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Journal of the Research Section

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Submission Deadlines and Submission Portal

Hypothesis is published online twice per calendar year: *Spring/Summer* with a submission deadline of April 15 and *Fall/Winter*, with a submission deadline of July 15. Submit works through the portal located here: https://www.mlanet.org/e/sx/in/eid=70

Submission Criteria

To submit an article or other item for consideration, contributors should ensure that the following criteria are met. We welcome inquiries about possible submissions: mlarshypothesis@gmail.com

Reference Style

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- Program and/or project descriptions (non-research) -- peer reviewed
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Revitalizing *Hypothesis*

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Hypothesis has existed for over 30 years - the first issue was released in 1987 with at least one issue published per year since its debut. With this kind of legacy, the journal has experienced change at multiple levels ranging from leadership (both editorial and Section-level) to the logo. As co-editors, it has been our privilege to steward the journal through a process of revitalization and repurposing, which we recently had an opportunity to summarize when applying for the Section Project of the Year Award. While *Hypothesis* is part of the Research Section's "normal operational programming", efforts made in the past year have arguably extended beyond the standard operating procedures and, with encouragement from leaders of the Research Section, we threw our hats into the ring!

In past editorials, we discussed the submission system now used by contributors (https://www.mlanet.org/e/sx/in/eid=70) as well as the work taken to standardize journal policy, format, and content categories (https://www.mlanet.org/page/hypothesis). For this issue, *Hypothesis* piloted peer review checklists for both research and non-research project/program description papers. These checklists aim to define the peer review criteria for these article types as well as guide peer reviewers in the process of reviewing. We received excellent feedback from our awesome reviewers on these forms and hope to have them up on our public site within the new year so *Hypothesis* contributors can see the criteria used to evaluate their submissions.

This issue also contains content that demonstrates how *Hypothesis* is dedicated to supporting the dissemination of information about research beyond just the results. In our "Research Project Spotlight", Angela Spencer details a research project to explore health

sciences library closings in the United States and invites readers interested in participating in the project to reach out to her. Heather N. Holmes introduces a new column, ***Hypothesis: Failure*** "dedicated to failures, lessons learned, or mistakes that mattered". Finally, we recognize the recipients of the Research Section's MLA 2018 meeting stipend scholarships as well as the contributed paper/poster awardees in our annual "Research Section Spotlight".

Thank you to those to who contributed to this issue, in particular those who peer reviewed the three (!) research or project/program description articles we published this issue. We appreciate your prompt and thoughtful feedback! Past issues of *Hypothesis* can be found on the Research Section homepage (https://www.mlanet.org/p/cm/ld/fid=503) and, as always, we welcome any comments, feedbacks, or questions at MLARSHypothesis@gmail.com.

Enjoy the issue!

Carol & Erin

National Library of Medicine (US). Digital Collections [Internet]. Bethesda (MD): Surgeon General's reference library (1948). Available from: http://resource.nlm.nih.gov/101445631

Coming soon! *Hypothesis*: Failure

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Wait, what? A hypothesis failure? What is that? And why would I want to tell anyone that I failed, let alone publish it in a journal with substantial readership? I don't want my colleagues, and especially not my boss, to know that my project didn't work so no way would I want to tell the world.

Hypothesis is asking you to tell the world!

From the time we are children we know that we learn by trial and error. Sometimes those errors are pretty big, and even life changing. The key is that *we've learned* and we know that if we're in that position again we should try a different approach so as to avoid another (or at least the same) mistake. You'd only walk through fire once, right?

In our professional lives we tend to be more guarded; we do a really good job of celebrating our successes, but we tend to hide our failures or things that we didn't do so well. Then the question *"How will we learn if we don't share our failures?"* arises. It is a question that I've asked many times, and also one that I've vowed to find a way for others to answer. This column has been several years in the making, but it is finally coming to fruition and many thanks to *Hypothesis* co-editors Carol Perryman and Erin Foster, for providing a space for us to learn from projects that didn't go so well.

So what does this mean? Beginning in 2019, *Hypothesis* will have a regular column dedicated to failures, lessons learned, or mistakes that mattered. Submissions will be expected to describe the research, including the methodology and objectives, provide a narrative about the experience, and lessons learned or what would be changed if given the opportunity to repeat it. Writing style should be casual but informative. Submissions will also be subject to peer review.

We all have plenty to learn from each other regardless of the type of library that we're in, so it is our hope that this column will be filled with submissions from all types of libraries. Our colleagues from the American Library Association, Special Library Association, Academic & College Research Libraries, Canadian Health Libraries Association, and any others are encouraged to submit for publication.

Health Sciences Library Closings: Overview and Background

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Many libraries across the United States have closed and other libraries are facing closure. A recent study of health sciences library closings [1] found that from 1989-2006 approximately 23-34% of U.S. health sciences libraries closed. Furthermore, between 2011 and 2015, 613 libraries closed, for an average of 115 closings per year [2]. But why? What was the rationale for these closings? Was the decision based solely on economic reasons, or were there other underlying factors? How will providers who lack library services fill their information needs and how can the closing of additional libraries be prevented?

A group of health sciences librarians, herein known as the Health Sciences Library Study Group (HSLSG) representing both academic and hospital librarians was informally organized in 2017 to address these issues. The HSLSG believes there is a lack of substantive data on why libraries are closing. Thus, during the 2018 annual meeting of the Medical Library Association (MLA) held in Atlanta, Georgia, the Hospital Libraries Section, and the Outreach and Marketing Special Interest Group organized a Special Content Session to share information, and gather ideas and information from interested MLA members.

The HSLSG's goal is to seek funding to conduct a comprehensive, substantive study to enable the healthcare community to understand why U.S. health sciences libraries are closing, and what the consequences of the closings will be. We also seek to prevent the closing of additional health sciences libraries. Some of the questions we hope to answer are:

1. Why are health sciences libraries being closed?
    a. What was the rationale for the closing?
    b. Was the decision based solely on economic reasons, or were there other underlying motives?
2. What will be the effect of closing libraries on healthcare providers, learners, and patients?
3. How will providers who lack library services fill their information needs?

4. How are models of library services and medical information delivery evolving without a library?

The project's overarching goal will be to gather information to define a new strategic vision for the roles and responsibilities of the practicing health sciences librarian and build on the National Library of Medicine's Strategic Plan, 2017-2027. We are looking for people who can work with us on research, data analysis, and statistics.
To participate, please contact Angela Spencer, angela.spencer@stlukes-stl.com or angspencer730@gmail.com

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Defining a project proposal to enhance the Medical Library Association's annual meeting through Session-level assessment: The exploration of the 2017-2018 Rising Star cohort

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Objectives: Associations and organizations rely on feedback from membership to assess conferences, programs, and meetings. The Medical Library Association (MLA) utilizes post-conference assessment to get an overall evaluation of the meeting. While this informs future meeting planning, it does not provide targeted assessment data about the perceived quality and relevance of sessions, papers, or posters. Incorporating session-level, just-in-time feedback would further engage meeting attendees and ensure relevance of the meeting to the membership.

Methods: The 2017-2018 MLA Rising Star cohort investigated the interest in and use of session-level, just-in-time feedback at conferences of seven peer associations. A five-question survey to

gauge MLA member interest in session-level feedback was distributed in February 2018. The survey was only available to current MLA members and advertised on the MLA blog, distributed to Section and SIG, state, and select MLA Chapter lists. Live polling was also conducted at the May 22, 2018, MLA Rising Star project proposal presentation.

Results: The cohort received responses from five peer associations and only three are using some form of session-level, just-in-time assessment at their conferences. The February 2018 MLA membership survey yielded 157 responses. 94% of respondents (n=147) had attended a MLA meeting and 72% of respondents agreed that they would find session-level assessment valuable. Respondents indicated that they would be interested in receiving feedback from attendees about the application of their session's content, whether attendees learned something new, and if their session met expectations. Of attendees at this May 22, 2018, project proposal presentation, 97% agreed that they would value the opportunity to provide session-level, and 91% indicated that as a presenter would find attendee feedback useful.

Conclusion: The investigation by the 2017-2018 MLA Rising Star Cohort indicated an interest in session-level, just-in-time feedback for MLA's annual meetings.

Introduction

For the past seven years, the Medical Library Association's (MLA) Rising Stars program has provided members with the opportunity to familiarize themselves with the association, develop leadership skills, and contribute their insights and ideas. Usually this has manifested in the form of an individual yearlong project that investigated a need in the association. The project's ultimate goal was to have each member of the cohort contribute to MLA in a tangible way.

The format for the 2017-2018 MLA Rising Star project was a departure from previous years' projects. This new approach was based on feedback from previous cohorts, who expressed a desire to work more closely and collaboratively with one another. The change sought to address and encourage collaboration, cohort development, and investment in MLA. Instead of being presented with a question to investigate the 2017-2018 cohort was tasked with identifying and creating a project proposal that was both forward thinking and would support MLA's current and future needs. The intent of this approach was that if MLA, or any group within the association, decided to implement the project, it would be relevant and could be easily adapted to the association's needs and values.

The cohort initially drafted two project proposals: one that addressed assessing diversity and inclusion, and a second to investigate the MLA Competencies for Lifelong Learning and Professional Success. After receiving feedback from the MLA Rising Star faculty and other key stakeholders, one proposal was selected to expand upon. The final proposal, "Just-in-Time Assessment at a National Conference: Increasing Member Engagement and Assisting with Professional Development," was an exploration of integrating an electronic assessment option for session-level content at the MLA Annual Meeting. For this proposal,

the cohort defined just-in-time assessment as an approach that would allow MLA Annual Meeting attendees to provide feedback on session-level presentations, such as posters or papers, throughout the duration of the conference, at their convenience, and while the content of the presentations was fresh.

The intent of the proposal was to build upon existing member involvement with the association and offer a mechanism to increase feedback and participation with the Annual Meeting, its presenters, and content. A secondary goal of this project was to identify avenues for membership to engage with the MLA Competencies for Lifelong Learning and Professional Success. The cohort proposed that options for constructive, session-level feedback should be available through several platforms including the MLA website, the MLA Annual Meeting app, kiosks at the meeting, or through other means.

Literature Review

There is little published in the library and information science (LIS) field specific to session-level, just-in-time feedback at LIS conferences and meetings. The closest example was the 2010 Evidence Based Scholarly Communication Conference in Albuquerque, New Mexico, which piloted an approach to conduct real-time peer review by conference attendees on presentations [1]. Session-level assessment is present at conferences and annual meetings outside of the LIS fields, including medical professional conferences [2]. There is a rich corpus of literature on assessment and standard approaches to assessing the qualities of meetings or conferences. Many assessment approaches include a post-meeting evaluation distributed to attendees. While an overall evaluation of the conference is helpful to the association, it does not always capture the quality or value of individual sessions, nor does it provide a means where individuals improve on their practice. By implementing this proposal, MLA would be in the forefront of library associations when it comes to peer review and assessment at conferences. The proposal would also align MLA with other professional associations outside of LIS, as demonstrated in the published literature.

Information professionals and librarians value lifelong learning and should embrace the skills and practice of receiving feedback [3]. This is relevant in our approaches to information literacy instruction, the competencies that librarians utilize, and the desire to improve as information professionals. The gap in the LIS literature about session-level assessment at conferences reveals that a proposed just-in-time assessment mechanism would be an innovative way to benefit the association, increase professional development, provide an opportunity to engage with MLA's new Professional Competencies for Lifelong Learning and Professional Success, and improve engagement at the MLA Annual Meeting.

Methods

To better understand assessment in the LIS and other comparative fields, the cohort identified a set of peer associations to determine what they were doing in respect to just-in-time, session-level assessment at their conferences and annual meetings. The cohort, in consultation with their mentors, compiled a list of seven associations that were peers to MLA. The final list of peer associations included the Special Library Association (SLA), Chicago Association of Law Libraries, Association of College & Research Libraries (ACRL), European Association of Health Information and Libraries (EAHIL), American Medical Informatics Association (AMIA), American Library Association (ALA), and the Charleston Conference. The cohort developed six questions to share with contacts at each association. The questions below were sent via email:

1. Does your organization conduct session-level assessment at annual conferences/meetings?
2. If yes, how does your organization assess sessions?
    a. Paper form after the session/presentation
    b. Webform that is shared with attendees/participants
    c. Session-level assessment integrated in the overall conference assessment
    d. Other
3. What questions do you ask to attendees?
4. What is the average completion rate of session-level assessment?
5. How do presenters and attendees perceive session-level assessment?
6. How does your organization use this feedback in planning future meetings? What have you learned from this feedback?

The cohort developed a short, five-question survey for the MLA membership to gauge interest in the notion of session-level, just-in-time assessment (Appendix). The first question asked if respondents had attended a MLA in person or online. Responses were collapsed into "yes" or "no." The following questions offered a Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). In our analysis, the categories "strongly agree" and "agree" were collapsed into "agree" and "neutral", "disagree" and "strongly disagree" were collapsed as "other." An open-ended question at the end of the survey provided an option for respondents to share additional thoughts about the ability to provide session-level feedback on paper and panel presentations, lightning rounds, posters, and special content sessions.

The survey was available to the MLA membership in late February 2018 and was open for two weeks. It was administered through MLAnet and advertised on the MLA blog, Section and Special Interest Group (SIG) listservs, state listservs, and to some MLA Chapter listservs. Participant responses were anonymous.

Responses to the MLA membership survey were analyzed and tabulated for each question. None of the questions were required and respondents could choose which questions to respond to about their perceived value in providing and receiving feedback. Descriptive statistics were used to calculate frequencies. Comments to the open-ended question were analyzed and a thematic analysis was conducted to identify major themes. This was done by author one [NTM] identifying major themes and the second author [LM] reviewing these themes.

