

The Information Literacy Gap in Scholarly Communication

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Introduction

Academic libraries are invested in scholarly communication. For example, academic libraries host many open access scholarly journals, as well as events like Open Access Week. In addition, organizations like the Library Publishing Coalition demonstrate the dedication of academic libraries to advancing their role in academic publishing. Several American Library Association divisions have released position statements in support of open access.

In spite of the involvement of academic libraries in the Open Access movement, many university faculty have rather conservative attitudes towards scholarly communication.¹ This paper attempts to identify the knowledge that forms these faculty attitudes by answering the research question, “What do faculty know and believe about scholarly communication and open access?” Faculty are a key stakeholder group for academic libraries and it is important to understand their attitudes and beliefs, especially since open access research is of strategic importance to research libraries and an increasingly important component in the ethos of librarianship. Faculty have influence over undergraduate and graduate students and the ideas that they propagate are likely to persist in academic culture as they train the future professorate.

Ultimately, this paper will demonstrate some of the ways faculty think and talk about scholarly communication and open access, and suggest how information literacy programs can more effectively engage with faculty around scholarly communication issues. Based on these findings, this paper will make recom-

mendations on how to tailor scholarly communication programs to address the needs of faculty.

Literature Review

Scholarly communication and information literacy have each been topics of interest within the academic library community for some time. Researchers and practitioners are now beginning to explore synergies between these topics. For example, as described in the Association of College and Research Libraries’ (ACRL) recent white paper, *Intersections of Scholarly Communication and Information Literacy*,² the nature of scholarly communication is changing in ways that have effects on many aspects of academic librarianship, including information literacy. This white paper demonstrates that there is broad potential for development in this area, and that this is a topic of interest within the academic library community. Additionally, the ACRL volume *Common Ground at the Nexus of Information Literacy and Scholarly Communication* provides further exploration in this area, though only one³ out of eighteen chapters specifically addresses issues in information literacy and scholarly communication that directly affect faculty.

Much of the work around scholarly communication and information literacy targets new learning outcomes for undergraduate and graduate students and developing skills for librarians working with these communities. There is comparatively less work targeting faculty information literacy in scholarly communication. Yet, this area needs attention in order to advance library interests in scholarly communication. For example, Harley et al⁴ conducted a multi-case

study involving interviews with 160 researchers, librarians, university administrators, and publishers at over 45 institutions in more than 12 distinct research disciplines to determine faculty values and requirements in the scholarly communication sphere. The authors concluded that attempts to influence deeply embedded values held by faculty towards scholarly communication would fail in the short-term, and that it would be more productive to study the scholarly communication needs of faculty and use those findings to plan for future scenarios and services. This view was shared in the conclusion of an evaluation of Cornell's institutional repository,⁵ which states that different disciplines have different cultural norms and that institutional repositories need to address this diversity. These studies demonstrate that the difficulty in changing faculty attitudes in scholarly communication may be due in part to differences in cultural norms between disciplines. In order for information literacy programs targeting faculty to be effective, it is necessary to understand and address the scholarly communication needs of faculty, as found in the studies cited above.

One way to address multiple groups with different cultural norms is to develop a common language for discussing concepts. As Suber⁶ points out, the language of open access has previously been used ambiguously and has caused some confusion in discussions about open access, even within the scholarly communication community. Suber's definitions of the various types of open access are helpful for elucidating the concepts that are labeled "open access."

Suber's explanation also shows that even among open access advocates, there is a certain amount of difficulty in developing a common language for open access issues. Suber describes several ways of delineating categories of open access. One way of defining open access is that some content is online and free of charge, which Suber calls "gratis." Other content is online, free of charge, as well as free of permission barriers, which Suber calls "libre." Another way of defining open access is by journal policy. "Gold" open access journals are journals that provide free online access to articles. "Green" open access occurs through institutional or

disciplinary repositories in which journals allow authors to deposit their work if they choose. While this language is useful for clarifying terminology, my study demonstrates that most participants were previously unengaged with this topic and that they had not considered these nuances, nor had they considered the effects of these nuances on their research.

Methods

I used a phenomenological approach in conducting semi-structured interviews with fourteen tenure-track faculty at two large public universities in 2012. Participants represent a variety of levels of academic rank, and possess a range of experience in conducting research. Although all participants were drawn from interdisciplinary environmental studies programs at Virginia Tech or University of North Texas (UNT), they represent a variety of methodological approaches, theoretical positions, and areas of study.

Phenomenology is an approach to qualitative research that focuses on human participation and communication around a given event or activity with a particular emphasis on the participant's point of view. It is a useful approach within academic librarianship because it allows the researcher to ask questions that lead to a deeper understanding of library users.

