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Librarian Perspectives on Misinformation: A Follow-Up and Comparative Study

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While academic librarians have been quick to respond to the crisis of misinformation through information literacy instruction and tool development, little research exists on the extent to which they are teaching news literacy skills in the classroom. This study explores academic librarians' perspectives on misinformation and whether they are addressing misinformation in their teaching. The results are compared to a previous study on faculty perspectives. Findings show that librarians are concerned about misinformation and are integrating it into their instruction. While their concerns and activities overlap with discipline faculty in many respects, some significant differences exist which might cause barriers to further implementation.

Introduction

As both the spread of and attention to misinformation have increased over the past several years, so have efforts to identify effective ways of combatting its effects. Along with algorithmic changes to how such information is spread online and human-driven fact-checking resources, many librarians and allied professionals have asserted the importance of news literacy, the critical thinking competencies for evaluating information to identify credible and trustworthy information.[1] As longtime proponents of information literacy with expertise in information sources, librarians have claimed a role for themselves in instruction in these competencies.

Because use of reliable and trustworthy information is often an outcome of courses and assignments across higher education, news literacy instruction could spell an opportunity for academic librarians to become more integrated into the curriculum. However, most information literacy instruction still relies on one-shot sessions at the invitation of the course instructor and, even when librarians are invited, they have to tailor their instruction to meet the expectations of the instructor and often to align with a predetermined assignment.[2] Even as faculty recognize an instructional role for librarians related to evaluating information and identifying disinformation,[3] librarians may be constrained in the extent to which they can address news literacy competencies in their instruction.

This study builds on previous research that surveyed discipline faculty about their views on misinformation and the extent to which they address the topic in their courses.[4] The current study explores academic librarians' perspectives on misinformation, whether they are addressing it in their teaching, and their perceptions of undergraduate proficiencies in relevant competencies. The results of this study are compared to those of the previous study on faculty perspectives. The findings provide an overview of instructional activities related to misinformation in academic libraries, and might be of interest to academic instruction librarians and instruction coordinators or academic library directors responsible for information literacy programs.

Literature Review

Attention to misinformation has increased rapidly in recent years, as evidence has surfaced of the ways in which bad actors spread misinformation on crucial topics such as elections, the COVID-19 pandemic, and the efficacy of vaccines. Research has demonstrated that such misinformation often spreads faster and reaches a wider audience than more reliable sources.[5] Indeed, the World Economic Forum identified misinformation as a global threat in 2013[6] and included the need to combat misinformation as a factor in its *Global Risks Report* for 2021.[7] In a statement on the COVID-19 pandemic, U.N. Secretary General António Guterres asserted that "misinformation kills."[8] According to one study, 64 percent of Americans believe that misinformation is causing confusion about basic facts.[9]

The many forms of misinformation and their impacts have been well-documented,[10] as has the fact that most people are not effective at identifying it.[11] Misinformation can influence people's opinions and impact their decision-making in long-lasting and detrimental ways. These problems are exacerbated by confirmation bias, or the tendency of human beings to seek out and trust information which reinforces their existing worldview.[12] Further, correcting misinformation can be difficult due to the continued influence effect,[13] in which people continue to believe the original information even when confronted with new facts or retractions. It is unclear how effective corrections are in changing people's beliefs,[14] especially on social media.[15] Even when those beliefs are changed, in some cases the original, mistaken information may eventually reassert itself.[16] Nevertheless, a meta-analysis of the research literature notes that some approaches to corrections are effective at mitigating misinformation, especially with certain topics and types of information.[17]

Discussion on combatting misinformation have centered on three approaches: artificial intelligence systems; human-driven fact-checking outlets; and information or news literacy instruction to develop critical thinking competencies in order to identify credible information. This section provides a brief overview of each approach, including its benefits and drawbacks.

Human-driven fact-checking services like Politifact and Snopes verify news stories, and have multiplied in recent years. As of 2019, there were 210 fact-checking sites across sixty-eight countries, nearly five times as many as in 2014.[18] These services can be effective at

helping people identify factual information, especially depending on the source and presentation of the information.[19] However, they have limitations, not least of which is scalability; even well-staffed services can only process a fraction of the information that an artificial intelligence system can. Effectiveness can also be limited. Studies show that their effectiveness depends at least in part on how much readers already know about a topic, and people are likely to judge the fact-check service as biased if it runs counter to their point of view.[20] Some people appear to be more open to fact-checking than others.[21] Further, Stephanie J. Ceci and Wendy M. Williams[22] suggest that even if the fact-checking staff are trained in objective techniques, they are still subject to bias in their selection of which claims to verify and in their judgments of those claims. Indeed, one study suggests that crowd-sourced judgments can be as accurate as professionals in flagging fake news.[23]