Results

Assessment Approaches by Peer Associations

To assess the viability of just-in-time, session-level feedback the Rising Star cohort investigated feedback approaches of peer associations to determine 1) if associations were utilizing this assessment strategy at their annual meetings and conferences and 2) if it was successful. Seven associations were contacted about their use of session-level feedback.

The cohort received responses from five associations and only two, ACRL and SLA, reported using mobile technology for just-in-time feedback at their annual meetings (Table 1). A third association, EAHIL, offered an optional paper form for feedback on oral presentations and keynote speakers. AMIA and the Charleston Conference did not respond.

Association	Just-in-time Assessment	Session-level Assessment	Mobile App	Interested
ACRL	X	X	X	X
SLA	X	X	X	X
EAHIL	X	X	(paper format)	X
Chicago Association of Law Libraries				X

Table 1. Assessment of Peer Associations and Use of Session-Level Assessment

ACRL encourages conference session attendees to rate sessions on a 1-5 scale and add comments to a text box within their mobile conference app. Overall, about 30% of ACRL attendees utilize the session-level feedback mechanism. The feedback is primarily used by the ACRL conference planning committee and sometimes presentation specific comments are shared with participants.

SLA planned to implement session-level feedback at their June 2018 conference. The association is interested in gathering data for in-depth assessment of individual sessions, presenters, and posters within their mobile conference app.

EAHIL and the Chicago Association of Law Libraries expressed interest in just-in-time, session-level feedback for their conferences and meetings. However, neither association currently has plans or a timeline to implement this form of assessment.

MLA Membership Surveys

The February 2018, MLA membership survey yielded 157 responses and a response rate of 5%. The cohort did not have access to the MLA membership list and needed to rely on distribution lists that they had access to. Survey results revealed that 94% (n=147) of respondents have attended an MLA Annual meeting in person, online, or both. This number is higher than the 2017 MLA Executive Director's report, which stated that 38% of MLA members attend the 2017 Annual Meeting [4]. Although there is a low response rate to the MLA membership survey, these may be viewed as representative of MLA members who participate in an Annual Meeting.

When survey respondents were asked if they would find it valuable to "provide immediate, presentation-level feedback (on for example, paper and panel presentation, lightning rounds, posters, and special content sessions)" 72% (n=114) of respondents agreed or strongly agreed (Table 2).

Value	*n*	%
Strongly Disagree	3	2%
Disagree	4	3%
Neutral	32	20%
Agree	74	47%
Strongly Agree	40	25%
Don't Know/Not Applicable	4	3%

Table 2. Value in Providing Feedback

When asked if, as a presenter, there would be value in "hav[ing] the option of receiving presentation-level feedback (on, for example, paper and panel presentations, lightning rounds, posters, and special content sessions)" 82% (n= 128) of respondents either agreed or strongly agreed (Table 3).

Value	n	%
Strongly Disagree	1	1%
Disagree	0	0%
Neutral	16	1%
Agree	69	44%
Strongly Agree	59	38%
Don't Know / Not Applicable	12	8%

Table 3. Value in Receiving Feedback

Survey respondents were asked to select from a list of feedback options that they would desire as a session-level presenter. Respondents could check more than one answer. Possible options for session-level feedback included: whether attendees learned something from my session, how participants think this may apply what they learned, and the level of attendee engagement with the session. Participants had the option of selecting multiple answers for this question. Respondents were primarily interested in knowing "whether participants learned something from my session" or "how participants think they might apply what they learned at my session" (Table 4).

Type of Feedback Desired	n	%
None	5	1%
Other (please describe)	21	4%
Met Participant Expectations	123	25%
Participate Engagement in Session	74	15%
Application of Session Content	130	27%
Learned Something	132	27%

Table 4. Types of Presenter Feedback Desired*

Participants were given the option to share their thoughts about the ability to provide feedback on paper and panel presentations, lightning rounds, posters, and special content sessions at MLA's Annual Meeting in an open-ended question. One primary category emerged from these comments: feedback for personal or professional use and improvement. Other comments were about the MLA Annual Meeting and not specific to this project proposal.

Respondents welcomed the notion of feedback to improve their professional practice and felt that these comments would improve their MLA meeting submissions. They felt that feedback would allow for transparency between the presenter, MLA, and Annual Meeting attendees. One participant summed this up nicely: "We can't improve without the ability to receive honest, timely feedback."

The 2017-2018 cohort also conducted a live audience poll at the May 22, 2018, project proposal presentation. Attendees responded to two questions using their laptops or mobile devices and participant responses were anonymous. Of attendees at the presentation session, 97% (n= 31) "agreed" or "strongly agreed" that "As an attendee of the MLA annual meeting, I would find it valuable to be able to provide immediate, presentation-level feedback (on, for example, paper and panel presentations, lightning rounds, posters, and special content sessions)"(Figure 1). When asked, "As a presenter at the MLA annual meeting, I would find it valuable to have the option of receiving presentation-level feedback (on, for example, paper and panel presentations, lightning rounds, posters, and special content sessions)", 91% (n=33) "agreed" or "strongly agree" that they would want the option (Figure 1).

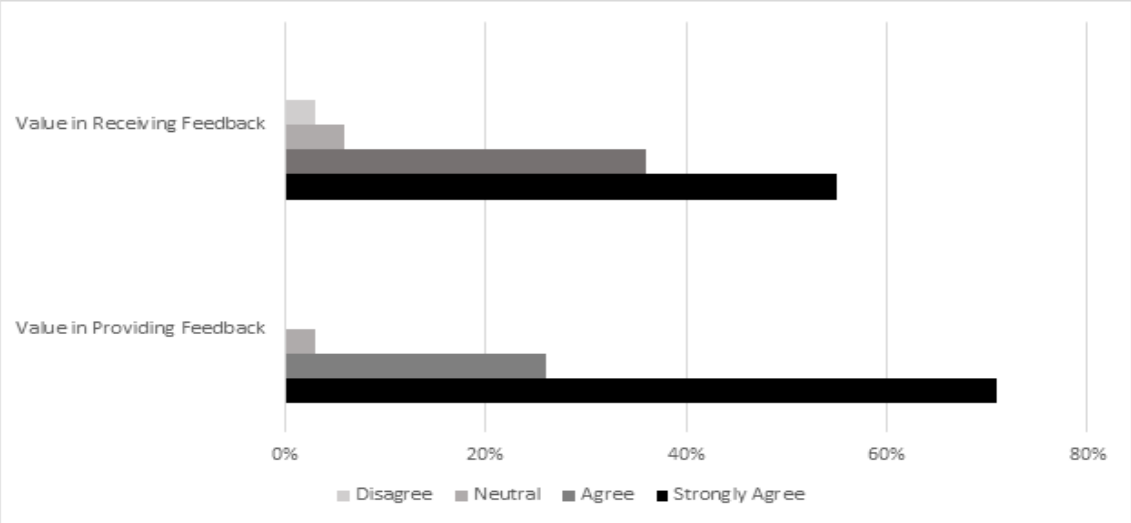

Figure 1. Value of Session-Level Feedback (Results of an Audience Poll)

Discussion

Constructive feedback and assessment is commonplace in education and professional development due to the desire to improve and evolve. Feedback should not be avoided, but rather encouraged for personal and professional development. It offers external views, recognizes or interprets ways to improve past performances for the future, shows genuine interest and appreciation of work, and gives encouragement, affirmation, and support to build confidence and competence [5]. Individuals providing the feedback and those receiving it enter into a partnership with the overall goal to improve and further develop a program or outcome [5], meaning peer-to-peer feedback is mutually beneficial.

Constructive feedback and peer assessment has been used in medical education, including hospitals, to assess practitioner performance and skills, communication skills, and the physician patient relationships [6]. It is argued that peer assessment "can be valuable as a formative assessment method" [7] and that self-assessment allows individuals to "focus on aspects of their work that seem to be problematic, forming a more objective lens for self-assessment (and promoting performance awareness)" [8].

Library and information science professionals value self-assessment and constructive feedback as it provides an opportunity for them to develop, improve, and assess their impact. They "look to professional partners, broad contexts, and campus priorities with which to engage" [9]. Furthermore, "In a profession focused on lifelong learning, the skill of accepting [and giving] feedback should be an area of continual improvement" [3]. LIS professionals already embrace the desire to refine professional skills and develop new programs, initiatives, or services based on the needs, expectations, and feedback from their users and institutions. MLA members indicated a desire to both provide and receive feedback to improve as professionals and to assist peers in improving their research, presentations, and skillset. MLA Annual Meeting presenters recognize the potential of session-level feedback to assess whether attendees learned something and are interested in applying programs or services. Presenters also recognize the opportunity to assess the overall impact of their presentations. Receiving peer feedback from other LIS professionals should only further develop this culture of continual improvement and context for demonstrating impact.

For this project, the cohort investigated the use of session-level assessment at conferences. The use of mobile technology is key to this type of assessment. Mobile apps are increasingly used to enhance conferences and educational settings [10] and have the potential for real-time engagement [2]. The use of this technological platform makes sense since nearly nine in ten Americans own a smartphone and rely on these devices to access or interact with content [11]. MCI USA, a telecommunications company that supports vent

needs, offers functionality to engage with meeting attendees through surveys and questions within a mobile app.

MLA, like other professional associations, creates and manages both a conference website and mobile app for Annual Meeting attendees to learn about session offerings, manage schedules, and interact with conference content [12]. Currently, MLA only assesses its Annual Meeting through a survey link that is shared with attendees after the meeting and focuses on the event overall. Building an assessment into the Annual Meeting app and website has the potential to gather feedback on a specific portion, or subset, of the Annual Meeting and increase overall feedback. The integration of an assessment function has the potential to maintain attendee engagement and participation with conference content and provide an opportunity for the association to gather feedback as attendees participate in events or content.

The 2017-2018 Rising Stars project proposal presents a novel approach for gathering feedback at library and information conferences and meetings. The investigation of peer associations showed that while ACRL, SLA, and EAHIL conduct just-time-assessment there is range of questions asked, methods, and approaches employed in session-level assessment. The integration of a just-in-time feedback mechanism into the MLA mobile app aligns with the trends of peer institutions and is a functionality of interest to the membership. Further data is needed to identify the optimal integration of session-level, just-in-time feedback at the MLA Annual Meeting.

Limitations

Although the cohort tried to be as comprehensive as possible in exploring evidence supporting this proposal, some limitations exist. Lack of relevant information in the literature, a low survey response rate from the MLA membership, and potential challenges in implementation of the proposal are all issues that were considered throughout the process.

There is little-to-no direct evidence in the LIS literature pertaining to online or app-based session-level assessment at conferences. The cohort therefore broadened the parameters of the literature search to include conferences outside of the LIS field, as well as the value in peer-to-peer feedback. This was valuable in shaping the proposal; however, it may lack specificity and direct applicability to the proposed assessment approach at MLA Annual meetings. The cohort is cognizant of this limitation and views the possible implementation of this proposal as an opportunity for MLA to contribute to the scholarly conversation by publishing on assessment efforts.

The MLA member survey that was developed and administered by the cohort yielded valuable information on member perceptions of the proposed project. However, the

survey was not be shared directly with the MLA membership and achieved a response rate of 5% (n=157). Since the survey was advertised on the MLA blog and shared on lists that the cohort had access to the results represent a self-selected sample [13]. As the project moves forward, the cohort recommends maintaining open communication with membership for feedback and suggestions.

As this year's cohort was tasked with developing and presenting a proposal, they discussed but did not directly address limitations of the proposed feedback mechanism. Given the fact that many sessions include multiple presenters, the proposed feedback system may need to be modified for ease of use and clear interpretation of individual feedback results. Each presenter may or may not be comfortable receiving feedback, and therefore the cohort recommends that the mechanism be opt-in for presenters. This project proposal offers an additional approach to gather feedback from session-level content and engage members at the MLA Annual Meeting.

Conclusion

The 2017-2018 Rising Star cohort believes that this project would benefit MLA as an association, its members as stakeholders, and participants in the Annual Meeting as professionals. The cohort is currently exploring options for piloting just-in-time, session-level assessment. The project proposal mirrors assessment approaches used by other professional associations at events and meetings. The survey of the MLA membership and feedback received at the MLA Rising Star presentation indicates there is interest in pursuing the proposal. The potential to leverage feedback from the membership using existing MLA platforms is significant, and could have far-reaching impacts for engagement with and interest in MLA Annual Meeting offerings. In the literature and in conversations with peer associations, the cohort found that similar approaches to assessment might improve professional development, competence, and engagement within an association or professional associations.

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Appendix

Questions Shared with MLA Members

Would you like to be able to evaluate the sessions that you attend at MLA annual meetings? Would you like to get feedback on your paper, poster, or lightning round talk?

Research shows that feedback is an essential part of the process of becoming a more effective and engaging presenter. However, there currently isn't a way for presenters at MLA annual meetings to receive feedback on their papers, posters, lightning talks, panel presentations, or special content sessions.

The MLA Rising Stars cohort has created a survey to find out your thoughts on adding a session-level component to MLA annual meeting feedback.

We plan to use the results of this survey to inform a proposal to the MLA Board on how to improve the MLA annual meeting experience for attendees and presenters.

This five-question survey will take only a couple of minutes to complete. All responses are anonymous. The information we collect from the survey will be shared in a future post and may be used by MLA if our proposal is adopted.

1. I have attended an MLA annual meeting in person or online

- Yes: In-person
- Yes: Online
- Yes: Both in-person and Online
- No: Neither

2. As an attendee at the MLA annual meeting, I would find it valuable to be able to provide immediate, presentation-level feedback (on, for example, paper and panel presentations, lightning rounds, posters, and special content session)

Strongly Disagree Disagree Neutral Agree Strongly agree

3. As a presenter at the MLA annual meeting, I would find it valuable to have the option of receiving presentation-level feedback (on, for example, paper and panel presentations, lightning rounds, posters, and special content sessions):

Strongly Disagree Disagree Neutral Agree Strongly agree

4. As a presenter at the MLA annual meeting, I would find value in receiving the following types of feedback: (select all that apply)

- Whether participants learned from my session
- How participants think they might apply what they learned at my session
- What the level of participant engagement with my session was
- To what extent my session met participant expectations
- Other:_____
- None of the above

5. Is there anything else you want to share with us about the ability to provide feedback on paper and panel presentations, lightning rounds, posters, and special content sessions?

