INFORMATION LITERACY
AND RESEARCH
PRACTICES

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ITHAKA S+R

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We are in an interesting moment in which librarians are changing their minds about just what information literacy means. The *Information Literacy Competency Standards for Higher Education,* implemented almost fifteen years ago, are still in use.[1] The *Standards* identify the competencies of students who do well: they choose good paper topics, develop plans for getting books and articles, and follow their plans efficiently. Overall the exemplar posed by the *Standards* resembles someone who has tasks to do and executes them well as opposed to someone deeply engaged in meaningful, ongoing inquiry.

A new approach, now being developed to replace the *Standards*, presents a nuanced and complicated model of information literacy, one much more akin to what real people do when they seek warranted information to answer significant questions. Entitled the *Framework for Information Literacy for Higher Education*, the new document has aroused controversy and gone back to committee for further revision.[2] Many believe that it is sound in its fundamentals although some have raised questions about the intricacy of the model, the types of literacy it covers, and the definition of information literacy itself.[3] Others voice significant concern over the "threshold concepts" that are central to the *Framework's* theoretical approach and to the content of some of the threshold concepts in particular.[4] However the *Framework* is finally crafted, we can expect that its

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[1] Association of College & Research Libraries, "Information Literacy Competency Standards for Higher Education" (Chicago: Association of College & Research Libraries, 2000), available at http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards.pdf.

[2] Association of College & Research Libraries, "Framework for Information Literacy for Higher Education (Draft 2)" (Chicago: American Library Association, 2014), available at http://acrl.ala.org/ilstandards/wp-content/uploads/2014/02/Framework-for-IL-for-HE-Draft-2.pdf. The third draft was released on November 12, 2014, and ACRL is seeking feedback through December 12, 2014. See http://www.acrl.ala.org/acrlinsider/archives/9460.

[3] See, for example, Meredith Farkas, "Getting into the Gray Areas with the Draft Framework for Information Literacy for Higher Education | Information Wants To Be Free" (blog post), March 3, 2014, available at http://meredith.wolfwater.com/wordpress/2014/03/03/getting-into-the-gray-areas-with-the-draft-framework-for-information-literacy-for-higher-education/. See also Barbara Fister, "On the Draft Framework for Information Literacy | Library Babel Fish @insidehighered," (blog post), February 27, 2014, available at https://www.insidehighered.com/blogs/library-babel-fish/draft-framework-information-literacy. See also Brian Mathews, "ACRL: If We Are Putting Everything on the Table -- How about 'change Literacy' Too? - The Ubiquitous Librarian," The Chronicle of Higher Education (blog post), March 10, 2014, available at http://chronicle.com/blognetwork/theubiquitouslibrarian/2014/03/10/acrl-if-we-are-putting-everything-on-the-table-how-about-change-literacy-too/. See also Donna Witek, "Information Constellation: Metaliteracy and the New Draft ACRL IL Framework" (blog post), February 21, 2014, available at http://www.donnawitek.com/2014/02/metaliteracy-and-new-draft-acrl-il.html?spref=tw&m=1.

[4] See, for example, Jacob Berg quoted in Jessica Olin, "Letters to a Young Librarian: Ethics, Copyright, and Information Literacy, by Jacob Berg" Letters to a Young Librarian (blog post), July 9, 2014, available at http://letterstoayounglibrarian.blogspot.com/2014/07/ethics-copyright-and-information.html. See also Lane Wilkinson, "The Problem with Threshold Concepts," Sense & Reference (blog post), June 19, 2014, available at http://senseandreference.wordpress.com/2014/06/19/the-problem-with-threshold-concepts/.

complexity, its scope, and its somewhat daunting guidelines for implementation will make it more challenging to use, if ultimately more successful. It captures more realistically what information-literate people really do and, despite the controversies, represents a significant step forward in the incorporation of a sophisticated understanding of scholarly work practice into the fundamentals of librarianship.