Artificial intelligence uses learning systems and algorithms to identify misinformation. Natural language processing systems can analyze stories that have been identified as fake and scan social media sites to detect stories with similar keywords, claims, and writing styles, or match claims against verified information. Building on the idea that fake news is shared differently than real information, graphing systems analyze patterns of information spread to identify suspicious activity.[24] By providing a mechanism for securing certain "blocks" of information, some researchers have suggested blockchain technology as a potential solution in that it would allow people to identify, mark, and reshare vetted information with a higher level of confidence.[25] Artificial intelligence approaches can be effective at detecting misinformation and can work at a massively larger scale than human-based fact-checking. However, Lucas Graves notes a number of drawbacks to artificial intelligence systems, including that they lack the nuance of human fact-checkers and generally rely on existing datasets of authoritative or previously verified information, leading the author to conclude that "the potential for automated responses to online misinformation that work at scale and don't require human supervision remains sharply limited today."[26] Xia Zheng, Amani S. Abumansour and Arkaitz Zubiaga see promise for automated fact-checking but identified a range of challenges, including imbalanced and variable quality data sets, and challenges to interpretability and generalizability.[27]

Another approach involves the development of news literacy, or the competencies necessary to evaluate news stories, assess for accuracy and trustworthiness, and identify likely misinformation. Given their long history of information literacy instruction, librarians are often identified as having a key role to play in news literacy instruction. Paul T. Jaeger and Natalie Greene Taylor[28] posit that information literacy must be part of a lifelong learning effort because the skills for identifying misinformation will have to be updated along with changing technology and media landscapes. Having previously argued that information literacy is among "the longest-running and most socially significant contributions of information professionals,"[29] the authors now maintain that libraries "as the socially designated providers of access to information and accompanying literacy, are better positioned than any other institution to equip people with evolving skills that they need to remain information literate throughout the course of their lives."[30] Writing specifically about academic librarians, Jennifer A. Dixon states that they are "uniquely situated to connect with

people who want to learn, and to shape responsible information consumers for both their classroom work and for life."[31]

Librarians have been quick to respond to the crisis of misinformation through information literacy instruction and tool development. In a review of twenty-seven academic library research articles published between 2018 and 2020, Jorge Revez and Luís Corujo[32] indicate that academic librarians are heavily focused on information literacy instruction, although that instruction seems to be divided between a focus on task-based process and those more attentive to critical thinking skills. While the authors find numerous references to instruction in these articles, many appear to be either single case studies of a local program,[33] or general advice for information literacy instruction that focuses on misinformation. Beyond that, academic librarians around the world have developed a plethora of tools, often in the form of pathfinders or LibGuides, related to misinformation.[34]

While laudable, these approaches have also come in for some critique. For instance, both Sook Lim[35] and Jaeger and Taylor[36] note widespread duplication of efforts as academic librarians develop individual guides that often reference the same source material and provide the same information. Jaeger and Taylor[37] advocate for librarians to pool their knowledge and collaborate to develop shared resources that are more scalable. Lim[38] noted that library-created guides over-rely on checklist approaches to evaluating information, such as the IFLA Fake News Infographic, CRAAP, and SMART, despite extensive critiques of checklists as insufficient to prompt the kind of critical thinking necessary to effectively identify misinformation.[39]

In a review of LibGuides focused on misinformation, Lim[40] found a lack of attention to nuance and complexity, noting that few guides offered a comprehensive definition of terms like fake news or facts, and few addressed issues of bias as a component of misinformation. Instead, these guides tended to offer long lists of resources and checklists for evaluating information, often duplicating information across guides and sometimes even within the same guide. Lim concludes that "many guides have few original contributions" and suggests "it would be more helpful for students to see more integrated guides without overwhelming them with numerous links and incoherent pieces of information."[41] Some researchers have also questioned the effectiveness of information or news literacy instruction in increasing students' abilities to recognized misinformation,[42] but some recent research suggests such instruction, when focused on appropriate approaches, can have a positive impact.[43]

Methodology

Despite the widespread attention to misinformation in the field of academic librarianship, little research exists on the extent to which academic librarians are teaching the news literacy skills in the classroom. This research will establish a baseline of librarian perceptions on misinformation that could help to inform curriculum and promote collaborations between faculty and librarians interested in news literacy education. This study focuses on the following questions:

- How do academic librarians perceive the issues and challenges of misinformation?
- To what extent do academic librarians integrate instruction related to misinformation into their sessions?
  - If they address the topic, what approaches do they use?
  - If they do not address the topic, what are their reasons for not doing so?
- What are academic librarians' perceptions of undergraduate students' news literacy proficiencies?