Credit due: Multiple author attribution for interdisciplinary informatics research groups

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"Author" is increasingly an archaic term: more and more people want to know what it is a person has contributed to a project and not just that they have authored a paper about the findings" [1].

Objective: To understand issues related to multiple authorship in interdisciplinary working groups, and to identify best practices for authorship attribution for a multidisciplinary group.
Problem: Research groups comprised of individuals from diverse disciplines need to identify their own internal agreement and process for authorship attribution.
Methods: Limited literature review
Findings and conclusions: Resources are described and considerations for interdisciplinary working groups are suggested.

Introduction

Author attribution and ranking for multi-author publication has long been an issue of concern, leading to author statements in peer reviewed journals that spell out the nature of contributions, institutional review board (IRB) guidelines, and even institution-wide ethics statements. However, such standards pay less attention to concerns of interdisciplinary groups. Member expertise in a working group conducting informatics research, for example, may include data curation and knowledge management, literature retrieval and synthesis, statistical modeling, examination of data from very different perspectives (e.g., economic or network analysis). Issues relevant to author attribution, including author list ranking, are examined here, from the perspectives of authorship benefits and ethical concerns, concluding with a brief listing of resources and recommendations for action. Medical librarians, who are increasingly involved in supporting and performing interdisciplinary research, may be informed by practices in other disciplines.

Background

The Informatics Research Group (IRG) at Texas Woman's University consists of nearly 20 individuals (faculty, staff, and students from both graduate and undergraduate programs) from different disciplines, including Math and Computer Science, Business, Nursing, Occupational Therapy, Health Studies, and Library and Information Studies. Collaborators

also include a number of librarians and staff from the institution's Office of Sponsored Research, who directly support research methods, analysis, and grant activities. The group has already obtained several internal grants and completed a number of poster and conference presentations, as well as having a systematic review and several research papers in process.

The focus of research efforts at present is the analysis of a large dataset obtained from a regional foundation, whose for-profit arm collects, cleans, and disseminates data to over 90 regional hospital administrators for decision support and reporting, as well as making it available to external researchers. Our particular research area is emergency department utilization by individuals diagnosed with schizophrenia, with questions about health disparities and the intent to model the paths of care for individuals in order to identify bottlenecks and opportunities for intervention. A very incomplete listing of expertise represented by IRG group members includes health systems, data analysis, statistical modeling, management and security, literature and systematic review searching, mental health, digital divide, and community informatics.

The interdisciplinary nature and large size of the group is new to most members, presenting a valuable opportunity to build trust and collaborative partnerships between people working in different areas, presenting several challenges. These include collaborating across disciplinary boundaries with attention to discipline-specific professional communications for research output, including author ranking and content type attributions. Variation between disciplinary norms is a particular problem encountered by the IRG. For some members, publication in particular journals will not count toward tenure, even if they have made substantive contributions, and the same is true for author order. These are potential anti-motivational factors that should play a part in the group's consideration of possible publication venues.

While initially an informal agreement was made between members that all would be listed on every work disseminated, concern about the ethical issues involved have resulted in a need to examine the situation and how we might best address it in future work. As an example, a large working systematic review subgroup is led by a faculty member from Nursing, with members comprised of faculty from Library and Information Studies, Math and Computer Science, and staff from the university's library (one of whom serves as the expert guide). Listed authorship for the eventual publication, per earlier agreement, would include all members of the larger group, yet not all members have had any role in production.

Upon discussion, some group members felt that inclusion of every person as a contributor to every product of the group is an important factor in encouraging ongoing participation

in a new effort. In addition, the argument was put forth that work products are clearly the result of group meetings where members have contributed to discussions about ongoing research, and all group members have been asked for editing feedback for submitted works. However, there are questions to be addressed.

The central question of this limited review is the identification of best practices for authorship attribution for a multidisciplinary group. Sub-questions include the following: Are there levels of collaborative contribution that should be identified? Is contribution to discussion about research products or editing commentary sufficient to warrant inclusion in the author list of the products? If so, how shall contributions to each product be identified and recognized? Does the nature of our collaboration warrant inclusion of every group member's name in every poster, presentation, published research paper, and other disseminated product? In other large workgroups, members may also have wrestled with these questions, but if they share a discipline, questions may be relatively simple to address because journals in medicine, for example, may follow similar standards.

Methods

In order to understand the issues and to identify discipline-specific practices in attribution for interdisciplinary research groups, limited literature searches were performed in Google Scholar to retrieve materials addressing multi-author attributions in research literature across multiple disciplines. Next, the most pertinent articles retrieved during the initial literature retrieval phase were entered into the Web of Science database to find citations and their citing articles, and all were examined to identify common words or phrases. These were used to construct a search statement restricted to the title field (TI) only (shown in Table 1), in order to limit retrieval in the interest of time. Citations for pertinent articles were examined and articles retrieved in order to understand issues involved in attribution and differing disciplinary practices. As this work is not a systematic review, use of a second reviewer was not needed.

Search statement	Results
(((TI=(author* OR multiauthor* OR multi-author* OR co-author*)) AND (TI=(interdisciplin* OR collaborat* OR interprofess* OR multidisciplin*))) NOT (TI=(authority OR authoriz* OR authoris*))) *AND* **LANGUAGE:** (English) *Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, BKCI-S, ESCI Timespan=All years*	380
The set was further limited to 2000-2018	225

Table 1. Search statement, Web of Science, 10/4/2018.

Exclusion criteria

Items focused primarily on the topics listed:

- Network analysis
- Bibliometric analysis
- Impact ranking
- Literary studies focused on author collaborations
- Mapping studies examining author citedness in a discipline or topic
- Collaborative authorship not focused on the issue of authorship attribution, i.e. international collaborative research and publication.

Inclusion criteria

Items addressing:

- trends in collaborative authorship
- policies of particular journals or association statements
- ethics of author attribution

Reviewing titles only, 48 items were identified. Abstracts (or, in situations where these were unavailable, the item introduction) were then reviewed based on the above criteria. Those that did not clearly address the question of authorship attribution were not considered, resulting in 32 items. This subset of articles (available upon request) was reviewed, framing the review.

Findings and Limited Review of Literature

The issue of author attribution in work groups has increasingly been discussed as a concern needing exploration and agreement within professions (particularly in medicine), but also more broadly in the social sciences [2] and problematically in the sciences, where there has been corresponding growth in research misconduct [3]. In 1993, a letter to the editor published in BMJ described a growing trend of multiple authorship in 15-year increments from 1935-1990. Comparing medical and scientific papers, there was a fourfold increase in multi-authorship over the period for medical literature, compared to a twofold rise for scientific papers [4]. While early on, some condemned the practice as unethical, others have found that due to trends in the complexity of research, multiple contributors were increasingly necessary. At the same time, the ethical expectation of 'substantive' contribution to justify author attribution has been expressed:

> An alternative explanation for our findings is that science has become less of a cottage industry and now requires larger collaborative groups. If this is so multiple

> authorship is justifiable. Clearly, all authors should have played a substantive part in the project reported, otherwise authorship becomes meaningless (pp.1345) [4].

Other justifications for group authorship include the need to collect large amounts of input from multiple locations (for medical research, with patients recruited for increasingly large studies); the growing involvement of students in research; and growing sub-specialization involvement in interdisciplinary research has required collaboration and subsequent recognition [5]; the ability to contribute from a distance thanks to web-based document preparation and distance conferencing; and for top publications in particular fields, increased competition [6][7].

However, problems have arisen from the practice. "Ghost authors" is a term referring to those who have contributed to the work of research but were never recognized in the final product, whereas "honorary authors" are those named in recognition of their support of work efforts, who have not otherwise contributed to the work [8]. In the early 1980s, a scandal arose from the publication of research whose authors had made no real contribution at Emory and Harvard universities [9], resulting in a recommendation for change by leaders in the International Committee of Medical Journal Editors (ICMJE). Sometimes referred to as the Vancouver protocol, the standards are used by many universities and across most medical disciplines [10].

While ICMJE is now widely cited as a standard for literature in medical disciplines, other disciplines vary in their approach, and the path has not been smooth. In disagreeing with the ICMJE proposal and pointing out that bibliographic databases such as PubMed do not differentiate authorship order in terms of contribution, Cappell argued in the pages of JMLA that mentors should merit inclusion on the author list as the last author named [11]. Cooper, then JMLA editor, contended that the practice might encourage coercion, and pointed to the existence of demands by editors (undoubtedly including ICMJE among them) that authors spell out unique contributions of each and stated that those who had not "contributed significantly to the execution of the project and the writing of the manuscript" (pp.365) should instead be named in an acknowledgment [12]. Author ranking conventions have changed over time, a reality that argues in favor of spelled-out attributions at least in research group process documentation and in preparation for a publishing environment lacking universal standards [13].

Authorship of research publications is recognized as a benefit to authors for a number of reasons. Among them are: contribution to a body of knowledge, personal achievement, evidence of intellectual effort, enhancement of professional reputation, contribution to academic promotion and tenure, research funding, and recognition among professional colleagues [5]. In many disciplines, rank placement in publication is of central importance

in tenure and review, based on the agreed-upon expectation that placement denotes level of responsibility and participation.

It is important to recognize that on an interdisciplinary team, some will not receive credit in review or tenure evaluation if they are not listed among first, second, or third authors in works disseminated, or if work is not published in particular journals recognized by the discipline. Neither problem is addressed by current standards across disciplines. In some disciplines (e.g., math and physics), authors are commonly listed in alphabetical order by surname [14]. A recent survey of institutions across the United States in biomedical engineering, biology, and bioengineering disciplines (n=102, or 18% response rate) asked participants to rank contributions in terms of perceived importance, with the result that "time spent conducting experiments, coming up with a hypothesis, analyzing data, and writing the manuscript were selected as the four most important criteria for both determining one's authorship status and rank" [15]. Other contributions named, in ranked order, were total time spent, uniqueness of techniques (particular techniques such as GIS could rank here), quality of contribution to the manuscript, background/literature review, editing/proofreading, applying for funding, and coding.

Identification of individual contributions is of particular importance to the promotion and tenure process, but here there tends not to be any universal standard. According to Klein and Falk-Krzensinski [16], decisions may often be made at the academic component level, further supporting the need agreed-upon within-group standards. Criteria often rests upon promotion and tenure standards, which may not have dealt with increasingly interdisciplinary work, or provide only vague guidance (pp.1057). However, it may not be desirable or possible to achieve complete standardization, due to well-established promotion and tenure criteria within disciplines and institutions, meaning that research groups bear primary responsibility for arriving at their desired practice of attribution.

Correct attribution has been called a 'public responsibility' in that participants represent their work to readers as the product of author investigations [5]; therefore, each member of the group is responsible as a representative of the integrity of works published or otherwise disseminated, and willing to respond to challenges based on its content. As well, finding agreement on collaborative attribution is non-trivial to the ongoing success of the research group, since

> […] determining who should be listed as the authors of a publication, and in which order, could be often critical to the overall success of a research collaboration. Publication is a major product of a collaboration. Successful, agreeable determination of publication authorship can increase the likelihood of converting a one-time collaboration into a long-lasting research team [17].

Considering that group members bring unique expertise to projects, the issue of critical evaluation of publications, including understanding the authority of contributors with regard to specific contributions made, may be of primary importance to sustainable research collaborations. If, for example, one or more group members perform statistical analysis or other forms of data analysis, it seems commonsensical to attribute this part of a work to the individuals involved not only for credit, but for follow-up: errors or questions can thus be brought to the attention of the appropriate people. At the same time, all named authors have a responsibility to be familiar with the work overall, and to participate in the editing and revision processes.

By far, the most widely adopted attribution set of standards, based upon this limited review, appears to be the documentation provided by the ICMJE. The literature of most disciplines has not specifically addressed the issue of interdisciplinary, multi-author attribution, perhaps due to existing tenure and promotion standards, but many follow similar policies in publication. Itself adapted from earlier guidelines, the current ICMJE statement provides support for decision making, without mention of interdisciplinary author teams. ICMJE recommends the following 4 criteria for inclusion as an author:

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved [10].

In addition, the organization specifically recommends that the following NOT constitute rationale for authorship inclusion: “acquisition of funding; general supervision of a research group or general administrative support; and writing assistance, technical editing, language editing, and proofreading” [10]. Those who have contributed to the work but do not meet the 4 criteria should be recognizedwith an acknowledgment. Specific wording is suggested for acknowledgments:

> Those whose contributions do not justify authorship may be acknowledged individually or together as a group under a single heading (e.g. "Clinical Investigators" or "Participating Investigators"), and their contributions should be specified (e.g., "served as scientific advisors," "critically reviewed the study proposal," "collected

> data," "provided and cared for study patients", "participated in writing or technical editing of the manuscript").
>
> Because acknowledgment may imply endorsement by acknowledged individuals of a study's data and conclusions, editors are advised to require that the corresponding author obtain written permission to be acknowledged from all acknowledged individuals. [10].

