation and agility are exemplified in the Research Sprints, an innovative approach to connecting with campus stakeholders. The libraries embraced sprints after a successful pilot launch. While the time and resource commitments that go into the Research Sprints can be a strain at times, the libraries continue to dig deep to provide exemplary partnerships with faculty.

Lach and Rosenblum noted that for the KU Sprints, "Early feedback suggested that an intensive, week-long collaboration did indeed become the foundation for a long-term and meaningful partnership between users and the library." That statement was based on only three faculty projects.[26] After 19 faculty projects, the University of Minnesota offers evidence that suggests long-term relationships are indeed a welcome development of the sprints. The University of Minnesota Libraries now work closely with the Provost's Office to provide research support to Grand Challenges awardees. Sprint products continue to be used in classrooms well after the sprints, and librarian participants have reported continuing relationships with individual faculty members, both related and unrelated to the original project that connected them. For one sprint, the team developed a strong working relationship and sense of trust through building an open-access public health website. The faculty member then asked all library staff from the team to join her in a research study to evaluate the use and effectiveness of the website they built. Even some applicants who were not selected for a Research Sprint built close working relationships with their subject liaison librarian, functional specialists, or other librarians with expertise related to their scholarship, suggesting that the marketing alone can be a powerful catalyst in building long-term social capital.[27]

**Sprint products continue to be used in classrooms well after the sprints, and librarian participants have reported continuing relationships with individual faculty members …**

Research Sprints have proved to be a powerful tool for building social capital in varied academic settings (KU and UMN). The next step is to formalize an evaluation of long-term faculty-librarian relationships and develop methods to measure the benefits of the sprints. Quantifying social capital can be challenging, but researchers have done so in other fields, such as economics, health, sociology, and education.[28] Indicators for measuring the success of Research Sprints might include continued work on a project after the sprint ended, invitations from faculty to partner on a new project, word-of-mouth collaborations, and the continued use and success of the sprint outputs. Additionally, it would be wise to engage in a cost-benefit analysis, given the extensive library resources that go into hosting Research Sprints; the results of a social capital assessment could inform such an analysis.

**Success Requires Deliberate Project Planning and Strong Management**

The University of Minnesota Research Sprints faced some clear project management challenges. While results showed that project managers excelled at project-level leadership (guiding the team through documentation, collaboration, structure, cohesion, and

the like), some project managers failed to address concerns expressed by their librarian team members or lacked a clear plan for each day. At times, project managers did not sufficiently engage with their faculty—either not gathering all necessary information from them before the sprint or not reining them in when the scope began to creep mid-project. Some of these concerns might have resulted from project managers feeling pulled in many directions. Unlike KU, where the sprint planners were not the project managers (except in one instance),[29] UMN utilized the planning committee as project managers and expected them to participate fully as team members. This issue seems unlikely to be mitigated by bringing in additional library staff because much labor is already invested in the sprints. Instead, project management training in how to effectively lead and gain buy-in from library staff could steer future sprints in a more effective direction. In fact, after each iteration of sprints, project managers reflected on their perceived need for project management training to address issues related to workload, effective use of time, and team dynamics. Junior staff acting as project managers also expressed difficulty managing and providing direction to senior team members. KU stressed the importance of project management, but its analysis largely focused on project management tools and templates rather than supervising people.[30] The KU sprint coordinators were also formally trained in project management, perhaps alleviating some of the issues that might arise with less experienced leadership. Given that Research Sprints draw from scrum project management, the University of Minnesota Libraries could benefit from reexamining this literature and implementing its recommendations more strictly. Recently, the University of Minnesota Research Sprint project managers invited a scrum master to meet regarding scrum theory and best practices. He also helped to troubleshoot known issues with past sprint iterations.

**…project management training in how to effectively lead and gain buy-in from library staff could steer future sprints in a more effective direction.**

Scrum theory emphasizes transparency, adaptation, and clearly defined roles as crucial to the success of a sprint.[31] Thus, better clarification of roles (such as the imperative involvement of the library liaison to the selected faculty participants), as outlined in scrum guides, could help project managers operate more effectively. For example, orientation sessions for library staff prior to each sprint were not mandatory, and planning meetings were held at the discretion of the project manager. Participation in these events had a direct impact on the direction and accomplishments of each sprint. Because some team members missed planning meetings, some teams suffered from a lack of adequate transparency and shared understanding of team goals. Requiring staff attendance at the orientation session and at least one planning meeting with the entire sprint team may engage all team members in planning. Outlining explicit behavioral expectations for library staff in addition to

**Requiring staff attendance at the orientation session and at least one planning meeting with the entire sprint team may engage all team members in planning.**

the theory and justification for this type of intense faculty engagement might mitigate this project management issue prior to faculty contact.

