

Library as Research Lab: New Research Engagement Model for LIS Students and Professionals

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ABSTRACT

We present a research engagement model called “Library as Research Lab,” designed to foster research on library practices while enabling LIS students to hone research skills and librarians to adopt evidence-based practices. By creating three research labs through collaboration between one iSchool and a university library on campus, the program provides unique learning opportunities for master’s students, academic librarians, and faculty to engage in research activities over a full academic year. This paper introduces program activities for the Library as Research Lab project. The results of program evaluation based on data collected from participating students and librarians are also reported.

ALISE RESEARCH TAXONOMY TOPICS

education programs/schools; students; research methods; continuing education

AUTHOR KEYWORDS

research competency; research engagement model; program evaluation study

INTRODUCTION

There have been extensive efforts toward and discussions about identifying a new set of competencies and capabilities for Library and Information Science (LIS) graduates (e.g., Abels, Howarth, & Smith, 2016; Bertot, Sarin, & Percell, 2015). One of the core competencies that has become increasingly vital for library practitioners is research competency. However, previous studies found a number of obstacles that prevent librarians from conducting research. Koufogiannakis and Crumley (2006) identified primary obstacles such as a lack of funding,

experience, time and support, and access to existing literature. It is noted that the authors discussed librarians' lack of knowledge about how to conduct research and lack of practice applying that knowledge. They called for research to be "integrated throughout the graduate curriculum" (Koufogiannakis & Crumley, p. 335) and for LIS programs to "foster a culture where research is not only accepted but embraced" (Koufogiannakis & Crumley, p. 335). A survey of university librarians at Canadian universities reported that they had the least confidence in their librarians' level of research skills (Berg, Jacobs, & Cornwall, 2013).

We believe that research competency is important for LIS students and practitioners because it prepares them to be evidence-based practitioners. Academic librarians are increasingly expected to use evidence to demonstrate libraries' impact and value (Oakleaf, 2013), justifying their status as community anchors and contributing to the overall teaching, research, and service missions of their universities. As a result, recent LIS graduates and current librarians alike need to develop the research skills (Connaway & Radford, 2016) necessary to demonstrate systematic evidence for data collection, analysis, and interpretation, and to use that evidence in order to build an argument when proposing new programs and services.

The Institute for Research Design in Librarianship (IRDL) was designed to train academic and research librarians to develop research skills and conduct their own research projects. The IRDL also provided opportunities for librarians to construct a network of possible collaborators for future research projects (library.lmu.edu/irdl). Based on the results of a survey with IRDL participants, Kennedy and Brancolini (2018) found that self-efficacy is one of the most important predictors of research success. They also found that formal and informal mentorship is associated with research success.

In this paper, we present a research engagement model called *Library as Research Lab* that is designed to foster research on library practice while enabling LIS students to hone research skills and librarians to adopt evidence-based practices. With funding from the Institute of Museum and Library Services, we created three research labs through collaboration between the University of Michigan School of Information and the University of Michigan Library. The project was pilot-tested in January–April 2018 with six student fellows, and then fully implemented in academic year of 2018–2019 with a cohort of 12 student fellows. The Library as Research Lab program has provided unique learning and working opportunities for master's students, academic librarians, and faculty to engage in research activities over a full academic year. This program has three distinct features that have not been attempted in other librarian research training programs such as IRDL: (1) it establishes research labs in an academic library; (2) For LIS students, it offers an experiential research-based learning opportunity that complements and enriches their classroom-based learning experiences; (3) for academic librarians, it provides a professional development program in which they can improve research and mentoring skills while interacting with LIS students, peer librarians, and faculty members.

PROGRAM EVALUATION OF LIBRARY AS RESEARCH LAB

For the Library as Research Lab project, we created three research labs in the University of Michigan Library. Each lab consisted of seven members: a director, who was either a faculty member in the School of Information or a library administrator in the University of Michigan

Library; one mid-career librarian; one early-career librarian; and four master's students in the School of Information. Students were mentored by faculty, librarians, and peers while librarians were mentored by the faculty and peer librarians. In our multidirectional mentoring with sustained interactions through a lab-based experience, it was expected that librarians would engage in their own professional development and continuing education by working collaboratively on research projects. This way, students would have rich mentoring and collegial interactions with faculty, librarians, and peers.

Each lab developed its own research topics that were aligned with the themes of the three research labs: library assessment in student learning, library assessment for research and scholarship, and design thinking for library services. The members of each lab conducted research projects, engaging in the full life cycle from developing a research problem, designing research methods, collecting empirical data, analyzing data, writing up the results, and submitting to various professional conferences and journals. The participants attended weekly or bi-weekly research lab meetings and monthly all-hands meetings throughout the academic year in which they shared their experiences with research and mentoring. The program ended with a research symposium, where every student presented their research project as a poster. Students received monthly stipends with funding from the Institute of Museum and Library Services.

