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Introduction: More than Just Where to Click

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We are part of a generation of librarians who entered the profession in the mid-to-late 1990s at the cusp of the digital revolution. As undergraduates, we lived in a primarily print-based world with shelves of indices, cabinets of microfilm, and cutting-edge CD towers for retrieving articles. Books dominated. DVDs had not even hit the scene. Random cassette tapes and boxes of vinyl LPs could still be found in most library collections. But by the time we were in library school and immediately after graduation, everything had changed. The graphical interface to the Internet, the World Wide Web, had not only arrived but was starting to be recognized as the great disruptor it would become. Yes, it was still the time dominated by AOL, Alta Vista, and Yahoo!, but with the first free e-mail services via the web, the first chat room, and the first search engine results page, we knew that things were different.

We were in library school at a time when people, including faculty members, were asking whether libraries would survive the decade. The web brought an avalanche of inexpensive and easy-to-access information directly into homes, offices, and classrooms. Would people still need libraries? Or, more precisely, *in an age of information abundance, would libraries be relevant?* It was one of the central questions driving our education and early careers. Since that time, our profession has answered this question many times over by evolving, growing, and remaining vital to the communities we serve.

The advent of the web commingled many different kinds of sources, and thus placed the burden of decision making on the shoulders of the searcher, but it did not fundamentally alter the epistemological stances or understanding of authority. The nature of methodologies, expertise, documentation, scholarship, and investigative journalism remains fundamentally unchanged. Today it seems that digitally delivered information has come to dominate, but this digital dominance is not a paradigm shift regarding *how* we know things.[1] Perhaps we may find a new form of authority in crowdsourced documents like *Wikipedia,* but this innovation, with its own strengths and weaknesses, has not signaled an upheaval of our epistemological approaches to information. Over a decade ago Edward L. Ayers and Charles M. Grisham noted,

> The form in which scholarship appears has barely changed, despite all the revolutions in computing. Across almost every field, researchers, no matter how sophisticated the technology they use in discovery, translate those discoveries into simple word-processed documents. Sure, we sometimes add JPEG images and other simple illustrations, and in the sciences, pre-prints rush around the world long before the articles appear in print journals, but merely putting scholarly discourse into HTML and PDF formats has not changed scholarship in any significant manner. The nature of argument has remained remarkably resistant to innovation in rhetoric or form in every field of scholarly endeavor.[2]

In an age of information abundance, the web makes epistemological understandings more important by removing the filters of scarcity, but it does not greatly alter those understandings. The most common concerns and frustrations about the web result from the ways that information is shared, not from epistemological crises. Students do not recognize the differences between sources and bring assumptions with regards to what research looks like and how it works. **Ashley Cole, Trenia Napier, and Brad Marcum** (in Chapter 5, "Generation Z: Information Facts and Fictions," of this book) examine common assumptions held by students during the research process. They suggest that social psychological theories on learning that emphasize reflection can move students toward deeper understandings of information.

Similarly, **Rob Morrison** and **Deana Greenfield** (Chapter 8, "Towards an Assumption Responsive Information Literacy Curriculum: Lessons from Student Qualitative Data") utilize reflective journals and Brookfield's critical incident questionnaire to understand student experiences. They redesigned their curriculum to heighten student awareness of interactions connected with research and learning. **Alison Hicks** (Chapter 10, "Knowledge Societies: Learning for a Diverse World") addresses the need for a more reflective stance on the global nature of the information ecosystem. She also used reflective surveys as prompts to inform both teaching and learning. **Julie Obst and Joe Eshleman** (Chapter 14, "Librarians and Students: Making the Connections") encourage students to explore their own motivations through the use of reflection. They challenge librarians, and by extension the students themselves, to build deeper understandings of the drivers behind the research process.