The Council of Science Editors (CSE) discusses the issue at some length, providing examples of author attributions for large working groups, and recommendations to editors, bibliographic database editors, and working groups [18]. Recognizing that the current lack of standardization leads to problems such as those previously identified, CSE also points out that problems with miscalculations of citation statistics and retrieval due to mis-citing authorship are likely, and suggests the inclusion of attribution to *group* affiliations as shown in the following options (bolding is the author's):

> Smith SQ, Suzuki Y, Mann JT, Schulze KT, DeAngelo C, Davis C, Jones KJ, Cunningham TL, Snyder MJ, Gutierrez AM; **and the Generic Coalition Group**. A randomized trial of chemoradiotherapy of esophageal cancer. J Onc Dis. 2004;183:1763-1770.
>
> Smith SQ, Suzuki Y, Mann JT, Schulze KT, DeAngelo C, Davis C, Jones KJ; **Generic Coalition Group.** A randomized trial of chemoradiotherapy of esophageal cancer. *J Onc Dis*. 2004;183:1763-70.

Aside from the help provided by the ICMJE, the American Psychological Association has also recognized concerns with attribution, and provides useful decision support tools for inclusion and ranking that may be particularly helpful if students are contributing to research efforts. Their rubric, entitled 'Authorship Determination Scorecard' breaks down and assigns a point value to activities from conceptualizing to the submission process, with writing being more detailed. A second helpful tool is their 'Authorship tie-breaker scorecard' [20], which provides an even more specific listing of possible contributions, including literature searching, IRB document preparation, and document or data management processes.

Conclusion and Recommendations

It is a reality that publication requirements will differ based on the venue for publication, and that an interdisciplinary team represents diverse scholarly expectations for promotion and tenure. Because of this, there is a need to be flexible, and to set guidelines for discussion, rather than rules. The concerns identified do call for discussion and

agreement, preferably at the start of a project. Like all research, planning early in the process – before data analysis even begins – benefits the long-term success of the project (or in the case of an interdisciplinary group, the ongoing viability of the group itself), leading to trust based on clear expectations. Coming to agreement at the start does not preclude the need to revisit the group's guidelines; it is also very likely that as work evolves, group members may also grow in understanding of the factors involved in project planning and output management.

Any collaborative efforts that may lead to formal dissemination, including abstracts, presentations, and full research papers submitted for publication, should consider the following issues, regardless of the requirements of the venue.

1. Agreement between group members should be reached before research begins, and should be documented.
2. Clear differentiation of contributions in publications. Records identifying contributions should be kept to support review, promotion and tenure efforts of members.
3. Awareness of review, promotion and tenure criteria needs to be the responsibility of each of the affiliated group members.
4. Members should also be responsible for representing their own needs when considering venues for publication of research papers, in particular.
5. Direct authorship should be attributed only for substantive contributions, including agreed-upon types of input.
6. If author attribution is ranked, agreed-upon ranking criteria should be used and documented (level of contribution, type of contribution, or other).
7. While publication processes will usually ask for a corresponding author, it will help to also identify specific contact information for authors who 'own' responsibility for unique components, such as analysis methods that require considerable expertise.
8. Creation and inclusion of a template paragraph recognizing the entire group is encouraged, or if possible, agreement on wording to be included in the authorship listing.

For those interested in more in depth exploration of this topic, recommended reading includes Klein and Falk-Krzesinski [16] whose review of author attribution is focused on tenure and promotion at academic institutions. The article also includes a list of recommendations and discussion of multiple medical association and journal standards. Also worth review are the recommendations of both the ICMJE [10], the American

Psychological Association [19,20], and the Council of Science Editors (CSE) [18]. A special issue on interdisciplinary research assessment published in 2006, in the journal *Research Evaluation* [21] may be informative, adding yet another layer of complexity to the issues with its titular focus on interdisciplinary research evaluation. For a succinct discussion of some of the basic issues, see Chapter 3 of the freely downloadable monograph published by the National Academies of Science, which is devoted to the topic [22].

Limitations and further research needed

This document makes no claims to generalization because the literature review and thus the subsequent discussion of issues involved are incomplete. The search process was non-exhaustive due to time limitations and the vagaries of natural language searching. There was no attempt to reproduce the searches by another person.

Future research specific to interdisciplinary research groups might involve efforts to identify and compare publication statements as well as citation counts based on author ranking. As well, examination of professional associations such as engineering, chemistry, and more might be informative. The present work was limited to the use of Web of Science and Google Scholar, and those disciplines more pertinent to the Informatics Research Group at one institution, and in the interest of time, allowed to stop there.

In performing interdisciplinary informatics research where the establishment or creation of a workable research data environment requires considerable effort, the question also remains whether these efforts constitute author-level contributions. This single example demonstrates the need for further discussion for both interdisciplinary and informatics research. Ensuring that credit due is given to those who increasingly are moving from support roles to research collaboration is an issue for our profession.

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Research Roadmap: Understanding the Research Process (Part 1)

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Research Section Spotlight

**Editor's note: This piece has been split into two parts due to length. Part 1 covers advice and guidance about doing research while Part 2 (which will be in the Hypothesis Spring/Summer 2019 issue) discusses how to share the products of your research.*

Introduction

Since 1982, the MLA Research Section has fostered discussion, shared advice, connected members to potential collaborators and research mentors, and kept its membership up-to-date on library research efforts, particularly as they apply to a wide variety of academic life sciences and community health efforts. Towards these endeavors, the 2017-2018 Research Section program planners proposed a Special Content session on understanding the research process for the 2018 MLA Annual Meeting & Exhibition in Atlanta, GA. The session was envisioned as a panel discussion for an audience of new to intermediate librarian researchers that would offer advice around getting started, from formulating an idea, to study design, data collection, and finally dissemination and the publication process. Other MLA Sections--Leadership and Management Section, Hospital Library Section, and Educational Media and Technologies Section--offered their support. Panelists were recruited based on their previous involvement in continuing education and editorial work regarding library research, and several belonged to multiple Sections sponsoring the session. In discussion with the Research Section Program Chair [Billman] and the session moderator [Powell], each panelist [Akers, Alpi, Eldredge, Holmes] selected to focus on an area most relevant to their work, with the recognition that all the presenters had expertise across the following topics comprising the presentation:

- Overview of the research process
- Finding and working with a research mentor
- Turning daily work into a research project
- Choosing research methods that fit you and your question
- Using technology and data collection methods efficiently
- Disseminating your research
- Understanding the publishing process

"Research Roadmap: Understanding the Research Process," was presented on May 20, 2018, and 2018 MLA Annual meeting attendees can access the recorded session by logging into the online program with their registration information (https://www.eventscribe.com/2018/MLA/). This account of the session is presented so those unable to view the recordings may benefit from the panelists' advice and expertise.

Making a Member-Driven Presentation

In planning the session, we wanted to respond to MLA members' questions about the research process. On April 5, 2018, Billman posted a call for questions in the MLA-FOCUS, an email update sent to all MLA members. Questions received before the submission deadline were addressed in the content presented. The session incorporated two question and answer periods, one after the first two speakers and the second at the end. At the beginning of the session, a slide encouraged the audience to "Submit Your Questions" using a tinyurl online survey or on cards. Those not addressed by the presenters during the session have responses from our panelists in the Appendix.

The Roadmap as Presented

Overview of the Research Process

We began by reviewing the Evidence Based Practice Process and the opportunity for research after the existing literature has been critically appraised, and before its application to the problem that spurred the initial search for evidence. Moving on to the research process, we shared a four-step version for which we would provide our experiences:

1. Formulate a Research Question (**Objective**)
2. Design an appropriate **method** to answer the question
3. Interpret your **results**
4. **Communicate** your results

As we developed our expertise through being mentored and mentoring others, and because several of the questions we received were about finding mentors or collaborators, we addressed mentorship first.

Finding and Working with a Research Mentor

A mentor can be defined as "an individual with advanced knowledge, usually more senior in some regard, who is committed to providing upward career mobility and assistance for the protégé …" Moreover, "The mentoring relationship has been characterized as an intense, sometimes intimate professional relationship devoted to providing social support and development for the protégé's career."[1] Johnson observes that mentoring represents an enduring and reciprocal personal relationship in which the mentor serves as a role model while offering a safe environment for the protégé to consider new ideas. In this context, the mentor provides acceptance, protection, challenge and coaching for the protégé.[2]

While many studies have investigated career or academic mentoring, few investigations have rigorously explored the specialized world of mentoring other professional colleagues in conducting research. And almost all investigations into research mentoring have

focused upon faculty-student mentoring. Eldredge has mentored more than 20 colleagues over the past two decades. A few of these colleagues have been new faculty members in his medical school whereas most have been library or information practitioners wanting guidance with research projects. These early experiences, coupled with limited time for mentoring individuals, led to sponsoring "The Research Mentor" column in *Hypothesis* during 2008-2014. These columns featured topics about which his protégés needed recurring guidance ranging from creativity in research [3, 4, 5, 6], to defining authorship [7, 8], to the pragmatic aspects of research [9, 10]. They also included interviews with esteemed researchers [11, 12] and a reflection upon a past mentor's long-term effect upon his own career [13]. Additionally, the author participated in several of the University of New Mexico's Mentoring Institute's Research Conferences [14].

Roles of the protégé

Generalizing from these experiences, the protégé needs to practice reciprocity in the mentoring relationship. The research mentor brings a wealth of knowledge and skills on how to conduct a research project. The gains to the protégé are obvious. Yet, what does the protégé bring to the mentoring relationship? Inventorying the attributes possessed by the protégé might strengthen the relationship:

1. Previous research education

The mentoring relationship should not be confused with a tutoring relationship in which the mentor provides comprehensive one-on-one instruction on all aspects of research. The protégé should bring previous learning on research methods to the relationship. The protégé can learn research methods by taking or auditing courses at nearby or online academic institutions, such as those in subjects such as psychology, biology, or one of the social sciences. The new MLA Research Training Institute might provide an avenue for some protégés to gain research methods education and identify mentors, but this new, not yet evaluated, program does not offer the depth of training found in a graduate-level research course.

2. Literature searching

Every research process involves literature searches in the formative stages due to the need to perform iterative literature searches until the final research question reflects the state of the existing research knowledge on the topic to be investigated. Designing the research methodology provides another stage in which one or more literature searches will inform how the research project will unfold. Finally, once the research is done,

additional literature searching will assist in interpreting and discussing the results. Librarians who are capable literature searchers can assist a research project with their unique skill sets.

3. Organization

Librarians are legendary for their organizational skills, and many have learned project management skills that have direct application to the complex dimensions of a research project. Librarians also can use bibliographic management tools such as Zotero or EndNote to organize the hundreds of references associated with any research project. A recently published scoping review involved elaborate bibliographies and analytics, highlighting the protégé's contribution of an impressive skill set to the project [15].

4. Track record

Many librarians have contributed to research projects as part of their everyday work. These roles often involve literature searching and bibliographic management. While most involvement with research projects takes a more episodic form, some projects involve larger commitments. These projects form a track record of librarian involvement in past research projects that librarians can point to when approaching a research mentor for guidance.

5. Commitment

The potential protégé needs to bring a commitment to completing the research project to the mentoring relationship. Experienced researchers know that many well-intended research projects are abandoned at various phases prior to completion. Ideally, the protégé can present the potential mentor with a plan and timeline that will advance the research project through completion and communication to the profession through poster, presentation, or publication of the results. The multi-phased MLA Research Agenda project [16] tested the commitment of all researchers involved yet when it reached completion, it provided a great service to our profession [17].

6. Creativity

Established researchers sometimes descend so deeply into the weeds of the research design and its careful implementation that we forget to consider the opportunities to lend some creativity to the project. A noteworthy example surfaced when one of the authors included three medical students in a randomized controlled trial on Point-of-Use tools. The three medical students expressed their creativity by producing a top-notch training video for participants in the study. In other ways, the students also added elements of creativity unrecognized by the veteran researchers and thereby improved project participation among providers [18].

7. Enthusiasm

A few years ago, one of the author asked an audience of translational researchers what adjectives they would use to describe the research process. The adjectives offered were "tedious" and "detailed" and "comprehensive." There are admittedly boring moments in any research project in which one can be tempted to walk away. Toward the end of the project, however, excitement builds as results, particularly difficult to explain results,

emerge in need of interpretation. A protégé with enthusiasm most likely will rely on it to muddle through the less exciting aspects of a research project. One applied informatics research study that comes to mind involved a lot of tedium, but the researchers all plowed through the hours of careful checking in this fidelity study to produce surprising results [19].

Initiating the mentoring relationship

We have focused on how the protégé seeking to recruit a research mentor needs to step outside the limits of her or his own perceptions to consider the perspective of the potential mentor(s). The MLA Mentoring/Expertise Directory (http://www.mlanet.org/page/mentoring) is one way to find mentors who have already indicated willingness to engage in mentoring relationships. In other cases, you may identify someone in the literature or at your institution with expertise you aspire to develop and there you will not know their willingness to mentor until you make the approach. It is up to the mentorship dyad to set mutually agreeable terms of the relationship. The respect is reciprocal, and it is also clear that the more experienced researcher can gain insight and satisfaction, and sometimes co-authorship from these relationships. In some cases, an enduring relationship develops that leads to new studies as collaborators.

Turning Daily Work into a Research Project

There are many ways to turn daily work into a research project; it is a matter of looking and asking thoughtful questions about what work is being done. More specifically, it means looking at what we are, or perhaps should be, measuring. Valuable research can be performed at many levels; not every question is best addressed by a large, multi-center NIH-funded study. This is especially true in library research projects because much of what we measure and seek to improve is part of our daily work. One of the key pieces of evidence-based library and information practice (EBLIP) is applying local evidence to evidence in the literature, and to our own professional knowledge. Considering the five principles of EBLIP as presented by Koufogiannakis and Brettle [20] may help us better understand ways we can turn daily work into research:

Articulate: A clear understanding of the problem or question must be reached. Part of articulating the problem includes working out what is known already and why the

information is needed, as well as ensuring that the problem is set in the appropriate context.

Assemble: Evidence should be assembled from multiple sources that are the most appropriate to the question or problem at hand and should include research evidence, local evidence, and professional knowledge.