To investigate the effectiveness of the Library as Research Lab model, we collected process-based and outcome-based evaluation data from ten students and seven librarians (Of 12 students, 10 were invited to participate in the evaluation study because two continued to participate in the project for the following academic year). For process-based evaluation, we asked questions about satisfaction with research activities as well as barriers participants experienced. For outcome-based evaluation, we focused on gathering self-assessment data from librarians and students about their perceived improvement in research skills and learning experiences. Additionally, we investigated perceptions of students' self-confidence and librarians' mentoring skills. The data were collected using pre-program questionnaires (September 2018), post-program questionnaires (April 2019), mid-year group interviews with students (January 2019), individual exit interviews with students (April 2019), and focus group interviews with librarians (May 2019).

As shown in Table 1, the results from the pre- and post-program questionnaires showed that student participants reported improvement across all but two of 15 questions. Students' responses revealed that as a result of participating in this program, they self-assessed improvements in their ability to select appropriate research methods for collecting empirical data, their knowledge of research methods, and their ability to interpret the practical implications of research findings. In particular, students reported that their understanding of how to analyze research data from multiple sources was most improved, and mean scores from pre- and post-program questionnaire responses were significantly different (pre-program questionnaire: 4.54 and post-program questionnaire: 5.8, using a scale of 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=neither agree nor disagree, 5=somewhat agree, 6=agree, and strongly agree=7). Students' average agreement scores regarding their ability to break down complex problems for investigation and research were also significantly different (pre-program questionnaire: 4.9 and post-program questionnaire: 5.8). Two questions for which average scores

were slightly lower on the post-program questionnaire than the pre-program questionnaire were about students' level of confidence in working towards shared goals/outcomes (down from 5.90 to 5.80) and level of confidence in their ability to complete projects by established deadlines (down from 6.45 to 6.40). As presented in Table 2, the librarians who participated in the program also responded that their research skills were improved, although there were no statistically significant differences between the average scores on their pre- and post-program questionnaire responses.

Assessment Categories	Questions	Pre-Program Questionnaire M(SD)	Post-Program Questionnaire M(SD)	p	
Self Confidence	Q1	I have a high level of confidence in managing projects that include challenging and complex tasks.	5.18(0.70)	5.70(0.48)	0.19
	Q2	I have a high level of confidence in working towards shared goals/outcomes.	5.90(0.67)	5.80(0.42)	0.34
	Q3	I have a high level of confidence in my ability to complete projects by established deadline	6.45(0.37)	6.40(0.97)	0.72
	Q4	I have a high level of confidence in my career direction.	4.27(1.20)	5.10(1.97)	0.29
	Q5	I have a high level of confidence in the preparation I have received at UMSI to become a professional librarian.	4.36(0.39)	4.50(0.40)	0.68
	Q6	I have a high level of confidence in my ability to navigate change or conflict when working as part of a team.	5.36(1.06)	5.90(0.87)	0.08
Research Skills	Q7	I understand how to select appropriate research methods for the collection of empirical data.	4.54(1.49)	5.60(0.97)	0.09
	Q8	I have well-rounded knowledge of a variety of research methods.	4.36(1.84)	5.6(1.17)	0.10
	Q9	I have the ability to interpret research findings into practical implications.	5.27(1.16)	5.7(0.67)	0.37
	Q10	I understand how to analyze research data from multiple sources.	4.54(1.34)	5.8(0.63)	0.03*
Critical Thinking Skills	Q11	I understand how to effectively communicate the results of my research to others.	5.72(1.05)	5.8(0.42)	0.78
	Q12	I have the ability to examine and distinguish claims from a variety of sources.	5.54(1.07)	5.8(0.63)	0.31
	Q13	I have the ability to evaluate evidence and assess relevance to a specific research question or problem.	5.45(0.84)	6.0(0.82)	0.08
	Q14	I have the ability to break down complex problems for investigation and research.	4.9(1.40)	5.8(1.23)	0.02*
	Q15	I have the ability to synthesize research findings.	5.45(1.43)	5.7(0.82)	0.39

n=10. Scale: Strongly Disagree(1), Disagree(2), Somewhat Disagree(3), Neither Agree nor Disagree(4), Somewhat Agree (5), Agree (6), Strongly Agree (7)