The new approach accords with the research process discussed by Andrew Abbott in his new book, *Digital Paper*. In this volume, Abbott describes in detail how he produced one of his own published papers through a nonlinear process of exploring and developing mutually illuminating questions and answers.[5] Abbott works with primary materials in a humanistic field but similar practices can be seen among scholars who do experimental work when they develop questions and search for answers in the literature that a library provides. The circuitous but intentional and rigorous process of developing questions while scrutinizing information from various sources is a hallmark of good research at any level and in any context, whether by a renowned senior faculty member writing the next great book, by an undergraduate deeply and seriously engaged, perhaps for the first time, in a fascinating new subject, or by an amateur—someone who might want to understand the history of his or her family, for example. In all of these cases, it is the "puzzle," as Abbott calls it, that drives the research.

While the greater challenge lies in figuring out what your puzzle is, pursuing solutions to puzzles is something that can be taught and learned, and it is something that many in higher education hold dear. Librarians certainly do. Nearly everyone who responded to the Ithaka S+R 2013 survey of library directors felt that "helping undergraduates 'develop research, critical analysis, and information literacy skills'" was very important.[6]

But if librarians are to use the new *Framework* to forge better partnerships with faculty members and help students develop better information-related practices, they may need to learn more about how real researchers do research, as illustrated by the three following cases. Beyond that, as I argue below, they may want to find opportunities to build additional knowledge about the practices of researchers first hand, the better to develop their own librarian work practices and the research-related practices of students.

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[5] Andrew Abbott, *Digital Paper: A Manual for Research and Writing with Library and Internet Materials*, (Chicago: University of Chicago Press, 2014).

[6] Matthew Long and Roger C. Schonfeld, *Ithaka S+R US Library Survey 2013* (New York: Ithaka S+R, 2014), available at http://www.sr.ithaka.org/research-publications/ithaka-sr-us-library-survey-2013.

What Researchers Do: Three Examples

Three cases illustrate the difference between the *Standards* and the new *Framework*. They are a study of the work practices of 80 accomplished researchers at major US universities; a study of medical students learning to find, use, and share information in clinical settings; and the exposure on Twitter by Blippoblappo and Crushingbort of plagiarism by a BuzzFeed staff writer. These examples support the argument that the better we understand the practices of people who exemplify information literacy, the better we can help students to succeed in their research and be more critical and effective in their information practices.

Case One: How Researchers Really Work

People who do outstanding research sometimes fumble through databases and use Google in a way that makes us cringe. Some go time and again to a Word document on their desktop to find a link, rather than make a simple bookmark in their web browser. Some use Wikipedia. If people do these things and then write brilliant books that are beautifully researched, they provide *ipso facto* models of good research and, presumably, define information literacy. Information literacy is what they do. If the research is top notch, they are doing it right. And we have to learn what they are doing because they set the standard—they are the exemplars.

User studies for the eXtensible Catalog (XC) project help make this point.[7] In order to develop design concepts for the proposed XC software, teams at four universities—Yale, Cornell, the University of Rochester, and Ohio State University—conducted interviews with about 80 individuals from undergraduate to senior faculty levels who were known to be outstanding researchers. We asked them about the resources they were using or had just recently used in their research and writing projects; we had them show us around their offices; we asked to see how they were using their computers; and we talked to them about the research process.

Finding Useful Resources

All of the respondents were regular users of Google and other popular information tools. But when we asked these recognized researchers how they learned of the works that were

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[7] See Nancy Fried Foster, Katie Clark, Kornelia Tancheva, and Rebekah Kilzer, eds., *Scholarly Practice, Participatory Design and the eXtensible Catalog* (Chicago: Association of College and Research Libraries, 2011), available at http://hdl.handle.net/1802/12375.

currently most useful, we discovered that they had found only about 2 percent of those items through Google. Most of them had found the items they ended up using through their personal and professional networks, through consultation of their personal library, and by following the chains of bibliographic citations and references in published works (see Figure 1).

	Overall Percentage
Via personal networks and recommendations	27.5%
Extensive knowledge base (includes classics and personal collection)	25.3%
Database, OPAC, WorldCat, Amazon Search	16.5%
Traced bib, footnotes	15.4%
Browsing stacks, special collections, misc.	7.7%
Alert list	3.3%
Google and Google Scholar	2.2%
Handbook (1), Finding Aid for special collection (1)	2.2%
Totals	**100.0%**

Figure 1. How researchers in XC studies had found out about the items they were currently finding useful.