This study builds on previous research that investigated discipline faculty's perceptions of misinformation and the extent to which they integrate news literacy instruction into their teaching.[44] Thus, an additional research question is:

- To what extent do academic librarians' perceptions of and approaches to misinformation align with faculty perceptions and approaches across disciplines?

The specific population for this study is professional librarians, with or without faculty status but presumably with library instruction responsibilities, employed in a college or university library. The study did not actively seek faculty teaching in LIS programs, although some respondents could conceivably be teaching credit-bearing courses in degree-granting programs.

This study used a survey approach. Because the purpose of this study was to establish a broad understanding of academic librarians' perceptions and approaches, a large, nationwide sample was needed, and surveys generally allow for a larger distribution and thus a larger sample size. In addition, by adapting the survey used for the faculty study, the author was able to maintain a base set of questions to allow for direct comparisons between librarian and faculty answers. The project received approval from the author's institutional review board. The survey instrument was mounted in Qualtrics and distributed through ili-l and acrlframe-l, two ALA listservs that focus on academic and instructional librarians. An email invitation describing the study and including a link to the survey was posted in March of 2021, before the listservs migrated to ALA's Connect platform.

The survey consisted of three main blocks of questions, in addition to some demographic questions. The first set of questions asked for librarians' levels of agreement with statements related to their perceptions of and levels of concern with issues related to misinformation. The second set asked whether the librarians addressed content related to misinformation in their library instruction sessions and, if so, what methods they use to teach this content. If they answered no, they were asked what their reasons were for not addressing the topic. This section also asked the librarians if they act as a liaison to one or more academic departments and, if so, which one(s). The final main question block asked the librarians to rate student proficiencies on a set of competencies related to news literacy.

The survey provided the following definitions of terms at the outset:
Misinformation: Inaccurate information shared by accident
Disinformation: Inaccurate information shared on purpose to mislead/deceive
News literacy: "critical-thinking skills for analyzing and judging the reliability of news

and information, differentiating among facts, opinions and assertions in the media we consume, create and distribute."—schooljournalism.org (http://schooljournalism.org)

While the survey differentiated between mis- and disinformation, for purposes of streamlining this report uses the term "misinformation" as shorthand to encompass both definitions.

The closed-ended survey questions were analyzed using descriptive and inferential statistics. The numbers and percentages were tallied for each question to get an overall view of librarian perspectives. The crosstabs function in Qualtrics was used to conduct chi-squared tests (p= 0.05) for statistically significant differences in librarians' responses by liaison department. Specifically, crosstabs were used to test for differences in their levels of agreement with the general statements about misinformation, whether they reported addressing misinformation in their courses, what methods they used if they did address misinformation, or what reasons they offered if they did not, as well as in their ratings of student proficiencies in news literacy skills. Finally, chi-squared tests were used to test for statistically significant differences between librarians' answers to these questions and faculty answers to the same questions from the previous study. The survey concluded with an open-ended question asking if there was anything the respondent wanted to add. The responses to this question were analyzed for themes.

Findings

The survey garnered a total of 189 responses. Because the survey was distributed to listservs rather than to a defined sample, it is not useful to try to calculate a response rate. As such, it is important not to generalize from these responses as they might not be representative; however they still provide a good baseline of how misinformation instruction is happening in academic libraries. It is also important to note that not all questions were required and some questions allowed for multiple answers, so these findings report numbers or percentages of people who answered each question.

The vast majority (97.6%) of respondents have an MSLIS or MLS degree. The majority (69.7%) work in public universities, followed by private not-for-profit (29.7%) and private for-profit (0.6%). Respondents reported a range of years in the field, with most (34.2%) having five to ten years, or fewer than five years (22.6%). Respondents have considerable instruction responsibilities: nearly half (47.9%) reported that they spend between 25– 50 percent of their time doing instruction, and another quarter (24.9%) said they spend more than half of their time on library instruction. Most (80.4%) indicate that they liaise to one or more academic departments. Liaison roles spanned a range of disciplines: the highest proportions serve social sciences (14%), languages and literature (13.8%), and communication/journalism (10.9%), and the fewest serve art/art history/theater and business (both at 5.5%) and social work (4.4%).