Participants were assigned pseudonyms in my recordings, transcripts, and notes to protect their identities. I also recorded certain profile information, such as academic rank and area of research. Identifiable characteristics of the participants, such as name, age, and nationality, are masked in all sections of the report. Given that some participants conduct research in a narrow enough field that they are the only ones engaged in that domain at UNT or Virginia Tech, it was especially important to disassociate fields of research from quotations.

Interviews were transcribed and coded in order to identify emerging themes in research, scholarly communication, and data management. The interview protocol specifically asked what kinds of research the faculty conduct, how they disseminate their findings, and how they manage their research data.

Findings

This section begins with an overview of the participants and their levels of engagement with the topics discussed in the interview, demonstrating what faculty know about scholarly communication. I then present two areas of analysis within scholarly communication, including open access, and institutional repositories. I analyze these data about faculty engagement with scholarly communication and demonstrate an information literacy gap in faculty members' understanding of these areas.

Participants demonstrated varying levels of previous engagement with the topics of scholarly communication, data management, and repositories. This is important to document because open access can be achieved through the publication process, or it can be achieved through archiving a work online with or without peer review or an editorial process. As illustrated in Table 1, eight participants had not discussed these concepts and technologies in depth before, four participants had some previous level of engagement with the topics, and two participants had a high level of engagement with scholarly communication and research data policy issues.

TABLE 1
Participants and Levels of Engagement
with Scholarly Communication Issues

Participant	Rank	Methods	Level of Engagement
Cooper	Professor	Quantitative	High
Stanley	Associate	Mixed	Low
Palmer	Assistant	Quantitative	Low
Rosenfield	Associate	Quantitative	Low
Desmond	Assistant	Mixed	Moderate
Truman	Associate	Mixed	Low
Bryson	Professor	Mixed	Moderate
Horne	Professor	Mixed	Low
Martell	Assistant	Mixed	Moderate
Cole	Assistant	Mixed	Low
Hayward	Assistant	Mixed	Low
Johnson	Associate	Mixed	High
Packard	Professor	Qualitative	Low
Blackburn	Associate	Qualitative	Moderate

Among participants with lower engagement, two were previously unaware of, and remained unconcerned by, the scholarly communication issues such as authors' rights, transparency of the editorial process, and the accessibility of their published findings. These participants thought that institutional repositories sounded useful, but they accepted current norms for disseminating research. Other lower engagement participants were aware of some scholarly communication issues, such as the rising cost of journals. They were in favor of broader dissemination without pay walls but were unfamiliar with institutional repositories and only had a partial understanding of open access. Among participants with moderate to high engagement, three participants were very much aware of scholarly communication issues and saw them as a cause for serious concern. These participants were strong advocates for open access, or had strong opinions about how repositories should be used.

Open Access

Regarding the concept of open access, many participants were unaware of institutional repositories and understood open access only in terms of hybrid journals where the author, or the author's institution or funding agency pays a fee to make the article freely accessible without a subscription. Dr. Bryson indicated some familiarity with open access and claimed to have been approached by open access publishers, but had not been involved yet. On the other hand Dr. Bryson had been a fellow at National Science Foundation (NSF) several years previously and was familiar with some of the data management policy issues. This demonstrates that some participants had low levels of engagement with one area of open access, but high levels of engagement and sophistication with other areas of open access.

The interview with Dr. Horne also addressed data management policy. He was somewhat aware of data management requirements in grants, but was apparently not affected by federal data sharing policies or journal data sharing policies. Much of his data collection is in the form of surveys and interviews that in-

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volve human subjects, so publication outlets might not be as focused on data sharing due to research ethics and privacy of participants. Dr. Horne claimed not to have been required to share data before, stating: "I remember writing a proposal for NSF or something like that and they said the data had to be made available, but I don't think that is very common. It's never been a concern for me because no one has asked me to do it. I imagine that there are some funders out there that would ask to do it. NSF is one of them, but it's never been an issue." This quote is significant because this interview occurred in mid-2012. Approximately six months after this interview, the White House Office of Science and Technology Policy released the Policy Memorandum⁷ (Holdren, 2013) requiring that all federal agencies with more than \$100 million in research expenditures devise plans to make the findings of funded research more accessible. More federal agencies have data sharing requirements now and the data collection and analysis period for this study co-occurred with a period of rapid policy change for data sharing in the United States. As a result, Dr. Horne's perception of common practice in data management and data sharing in sponsored research may have shifted.