Organization Schemes

Many of the researchers we interviewed were "messily organized," as one quipped. They knew where everything was but their offices looked a mess. A humanities professor explained, "I realized that ... it wasn't like a library, where a librarian has to organize things so that somebody else can find them, only I needed to find them, and so all I had to do was say, that's where I'm putting it, it's there, and it would stay in that place, and that's essentially how my office is organized." Their organization regimes combined a number of intersecting schemes, with some resources organized by the course for which they were most recently used, others by topic, and still others by the piece of research or

writing to which they related. Many of the researchers we interviewed were very messy, but they were very productive that way.

Several of them were also inveterate browsers. They browsed the stacks and they browsed online; they browsed each other's offices and even each other's books at home. As one person said, "Because sometimes you'll find something that, you know, is tangentially related to something that you're not researching now but might be good later. And so I feel like I'm always on the lookout for stuff."

A very impressive undergraduate at one of the participating universities put it well: "[At first,] I understood research as something I'm told to do in order to complete my assignments. And then there was this transition […] And conferences are really important to me and social networks are increasingly important to me. […] I am now considering myself as a research tool. Not merely computers and books and other people's scholarship. […] It's my job to talk to people a lot. It's my job to find talks that are being given on campus. […] That brings me into conversation with people who are doing things."

Real Researchers and the Standards

Interestingly, the people we interviewed in the XC user studies—all recognized for their excellence as researchers—would not look very good when held up against the information literacy *Standards*. The *Standards* call for articulating the information need, getting information "effectively and efficiently," and using library-mandated strategies, such as controlled vocabularies and Boolean operators. Our real researchers, by contrast, were on the lookout for information without always knowing exactly how they would use it but confident that it would come in handy eventually because it was related somehow to big important questions. They were inefficient; they were messy and their processes were anything but streamlined. In general, they engaged in rigorous but idiosyncratic work that followed arguments and evidence from person to person, source to source, and idea to idea.

Yet they did great research. They drew nimbly from among their many research tools the ones that helped them meander or pinpoint the information they needed as they worked on their puzzles, asking and refining their original questions and developing new ones. Certainly it makes more sense to use real researchers as the model for information literacy than to continue with a model by which our best researchers look deficient. Indeed, one can only assume that the discrepancy between the *Standards* and what real scholars do must have been at least part of the impetus for a total re-working of the *Standards* and the creation of the *Framework for Information Literacy for Higher Education*.

The great researchers we interviewed could have served as models for this new document. When they were on the lookout for information without always knowing exactly how they would use it, they were engaged in "Searching as Exploration" (Frame 5). Their messiness was just the outward appearance of their approach to "Research as Inquiry" (Frame 2). And as they meandered around looking at other people's work they were engaged in "Scholarship [as] a Conversation" (Frame 1). The model of information-related practices afforded by the new *Framework* is a significantly better match with real practices of researchers in the wild than the one afforded by the *Standards*, albeit sprawling and much fuzzier, as research tends to be.

Case Two: Medical Students

In a project based at the University of Chicago, librarians at Chicago and five other Illinois medical schools had third-year medical students log or map their movements over the course of a day on which they had clinical duties. These are students who have completed two years of formal preparation and are now doing "rotations"—that is, they are working under supervision in clinics and hospitals, treating patients. Every few weeks they work in a different specialty—pediatrics, neurology, surgery, and so on. It is said to be a very challenging and disorienting experience. Most are preparing for the final licensing exams and some are also involved in research projects.

Librarians interviewed these students the day following the mapped or logged day, asking them about their movements and about all the times during the day that they sought, used, or shared information, and whether they used it to answer clinical, research, study, or personal questions. The project is still underway but preliminary analyses have already yielded some tentative but interesting findings. These third-year medical students are thoughtful and intentional about their use of time, putting their medical studies and clinical work first and squeezing in personal time here and there when they can. Information must flow to and from them very fast so they organize themselves for this, using any device or resource at their disposal. These student maps and logs provide genuine examples of the need for efficiency in the professional use of information resources but there are also times when these students pursue leads in a less directed fashion, to gain further background or to investigate topics that particularly interest them or relate to their research projects.