Respondents expressed concerns over the spread of misinformation, and there was some consistency in their responses. More than half of respondents agreed or strongly agreed with all the statements in the first question block. Virtually all respondents (95.7%) agreed they are concerned about the spread of misinformation on social media, with 87.8% strongly agreeing. A vast majority (94.2%) agreed that they are concerned about the impact of misinformation in news media, and that the spread of misinformation is a threat to democracy (89.7%). A lower but still substantial proportion (71.5%) were concerned about the spread of misinformation within the field of librarianship. A strong majority (88.9%) indicated that the spread of misinformation impacts students' ability to identify reliable and trustworthy information.

The vast majority of respondents (91.5%) agreed that instruction in news literacy is an important tool for combatting misinformation, and that instructors in higher education have a responsibility to teach these skills (92%). Most (84.5%) also agreed that human-driven fact-checking resources are important tools. Fewer (66.7%) believed that the spread of misinformation should be regulated online, and even fewer (50.5%) agreed that artificial intelligence solutions are important tools for combatting misinformation. Figure 1 shows the breakdown of responses to the agreement statements.

FIGURE 1

Agreement with Misinformation Statements
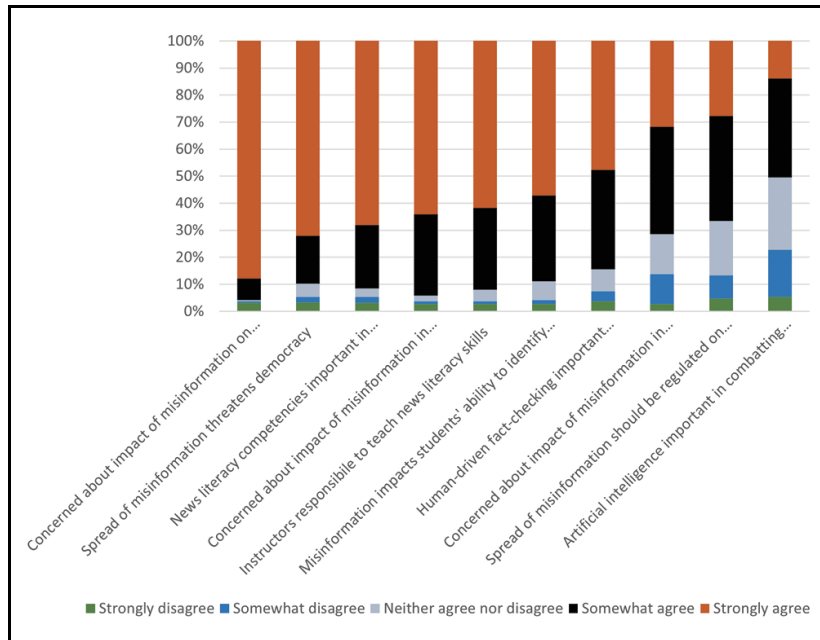
More than three-quarters of respondents (78.5%) indicate that they address issues of misinformation in their library instruction. The largest proportion (29.2%) say they incorporate instruction on news literacy skills into their sessions. Other approaches include activities that require students to evaluate misinformation (19.4%) and to identify misinformation (18.1%). Far fewer librarians report giving graded assignments that require students to cite trustworthy sources (6.6%) or argue positions using trustworthy information (2.8%). Very few librarians indicate that they assess student abilities to evaluate or identify

misinformation (11.1% and 10.8% respectively). The question included an "other" option, which eight people chose and provided write-in responses. Two respondents mentioned incorporating instruction related to social media and algorithms, including algorithmic bias. One respondent indicated that they address issues of bias, including cognitive bias, as well as power dynamics in the production and dissemination of information, and that they teach specific fact-checking strategies. Another indicated that they use games like Spot the Troll and Get Bad News to engage students. Figure 2 shows the breakdown of answers to the question of how librarians address misinformation in their classrooms.