Andrew D. Asher (Chapter 6, "Search Epistemology: Teaching Students about Information Discovery") reports that the search environment itself may discourage reflection by students. He notes that discovery tools and more effective search platforms (such as Google Scholar) "can reinforce unreflective search habits" by conditioning students to expect simple searches. **Barbara Fister** (Chapter 4, "The Social Life of Knowledge: Faculty Epistemologies") reminds us that students do not start out with the subject expertise or experience that faculty, as subject matter experts, already possess and that students find it challenging to make good choices. **William B. Badke** (Chapter 9, "Expertise and Authority in an Age of Crowdsourcing") explains how our perceptions of expertise have evolved and explores the variety of challenges students face in identifying appropriate expertise and authority. He calls us to more intentionally teach students how to recognize and appreciate appropriate scholarship. **MaryBeth Meszaros and Alison M. Lewis** (Chapter 3, "Librarianspeak: Metaphors That Reflect [and Shape] the Ethos and Practice of Academic Librarianship") present mixed findings about how librarians conceptualize their own work around information literacy. They note that the metaphors used by librarians suggest approaches that encourage surface-level learning, not the deep learning that impacts students' understandings of information. They call for a move toward fostering "reflective judgment" in students and ask librarians to work to develop "mature and nuanced personal epistemologies in emerging adults." **Patricia Brown** (Chapter 7, "Studying Sources: Truth, Method, and Teaching Bibliography") suggests that the metaliteracy needs of today's students can be enhanced by

teaching students to appreciate the nature of sources through the creation of bibliographies.

Students have not had as many opportunities as faculty and librarians to examine how information is situated in context. **Jessica Critten, Anne C. Barnhart, and Craig Schroer** (Chapter 16, "Logical Fallacies and Sleight of Mind: Rhetorical Analysis as a Tool for Teaching Critical Thinking") note that "the reshaping of mental maps and examination of previously unexamined beliefs is an outcome that, ideally, should be a positive sign of maturation and acquisition of higher-level critical thinking skills." Ideally, these skills will enhance students' abilities to recognize the value in diversity of thought. Online communities and social networks tend to breed selective perception and reduce participants' awareness of the diversity of ideas, contributing to the ultra-polarization of public discourse. This echo chamber effect brings together like-minded individuals who repeat and reinforce ideas, undergirding preexisting beliefs without providing opportunities for exposure to opposing viewpoints. Online echo chambers form around political, religious, lifestyle, and other beliefs. Consequently, participants do not carefully weigh evidence in an effort at reaching toward observable reality but reinforce existing beliefs and ensure the continuation of the group's philosophies.[3]

Echo chambers can also breed skeptics for better and for worse. Critical thinking is, of course, essential. However, as Michael Roth, president of Wesleyan University puts it, "Fetishizing disbelief as a sign of intelligence has contributed to depleting our cultural resources."[4] Farhad Manjoo has called this the "photoshopification of society."[5] Manjoo's concern is the default approach to new information one encounters is that of extreme skepticism. After we have seen countless photos that have been faked, we assume that all photos have undergone the Photoshop treatment. The fear is that extreme skepticism, in the end, leaves the individual open to confirmation bias because there is no mechanism by which to judge external information sources.

David Weinberger challenges us to consider whether we are entering a post-fact information ecosystem. In the networked environment, each fact seems to have a counter-fact a click away.[6] For instance, data demonstrating the coming impact of climate change is one Google search removed from sources arguing that this data is inaccurate. Weinberger notes that the scientific endeavor has always assumed that with the same data, our collective efforts could reveal truth. But his fear is that the Internet has taught us all data is suspect of hidden agendas, corporate tampering, and political motives. Furthermore, as **Laura**

Saunders (Chapter 19, "Witnessing the World: Journalism, Skepticism, and Information Literacy") notes, misinformation, once absorbed, can be difficult to correct. She describes a number of ways that librarians and faculty can (and should) integrate news sources into their instruction, providing opportunities for students to evaluate information and develop their sense of skepticism, decreasing their vulnerability to media bias. **Willie Miller** (Chapter 15, "Fragmented Stories: Uncovering News Bias through Information Literacy Instruction") demonstrates how political news coverage can be used teach students how to uncover evidence of bias.