When it comes to their clinical practice, however, more than anything they are strategic and draw information from a very wide range of resources. They calculate how much time and energy to invest in an information search based on what is at stake. If not much is at stake—for example, if they are just acquainting themselves with the basics but someone else is coming up with a treatment plan—they may go to Wikipedia or even

YouTube. If a lot is at stake—if they are working on a major research project or if the burden of care is upon them—they go to medical journals. Anything in between is probably resolved with a search in UpToDate, the go-to source for all things medical.

This is a useful case because these men and women have been outstanding college students, done well in their classroom medical studies, and passed the first licensing exam; they have already demonstrated success in finding and using information. In the clinical setting, however, they are very strategic in information practices; they have adapted to a new situation. They are very practical, and represent one of many possible variations on what the information literate person looks like. The new *Framework* accommodates this case and many others that might look quite different. This is because the new *Framework* is based on an understanding of information processes as complicated, variable, embedded in broader contexts, personal, and interpersonal.

Indeed, this case reinforces the definition of information literacy given in the *Framework* document: "Information literacy is a repertoire of understandings, practices, and dispositions focused on flexible engagement with the information ecosystem, underpinned by critical self-reflection. The repertoire involves finding, evaluating, interpreting, managing, and using information to answer questions and develop new ones; and creating new knowledge through ethical participation in communities of learning, scholarship, and practice."[8]

Case Three: Beyond the Academy

The ability to recognize reliable information supports lifelong learning and bestows the advantages of being well informed and contributing to the advancement of knowledge and the good of society. To illustrate this we turn to an example from pop culture that played out over the summer of 2014 on BuzzFeed (buzzfeed.com). BuzzFeed is a site that many people turn to for mindless diversion, such as the article headlined: "A Backpacker Came Home From Asia To Find A Three-Inch Leech Living In Her Face: She named him Mr. Curly" (http://www.buzzfeed.com/rachelzarrell/meet-mr-curly#3vjpt6r). The site also offers some genuine news and political reporting.

On July 22, 2014, a BuzzFeed reporter named Benny Johnson filed a BuzzFeed Exclusive on how former President George H.W. Bush chooses his socks.

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[8] Association of College & Research Libraries, "Framework for Information Literacy for Higher Education (Draft 2)" (Chicago: American Library Association, 2014), available at http://acrl.ala.org/ilstandards/wp-content/uploads/2014/02/Framework-for-IL-for-HE-Draft-2.pdf.

The next day, seeing a similar story, Johnson shot back with a charge of plagiarism.

A couple of Tweeters—Blippoblappo and Crushingbort—were already familiar with Benny Johnson's work and thought it very low quality. They were startled by the way Johnson publicly charged someone else with plagiarism when his own work, and much of what is on BuzzFeed, is culled (or "aggregated") from other sources.

They had already noticed that there was a huge difference between the aggregations of images with humorous captions that constituted the bulk of Johnson's reportage and the political articles under his byline. Blippoblappo and Crushingbort felt that the writing in the articles was so much better that it seemed out of character; they wondered whether Johnson had written those articles. Indeed, they felt that BuzzFeed, "which is reportedly valued …at $1 billion" is based on a "business model [of] ripping off others' content for profit."[9]

Blippoblappo scrutinized Johnson's work according to an interview I conducted with her/him in August. Comfortably settled in a library reading room, Blippoblappo opened up two windows on a laptop: one showed the results of a Google search for all of Johnson's articles, to be used for zeroing in on article titles that seemed most likely to lead to plagiarized material. The other window gave access to online databases for checking Johnson's work against other sources. Blippoblappo searched phrases from Johnson's articles and found many cases in which the same search string appeared in someone else's published work with an earlier date. Blippoblappo also found that Johnson had used material from Wikipedia by checking the Wikipedia version on the day before Johnson's publication date. Blippoblappo believed that Johnson had even committed wholesale copying and pasting from Yahoo! Answers, a site, according to Blippoblappo, that is widely acknowledged to have a very low degree of credibility.