FIGURE 2

How Librarians Address Misinformation
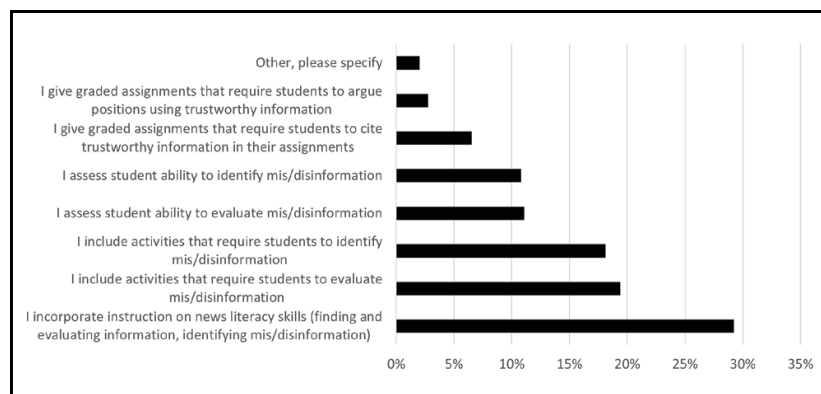
Librarians also report collaborating with faculty in a variety of ways to deliver instruction. Creating learning objects like web guides and tutorials in support of courses is the most popular method (28.4%), followed by consulting with faculty to tailor instruction to the course (25.2%) and directing students to library guides and handouts (21.8%). A small number (17%) report working with faculty to design activities or assignments with news literacy components. Few librarians are involved in assessment: only 4.4 percent say they work with faculty to assess assignments related to misinformation outcomes. In write-in responses, three respondents noted that they also provide professional development for faculty to learn more about teaching news literacy skills.

Librarians who do not teach about misinformation indicated a variety of reasons for not doing so. The largest group (37.5%) report that the faculty members in whose classes they teach have not requested content related to misinformation. An additional 30 percent say they do not have time to address misinformation in their sessions. No respondents said that misinformation is not important, or that students have already learned these concepts, but some feel it does not belong in their sessions. Specifically, 12.5 percent stated the content should be addressed elsewhere in the curriculum, and 10 percent stated that it is not relevant to the department or discipline to which they liaise. Interestingly, those librarians who said that misinformation is not relevant to their discipline did not identify their liaison departments in the survey. Figure 3 shows responses as to why librarians do not address misinformation in their sessions.

FIGURE 3

Why Librarians Do Not Address Misinformation in Their Instruction
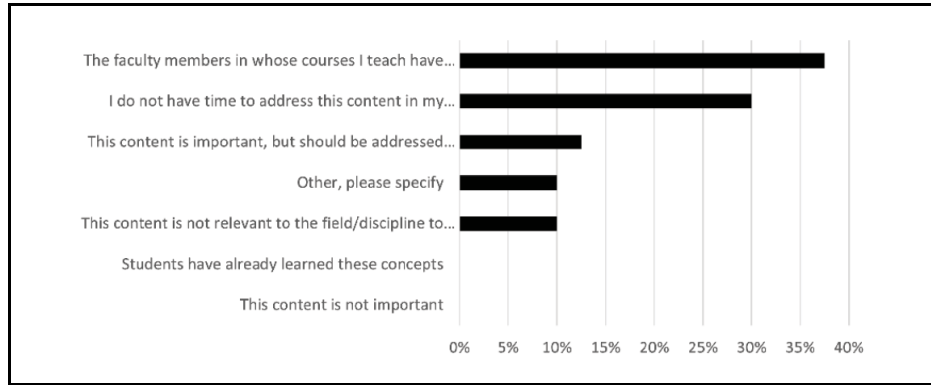
Finally, respondents were asked to rate undergraduate students' overall proficiency in news literacy competencies. Responses tended to cluster around the middle of the scale. Fewer than 5 percent of respondents rated students as very proficient on any competencies. Librarians rated students weakest in identifying mis/disinformation in scholarly sources: nearly a quarter (24.4%) rated students as not at all proficient in this area, and 44 percent rated them as weak. Students also received low ranks for evaluating the research methods presented in a paper (11.6% not at all proficient; 39% weak). Students were rated most proficient at evaluating information for relevance (26.2% proficient); distinguishing between popular and scholarly resources (20.7% proficient); selecting appropriate information to complete a research assignment (18.3% proficient); and evaluating information for authority (16.5% proficient). Figure 4 shows the breakdown of responses on student competencies.