Research Section Spotlight

Assess: Evidence should be assessed for its quality (often known as appraisal or critical appraisal), determining what the evidence says as a whole.

Agree: Determine a course of action and begin implementation of the decision. If working with a group, try to achieve consensus based on the evidence and organizational goals.

Adapt: Evaluate the decision and how it has worked in practice. Revisit goals and reflect on the success of implementation.

Applied research at the Medical University of South Carolina (MUSC)

Keeping these principles in mind and thinking through the work that we do daily at the library, a relatively simple research project grew out of updating LibGuides. We were looking at click stats on our guides and noticed some irregularities such as usage considerably different from what we expected. That started us in the first principle of EBLIP, asking (**articulating**) the question of why these irregularities were present. The research project developed from seeing the numbers and articulating the question. Before we knew it, we had developed the project. Ultimately, looking at the clicks in our LibGuides gave us an opportunity to **assemble** the evidence, **assess** it, and decide (**agree**) on what to do with what we learned.

Using what we learned, we decided on ways to reformat our Guides and to reconsider placement of links based on perceived importance. If things we felt were important had been prominently placed, but were not getting many clicks, we moved them a little further down the page since fewer clicks seemed to indicate less importance to the user. Conversely, when we found things placed lower getting a lot of use, we relocated them to a more prominent position. It is a very simple project, and one that we can easily **adapt** over time. We will revisit the statistics in the future to assess whether our repositioning made any difference.

It is important to note that this simple project led to more questions being asked and therefore more research needing to be done. A secondary outcome (that we had not considered until we really looked at the data) was the realization that we needed to adjust our instruction sessions to include more guidance on navigating LibGuides, as well as accessing the resources therein. A follow-up study looking at data from and the questions being asked through LibAnswers is also being launched. The results will also factor into future LibGuides updates and we expect it to bring out even more questions and things to study. This is one small example of taking our everyday work and turning it into research. It is a project we know we will learn from, and we anticipate publishing our results to share our procedures with others who may consider a similar project. For another example from a different institution, see Lindsay, Oelschlegel & Earl [21].

Research Section Spotlight

Identifying and overcoming obstacles

How do we find time to do research when we often feel like we do not have enough time to do our day-to-day job? Further, how do we find time to do research when it is not expected of our position, or when our superiors are not supportive? This author [Holmes] feels that the best way to achieve time for research is to simply prioritize. That means figuring out what can and cannot be shuffled, eliminated, or delegated from your daily work. It also means setting aside dedicated time in your schedule to get the research done, even if it is on Saturday afternoon [Holmes] or in thirty-minute blocks before work while others are sleeping [Alpi]; see Chronicle of Higher Education [22] for more ideas. You must set boundaries so that your dedicated time is not always interrupted or sacrificed, and you also must enforce the boundaries.

If you are passionate enough about a topic and want to research it, then you must be willing to pursue it on your own time. There are many librarians who are either not in positions where there are expectations of publishing and presenting or who lack support from their superiors or even their colleagues, yet they want to be involved in advancing our profession. It is important for all library staff with questions to find their own way to pursue their interests, even if it is on their own time. In fact, most librarians spend a portion of their own time (and often their own money) to pursue their professional goals and interests. The results that will come from taking the time to work on projects will help your resume/*curriculum vitae* (CV) for future opportunities.

Another obstacle that we frequently encounter is lack of access to resources, whether it is software or people or something else. Your mentor or your professional association can help you find these resources, but your own professional networking efforts will probably yield the biggest benefit. If someone's research interests you, it is entirely appropriate to contact the researcher to say you would like to know more about the work or perhaps even suggest a collaboration. It helps to have a scholarly presence online (e.g. LinkedIn or Google Scholar Profiles) so they can learn more about you before responding to your inquiry. Collaboration is one of the keys to success, and it requires work on your end to make those meetings happen. Collaborators can provide resources like software or expertise, but they can also end up serving as a mentor or a network to yet another person with whom you may be able to work with in the future.

While a lack of understanding of the research process is an obstacle for early researchers, it is very much a learning opportunity. Looking to the literature is one of the best ways to get an introduction to the process, and again working with a mentor can help with guidance. Educational opportunities are increasing, and the MLA's **Research and Evidence Based Practice Curriculum Committee** is in the process of building an education curriculum for learning about research. A final suggestion for learning about the research process, and a general way to get more involved in research, is to engage with

your Institutional Review Board (IRB)/ethics committee. If you are going to study your users or analyze educational output from previous courses for a presentation or publication to the outside world, you will need to have your proposed project reviewed by the IRB. Understanding the background of your IRB members or looking into becoming an IRB member yourself may be an excellent engagement opportunity to learn about research at your institution, and how you might find a partner. No matter your role, you will learn much more about the process, and when the time comes for your own research with human participants, you will know what you have to do to prepare your own submission for approval. Always be sure to check with your IRB prior to starting your research so you will know if what you propose will qualify as research or be considered quality improvement. Having this information at the beginning of your work will save you a tremendous amount of time later and will be important if you plan to present or publish your findings!

In summary, there are many ways to turn daily work into research. It is a matter of taking time to really look at the work you are doing, deciding what is measurable, and considering if those measurements can or will make a difference to how we work in the future. Technology is changing how we do our jobs almost overnight, so it is important that we continue to make ourselves and our work relevant. That cannot be done without producing evidence, so we must find ways to work together to meet our goals and foster our professional interests.

Choosing Research Methods that Fit You and Your Question

There is not a "right" choice of research method for any question. As researchers at any level of experience, we work on a continuum of what may help us address our question and be feasible to execute. There are several characteristics of a proposed study to consider in deciding among methods—your question, the participants, timing, and capacity.

The first consideration is your research question—what do you want to know or learn? Research questions are also not set in stone. You may start with a very broad research question and realize that you need to focus it in order to begin working on it. Participants are an extremely important component as you have varying levels of access to the insights they can provide. Consider whether you can learn what you want to know from direct engagement with people (clients, students, library staff, etc.), artifacts representing people (assignments, electronic health records), or documents (cataloging records, reports, published articles, etc.). You as the researcher are also a participant, bringing your experience and current point of view to the study design, your interpretation of the results, and the conclusions you make. In qualitative research, you must be explicit about this in terms of sharing your contextual bias and subjectivity—for more see Preissle [23].

Timing and capacity often intertwine, and they tie back into your choice of participants. For example, you may be interested in interviewing a lot of people, but you do not have sufficient capacity to perform a lot of interviews, so you choose to do a survey or analyze existing records. Research always takes much longer than we propose, so usually we come up with an initial time estimate and then double or triple it. You must include time and resources to pilot test ANY methodology. Piloting surveys is common best practice, but you also need to pilot interview protocols, observation checklists, data extraction forms, and any other tool that would be used to gather or analyze data. If you do not feel you have time to pilot the tool, then you probably do not have sufficient time for the research. Pilot testing does not have to be with the target participants, but should be with participants who are not involved in the research and are relatively similar to your intended population. Many research projects are cross-sectional, meaning they measure a slice of a population at a single point in time, typically a one-time survey administration or observation. For more robust evidence of change over time, particularly in educational research, it would be ideal to perform longitudinal research, repeating measures on the same population over multiple points in time. However, tracking participants over time can be challenging.

Methodologies have inherent characteristics and limitations, but they are also more or less effective in the hands of experienced practitioners. Look at studies that have addressed questions similar to yours in the library/information science literature and other social science fields such as education, psychology, management, etc. If the literature on a topic is from case studies or single-institution surveys, consider expanding the view with other study types or by including additional institutions for cross-institutional comparisons. If you are interested in applying a method and need assistance, methods mentorship can be internal or external to your institution or field. You do not have to seek the most renowned experts; it may be easier learn from those with slightly more skill or experience

who can describe their approaches and refer as needed to those with greater expertise. The next section discusses a few common methodologies you may wish to consider.

Common Methodologies in Research

a. Document review and analysis

Analyzing published documents is a very comfortable research strategy for librarians and can be a study on its own or part of a larger mixed methods study. Examples include a) evaluating information quality and readability; b) bibliometrics of publications or networks; and c) systematic or scoping reviews. You may evaluate materials produced by your own institution or those produced by others. If using your own materials, be aware of your potential bias and consider a collaborator or second evaluator not involved in the production of the materials being evaluated. Standard and well-documented methodology

for the evaluation or data extraction such as a codebook is very important for reproducibility! This is an area where the analysis can easily be either one-time or longitudinal, looking at annual compilations/comparisons.

b. Observational methods

Observational studies have different units of analysis, such as individuals, groups of people, or things. Observations in libraries may be easy to facilitate since libraries are public places, whereas observations in other areas may require permission to access that environment. The potential impact of being observed can be very high in an environment where the observer stands out to those being observed. It may take several passive observation periods to reduce that effect. Having an observational protocol and recording form that has been pilot tested in a similar environment is helpful to make sure observers are consistent. In addition to what is being observed that has been thought of, it is often help to note other things you notice which may turn out to be confounders, things that could explain the situation, but are not what you planned to study. There is value in observing cohorts or comparison groups, whether contemporary or historical, so that you have a sense of whether the observed phenomenon is consistent across groups or may have been an outlier specific to one group. This question of generalizability of findings is also an issue when gathering survey or interview data.

c. Gathering data from people: surveys and interviews

The primary limitation to surveys and interviews is that only certain people participate and therefore findings may not represent the broader population from which you recruited your participants. This is one reason you report on the baseline population you attempted to survey when you calculate the response rate. For example, a survey of medical students may have a response rate of 50% (which would be considered very good). However, if all the participants are female, the survey is not representative of your population if half of your students are male, and no females participated. One way to understand a phenomenon more deeply and gain multiple points of view is to gather data on the same issue directed to multiple types of respondents and then look at correlations between respondents, e.g. asking instructors, students, and library staff about perceptions of same issue. Surveys and interviews introduce recall challenges for participants in terms of whether they remember accurately what they did to report on it for the survey or whether those that had a negative experience are more likely to remember it and respond accordingly. It is important to understand whether respondents truly understand what you are asking. Ways to address this are to use previously studied and validated measures, work on developing your question-writing skills, and use piloting combined with cognitive interviewing when you are writing new questions that may have never been asked in your study population.

d. Combining multiple methods

Case study research often combines multiple methods to add validity. A recent case study by North Carolina State University doctoral candidate J.J. Evans included a pilot study followed by four types of data gathering and analysis: 1) Demographic Survey; 2) Semi-structured Interviews; 3) Research Activity Log; and 4) Documents & Investigator's Research Journal. Case studies often include other types of document analysis to provide historical and geographic context for the case or can include and draw conclusions from multiple cases. For more on case studies, see a forthcoming editorial in the *Journal of the Medical Library Association*.

e. Interventional ("experimental") methods

We have opportunities for interventional studies in library practice. Although educational studies come most often to mind, these do not have to be measuring real-time interactions with people. For example, studying the impact of changes in policy that affect circulation, collections, etc. can be done using analysis of existing records before and after the period in which the change was made. Pre- and post-test evaluations in a population that have received an intervention are common; they require attention to the effect of testing itself as it is possible that taking the first test is what primed the person to do better on the second test and the intervention did not produce the effect. Another option is historical control groups, if they are sufficiently like the current group. There may be an opportunity to do a group or individual randomized controlled trial in a course with the same instructor or different instructors. For fairness, consider offering a crossover design so that the control group eventually gets the intervention if the intervention is shown to be valuable or even neutral. As you involve multiple investigators in delivering the interventions, following the protocol to be sure you are measuring the impact of the same intervention becomes very important.

f. Combining data from multiple institutions

One of the questions we received prior to the presentation was about our experience with multiple institution studies to strengthen confidence in our findings. Designing a study to include multiple institutions has several positives. It may be that you would not have had the capacity to do your study alone if the partner institutions had not provided expertise or funding. Having larger potential populations can may help with finding significant effects by reducing Type II (Beta) errors. This would mean you do not find a statistically significant effect when there is an effect, because you do not have enough power to detect a difference. This is usually due to a low number of participants or the effect is smaller than you anticipated. Or it may allow enough participants to identify subpopulations affected differently by what you are studying. It may also improve generalizability since effect is measured at multiple institutions if similar results are seen across the institutions. Finally, it allows you to comment on the reproducibility of methodological tools and of findings.

Challenges

Now for the challenges—the three most salient are timing, instrument development, and ethics approvals. Collaborators may find it difficult for all members to be available at the same time, even in terms of scheduling meetings in different time zones. Timing also comes into play with accessing participants, particularly if the institutions are on different calendars or structures. For example, if you want to reach nursing students in their third week of classes, that could be weeks apart at different institutions. It can also be difficult to get multiple investigators to agree on the same protocol or survey questions. Although there is the possibility of adding unique questions at some institutions, lengthening an instrument can affect response rates, jeopardizing the larger survey participation or introducing other variability. This can be addressed through joint instrument development and selecting very similar institutions for the collaboration where question wording would not need to be greatly changed. IRB/ethics board differences across institutions may also cause delays, as many IRBs will not accept the judgment of another IRB (although that is slowly changing). In our experience getting a multi-site study approved by multiple IRBs, some had a separate minimal application form for studies anticipated to be exempt, while others required a full application but then the study went through expedited review. This meant that many of the questions asked by the full IRB application form had never been considered by the research collaborators at the other institutions.

Using technology and data collection methods efficiently

1. Audience and timing impact choice of methods

One you have considered your question, participants, timing, and personal capacity related to potential methods, it is time to focus on the audience and their timing and your institutional capacity. Who is the audience for your anticipated findings? What kind of evidence will convince them? If your question is to respond to the needs of administrators, it may need to address return on investment in addition to the effect itself. It may not be enough to say something has an effect if you do not also include the costs of achieving that impact. Questions that you are trying to answer to impact researchers or clinicians who are used to evidence-based practice and high-quality research literature may need to have control or comparison groups for them to trust in your findings. If you pursue research to build a portfolio for your library promotion and tenure committee, be sure you understand how they will value individual versus collaborative efforts, as that may shape whether you execute a study on your own and acknowledge others versus offering the opportunity for co-authorship with greater involvement.