Blippoblappo and Crushingbort created a blog, titled Our Bad Media, to detail what they deemed to be Johnson's plagiarism, and Blippoblappo tweeted a link to the blog on July 24, 2014.[10]

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[9] Blippoblappo, and Crushingbort, "3 Reasons Benny Johnson Shouldn't Call Out Plagiarism: He's a Plagiarist, He's a Plagiarist, and He's a Plagiarist," Our Bad Media (blog post), July 24, 2014, available at http://ourbadmedia.wordpress.com

[10] *Ibid.*

OUR BAD MEDIA

@BLIPPOBLAPPO & @CRUSHINGBORT ON JOURNALISM

3 REASONS BENNY JOHNSON SHOULDN'T CALL OUT PLAGIARISM: HE'S A PLAGIARIST, HE'S A PLAGIARIST, AND HE'S A PLAGIARIST

By @blippoblappo and @crushingbort

Yesterday morning, Buzzfeed's "viral politics reporter" and resident ex-College Republican Chair Benny Johnson took the unusual step of calling out another outlet on Twitter for plagiarizing his work, a masterpiece on the socks that George H.W. Bush wears. "Repeat after me," said Johnson, "copying and pasting someone's work is called 'plagiarism[.]'"

The Tweet (below) attracted numerous new followers for Blippoblappo and Crushingbort and led to a back and forth of Tweets and blog posts between Buzzfeed and the bloggers. In this series of exchanges, Blippoblappo gave credit to good reporting on Buzzfeed while reiterating that Johnson's fault was not just a failure to credit sources but his efforts to "avoid detection … That's just plain old bad faith plagiarism."[11]

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[11] Blippoblappo, and Crushingbort, "3 Reasons Benny Johnson Shouldn't Call Out Plagiarism: He's a Plagiarist, He's a Plagiarist, and He's a Plagiarist," Our Bad Media (blog post), July 24, 2014, available at http://ourbadmedia.wordpress.com

Benny Johnson apologized.
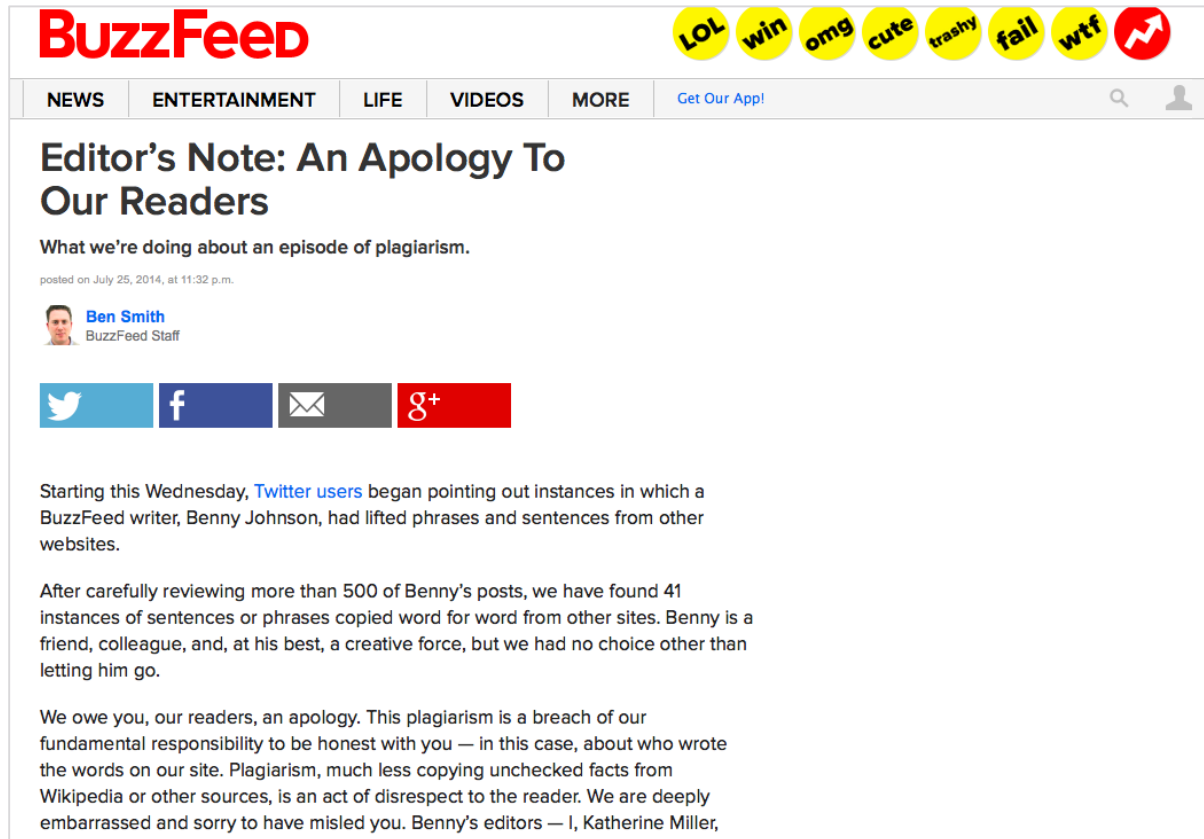
BuzzFeed's editor apologized, did some repair work on the items in question, and fired Benny Johnson.