FIGURE 4

Librarian Perspectives on Student News Literacy Proficiencies
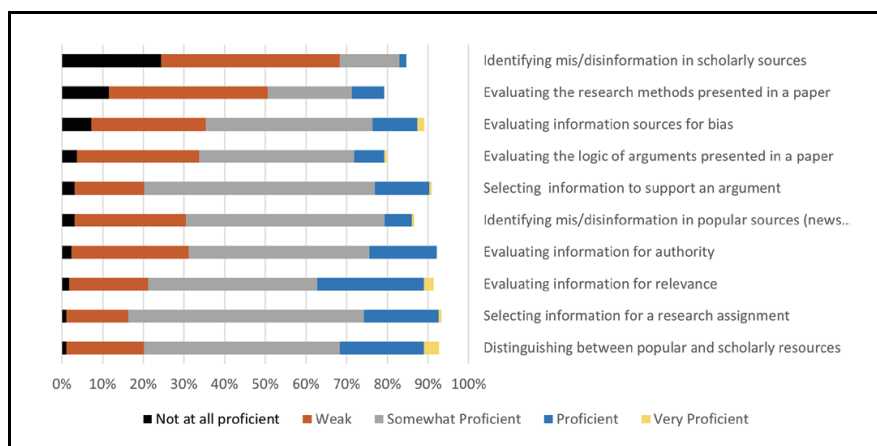
There were no statistically significant differences by liaison department in whether librarians addressed misinformation in their classes, or their reasons for not addressing this content. For the agreement questions, categories were collapsed such that strongly agree and agree were coded as "agree," and disagree and strongly disagree were coded as "disagree." Although there was some variance in responses across liaison departments, very few were statistically significant. Specifically, respondents liaising to math, computer science, and

technology departments were more likely to disagree that human-driven fact-checking services are important solutions for misinformation (p= 0.014385), while education librarians were more likely to agree with this statement (p= 0.016279). History liaisons were somewhat more likely to disagree that the spread of misinformation impacts students' ability to identify reliable and trustworthy information (p= 0.036567). Business librarians were more likely to be concerned about the spread of misinformation in the field of librarianship (p= 0.0404239).

The crosstabs function also uncovered several differences between librarians who do teach misinformation in their sessions and those who do not. Among the agreement statements, there were four statistically significant differences: the spread of misinformation is a threat to democracy (p= 0.02242); instructors in higher education have a responsibility to teach news literacy skills (p= 0.01466); instruction in news literacy competencies is important in combatting misinformation (p= 0.03173); and, I am concerned about the impact of misinformation in news media (p= 0.00787). Although they were more likely to agree than disagree with these statements, respondents who do not address misinformation in their instruction generally agreed at lower rates than those who do address those concepts and were less likely to strongly agree.

Comparisons with Faculty

This study was also interested in comparing librarian responses to those of the faculty from the earlier study. Once again, chi-squared tests were used to test for statistically significant differences between aggregate faculty and librarian responses for questions that were consistent on both surveys. Both faculty and librarians were asked to rate their levels of agreement with the same set of ten statements about misinformation, and chi-squared tests revealed statistically significant differences for four of these statements, as follows: librarians were statistically more likely to indicate that they were concerned about the impact of misinformation in the field of librarianship than faculty were to report such concerns in their respective fields (p= .000103). Librarians were somewhat more likely to agree that the spread of misinformation should be regulated on social media (p= .004226) and to identify human fact-checkers as an important tool in combatting mis- and disinformation (p= .000632). Librarians were also more likely to say that instructors in higher education have a responsibility to teach news literacy skills (p= .000076).

It is perhaps worth noting that there was no statistically significant difference between the faculty and librarians as to whether instruction in news literacy is important in combatting misinformation. Faculty were just as likely as librarians to agree that such instruction is important (89% and 91% respectively). There was also no statistical difference between faculty and librarians as to whether they have reported addressing misinformation in their classes in the past year (67.4% and 78.5% respectively reporting that they do address these concepts). However, there were some differences between faculty and librarians in the reasons given for not teaching misinformation in their classes. At 47.5 percent compared to 10 percent, faculty were more likely to say that issues of misinformation are not relevant to

their discipline (p= < .00001). Faculty were also more likely to say that content related to misinformation is important but should be addressed elsewhere in the curriculum (22.5% compared to 12.5%, p= .048661). However, librarians were twice as likely as faculty to say they do not have time to address issues of misinformation in their classes (30% compared to 15%; p= < .00001).

Finally, there were several statistical differences between faculty and librarian ratings of student proficiencies in news literacy. In each of these cases, librarians were more likely than faculty to rate students as not proficient in each of the skills. Specifically, librarians were more likely than faculty to rate students as not proficient in identifying misinformation in popular sources (91.5% compared to 81.4%; p=.031656) as well as in identifying misinformation in scholarly sources (97.8% compared to 91.5%; p= .033185). They are also far more likely than faculty to say students are not proficient at evaluating the logic of arguments presented in a paper (90% compared to 79.2%; p= .032832). Finally, librarians are more likely than faculty to say students are not proficient at selecting appropriate information to support an argument (84.6% compared to 73.2%; p= .045709). There was no statistically significant difference between the two groups in rating students' abilities to distinguish between popular and scholarly resources, evaluate information for authority, evaluate information for relevance, evaluate the research methods presented in a paper, evaluate information sources for bias, or select appropriate information to complete a research assignment.