The following examples illustrate how "open access" was a confusing term for many of the participants, and how some participants conflated "open source" or "online" with open access. In one example, Dr. Packard asked, "Do you mean 'open access' in the sense that people can go in and revise what I write, or in the sense of anybody, anywhere can get them?" In a different example, when I asked Dr. Horne if any of his articles were in open access journals he asked if open access meant "online." When I gave a concise definition of open access as "anyone can read them without a subscription," Dr. Horne replied, "besides going to the library? I don't know. I guess, it would be online but I don't know." I asked if he was familiar with open access, and the reply was, "not so much. Most of the journals that I publish with are published through the old traditional publishing houses ... I am pretty suspect of open access. I tell my students, I can put anything I want online. It's not [necessarily] going to be truthful." Several

professors at UNT, including one department head, were unaware that UNT has an Open Access Policy. On the other hand, one of the participants at UNT had been involved in drafting the university's Open Access Policy, demonstrating that in some cases participants had low levels of engagement with open access, but in other cases participants had high levels.

Some participants demonstrated uncertainty about whether their research or the literature they cited was open access. For example, more than one participant said they could access a particular work, but that they were "on a university computer," with the implication that they might have been authenticated through their IP address. This confusion shows the benefits of authentication since authenticated library users have access to academic literature without having to go through the library's website. This promotes accessibility and usability for the university community, but it also conceals the library's role in providing access as well as the general accessibility of the journal or publisher.

Other participants were aware of open access journals, or that one can pay a fee to certain hybrid journals to make their article open access, but there was some uncertainty about authors' rights with published works. Some seemed to sense that there was some kind of gray area with what they could legally e-mail to colleagues or put on their website. These participants said that they e-mail their articles to anyone who asks, and claim that this is a standard dissemination practice in the academy. Some also claimed to post publisher versions of articles on their own websites. Dr. Cooper was among those who did this and said it was "probably quite dreadfully against the copyright in about 1/3 of the cases," and "I'm just waiting for someone to sue me." This quote demonstrates that participants feel strongly about their need to freely disseminate their work and share their results, yet they may not always know the limitations of their intellectual property rights. In certain cases, like with Dr. Cooper, they are aware of the extent of their rights, but feel that the law imposes restrictions on their ability to conduct their professional careers.

Repositories

In addition to different levels of awareness about open access channels in published scholarly communication, participants also exhibited different levels of awareness about library services, such as repositories, that support research and scholarly communication.

In spite of a lack of awareness, or direct concern with repositories, most participants supported the idea of a library service to collect and make all of the research of the university publicly available. However, there was wide variation in their level of engagement. Dr. Rosenfield said, "I don't have any experience with that." When I asked if it was something he wanted to explore, he replied, "I'm not sure I even understand exactly what you mean." After I defined the concept and explained the service he said, "I've never given that a whole lot of thought. I have never been approached about doing something like that so it sounds like something that would be helpful but not something I've given a lot of thought to and not something that has been on my radar." When Dr. Stanley heard of the institutional repository, he said, "That would be awesome! Do we have that? It would be cool if more people knew about it." This indicates that it sounded useful, but that previous outreach had not been successful. Similarly, Dr. Cole thought it sounded helpful from a standpoint of personal organization: "It may be preferable, because for example I just had somebody request one of my papers, and honestly, I don't have a copy of it. Part of me would really be in favor of a repository that would have everything that I have published available to me for that kind of situation." Dr. Cole was generally enthusiastic. Under the conditions that he maintains copyright and intellectual property, he said, "you name it." He was also ok with giving a permanent license to his institution to host his work.

Along similar lines, Dr. Hayward was interested, but had lots of questions about UNT's institutional repository, branded "Scholarly Works": "How do you go to the Scholarly Works? Is it in yet another database that you need to look through? Is it a database that is now in UNT's database aggregator? Is it something I would direct someone interested in my work

to visit? Or is it something that I as a researcher would visit to find more information about a given topic?" These questions seem to indicate a lack of previous experience with repositories, but also a strong interest in learning more about them and how she could use them to her advantage or her students' advantage. These examples demonstrate that in spite of previous unfamiliarity with institutional repositories, some participants wanted to learn more and discover how to potentially use and benefit from the service. Other participants thought repositories sounded interesting and useful, but their curiosity about the service was less enthusiastic.

A separate group of participants emerged who were aware of repositories due to campus outreach efforts, but there had not been sufficient follow through or support. For example, Dr. Martell initially sounded unfamiliar with the Scholarly Works Collection at UNT, but remembered it once I started to explain it. He said, "oh yeah, I am familiar with that. I gave a talk last year and they were telling me about it and asking me if I would submit my talk and... I think I just got caught up in other things and didn't respond to their e-mail." As Dr. Martell's comments suggest, previous outreach had been somewhat successful, but there had not been sufficient follow through to ensure his adoption of the repository service.