The saga was also covered by more mainstream online media outlets such as Politico and The Washington Post. In both of these cases, the articles highlighted the role of Blippoblappo and Crushingbort in bringing the story to light. Dylan Byers of Politico, who picked up the story from Gawker, noted that "Twitter users" brought it to the attention of Gawker. Paul Fahri of The Washington Post linked directly to the Our Bad Media blog.[12]

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[12] See Dylan Byers, "BuzzFeed's Benny Johnson Accused of Plagiarism," Politco (blog post), July 24, 2014, available at http://www.politico.com/blogs/media/2014/07/buzzfeeds-benny-johnson-accused-of-plagiarism-192795.html. See also Paul Farhi, "Buzzfeed Fires Benny Johnson for Plagiarism," The Washington Post, July 26, 2014, available at http://wapo.st/1tMkwSp.

I asked Blippoblappo why the two had decided to investigate Benny Johnson and why they had disseminated their accusations through the medium of Twitter. Blippoblappo explained that they put this out on Twitter because it was the best way to reach large numbers of readers quickly; they have, between them, close to 30,000 followers. Through retweets, the news spread quickly, even to major journalists, and the story was picked up in the popular and mainstream press. But the bloggers did not act capriciously. Blippoblappo explained that they were taking a principled stand against a form of "journalism" that aggregates other people's work, discourages reporters from taking the time to read and learn a situation thoroughly, and fails to educate people.

In taking this stand, the bloggers demonstrated what good information and research practices are all about in the real world. Living and working outside the academy, Blippoblappo acted as a citizen and voter, engaged and deeply concerned about current events and how they are reported, discussed and influenced. The days of paper-writing and grade-getting over, Blippoblappo used information sources diligently and critically to investigate an apparent abuse of trust and to engage peers in a meaningful online conversation on important questions.

Towards Better Models and Better Methods

The *Framework* may still pose challenges, even when the arguments over what it includes and how it is worded are resolved. Many librarians may find this model hard to understand because it is based on a research process to which only some of them are privy. A solution to this problem may be found in engaging librarians in structured interactions with faculty members who are actively engaged in research—for example, by conducting brief interviews with them about a current research project, the materials they are using and how they came upon them, and their writing process.

This interaction may serve to initiate the dissemination of the *Framework* from the library to the faculty and thereby support cooperation among librarians and faculty members in developing research skills and information literacy among students.

The cases adduced above clearly demonstrate the value of rigor, engagement, and the development of a knowledge base in ensuring that our students and our citizens find good information, evaluate it critically, and use it ethically. The *Framework* reminds us that what we learn in school is most valuable when it supports a lifetime of thinking and communicating for shared understanding of our world and mutual benefit and goodwill.