Scrum theory also requires clear and invested support from upper administration for teams to succeed.[32] Close collaboration and engagement with libraries leadership during the planning, staff selection, and orientation processes may drive home the importance of positivity and engagement for all library staff participants. Indeed, the directors at various levels of the libraries have decided to become more involved in future iterations of sprints at the University of Minnesota: for example, suggesting potential library team members. Their involvement might better the sprints overall; it broadens the pool of potential library participants because supervisors are aware of special skill sets and represent a number of library departments. The sprints planning committee members, within a large institution like the University of Minnesota, do not even know the names of all 300-plus members of the libraries' staff, let alone their skills, backgrounds, and areas of interest. This model could also reduce staff burnout by making sure few staff are asked to participate in repeated iterations of sprints. Finally, by using supervisors to assemble library teams, project managers are set up for success—library team members will have already discussed with their supervisors the importance of their participation and will likely be less resistant to being assigned to a sprint team.

### Team Dynamics Are Unpredictable

Lach and Rosenblum also listed team dynamics as a challenging aspect of sprints, noting that there was no tool or template that could prepare project managers for poor team dynamics. They built in check-ins for project managers midway through each project to alleviate negative interactions.[33] The University of Minnesota also conducted project manager check-ins regularly—the collective work space made this easy—but in addition, the project managers converged off-site partway through each spring iteration. Still, team dynamics proved unpredictable. The majority of librarians reported positive interactions with their teams, but the intensity of the few negative comments, combined with visibly unfavorable attitudes in the work space, leaves concern. Because team dynamics on each sprint were heavily influenced by the attitudes and enthusiasm of each team member, teams with a disengaged or negative library staff member suffered poorer motivation and direction overall.

Sprint coordinators must attempt to understand and curb the negative associations with Research Sprints for them to continue to succeed, and to help the libraries surround the sprints with the right support so that all participants understand why they are there and feel that their work and contributions are valued. Some dissatisfaction might come from the types of projects selected. Many focused on conducting literature reviews or creating databases of sources, which staff may have viewed as unchallenging or mundane. Negative comments might also reflect the need to find effective ways of working together in a limited time. Some library staff have never met one another prior to the Research Sprints, so building trust and a cohesive front can be challenging. Team members had the option to take breaks, claim large amounts of work space for themselves, or reserve quiet breakout rooms, but some participants may have felt uncomfortable with those choices. An additional factor contributing to stress could be the need to balance the sprints with other work. Library staff were instructed to place holds

on their calendars and to use out-of-office messaging during the sprints, but some could not let go of their regular duties. Stress and discomfort may have resulted from constant face-to-face interaction with peers and patrons; this might be particularly difficult for library staff who normally work internally and have limited interaction with patrons. The stress may have been heightened by the inability of staff to opt out of the Research Sprints. Being a strategic priority meant libraries' top leadership did not invite staff but instead assigned them to participate in the sprints. Beyond this, project managers reported that the team members occasionally became defensive when asked to document their literature search processes, taking the request to imply that their work was not performed well, whereas the managers merely intended the question to help faculty have adequate documentation to reproduce and accurately report on the searches. This may reflect uneasiness from making public a process that is typically kept private and that can feel personal, especially if the search process reveals struggles.

These stressors may heighten the amount of emotional labor needed to support the sprints, affecting staff members' experiences. Emotional labor is defined as "the effort required to manage one's emotions to meet organizational expectations."[34] Applied to the library context, it refers to the need to exhibit specific feelings (for example, encouragement or positivity) regardless of the emotions felt. In the past decade, a small body of scholarship emerged to explore emotional labor in libraries, following a much larger set of studies in organizational psychology, industrial psychology, and management. Findings from libraries have largely been consistent with the broader literature, indicating that librarians, like their colleagues in teaching, nursing, and customer service occupations, experience the dissonance between a required display of emotions and their spontaneous reactions to interactions.[35] The internal processes of emotional labor can be broadly classified into two categories: surface acting (exhibiting a positive emotion while feeling negatively) and deep acting (reframing the negative emotion to become positive and exhibiting the latter). Studies show that surface acting is associated with negative outcomes, both in terms of performance and individual well-being. Individuals who use this strategy report higher levels of stress, job dissatisfaction, cynicism, and even psychosomatic complaints. On the other hand, deep acting strategies are associated with increased positive outcomes for both individuals and organizations,[36] making it a more effective technique overall.