In addition to the audience, consider whether the research is time-sensitive or time-specific. For example, is there a limited window of time in which the study is possible (e.g., pre- and post-construction) or are the findings to be the basis of a time-sensitive decision?

Do you have deadlines to produce publications for promotion? These can all lead you to choose methods that can be planned and executed quickly although almost any methodology can be expedited if you have enough help or funds and the ethics committee/IRB finds the study to be exempt. Some examples of exempt research are anonymous surveys, passive observation of public behavior without collection of identifiers, and retrospective chart review. Even if you have help or funding, it matters whether it is consistently available throughout, or in chunks, or at the time of day you need. An example is whether to use student labor, your own labor, or funds to hire external people to transcribe interviews. For observational studies, it might be whether you can do the observations at the time needed such as evenings or weekends or offsite daytime, or whether you need to hire or train others to do the observations, or you decide to rely on self-report data since no one is available to do the observations.

2. Anonymous vs. confidential

One of the most common questions that you must clarify for the IRB submission is whether the participants will be anonymous or confidential, and this often determines whether a study will or will not be exempt from further review. Your study design, the risk to participants, and the safeguards you must place on your data and whether you can share it often depend on getting this distinction correct in your consent documentation. If data collection is truly anonymous, you do not know who participated and hopefully no one could figure it out from your data. If it is confidential, you know the participants (people/institutions) and you take steps to conceal their identities. There are benefits and drawbacks to both approaches.

Choosing to collect anonymous data is generally an easier write-up for the IRB application, since there are fewer risks of identity exposure and fewer data protections to describe. However, if your data is anonymous, you cannot follow up with respondents about their responses, do longitudinal studies, or join the data with other data sources that contain identifiers if you decide to expand the scope of your research project. Even anonymous surveys require data protection considerations. For example, to be anonymous you must not track or download the IP addresses of participants which are often automatically gathered by online survey systems such as Survey Monkey or Qualtrics. If you recruited by sending surveys to individual emails through the software system mailing functions, you may also need to have the system unlink or mask the responding email addresses. Survey tool functions are discussed later, with some shown in Table 1. If questions are specific and the population studied is small enough, people may be identifiable from their responses, and this may essentially turn your study into a confidential one where you need to redact identifying information from open-ended questions or only share aggregated responses for questions that have over five respondents in a certain category. Confidential data collection involves assigning participants a unique identifier which is maintained securely and separately from research data. Because people are identifiable

in-person, by voice, and image, methodologies such as individual and focus group interviews and audio or video analysis can usually only be treated as confidential data.

3. Analysis planning as part of the research design

Consider the relationship between your questions, your analysis skills, and your research team members. If you have a question with multiple factors and competing explanations, and you intend to gather and analyze quantitative data you will need some statistical expertise. It is much better to discuss your questions and data collection on the front end of the project with a statistician for statistical consulting so that you can come to a good understanding of the number of participants you will need to reach a meaningful conclusion and what type of data you might collect that allows you to test your question most robustly. If your research team includes students or library student workers or volunteers, consider what they can learn about data collection and analysis, and what expertise or capacity they already have. For example, while it may be more efficient to pay a transcription service to create transcripts of video interviews, if you have time and that is something you want the students to gain experience with you may decide to have them do some of the transcriptions.

In planning your research timeline, design, and budget, it is important to consider the tools you have available and your familiarity with using them and what types of output they produce. A common choice is deciding on what online survey tool to use (see Table 1). If you have designed and pilot tested your survey on paper, thinking about what question types will make it easy for participants to answer questions. It can be frustrating when the type of question you made is not available in one of the free tools. Be sure to pilot test the online version of your survey to make sure it works properly, and that the resulting data is captured successfully. It is worth finding out whether you have institutional access to a tool such as Qualtrics or REDCap, as that will also make it possible to share surveys across institutions to facilitate collaboration. You also want to test question types by answering them in your survey tool to make sure that the output will be easy to analyze. For example, if you use a multiple checkbox function in Google Forms, the data will be in the same column in the spreadsheet separated by a delimiter and you will have to then use a function to separate those responses and group them. While the native Google display will show the aggregated data, you will not be able to pull out the data that way. We compare the features of the most common online survey tools (Qualtrics, REDCap, Google Forms, Survey Monkey) available to us as university-based health sciences librarians in Table 1.

Survey Tool	Free Account	Subscription Account	Notes

Google Forms (drive.google.com)	Includes <15 MB of storage Unlimited surveys, responses, and questions	>15 MB of storage Month-to-month fee	Minimal data analysis available regardless of the account type Offers no support. Minimal types of questions available For questions with multiple response options, view individual, not group, responses to get the full picture.
Qualtrics (www.qualtrics.com)	100 responses 10 outgoing emails 8 question types 1 active survey Unlimited questions Summary reports & filtering Survey logic & randomization Online reporting No expiration	Limits to features are based upon account type and subscription plan Expiration occurs when subscription to product ends	Initially designed for business and market research surveys Works for other types of research as well
REDCap (projectredcap.org)	One week trial 15 templates All collected or entered data is removed after the trial version concludes	Unlimited templates Technical support for implementing and maintaining the product	Initially designed to support researchers and to encourage collaboration Relatively easy to create a survey without using tutorials Video tutorials and step-by-step instructions available in all versions
Survey Monkey (surveymonkey.com)	Create surveys with up to 10 questions or elements (i.e. question types, descriptive text, or images) Collect up to 100 responses per survey	Unlimited questions and question types, descriptive text, images, etc. No limits to collecting numbers of responses	Learning curve is small. Not easy to share unpublished surveys with non-subscribers for testing or editing purposes. Support features are minimal. The knowledge base, while useful, is not easy to search

Table 1. Comparison of Select Survey Tools based on publicly available information as of May 2018. Compiled by Margaret Hoogland.

Timing questions are more intensive for studies with a qualitative component, particularly analyzing any text or images or videos for your studies. Will you ingest text into computer-assisted qualitative data analysis software tools (e.g. NVivo, Atlas.ti, Dedoose) for analyzing transcripts or other data resources, or will you annotate in Word or by hand

on print copies? If you have multiple coders involved, where will you maintain the code listing? Multi-institutional studies have more complexity in terms of sharing data storage, access controls, agreeing on tools and preferences for types of analysis. Regardless of the tools used, keep track of which members of the team performed which aspects of the research, as many journal publishers require a statement about how each author contributed to the research.

Learn about options for disseminating your research and how the journal article publication process works in the Spring/Summer 2019 issue of *Hypothesis*.

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Disclosure: Heather Holmes is the chair of the MLA's Research and Evidence-Based Practice Curriculum Committee.

Works cited

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Appendix

Questions from Participants

These questions came electronically from MLA members prior to and during the session. We addressed questions received verbally during the session within the body of the article.

Prior to the Session Via MLA-FOCUS (n = 1) and email to Research Section and Hospital Libraries Section email lists (n = 2)

Research Section Spotlight

1. How can you move beyond research studies based primarily on your own work (which tends to be case studies), into doing research that will have bigger impact on the field? Or put another way, how do you come up with research studies that will be impactful, but are still manageable to do within the confines of your job and institution?

One way to move beyond your case study is to aggregate multiple case studies from similar institutions to strengthen the patterns of findings (see Robert K. Yin's *Case study research and applications*, 6th ed., 2018). Another is to use your case study as pilot data for a different methodology that involves a control population or other attempts to capture or address confounding variables.

2. How to find collaborators, especially for hospital librarians that are solo or may have an idea, and don't have time to pursue by themselves?

3. My question about research is how the heck can I do it as a solo librarian.

Addressing questions two and three together, one approach to advancing research as a solo librarian is to mentor a library science student doing research as part of a field experience in your library or to mentor student volunteers from other social science disciplines in your library. Many students have research skills or requirements but struggle to come up with a meaningful question or real data, both of which you can provide. Author Alpi co-authors many of her research studies with student employees from diverse majors or library students doing field experiences. You can reach out to your local library school, state library association, or post your inquiry to the MLA Medical Library Education Section (http://www.mlanet.org/page/section-landing-medical-library-education-section) to reach instructors of health sciences library students in online programs who may be interested. In a small library, choosing projects that can survive a longer timeframe or partnering with other areas of the institution with more capacity or the ability to advocate for answering the question, e.g. nursing research, continuing education, or quality improvement.

During the Session Verbally or via the Online Form

1. How can you find a research mentor at an institution with promotion and tenure requirements similar to your own?

The MLA Mentoring website allows you to look at the institution of the mentor, but beyond examining the title of the librarian for indicators of rank, does not offer any other information about those requirements. The website Academic Librarian Status (https://academiclibrarianstatus.wordpress.com/) offers a list of academic institutions in the United States and elsewhere, sorted by the professional status of their librarians. Although the professional school libraries may not always have the same requirements as the university libraries, this is a good starting point. Mentors may have worked at multiple institutions with diverse requirements and therefore it is important to consider past experience beyond the mentor's current institutional affiliation.

2. I'm gung ho about my research project but my more experienced research partners are not as excited. Any advice on finding research partners who are excited to work with new researchers on their early projects?

The first question that comes to mind is have you asked why they are not excited—it is the topic, the method, the role, the collaborators, or their own capacity? The piece of this article about what you offer mentors may provide some insight. If your institution is pressuring them to produce more advanced evidence, you may be better off finding peer collaborators or mentors outside your institution who do not feel the same pressure. You must be open to the idea that your research project is not as compelling to others as it is to you—check the literature to see how your proposed idea may be received if you decide to go forward.

3. What are your opinions of keeping daily stats of everyday work and do you know of ways to turn those daily stats into a story that highlight librarian/library impact?

At NC State University we track public service daily work statistics and space usage using an open-source program called Suma (https://www.lib.ncsu.edu/projects/suma) to gather data. It has built-in analytic tools. We track activities by user type and when we see changes or growth with a certain user population this invites us to dig deeper. For example, if we are doing more transactions with house officers, we then might interview a few to understand how we are impacting them. Since intern/resident support is an important issue, telling a story of how we support them would resonate. We also tell Library Stories based on experiences, see https://www.lib.ncsu.edu/stories/supporting-ncsu-researchers-achieving-nih-public-access.

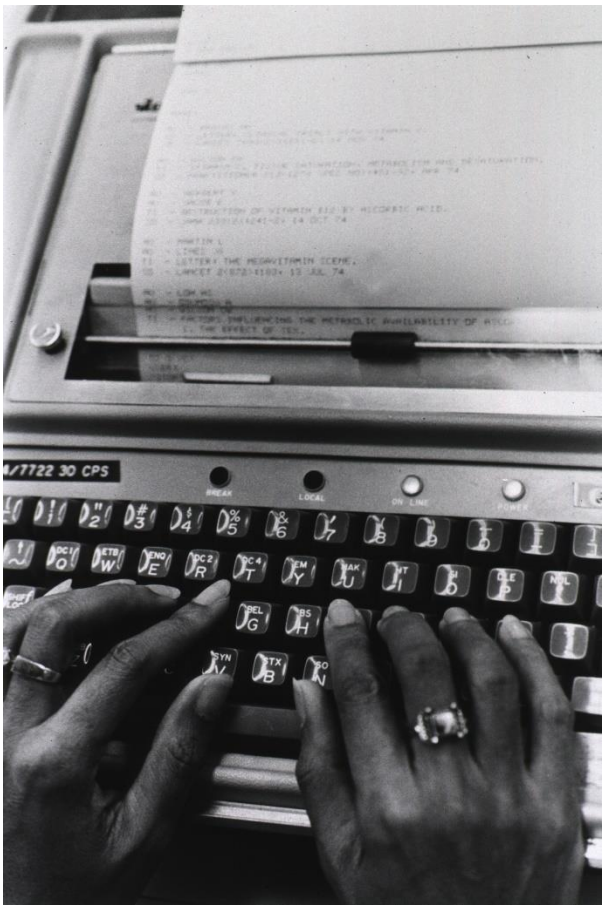
4. Clinicians and academic faculty barely have time or interest for my short 7 question surveys, but the questions I have are best answered by surveys. How can I better engage my test audience? Is there an alternative to surveys?

One of the best ways to engage an audience is to have co-authors who represent that audience. Can you co-author the survey with key opinion leaders or have them distribute the survey for you? If you have a library committee with members from your test audience, they might be able to assist. Depending on the topic of your surveys, it may be easier to do a mini-focus group with representatives of the test audience at a meeting. Feel free to contact author Alpi with more details to receive more focused feedback.

5. When your paper is submitted, and you are about to revise and resubmit, can the author ask for new reviewers?

Probably not. When you are asked to revise and resubmit your manuscript, the editor of the journal most likely wants the original reviewers to re-evaluate the revised manuscript to ensure that your revisions have sufficiently alleviated their specific concerns. Moreover, inviting new reviewers at this point would likely only prolong the peer review process and create more "hoops" for you to jump through. However, if you have serious concerns about a reviewer—perhaps you feel that they did not carefully read your manuscript or

were unreasonably critical—you can privately express those concerns in an email or formal letter to the editor, who will take your concerns into consideration when weighing the reviewers' opinions to arrive at a final decision regarding acceptance.



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Diversity and inclusion: Potential trends for data in research

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Introduction

From the pre-meeting emails by MLA leadership soliciting feedback on the proposed community models to the closing plenary speakers, the theme of the annual meeting, "Adapting, Transforming, and Leading," was thoroughly integrated with all aspects of the 118th Medical Library Association Annual Meeting in Atlanta, GA. Amid the standard conference program, and the historical naming of Beverly Murphy as the first African-American MLA president, the meeting fostered an environment of engagement and inclusiveness.