Discussion

This study indicates that virtually all academic librarians are concerned about the issues of misinformation and the impacts it is having on both society as a whole and undergraduate students in particular. Perhaps not surprisingly, the vast majority of academic librarians believe that instruction in news literacy is an important tool for combatting misinformation. Indeed, they rank it most highly among the possible solutions offered, including regulation of social media, human fact-checkers, and better artificial intelligence, and they largely agree that instructors in higher education have a responsibility to provide that instruction. These findings align with those of previous studies and other writings within the field that assert information literacy and related areas like news literacy provide an opportunity for librarians to take a more central role in the curriculum by integrating relevant content into their instruction.[45] Similar to Bangani[46] and Revez and Corujo,[47] this study found that a substantial majority of academic libraries are integrating active instruction related to topics of misinformation into their teaching.

What is less clear from the current study is how, exactly, academic librarians are addressing these topics. While lateral reading, or the process of fact-checking information from one source by skimming several other sources to confirm facts, has been shown to be effective in identifying misinformation,[48] librarians have traditionally used checklists such as CRAAP and SMART, which promote vertical reading, or a close reading of a single source to identify clues as to its trustworthiness and reliability. A number of papers have questioned the

effectiveness of checklist approaches to evaluating information as not promoting critical thinking, being reductive, and not being as effective as lateral reading.[49] Furthermore, some studies found a lack of nuance and attention to the guides and instruction librarians created, including a lack of attention to how issues such as cognitive biases influence evaluation.[50] In closed-ended questions, respondents reported using a variety of methods, including active instruction, along with activities and, occasionally, assignments with news literacy outcomes, but they did not specify the content or strategies they teach. A future study might delve deeper to better understand the extent to which academic librarians continue to rely on checklists as Lim[51] found, or if they are beginning to incorporate more evidence-based strategies like lateral reading.

While most librarians report that they are incorporating instruction related to misinformation into their sessions, over a quarter of respondents indicated that they are not doing so. Given the attention to misinformation both within the field of librarianship and more broadly, it is interesting to explore why some librarians are not addressing these topics. At 37.5 percent, the most common reason given is that faculty in whose classes the librarians are teaching did not request such instruction. Indeed, one-shot sessions at the invitation of faculty still seems to be the prevailing model of library instruction, and as "guests" in the classroom, librarians have to tailor their instruction to meet the needs of the faculty and students. Some faculty may not see the value of news literacy instruction or might not believe it belongs in their course. As one respondent noted in an open-ended comment, "I teach mostly all one-shot instruction sessions and I have very specific things the instructor of record wants me to cover. Trying to tackle misinformation/disinformation is just not one of them," while another stated that "my one shots typically require me to demo database searching…. I rarely get to speak about mis/disinformation or authority or evaluating sources."

Indeed, previous research showed that while the majority of discipline faculty are concerned about misinformation and believe that news literacy instruction is important, more than a third of them are not teaching this content in their courses, some indicating that it should be taught elsewhere in the curriculum and some saying it is not relevant to their discipline.[52] Whatever their reason, if faculty are not addressing this content themselves or do not believe it is relevant to their courses, they would be unlikely to request it of a librarian. Also, while it is clear that neither librarians nor faculty believe students are very proficient in news literacy, faculty generally rated student proficiencies in news literacy skills higher than librarians did, sometimes significantly so. If faculty believe that students are already at least somewhat proficient at identifying misinformation, they might be less inclined to address related skills in their classes, or less likely to give over time to librarians to address those skills.

However, the previous study also indicated that most faculty actually are concerned about misinformation, and that roughly two-thirds of them are addressing the topic in their courses. Furthermore, there was no statistically significant difference between the faculty and librarian respondents as to whether news literacy instruction is important in combatting misinformation, or the extent to which they report addressing these topics in their courses,

meaning faculty are just as likely as librarians to value news literacy and to teach those skills. Nevertheless, very few faculty in the previous study reported working with librarians on these topics.[53] The low rate of faculty and librarian collaboration on misinformation topics and the relatively large group of librarians who are not addressing misinformation raise questions as to whether a lack of awareness or communication might be barriers to further integration of librarians into some courses. Faculty who are teaching misinformation topics might not be aware of the specific ways in which librarians could support their instruction in this area, or might be hesitant to give over class time without knowing what the outcomes of that instruction would be, and therefore might not be requesting this kind of instruction. Librarians might need to conduct outreach to raise faculty awareness of the kind of support they can provide and engage those faculty in conversations about how they can partner in supporting the development of students' news literacy skills.