Emotional labor literature in libraries suggests several ways to alleviate stress. Sheriann Shuler and Nathan Morgan recommend safe physical space, professional development opportunities, and verbal expressions of support.[37] Quiet space and personal work space are already provided and encouraged during the Research Sprints, but perhaps project managers could have individual conversations with library staff on their team to talk about typical workflows and personal space needs, normalizing time alone when appropriate. Additionally, a portion of the mandatory sprints orientation could be repurposed for staff training around emotional labor strategies and face-to-face interactions with patrons. While the University of Minnesota Libraries have not considered incorporating this content into the orientation, this addition would be feasible and could help better prepare staff and alleviate emotional labor problems before they arise. Open discussions about emotional labor might increase transparency to encourage "deep acting" by staff, leading to less stress and better outcomes. Finally, a more

personalized way of showing the positive effects of the sprints might be to verbalize gratitude. There is usually a libraries-wide presentation after each iteration of sprints, but not all attend. Calling out individual contributions at these events, along with more personal recognition, such as thank-you notes, may help library staff see the value in participating, avoiding the need for emotional labor.

## Conclusion

Research Sprints are a new model of engagement that allow librarians to collaborate directly and intensively with faculty members on a component of a research or teaching project. Through Research Sprints, the University of Minnesota Libraries deepened faculty relationships and caught the attention of the Provost's Office, addressing its strategic goals. The Research Sprints were adapted again into a cross-campus collaborative effort called Teaching Sprints in June 2019, and since production of this manuscript began, two more iterations of Research Sprints have taken place at the University of Minnesota. While a limitation of this study is that it is largely qualitative and, thus, not generalizable to a larger audience, other university libraries might also utilize this model. UMN and KU collaborated to create an online Research Sprints Toolkit (https://researchsprints.org/) to share an implementation plan, examples, and resources, including selection rubrics and project management templates. Through direct communication and dissemination via the toolkit, librarians from other institutions across the United States have expressed interest in hosting their own Research Sprints, and two have done so. As more institutions implement and report on Research Sprints, a better sense of how this model evolves in various settings will become apparent. The University of Minnesota plans a long-term outcome evaluation of the Research Sprints.

An important lesson from this evaluation was that it is not enough to "host" Research Sprints, but rather this model needs to be carefully planned, implemented, and evaluated. Future planners should strategize from the beginning how they will evaluate the sprints long-term, ideally creatively assessing social capital outcomes. The evaluation can draw from this manuscript as well as literature from other disciplines that have attempted to measure social capital. Sprint planners should also closely examine the scrum framework as a guide for effective leadership, which might increase buy-in from library participants, reducing resistance to the sprints model. Library leadership might consider investment in formalized leadership training for sprint planning committee members. Finally, careful attention must be given to interpersonal relationships and team dynamics. Future sprint planners should scrutinize what has been published regarding emotional labor in library settings and build on that foundation with recommendations from other disciplines that have reported successful stress reduction in team settings.

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# Appendix A

## Description of Projects Selected for Each Iteration of Research Sprints

| Iteration | Project description | Project activities | Faculty and research assistant participants | Library staff participants |
|---|---|---|---|---|
| May 2017 | Design a framework for a relational database and digital archive to support research on Mexican American art since 1848. | • Review current metadata schema and controlled vocabularies.<br>• Review similar projects and relevant platforms.<br>• Identify scholars and institutions to help develop "bag of words."<br>• Draft survey in Qualtrics for assessment of current institutional cataloging practices.<br>• Prepare National Endowment for the Humanities grant application | 1 | 6 |
| | Discover and evaluate government and archival data about Gullah/Geechee people of the Southeastern United States, and explore grant options. | • Search and collect municipal, county, state, and federal government data on Gullah/Geechee lands.<br>• Search and collect spatial data about Gullah/Geechee lands.<br>• Search and collect archival documents from and about Gullah/Geechee people.<br>• Organize all source material in Google Drive. | 1 | 3 |