At some level, the "new" concerns above are not that new. They have been with us for quite some time; however, the Internet has made them feel more intense and widespread. Weinberger notes that the world has always been "too big to know" but that the limits of the print-based world helped hide this reality.[7] It may be more disconcerting that the easy access to fact, counter-fact, and counter-counter-fact distorts our perception of consensus on many topics. Patricia King notes that we often struggle with ill-structured problems that do not have clear right or wrong answers.[8] For instance, should we increase the minimum wage, cut the corporate tax rate, or legalize marijuana? These questions do not have clear answers. Their answers may incorporate data, research, and outside sources, but they are also deeply wrapped up in the ways that we view the world. Our beliefs about how the world works will have a significant impact on our answers. **Stephen A. Sanders** (Chapter 13, "Through a Mirror Darkly: A Postmodern Approach to Teaching Expertise, Authority, and Bias"), in his overview of postmodern thinking as it relates to current library practice, reminds us how ideologies (our own and others') influence the way we create and interpret information.

When considering ill-structured problems, there are often two overriding factors that come into play when addressing these problems. First, beliefs often come first and then evidence is found to support these beliefs.[9] With something like increasing the minimum wage, a student may find a plethora of economic, employment, socioeconomic, and other data to support an argument for or against an increase, but political belief and beliefs about free markets may have a stronger influence than data.

Second, when considering ill-structured problems, confirmation bias conditions us to ignore data that may contradict our existing beliefs and cling to data that supports these beliefs. In this way, our beliefs become self-reinforcing and difficult to change. Not only do our beliefs remain in place, but they become more ingrained in our worldview.[10]

Teaching students *about* information crosses many of the traditional disciplinary lines, and references work across fields, especially psychology, philosophy, sociology, and behavioral economics to just name a few. Library and information science has also made a notable contribution to teaching students *about* information with Patrick Wilson's work on *cognitive authority*. For Wilson, cognitive authority is a type of authority that is granted by the listener, not something that is determined by an outside, objective set of criteria. People construct knowledge based on their firsthand interactions with the world and based on secondhand information from other people. Individuals use several criteria (personal beliefs, educational background, familiarity with the subject, etc.) to find others whom they trust. They give away authority in the form of trust in the knowledge of others.[11]

Another perspective on teaching students *about* information comes from social psychology in the line of research around *personal epistemology*. This line of inquiry is "a field that examines what individuals believe about how knowing occurs, what counts as knowledge and where it resides, and how knowledge is constructed and evaluated."[12] Researchers dealing with personal epistemology are seeking ways to move students from dualistic thinking toward reflective judgments where students recognize that knowledge is contextual and that their own beliefs play a role in building that context.[13] **Brian W. Young and Daniel Von Holten** (Chapter 11, "Student Author[ity]: Engaging Students in Scholarship") show how students can begin to build this context for themselves. When students are given an assignment to study local concerns for which little secondary research is available, students rise to the occasion and begin to see themselves as novice researchers participating in a knowledge-building community, instead of just passive compilers of information. In a related way, **Lucy Mulroney and Patrick Williams** (Chapter 18, "Doing It Yourself: Special Collections as a Springboard for Personal, Critical Approaches to Information") illustrate how they were able to create opportunities for students to first deeply engage with zines held in their library's special collections, and then use that experience as a springboard to explore their own passions through the creation of a new, unique zine. Concerned that students were not engaging with their topics or the research process, **Rebecca Halpern and Lisa Lepore** (Chapter 17, "Scholarly Storytelling: Using Stories as a Roadmap to Authentic and Creative Library Research") wondered if students might be better able to identify as storytellers and decided to reframe research as a narrative process. In all of these cases, students find new ways

to establish their authority and see themselves as active participants in the knowledge-sharing process.

A separate but still fruitful area of research relating to information literacy has been the application of critical pedagogy to teaching research. Critical library instruction or critical information literacy draws on the work of Paulo Freire and others to examine power structures relating to information. From this perspective, information literacy can become a form of empowerment where students consider whose voices are privileged in society, who has access to knowledge, and who participates in its creation. When teaching students *about* information, critical pedagogical perspectives provide an avenue to explore power dynamics and access.[14] **Hicks** (Chapter 10) takes a critical approach to information literacy in her chapter, exploring how foreign language information literacy instruction can be employed to develop students' "linguistic and transcultural competence" as they explore the information landscape in support of their Spanish language research assignments. Students begin to understand that not all topics are given the same level of coverage (for a variety of social and economic reasons) and that access to information is not always so simple. Being forced to consider the value and relevance of information outside of the usual familiar databases and academic journals helps students develop their own strategies for assessment and evaluation. **Beth McDonough** (Chapter 2, "Beyond Tools and Skills: Putting Information Back into Information Literacy") applied critical information literacy as a way to move beyond teaching tools. As part of this approach, the librarian gives up her or his authoritative stance in the classroom in order to approach the student on a more equal footing.