The MLA's Diversity and Inclusion Task Force and the Communities Strategic Goal Task Force promoted safe spaces for all MLA attendees to ask questions and voice their opinions on issues relevant to governance of MLA and their perceptions of diversity within the health and medical information profession. For example, attendees were afforded numerous venues and opportunities to collectively or individually speak with representatives from MLA's Communities Strategic Goal Task Force with questions, comments, or concerns to the proposed restructuring of the MLA Section and Special Interest Groups (SIGs). The dialogues extended beyond formal spaces to informal spaces providing MLA attendees the opportunity for meaningful exchanges with health and medical information professionals from diverse perspectives and experiences. However, my main takeaway from the annual meeting was the overview by Dr. Dara Richardson-Heron of the *All of Us* Research Program (AoU). The presentation directly aligned with the annual meeting's theme of "adapting, transforming, and leading," and connected to my future research interest.

Transformative Research in Practice

Dr. Richardson-Heron is the Chief Engagement Officer of the National Institute of Health All of Us Research Program (AoU) and a health advocate. The main objective of AoU is to advance the Precision Medicine Initiative through the collection of data from more than a million participants over the span of a decade. The Precision Medicine Initiative is a transformative approach for treatment and disease prevention that focuses on the uniqueness of individuals and accounts for distinct factors, such as lifestyle, genetics, and habits to deliver "the right treatment for the right person at the right time" [1].

Committed to implementing innovative policies and practices to increase the success of the program, AoU has established a set of core values as a framework to achieve widespread participation from diverse people, geography, health status, and data types. Dr. Richardson- Heron states these core values are very important to her. In response to unethical historic research practices (for example, Henrietta Lacks and the Tuskegee Syphilis study) that caused harm or excluded vulnerable populations, AoU has initiated policies and practices to re-establish participant trust and increase participation with, and transparency of, the research process and data collection through education, awareness, and immediate notifications of data breaches. AoU's implementation of a transparent approach to research has the potential to benefit participants in meaningful ways. Some of the key benefits for participants include knowledge of health conditions and personal risk factors that may affect long-range health. In addition, participants will have access to their data to share with health care teams.

Similarly, researchers will also benefit from the data collected in the ten-year longitudinal study at no cost in what Dr. Richardson-Heron describes as a democratized research model. The democratized model will afford researchers (1) a rich resource of data, (2) a longitudinal dataset, (3) a diverse cohort of research participants, (4) de-identified and anonymized raw data and data, (5) an existing secure data infrastructure, and (6) a collaborative working environment.

Finally, expressing her appreciation for libraries and librarians, Dr. Richardson-Heron shared the plans of a three-year partnership with the National Network of Libraries of Medicine to design, develop, and implement activities for public libraries to make available to their local communities. The libraries role would be to educate and increase awareness of the *All of Us* research initiative, in addition to providing technology resources for individuals without access to the internet.

Research and Advocacy

The *All of Us* Research Program provides a framework for research considerations for all disciplines. In my future research, I will focus on the health information and decision-making of veteran women. As a veteran woman and researcher, it is important to me to advocate in the interest of veteran women. My research objective is to examine the history of women veterans in the United States and propose a possible conceptual framework for describing and understanding how the information needs, access, and use of health information reflects and contributes to the marginalization of women in the Veterans Health Administration (VHA).

Despite the historically strong opposition of women in the military and in combat roles, women have demonstrated valor in combat since the Revolutionary War [2], preceding policy and withstanding resistant societal and cultural norms with rigid standards and perceptions of women. Today, there are approximately 1.84 million living female veterans

of more than 23 million surviving veterans in the United States [3], and by the year 2020 the number of woman veterans is projected to reach 2 million [4].

The priorities for women at the VA have ranked relatively low level in the past due to their small numbers, and military law and policy that limited their military involvement [5]. Thus, the medical needs and long-range effects of combat on the health of women have historically been poorly understood in medicine and research [5][6].

Women are a numerically small population within a largely male-oriented VHA healthcare system [6]. Historically, due to insufficient data collection on female veterans, there remains a gap in understanding how veteran women utilize VA healthcare services and benefits [7]. Another challenge for researchers has involved the representation of health issues related to vulnerable and marginalized groups, such as African-American and other minorities, the homeless, rural communities, and lesbian, gay, bisexual, transgender, and queer (LGBTQ) veterans who have not been traditionally represented in research. Addressing intersectionality in research can potentially improve health outcomes and inform stakeholders in the development of health information resources and technology to address the specific needs of veteran women.

Whatley and Worcester propose that when women have access to health information, not only do they have a better understanding of their body; they also are more likely to make better health-related decisions [8]. A copious amount of research focused on various aspects of women in general, and health information behavior, has provided a potential foundation for comparing and identifying key behaviors that may be salient to understanding the health information behavior and decision-making of veteran women. As the VHA implements quality initiative to improve care for female veterans, understanding their health information needs will help to tailor health care delivery to veteran women and address health disparities.

Conclusion

The success of the *All of Us* Research Program will have a widespread impact on health, research, and the value of libraries. The availability of a rich source of data will allow comparison between veterans and non-veterans, in particular female veterans, to identify gaps in research to improve the immediate and long-range health of the veteran population. Gaps in research will be more identifiable, eliminating duplicate research efforts. Furthermore, partnerships with initiatives like *All of Us* will continue to enhance the value of librarians and health information professionals, and help connect people from diverse backgrounds to health-related resources and information.

Research Section Spotlight

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Reflections on the 2018 MLA Annual Meeting

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I was honored to receive the travel award from the Research Section to help fund my attendance at the 2018 MLA Annual Meeting in Atlanta, Georgia. While a lot of information and connections are available online, attending this conference in person is a reminder of the value in community. There are many intangible benefits to being able to meet new people and connect over shared values and exciting ideas.

I was very strongly affected by the themes of diversity, inclusion, and social justice that emerged from the conference. Atlanta, the birthplace of Martin Luther King, Jr. and home of the Center for Civil and Human Rights, was a fitting setting for these ideas that ran as an undercurrent through many sessions, presentations, and discussions at the conference. While a general commitment to diversity is nothing groundbreaking, there was more urgency to the messaging this year—less of a friendly reminder to be welcoming and more of a call to action.

In particular, the theme was prominent in this year's Janet Doe Lecture, presented by Elaine R. Martin, "Social Justice and the Medical Librarian." In her riveting talk, Elaine laid out an argument for medical librarianship developing a new professional orientation, one focused on recognizing societal injustices and their effect on access to information and healthcare and to be inspired to advocate on behalf of the patrons we serve.

Beverly Murphy gave her first address as the incoming President. "In the 120th year of the association I am proud and honored to be the first African American president of the Medical Library Association," she stated. "I want to thank you….for giving me this honor and opportunity and in doing so, taking a positive stance, considering the world that we are living in today." She emphasized that she wanted her time as president to be an extended conversation with all members, drawing strength from the collective expertise and knowledge of our members.

Both speakers extolled the importance of education and in being thoughtful and purposeful about reaching out to the next generation of medical librarians to ensure we build a community that is as diverse as the ones we serve. Their messages are powerful and left me both humbled and inspired. Moving forward, matters of diversity and inclusion can be big motivators for research. What challenges and disparities are we witness to and how can we bring these topics to the forefront of discussion? Research that brings them

into focus or that uses them as a backdrop against which we can understand other issues will be crucial in defining our role in librarianship in the coming years.

The conference was an excellent place to collect information from disparate places about a particular topic. For instance, I have been learning more about the systematic review process and I was able to enhance my knowledge by taking a CE course on identifying clinical trials for systematic reviews, attending a sponsored Lunch and Learn about how the Joanna Briggs Institute conducts systematic reviews, and comparing features of systematic review software by talking directly to vendors and seeing product demonstrations. While presenting my poster, "Covidence vs. Rayyan: A Comparison of Systematic Review Tools," I had the opportunity to talk directly with other librarians with similar interests and questions, generating a lot of discussion and opportunities for continued collaboration.

It was also a chance to meet with groups and people that I otherwise primarily know through online interactions. This included new committees I will serve on, an introduction to the Rising Stars program, and section meetings. I collaborated on my first research project this past year, "Measuring Impostor Phenomenon among Health Sciences Librarians," led by Jill Barr-Walker. Our group presented initial findings at a program session and it was great to meet with my co-authors in person and to showcase our work to colleagues. One of the conference highlights for me was getting to hear about the research undertaken by medical librarians across the country. I am planning on doing more research in the upcoming year, and was accepted into the MLA Research and Training Institute to further that goal. The conference offered a first introduction to this year's cohort during a session by Project Director Susan Lessick, who provided an overview and answered questions.

Of course, some of the most prominent discussions this year focused on the proposed MLA restructuring. The Communities Strategic Goal Task Force presented their proposed model of MLA architecture, including the dissolution of Sections and SIGS as they currently exist. They are reimagining interests being organized around what are tentatively called "Affinity Groups" and "Domains of Practice" and discontinuing section dues. I was able to attend several forums—a general one, and two held at Section meetings—where representatives from the task force fielded questions and engaged in discussion with members. It was very beneficial to attend these in-person, as the general atmosphere was starkly different between groups, and conversations about how the restructuring would work continued among members throughout the conference. This was an excellent opportunity for me to be able to hear diverse perspectives and gain an understanding about some of the history of MLA and how the impending changes will affect different groups.

Research Section Spotlight

I am grateful for the opportunity to attend this year's annual conference; what I learned will help shape my research goals and inform my future interactions with MLA and my colleagues.

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MLA 2018 Research Section Research Awards

Congratulations to the Winning Research Papers and Posters from MLA '18 and the Winner of the Best Biennial *JMLA* Research Paper!

The MLA Research Section is pleased to announce the winners for best research papers and posters presented at the MLA 2018 annual meeting in Atlanta, GA. Thank you to the 31 judges who volunteered their expertise to help select these deserving awardees. To learn more about the awards and selection process, visit the Research Section website at http://www.mlanet.org/p/cm/ld/fid=938.

Contributed Posters

1st Place

Authors:
Sarah Wright – Clinical Librarian, University of North Carolina-Chapel Hill, Chapel Hill, North Carolina
Rebecca McCall – Clinical Librarian, University of North Carolina-Chapel Hill, Chapel Hill, North Carolina

Title: Clinical Librarians and Their Essential Services in Academic and Health Care Settings: A Comparative Survey

Objectives: While there are many indicators and models of individual successful clinical librarian services and programs in health sciences libraries in the literature, there is no recent, comprehensive summary of services provided by clinical librarians. This poster, based on a current survey of clinical librarians, provides summary data of clinical librarian service models in the US and internationally.

Methods: In February, 2018, we distributed an online survey to librarians who currently provide clinical services in academic and/or hospital settings. Requests to complete the survey went to multiple library listservs frequented by clinical librarians. The survey collected statistics in the following areas: clinical team rounding; participation in departmental activities; instruction for students, residents, or professional staff; expert searching and research involvement; identification of clinical teams served; the ratio of clinical librarians to all health sciences librarians at institution, the average number of clinical departments served; and their clinical environments and geographic locations. The authors asked survey questions regarding clinical librarians' tasks and their perception of service impact on their constituents.

Results: Three hundred and thirty-eight participants responded to the 14 question survey. Responses to the ranked questions regarding services were coded by the authors. Overall, 180 respondents answered all questions. The remaining participants answered

some of the survey questions. 27% survey responses were from individuals at academic libraries, and 63% of responses were from hospital libraries. 52% of respondents were from the United States, while 48% were from international respondents, including Canada, UK, and Europe. The majority of clinical librarians serve physicians, residents, allied health professionals, and nurses. From this survey, the authors can make the following statements: Clinical librarians serve multiple specialties working with a variety of clientele. In ranking their services, clinical librarians feel that they provide these top impact services to their clientele: 89% save clinicians time, 87% advance evidence-based practice, and 76% increase teaching skills of clinicians.

Conclusions: Our analysis of current trends in clinical librarian services provides an overview of service models and the areas of focus clinical librarians have in their current positions. These results can be used to: 1) give creative ideas for services to current clinical librarians, 2) help justify a clinical librarian service to management, and 3) assist a new clinical librarian in providing creative and meaningful services to health care professionals.

2nd Place

Authors:
Tallie Casucci – Assistant Librarian, J. Willard Marriott Library, Salt Lake City, Utah
Amy Locke – Associate Professor of Family and Preventive Medicine; Co-Director, Resiliency Center, Salt Lake City, Utah

Title: Leading the Way to Transform Burnout among Health Sciences Librarians

Objectives: Measure burnout among health sciences librarians and determine if a wellness game intervention improved personal and workplace wellness.

Methods: A burnout and satisfaction survey was administered to health sciences faculty in summer 2016 and fall 2017. A single item assessed emotional exhaustion, validated to the Maslach Burnout Inventory. The survey was a part of a Health Sciences initiative to address faculty burnout and job satisfaction. Each department selected wellness champions to develop programs to meet identified departmental wellness priorities with specific metrics. The library wellness champion created a team-based game after participatory interviews. Players collected points for activities related to appreciation, social, mental, and physical wellness. At the game conclusion, a paper-based survey was administered to library employees. The survey included multiple choice and free-text questions. The data were analyzed with descriptive statistics and the grounded theory. Game participants celebrated with an awards lunch.