**p<0.05*

Table 1. Student Pre-Program and Post-Program Evaluation

Assessment Categories	Questions	Pre-Program Questionnaire M(SD)	Post-Program Questionnaire M(SD)	p	
Mentoring Skills	Q1	I feel prepared to provide effective mentoring to potential mentees.	5.37(1.60)	5.87(0.99)	0.54
	Q2	I feel that being a mentor is a key part of my professional growth.	6.62(0.74)	6.62(0.52)	1.00
	Q3	I have a high level of self-confidence in being in a mentorship role.	5.62(1.77)	6.25(0.46)	0.4
	Q4	I have a high level of engagement in professional organizations, conferences, and/or committees.	6.0(0.92)	5.75(0.89)	0.65
	Q5	I have benefited from mentoring in my own professional career.	6.62(0.74)	6.5(1.07)	0.81
Self-Confidence	Q6	I feel confident sharing my expertise with others in my professional community.	6.12(1.35)	6.25(0.71)	0.83
	Q7	I have a high level of confidence in my ability to navigate change or conflict when working as part of a team.	6.0(0.53)	6.12(0.83)	0.68
Research Skills	Q8	I understand how to select appropriate research methods for the collection of empirical data.	5.75(0.71)	5.75(0.71)	1.00
	Q9	I have well-rounded knowledge of a variety of research methods.	4.87(0.83)	5.5(0.92)	0.18
	Q10	I have the ability to interpret research findings into practical implications.	5.5(1.19)	5.87(0.83)	0.55
	Q11	I understand how to analyze research data from multiple sources.	5.37(1.06)	5.62(0.74)	0.62
Professional Identity	Q12	I understand how to effectively communicate the results of my research to others.	5.62(1.19)	5.87(0.35)	0.60
	Q13	I have a strong sense of my career path over the next 10 years.	5.0(0.53)	5.25(0.89)	0.35
	Q14	I feel aware of what professional development opportunities are available to me.	6.0(0.76)	6.25(0.71)	0.60
	Q15	My professional role has a great deal of personal meaning for me.	6.37(0.52)	6.62(0.52)	0.35
	Q16	I have a strong sense of belonging to my professional community.	5.87(0.99)	6.25(0.89)	0.48
	Q17	I consider the development of skills in collaboration important to advance my career goals.	6.75(0.16)	6.75(0.16)	1.00

n=8. Scale: Strongly Disagree(1), Disagree(2), Somewhat Disagree(3), Neither Agree nor Disagree(4), Somewhat Agree (5), Agree (6), Strongly Agree (7)

**p<0.05*

Table 2. Librarian Pre-Program and Post-Program Evaluation

The mid-year interviews and exit interviews with students were analyzed with respect to the following themes: learning experience, group work experience, mentee experience, research competency, professional skills, confidence in career preparation, connection to course work, learning goals, comparison between initial expectations and actual experience, barriers and challenges, professional outcomes, and future program suggestions. Overall, students reported unique learning experiences from the program in terms of ownership of the research process, confidence in career preparation, and group mentoring. They stated that going through each step of the research process was helpful in learning how “all of the pieces of the research process fit together in the big picture.” They also felt this program helped them prepare for their professional careers with regard to research competence, communication skills, and working in

group settings. Students reported that learning from peers through giving and receiving peer mentoring was particularly positive. In the focus group interviews, librarians shared their experience in working with students who had more independence and were willing to take more initiative on research projects than the librarians initially expected. They were consistently positive about their mentoring experience as they were able to mentor students over the course of a full academic year, allowing librarians to give students advice that “fit for a lot of different scenarios.” Librarians found having another peer librarian mentor in the same lab was unique and particularly helpful.

CONCLUSION

Although most LIS programs offer research methods courses in their curriculums, taking coursework may not be sufficient to enable LIS students and professional librarians to master evidence-based practices. The Library as Research Lab program was successfully implemented as a new research engagement model that provided new learning environments for LIS students who were able to develop the research skills necessary to lead research projects and apply evidence-based approaches to practice. By learning and practicing mentoring in research lab settings, librarians also gained opportunities to enhance their mentoring capabilities.

Based on the results from this evaluation study, the project team made a few minor changes for the next cohort of student fellows who participated in the program from Fall 2019 to Spring 2020. For example, we made further efforts to build a stronger sense of community across the three research labs by sharing experiences of engaging in research more explicitly rather than simply reporting out what each lab had done in monthly all-hands meetings. One important piece of feedback we received from both students and librarians was that they expected the mentoring to be better planned and more systematic. Therefore, the team is currently working on developing the *Library as Research Lab Mentoring Guide* to offer lessons learned for mentoring relationships as well as activities informing mentorship practices.

The preliminary results of the Library as Research Lab program evaluation demonstrate that this new research engagement model enables student-librarian-faculty teams to learn, practice, and engage in research projects in academic library settings. We claim that this model can be applied in other LIS program-academic library pairs. While the three research labs implemented at the University of Michigan focused on library assessment in student learning, library assessment for scholarship and research, and design thinking for library services, specific themes of future research labs on other campuses can be tailored to local interests and needs.

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