Through these perspectives a more complex view of the research process emerges. It becomes an interaction between the worldview of the student, his or her understanding of what counts as knowledge, the context for his or her learning, and (last but not least) information sources that the student may discover. From this vantage, sources are no longer neutral, information containers. "Facts" are not immutable statements about reality but are measurements based on predefined parameters. All sources have a perspective and are value laden. All researchers approach the research process from their own perspective with value-laden expectations for how the world works. And, perhaps, "information literate" may actually mean possessing a reflective capacity where one understands the beliefs and interpretations used in the research process. **Nicole Walls and Amy Pajewski** (Chapter 12, "From Counting Sources to Sources That Count: Reframing Authority and Accountability in First-Year Composition") report that

students seem to view information and sources obtained via personal interviews very differently from information gleaned from research articles discovered via library research. They argue that librarians and composition instructors benefit from intentional and deliberate collaboration. They recommend both parties work together to repeatedly examine, assess, and revise what is being taught in order to identify the assumptions each makes with regards to what students should be taught and what they actually learn.

Our profession is moving toward a deeper understanding of information literacy. This is especially important for librarians working within the curriculum because we are challenged to reflect on our own practice. **Lane Wilkinson** (Chapter 1, "Theories of Knowledge in Library and Information Science") asks us, in a sense, to know ourselves. He navigates a "third way" for librarians in terms of epistemological stance. He lays claim to the ground between the strictness of positivism (only observable reality is to be trusted) and the unmoored feeling of social constructionism (*all* meaning is constructed within social contexts). **McDonough** (Chapter 2) follows this direction but takes us deeper into the classroom. She encourages librarians to "to relinquish expertise and efficiency" and recast the information ecosystem as a place where "singular truth" does not exist. **Mezaros and Lewis** (Chapter 3) examine the very language that librarianship uses to discuss information literacy. They recommend our profession create "an environment that challenges students and encourages them to question not only the ideas of others but their own as well." Interestingly, they note that librarian-faculty relationship is a complex one where faculty members are often cast as "both an adversary to be conquered as well as a heathen to be converted." **Fister** (Chapter 4) pushes us to take the faculty perspective when she notes that in order to successfully evolve information literacy in meaningful ways, librarians "need to understand how faculty conceptualize knowledge and how their research processes and habits may influence their expectations of students."

Taken as a whole, this collection answers a challenge made over a decade ago. In 2002, Brad Marcum offered a critique of information literacy practice within higher education. He noted that it both overreached by claiming to be an all-encompassing learning construct that required "competency with tools, resources, the research process, emerging technologies, critical thinking, and an understanding of the publishing industry and social structures that produce information products" while at the same time it under-reached by being "too grounded in text, and overly concerned with conveying basic skills."[15] Marcum

called for a greater vision of information literacy that moved beyond the rote, show-and-tell mechanics emphasized by bibliographic instruction. The chapters within this book move beyond clicking and focus on thinking. As Marcum stated in 2002, "It is learning rather than information, and sociotechnical fluency rather than literacy that comprise the agenda for tomorrow."[16]

This book answers Marcum's challenge, but as these chapters were being written, our profession as a whole worked to offer an additional answer to his challenge. A task force charged by the Association of College and Research Libraries (ACRL) released drafts the *Framework for Information Literacy for Higher Education*.[17] The release of the various *Framework* drafts offered a context for conversations within this collection. Specifically, the new *Framework* offered a broader definition of information literacy that moved beyond the outcomes-based emphasis of ACRL's previous *Information Literacy Competency Standards for Higher Education*.[18] The new definition of information literacy emphasizes "flexible engagement with the information ecosystem, underpinned by critical self-reflection."[19] This emphasis is shared by the chapters in this collection. Information literacy is bound up in self-reflection and worldview. We cannot escape ourselves as we interact with the information ecosystem. In the end, the charge we must face as information literate individuals is the charge given to the philosophers at Delphi, "Know thyself."