Results: Twelve library faculty completed the wellbeing and burnout survey. They scored poorly on burnout indicators in both 2016 and 2017. Emotional Exhaustion increased from 43% to 73%. Faculty felt a great deal of stress due to their job (58% in 2016 and

91% in 2017 compared to 45% among other health sciences employees). Factors predicting burnout include sense of control over workload, job satisfaction, stress because of job and finding meaning in work. Highest areas of concerns were a chaotic work environment, work flexibility, sense of control and team collegiality.30 out of the 59 employees completed the post-game survey. 70% reported the game encouraged them to socialize with colleagues. After coding qualitative data, five categories emerge: socialize (19), motivation (6), fun (5), game play (3), and recognize habits (3). Participants found the wellness game to be a useful strategy in encouraging a more social culture with fun activities.

Conclusions: Similar to previous studies on bibliometric librarians and health professionals (mainly physicians and nurses), health sciences librarians experience burnout. Although the game intervention did not improve burnout or job satisfaction, it did build collegiality and recognition amongst employees. A wellness game can encourage team building, but may not sufficiently address the root causes for health sciences librarian burnout.

Honorable Mention

Authors:
Rachel Hinrichs – Health Sciences Librarian, University Library, Indianapolis, Indiana

Title: Evidence-Based Practice Skill Retention and Use by Dietetic Interns: Did Library Instruction Have an Impact?

Objective: To determine if dietetic interns retain the evidence based practice (EBP) knowledge and skills that they were taught in three library instruction sessions in the fall by the end of the 10-month internship, and whether there is a change in their EBP clinical behaviors.

Methods: This non-randomized before and after study will use a validated survey to measure EBP knowledge, and EBP clinical behaviors. Dietetic interns (n=16) from a large, Midwestern university will be given the survey after EBP library instruction in the fall, and at the end of their internship in the spring. Library instruction sessions will cover PICO questions, database searching, filtered and unfiltered resources, and critical appraisal. A paired t-test will be used to compare interns' scores in the fall and spring.

Results: Fourteen interns (n=14) completed both surveys. On the EBP knowledge assessment, interns scored an average of 18/24 (75%) in the fall after library instruction, and 13/24 (54%) in the spring, a difference that is considered statistically significant ($t(13)=7.0$, $p < .0001$). The decrease was primarily due to missing questions on statistics and advanced Boolean searching. Interns retained and even improved their scores on PICO, MeSH, and the evidence pyramid. A slightly statistically significant change in evidence-based practice behaviors was found between the fall and spring ($t(26)=2.1$,

p=.046). In particular, interns reported that they searched PubMed (t(13)=2.8, p=.016), and critically appraised articles more frequently (p(13)=2.2, p=.045).

Conclusion: Despite the three library sessions occurring early in the internship, these results suggest that interns retain information on PICO, MeSH, and the evidence pyramid, but not on statistics or complex Boolean searching. It is possible that these skills were not used frequently in the internship, so they did not retain the information. Interns did report, however, that they more frequently performed all evidence-based behaviors including searching PubMed, accessing systematic reviews, and critically appraising articles, while decreasing their use of textbooks. While the sample size is small and not necessarily generalizable to other populations, this study suggests that dietetic interns retain some information from library EBP instruction, and do make use of the EBP resources and skills demonstrated by the librarian during their internship. Future studies could examine different health professional students, and test whether spreading library sessions over the course of the year would increase retention and evidence-based behaviors further.

Contributed Papers

1st Place

Authors:

Frances Delwiche – Library Associate Professor, University of Vermont, Burlington, Vermont

Title: Bibliometric Analysis of Scholarly Journal Literature on the Zika Virus (ZIKV) 1952-2016

Objectives: The primary objective of this study was to characterize the scholarly journal literature on the Zika Virus (ZIKV) on the basis of publication date, source journal, subject of source journal, country of first author, and publication type. A secondary objective was to develop a reproducible method of bibliometric analysis for this topic that would enable future updates to this study.

Methods: A search on the word Zika or ZIKV was conducted in PubMed, using both MeSH headings and keywords. The search was limited to articles published between 01/01/1952 and 12/31/2016. Results were imported into an EndNote library using a modified import filter, then exported to an Excel file using a customized output style. Exclusions included duplicates, off-topic articles, errata or corrections, and articles from popular magazines. Data were analyzed by publication date, in five-year increments. A list of journals in which the articles were published was generated, and frequency ranked. Frequency ranked lists were also obtained for the subjects of the journals and countries of

first authors. Finally, a comparison of the number of opinion pieces versus research articles was conducted for six infectious diseases, including ZIKV.

Results: Approximately 93% of articles in PubMed on ZIKV were published in 2016, with the remaining 7% published between 1952 and 2015. Though nearly 600 journals contributed articles on the topic, one third of the articles were contributed by just 19 journals. Conversely, over 81% of journals contributed three articles or fewer, and 55% contributed only one article. Articles were contributed by authors working in over eighty countries scattered worldwide. The publication type comparison for six infectious diseases showed that ZIKV had both the highest percentage of opinion pieces and the lowest percentage of research articles.

Conclusions: This study provided a broad overview of the state of scholarly journal publishing on ZIKV as of the end of 2016. The analysis revealed a remarkably rapid response to the ZIKV epidemic of 2015-2016 by the medical, scientific, and publishing communities, drawing contributions from scholars worldwide, working across dozens of disciplines. By describing a reproducible methodology, the study provided a mechanism for conducting periodic updates that will track the evolution and maturation of the ZIKV literature well into the future.

2nd Place

Authors:
Julia Esparza, AHIP – Head, User Education and Outreach Services, Medical Library, Louisiana State University Health Sciences Center, Shreveport, Louisiana
Grace Dodd – Student Researcher, LSUHSC Library, Shreveport, Louisiana
Derrick Murcia – Student Worker, Neurosurgery, Frierson, Louisiana
Jessica Sims, Student, Multicultural Affairs, Shreveport, Louisiana
Gunjan Kahlon – Chair of Hospital Medicine, Department of Internal Medicine, Philadelphia, Pennsylvania

Title: Community Knowledge Assessment of HPV Vaccination in Males

Objectives: To ascertain community member perspectives regarding transmission of Human Papillomavirus infection, associated diseases and to identify barriers which prevent these groups from ensuring that males 9-26 receive the three-shot vaccine series to prevent HPV infection. Using this information develop and implement health professional and patient education.

Methods: After Institutional Board Approval at an Academic Medical Center, a community survey using a convenience sample of visitors and patients to outpatient clinics was done. To establish a margin of error ±6%, 270 paper surveys were needed. The survey was 15 questions broken into a demographics section, HPV vaccination status of their children or

self (if a young adult), their knowledge of transmission of HPV and if they would vaccinate their children or self based on the information provided in the survey. Participation was sought from visitors in the outpatient Internal Medicine and Pediatric clinics. Over 800 individuals were approached to complete the survey. Surveys were collected during June through July, 2016. The Medical Library, Internal Medicine, and Pediatric faculty with the Hospital and Outpatient Pharmacy spearheaded the project. The Medical Library faculty recruited three research apprentices to collect data.

Results: The survey was completed by 385 (95% confidence interval with a ±5% margin of error) participants. Over 80% of the participants were female (80%) with most being African American (65%) or Caucasian (29%). Results show that 50% of the survey participants never had a physician discuss HPV vaccination, 39% didn't know the diseases associated with persistent HPV infection and only 39% knew that sexual contact is the mode of transmission. "Other" comments demonstrate the information needs of the participant population with statements such as "heard the vaccine doesn't work" and "don't trust vaccines" still a part of the community knowledge.

Conclusions: To date this is the largest study United States face-to face (not telephone) study of community knowledge on male HPV vaccination, knowledge of the results of persistent infection, methods of transmission, and change in vaccination acceptance. The results provided crucial insights. Healthcare providers were not always having conversations about vaccination of males against HPV and that there was a gap in community knowledge on the cancers associated with persistent infection with HPV, and how HPV was transmitted. With this data a grant was obtained to create a comprehensive educational plan for healthcare providers and the community.

Honorable Mention

Authors:
Kaitlin Costello – Assistant Professor, Rutgers University, Department of Library and Information Science, New Brunswick, New Jersey
Norris Brown – Research Assistant, Department of Library and Information Science, New Brunswick, New Jersey

Title: Coverage of Core Competencies for Health Information Professionals in American Library Association Programs

Objectives: What health-related courses are available to students in master's programs accredited by the American Library Association? Which of the core competencies necessary for work in health informatics, as defined by both the Medical Library Association and the American Medical Informatics Association, are covered in these classes? What curriculum gaps should instructors in these programs focus on for future course development?

Research Section Spotlight

Methods: A list of 60 accredited programs was obtained from the American Library Association directory in January 2017. During a six-month period from February 2017 through July 2017, the research team visited program websites and institutional course catalogs, and searched for course listings covering health-related topics between Fall 2014 and Fall 2017. Course descriptions and other related data (e.g., date of last offering, number of credits, whether the class was part of a larger concentration in health informatics or similar, last available syllabi) were collected when available. The Medical Library Association and American Medical Informatics Association competencies were discussed among the research team and six codes, each corresponding to one of the six objectives outlined by both frameworks, were created. Deductive quantitative content analysis was then applied to the available course descriptions to determine the main competency addressed in each class.

Results: Thirty-nine of the 60 schools offer at least one class focused on health. Nine programs offer a concentration in health informatics, while 18 of them offer one health class. Most (32) classes focus on health information services and health reference. Nineteen are related to the development of the health information professions; 16 cover leadership, management, and organizational communication; 12 address technical skills like data structures and programming; 8 are on instructional design and the design of sociotechnical systems; and 5 focus on evidence-based medicine and fundamental theoretical frameworks. Programs with concentrations in health offer more comprehensive coverage of the competencies.

Conclusions: Students in these programs will often need to supplement the health-related course offerings with classes in programming, coding, instructional design, human-computer interaction, and theoretical frameworks in information science and health in order to gain the core competencies required for a career in health information. Instructors in these programs looking to develop classes in health information should focus on developing those that address competencies that are not currently addressed fully, including the design of instructional programs and of sociotechnical systems for health; theoretical frameworks in information science, evidence-based medicine, and health behavior; and on technical skills like structuring data and coding.

Best Hospital Paper/Poster

Authors:
Marilyn Teolis – Clinical Medical Librarian, Library Service (142D), Tampa, Florida
Priscilla Stephenson – Chief, Library Service, Library Service, Tampa, Florida
Mary Virginia Taylor – Retired Librarian, Library, Shreveport, Louisiana
Edward Poletti – Chief, Learning Resources, Learning Resources, Little Rock, Arkansas

Research Section Spotlight

Title: Leading the Way: Evaluating Health Information Professionals' Satisfaction with Discovery Systems

Objectives: Libraries are using discovery services to provide users with a one-box search engine to consolidate library content using a centralized index. The literature discusses use in academic libraries, but there is little data on usage in hospital libraries. We evaluated the experiences and satisfaction of hospital library staff concerning the purchase, implementation, and maintenance of a discovery service.

Methods: This study is based on a previous survey from 2015. An online questionnaire was sent to various health library mail groups, requesting participating librarians' level of satisfaction regarding discovery products. Participants were queried regarding which discovery products they had evaluated and whether a discovery product was purchased. Respondents rated specific features, their satisfaction, and whether the tool met their expectations as a single search box resource.
We inquired about the factors which influenced their purchasing decisions. Individuals who purchased a discovery service were asked if the time to implement and maintain the product was what they had anticipated. Participants were given the opportunity to share lessons learned during the process.
Finally, we invited health information professionals to share their experiences and questioned respondents regarding their perceptions of user acceptance and usage.

Results: Over 87% of the responding librarians were satisfied with discovery services. In the current study, 92% of respondents said they planned to purchase or had purchased a discovery product, in comparison with only 41% of health information professionals who reported purchases or purchase plans in the 2015 study. Many participants said discovery services not only increased utilization of the libraries' owned resources, but also enabled patrons to find underutilized resources they might not have located without a discovery service. Academic librarians said discovery services were essential to their libraries, because they integrated resources with link resolvers, and they revealed doctoral dissertations and other information in their collections which led to increased usage.

Conclusions: We anticipated librarians' satisfaction would increase as discovery services evolved, but we didn't expect the results would show a such a large, positive shift in librarians' attitudes regarding the purchase and utilization of discovery tools.
Future research efforts should focus on several barriers librarians mentioned, such as enabling discovery tools for mobile devices, improving the platform to work seamlessly with different vendors products; refining search filters to find the most specific, relevant, and high-quality resources; and simplifying maintenance and updating procedures.

Research Section Spotlight

Best Biennial JMLA Research Paper

Mi M, Zhang Y. Culturally competent library services and related factors among health sciences librarians: an exploratory study. J Med Libr Assoc. 2017 Apr;105(2):132-138. doi: 10.5195/jmla.2017.203. PMID: 28377675; PMC5370603.

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Objective: This study investigated the current state of health sciences libraries' provision of culturally competent services to support health professions education and patient care and examined factors associated with cultural competency in relation to library services and professional development.

Methods: This was a cross-sectional study. Data were collected with a survey questionnaire that was distributed via SurveyMonkey to several health sciences librarian email discussion lists.

Results: Out of 176 respondents, 163 reported serving clients from diverse cultural backgrounds. Various services were provided to develop or support initiatives in cultural competency in health professions education and patient care. A considerable number of respondents were unsure or reported no library services to support initiatives in cultural competency, although a majority of respondents perceived the importance of providing culturally competent library services (156, 89.1%) and cultural competency for health sciences librarians (162, 93.1%). Those who self-identified as nonwhites perceived culturally competent services to be more important than whites (p=0.04). Those who spoke another language in addition to English had higher self-rated cultural competency (p=0.01) than those who only spoke English.

Conclusions: These findings contribute to our knowledge of the types of library services provided to support cultural competency initiatives and of health sciences librarians' perceived importance in providing culturally competent library services and cultural competency for health sciences librarians. The results suggest implications for health sciences libraries in fostering professional development in cultural competency and in providing culturally competent services to increase library use by people from a wide range of cultures and backgrounds.