A small group of participants demonstrated a high level of engagement with repositories. In spite of being the smallest, this group was the most vocal. Dr. Cooper for example had few questions about the service, but had lots of opinions about its scope and execution. He had very strong opinions about what should and should not go into a repository due to the huge institutional commitment to maintaining stable access to a resource, demonstrating that he was aware of institutional repositories and had thought about them enough to articulate opinions.

The varying levels of participant engagement with institutional repositories suggest that a lack of awareness is the norm, even at the institution with a campus-wide Open Access Policy. As demonstrated above, outreach and follow through are consistent is-

sues in working with faculty. One of the difficulties in outreach is definition of terms. While librarians may not consider phrases like “digital libraries and “institutional repositories” to be technical jargon, the examples below illustrate that faculty bring their own context to the terms. For example, when asked about digital libraries, Dr. Stanley asked, “would that be like when I use Web of Science to get articles, would that count as digital libraries or is that something different?” Similarly, Dr. Packard said, “I go in and get stuff all the time, but I don’t really pay attention to what it is called or where it is coming from.” These quotes show that faculty, including full professors, do not always distinguish between different types of resources. This set of examples demonstrates a key problem with outreach efforts by librarians who may assume that there is a common language about these services to use in discussions with faculty. For faculty engaged in research, the distinction between open repositories and commercial scholarly databases is irrelevant if they are just trying to find a few scholarly citations to support their article. Conversely for librarians engaged in information literacy, the distinction between types of resources is more critical.

When discussing scholarly communication issues with faculty, librarians therefore should understand these differences.

In spite of lack of engagement with scholarly communication, participants were mostly receptive to repository services, so long as they did not infringe upon authors’ rights or make extra work. Overall, these examples show that participants were able to imagine how to apply repositories to their own work. However, this enthusiasm often fails to translate into action.]

Conclusions

This study identifies knowledge gaps in the information literacy of a key library stakeholder group. Addressing these knowledge gaps when implementing scholarly communication services or hosting Open Access Week events will improve the leadership position of research librarians in the area of scholarly communication. A common understanding of these

concepts will create more opportunities for partnerships between librarians and teaching and research faculty. In order to be effective, information literacy strategies around scholarly communication and open access need to be tied to greater understanding of the factors that influence faculty behavior.

The findings in this study suggest that most faculty have low levels of engagement with open access issues and services. Faculty with low levels of engagement demonstrated curious interest, but not much immediate concern. Faculty with higher levels of engagement demonstrated higher levels of concern about scholarly communication issues. All participants were receptive to the idea of repositories, but many demonstrated concern about the service creating more work for them. These findings imply that faculty would be receptive to library-mediated scholarly communication services and “negative-click” repositories, but they are unlikely to take much initiative in this area since most faculty did not feel direct adverse effects from the current scholarly communication system.

Information literacy can support scholarly communication services by developing programs and outcomes that aim to develop a common language for librarians and faculty to discuss scholarly communication with particular emphasis on how it affects faculty priorities such as publishing and teaching. Instructional models tailored to undergraduate and graduate student workshops might not be as effective given the demographic differences of the audiences. It is worth noting that in some of the examples shared in this study, participants demonstrated a lack of proficiency in ACRL’s information literacy competency standards for higher education.⁸ Some participants have made a considerable impact in their fields as rigorous researchers, achieving the rank of professor, and in some cases, department head in a competitive field. This could mean that these participants have specialized ways of critically evaluating information sources for research. As a result, information literacy standards and outcomes that were developed for students might be less effective for assisting faculty.

It is productive to tailor programs and services to address problems that researchers actually have, or perceive that they have. Duncan, Clement, and Rozum⁹ also address this issue, stating that faculty heavily invest time in disseminating their research, but are less likely to devote time to understanding the terms of use for their published works. Information literacy programs that target faculty understanding of scholarly communication can address faculty research priorities in a number of ways. Some participants in my study liked open access publishing avenues for their most significant research in order to increase the visibility, but accessibility was not the only criteria or even the most important criteria.

Seminars or workshops that tie open access to broader impacts criteria in sponsored research connect scholarly communication issues directly to grantsmanship. Additionally, informal conversations that demonstrate a legitimate interest and concern for the faculty member's ability to be successful in the promotion and tenure process while also having a profound impact in the world through their research are another way to introduce scholarly communication issues in a non-intrusive way.

This paper advances academic librarianship by presenting novel findings at the juncture of information literacy and scholarly communication. This study is unique due to its phenomenological approach. Phenomenology is useful in the social sciences for exploring human activity, behavior, and relationships without preconceived notions, but it is rarely applied in library science research. Further research using additional methods can help refine strategies for engaging faculty in scholarly communication and open access. It is essential to address the challenge of developing educational interventions that are appropriate for a highly educated and confident professional audience.

Notes

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