Notes

1.   John V. Pavlik, *Media in the Digital Age* (New York: Columbia University Press, 2008).

2.   Edward L. Ayers and Charles M. Grisham, "Why IT Has Not Paid Off as We Hoped (yet)," *EDUCAUSE Review*, 38 (2003): 42.

3.   Brendan Nyhan, "Why the 'Death Panel' Myth Wouldn't Die: Misinformation in the Health Care Reform Debate," *Forum* 8 (2010); Kathleen Hall Jamieson and Joseph N. Cappella, *Echo Chamber: Rush Limbaugh and the Conservative Media Establishment* (Oxford: Oxford University Press, 2008); Aaron Smith, "The Internet's Role in Campaign 2008: The Internet as Source of Political News and Information," Pew Research Internet Project, April 15, 2009, accessed July 16, 2014, http://www.pewinternet.org/2009/04/15/the-internet-as-a-source-of-political-news-and-information/.

4.   Michael S. Roth, "Young Minds in Critical Condition," *Opinionator: The Stone* (blog), *New York Times,* May 10, 2014, http://opinionator.blogs.nytimes.com/2014/05/10/young-minds-in-critical-condition/?_php=true&_type=blogs&_r=0.

5.   "The Convenient Untruths," *On the Media,* April 4, 2008, radio broadcast transcript, accessed July 16, 2014, http://www.onthemedia.org/story/129992-the-convenient-untruths/transcript/; Farhad Manjoo, *True Enough: Learning to Live in a Post-Fact Society* (Hoboken, NJ: Wiley, 2008).

6.   David Weinberger, *Too Big to Know: Rethinking Knowledge Now That the Facts Aren't the Facts, Experts Are Everywhere, and the Smartest Person in the Room Is the Room* (New York: Basic Books, 2012).

7.   Ibid.

8.   Patricia King, "How Do We Know? Why Do We Believe? Learning to Make Reflective Judgments," *Liberal Education* 78 (1992): 2–9.

9.   Michael Shermer, *The Believing Brain: From Ghosts and Gods to Politics and Conspiracies—How We Construct Beliefs and Reinforce Them as Truths* (New York: Times Books, 2011).

10.   Christopher Chabris and Daniel J. Simons, *The Invisible Gorilla and Other Ways Our Intuitions Deceive Us* (New York: Crown, 2010); M. Frank Pajares, "Teachers' Beliefs and Educational Research: Cleaning Up a Messy Construct," *Review of Educational Research* 62 (1992): 307–32.

11.   Patrick Wilson, *Second-Hand Knowledge: An Inquiry into Cognitive Authority* (Westport, CT: Greenwood Press, 1983).

12.   Barbara K. Hofer, "Introduction: Paradigmatic Approaches to Personal Epistemology," *Educational Psychologist* 39 (2004): 1.

13.   King, "How Do We Know?."

14.   James Elmborg, "Critical Information Literacy: Implications for Instructional Practice," *Journal of Academic Librarianship* 32 (2006): 192–99; Troy A. Swanson, "A Radical Step: Implementing a Critical Information Literacy Model," *Portal: Libraries and the Academy* 4 (2004): 259–73; Maria Accardi, Emily Drabinski, and Alana Kumbier, *Critical Library Instruction Theories and Methods* (Duluth, MN: Library Juice Press, 2010).

15.   James Marcum, "Rethinking Information Literacy," *Library Quarterly* 72 (2002): 20.

16.   Ibid., 21.

17.   Association of College and Research Libraries, *Framework for Information Literacy for Higher Education*, accessed July 16, 2014, http://acrl.ala.org/ilstandards/wp-content/uploads/2014/02/Framework-for-IL-for-HE-Draft-2.pdf.

18.   Association of College and Research Libraries, *Information Literacy Competency Standards for Higher Education*, http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards.pdf.

19.   See lines 63 and 64 of Association of College and Research Libraries, *Framework for Information Literacy for Higher Education*.