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| Create a secondary research tool for the masters in supply chain management program's capstone class, where students work directly with corporate clients. | • Identify relevant business, government, and marketing resources for the course.<br>• Create a "choose your own adventure"-style website with Drupal Lite (one of the university's content management platforms).<br>• Develop a plan for embedding business librarians in class group projects. | 2 | 5 |
| Experiment with different ways to disseminate research to practitioners who do not have access to scholarly works, the populations being studied, and the public. | • Create a "Twittergraphic" in Canva (a graphic design tool) for short message dissemination on social media platforms.<br>• Create an infographic, practicing good design principles, to be shared in repositories.<br>• Create a StoryMap to be shared on researcher's website.<br>• Create a WordPress website featuring infographics, map of research locations, blog, and other research information.<br>• Train researcher how to collect analytics from various dissemination routes. | 1 | 2 |
| Discover literature relating to the COLPAZ: Mediation and Restorative Justice Procedures in Domestic Violence project evaluating the implementation of Colombia's 2008 intimate partner violence law. | • Create an interdisciplinary and bilingual bibliography of literature and resources in EndNote.<br>• Write search guides by subject for the faculty member's future use in the areas of archives, psychology, public affairs, typologies and conjoint therapy, and women's studies. | 3 | 3 |

Appendix A, continued

| Iteration | Project description | Project activities | Faculty and research assistant participants | Library staff participants |
|---|---|---|---|---|
| | Preserve and share the career-spanning research project "Greek Rhetoric in Situ," a study of the spaces used for formal oratorical performance in the ancient Greek world, which includes decades of work and massive files. | • Create database and repository system solution for large digital files (University Digital Conservancy).<br>• Review current metadata schema for descriptions of ancient Greek oratorical spaces.<br>• Design public website to house inventory, images, and virtual reality models of oratorical spaces.<br>• Convert virtual reality models based on 3DSMax, a professional computer graphics program, to Web-enabled versions.<br>• Create documentation describing how to update public website. | 1 | 4 |
| | Create a map of the hidden and lost waters that lie below the Twin Cities to be used for urban planning and educational purposes. | • Utilize archival and map library collections to locate historical maps of bodies of water under Minneapolis and St. Paul.<br>• Digitize maps and upload to ArcGIS.<br>• Create a digital map (https://conservancy.umn.edu/handle/11299/190187) of bodies of water that currently lie below the surface of the Twin Cities.<br>• Conduct literature review to inform future research. | 2 | 4 |

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| Grand Challenges, January 2018 | Create an annotated bibliography exploring storytelling as a medium for expressions of displacement and injustice in the fields of landscape architecture, dance, and theater. | • Conduct multidisciplinary traditional and gray literature searches, including media sources.<br>• Organize literature and metadata in Zotero.<br>• Teach faculty how to use a citation manager, collaboration tools, and networking tools.<br>• Teach faculty how to practice responsible data management. | | 3 | 5 |
| | Integrate information from biochemistry, microbial ecology, soil and plant science, policy studies, and business to protect and sustain vital water resources while simultaneously maintaining or increasing agricultural productivity. | • Research corporate and industrial materials for references to the chemical compound biuret.<br>• Research and document the chemical and manufacturing processes and makeup of biuret.<br>• Research and document uses of biuret and its social and environmental impact. | | 3 | 6 |
| | Put together a bibliography and other data sources focusing on the various ways people value water in the Mississippi River Basin, including literary representations as well as perspectives of specific communities, such as Native Americans along the Mississippi River and in Minnesota more generally. | • Conduct traditional and gray literature searches.<br>• Organize literature in Mendeley.<br>• Develop a spreadsheet of databases and resources for further exploration.<br>• Connect all three researchers with library experts outside the Sprint team for next-step consultations. | 4 | 7 | |
| | Bring together elements of ongoing project on storm water management and property dynamics in Nassau Country, Florida, and take next steps in using maps to visualize data. | • Conduct extended interview with UMN stormwater expert.<br>• Collect GIS files, government documents, archival sources, interview transcripts, photographs, and scholarly literature.<br>• Organize the team's file management structure and workflows for collaboration. | | 8 | 5 |