While faculty requests are certainly important, librarians' reasons for not addressing misinformation topics might not be wholly contingent on those requests. Some respondents stated that they do not have time to cover content related to misinformation during their sessions, while, as stated above, others said it was not relevant to the disciplines in which they taught, or that it should be addressed elsewhere in the curriculum. Further, the chi-squared tests showed some significant differences between respondents who do teach this content and those who do not. Librarians who do not teach misinformation were less likely to agree that they are concerned about the impact of misinformation on news media, or that misinformation is a threat to democracy. While no respondents said that content related to misinformation was unimportant, or that students had already learned these concepts, these findings suggest that some librarians believe the topic is less urgent than others, which might make them less likely to devote time to it. These respondents were also significantly less likely to agree that news literacy is important in combatting misinformation or that instructors in higher education have a responsibility to teach news literacy. The fact that they place less importance on news literacy as a solution to misinformation, and feel less responsibility for teaching it, might also explain why these respondents do not address this content.

Two other potential reasons for not addressing misinformation in library instruction courses emerged from the open-ended responses. Several respondents indicated that they provide training to faculty related to misinformation, either instead of or in addition to addressing these topics with students. This "train-the-trainer" approach might be an effective model. If classroom faculty feel prepared to address these topics on their own, they might integrate the content into more of their courses while "giving up" less class time to guest speakers like librarians. Indeed, some faculty in the previous study expressed some lack of confidence in addressing topics of misinformation and indicated an interest in this sort of training.[54] Ultimately, this approach might reach a greater number of students, as the number of one-shot sessions librarians can lead is necessarily limited by numbers of staff.

Conversely, one respondent wrote that "we have been discussing how we don't necessarily feel well-equipped to tackle some of these issues in the library classroom since

misinformation is tied so closely with emotional and psychological beliefs." This is a single statement and, as such, should not be overgeneralized. However, it aligns with research done with public librarians showing that they are aware of the complex issues such as cognitive bias involved in evaluating misinformation and that they recognize that current programming may not be sufficiently addressing these areas.[55] The hesitancy expressed by the respondent might also relate to concerns that library science degree programs are not providing graduates with sufficient training in pedagogy,[56] which would presumably include learning theories that touch on the emotional and psychological aspects of learning and might lead to greater confidence in addressing issues such as misinformation.

Conclusion

The findings of this study indicate that the majority of academic librarians are concerned about misinformation and the impacts that it is having on society, the field of librarianship, and on students' ability to identify and use trustworthy information. These librarians largely believe that news literacy is an important tool in combatting misinformation, and most are integrating the concepts into their teaching. However, some librarians are also encountering barriers to such instruction, including a lack of time and an actual or perceived lack of interest on the part of the faculty in whose courses they are offering instruction. Given that faculty indicate similar concerns about misinformation and support for news literacy, and yet are reluctant in some cases to work with librarians or give over class time for library instruction, academic librarians might engage in outreach to raise faculty awareness about the ways in which librarians can support their instruction in these topics. They might also consider workshops to train faculty in these areas, thus enabling faculty to provide their own instruction. Finally, it is important to ensure that librarians are well informed about the complexities and nuances of the problems involved in evaluating misinformation, and that they are providing instruction in evidence-based approaches to its evaluation. Given the prevalence of the problem and the potential role for librarians, professional associations and library degree programs might provide courses aimed at further developing librarians' pedagogical knowledge to better prepare them to address these topics in their own instruction.

Finally, it is worth noting that while librarians may be providing instruction in news literacy, according to the results of this study they are not generally assessing learning outcomes related to those skills. Only about 10 percent of librarian respondents indicated that they assess students in their ability to identify or evaluate misinformation, and fewer still collaborate with faculty on assessment. To some extent, the lack of assessment is probably a function of the one-shot session format, in which librarians generally do not have the scope to give assignments, nor do they see the assignments to which their sessions are often tailored. As such, the librarians' ratings of student proficiencies must be considered estimates in most cases, and indeed, in an open-ended response one librarian noted that they "typically do not see the end result of undergraduate assignments, so I am unable to answer some of the above questions." Still, assessment data could help to establish the efficacy (or lack thereof) of the news literacy instruction programs, which in turn could be a

way to engage reticent faculty on the topic and help to reinforce the role of librarians in related classroom instruction. As such, it might behoove instruction librarians to integrate some assessment into their instruction. Again, library science degree programs will have a role to play in providing emerging librarians with the pedagogical foundation to engage in such instruction and assessment.

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