Appendix A, continued

| Iteration | Project description | Project activities | Faculty and research assistant participants | Library staff participants |
|---|---|---|---|---|
| | | • Draft components of an ArcGIS Online Story Map on stormwater management in Nassau County from the perspective of community members. | | |
| | Use Hennepin County as a strategic case study to better understand the bidirectional relationships between community supervision and health. | • Develop search strategy for scoping review of community supervision (parole and probation) and health.<br>• Collect all relevant articles in shared Zotero library.<br>• Train faculty how to classify in-scope/out-of-scope documents using Rayyan, a Web and mobile app for screening titles and abstracts.<br>• Compile an original data set outlining the conditions of parole in each state from 1956–present and data on risk assessment tools for probation and parole from 1928–present.<br>• Create an Experts@Minnesota (*https://experts.umn.edu/en/projects/identifying-and-addressing-disparities-in-the-criminal-justice-an*) profile page for the researchers. | 3 | 4 |
| | Create bibliography on wild rice in Minnesota and the Great Lakes Region from the perspectives of environmental preservation and indigenous resource sovereignty. | • Develop a strategy to search for academic literature, gray literature, archival materials, and primary source materials related to wild rice and community-based participatory research.<br>• Collect and categorize all articles into Mendeley; train researchers into how to use tool. | 6 | 5 |

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| | | • Build a publicly accessible website (https://manoominpsin-gc.dash.umn.edu) for the project team using WordPress. | | |
| May 2018 | Search literature and archival materials to inform a play on the history of denim jeans, their connection to the California Gold Rush, and the ways in which jeans have become symbolic of myths of classlessness and opportunity in America. | • Curate Zotero library of resources, including images, advertisements, historical newspapers, personal accounts, and secondary research related to denim, Levi Strauss, and the California Gold Rush.<br>• Curate list of archives, repositories, and sites to visit in California, with guides to working with archives. | 5 | 5 |
| | Identify, retrieve, and preserve a set of open geoscience data to support a "Data Expedition" module on the Arctic. | • Curate a set of open science data sets focused on information from the Arctic and Antarctic.<br>• Record metadata for each data set and tag its location and category.<br>• Create an accompanying Google doc for each data set with data transformation description and potential inquiry questions.<br>• Design an instructional approach and create a prototype of a website that would guide students through a flexible "choose your own adventure" data expedition.<br>• Create a set of accompanying documents, including instructions for processing data sets and tutorials on creating data representations and transforming data. | 1 | 6 |

Appendix A, continued

| Iteration | Project description | Project activities | Faculty and research assistant participants | Library staff participants |
|---|---|---|---|---|
| | Identify, access, and organize various materials and archival sources in performing arts, popular culture, and periodical literature that can be related to "blackface" and "yellowface" to inform a research project about the history of yellowface—the playing of Asian and Asian American characters by non-Asian actors. | • Search primary sources, particularly those that feature historical newspapers and archival sources, for details of plays and roles at the intersection of blackface and yellowface.<br>• Organize results in a shared Zotero citation library.<br>• Identify research locations and travel plan for work on the project during upcoming sabbatical. | 1 | 4 |
| | Identify, collect, and organize literature, news sources, and measurement scales on black identity and black male achievement to inform research about factors that contribute to successful black male educational outcomes. | • Create a database of literature around scales and models of black identity and factors that contribute to black male educational success.<br>• Create a database of newspaper articles that address black male success.<br>• Create a shared Zotero library.<br>• Develop a scoping review protocol.<br>• Develop a preliminary website utilizing Zotpress for discovery of black identity models and articles. | 2 | 4 |

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| Create a website to centralize information on freely available resources for international students studying for masters of public health degrees (and faculty) at Hanoi Medical University in Vietnam. | • Curate freely available public health resources on eight different topics and organize them on an open access website called "Free Access Public Health" (http://publichealthaccess.org/) to be used by anyone around the globe.<br>• Curate and create tutorials on professional development skills.<br>• Train faculty to collect analytics on the website. | 1 | 3 |
| Create a full-text, organized, bibliographic database of how women emerged as an object of discussion in the U.S. Congress from nationhood through 1920, including mentions in floor debates, hearings, reports by congressional committees, and reports by government or other agencies, especially focused on the women's suffrage movement in America. | • Create a shared, online, organized, EndNote database to collect congressional and secondary sources.<br>• Documentation and training on how to annotate pdfs using Microsoft Surface Pro.<br>• Find and group 2000+ citations and full-text documents from various government document databases into EndNote.<br>• Training on how to use EndNote and NVivo.<br>• Documentation of search strategies and library databases and resources used throughout the sprint for future use by researcher. | 1 | 5 |

## Notes

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