

Heather Joseph

The impact of open access on research and scholarship

Reflections on the Berlin 9 Open Access Conference

The recent Berlin 9 Open Access Conference¹ presented a striking reflection of the evolution of the scholarly community's attitude towards open access. No debate, no controversy—this meeting of high-level research funders, policy makers, university administrators, librarians, publishers, and scholars focused squarely on the impact that open access can have on each phase of the research process. Hosted by the Howard Hughes Medical Institute, and sponsored by a broad spectrum of organizations from the National Endowment for the Humanities to the Marine Biological Laboratory to SPARC, the meeting underscored the central role that open access now plays as part of the research infrastructure in the humanities and social sciences, as well as in the hard sciences.

Held in different locations since its inception in 2003, each of the previous Berlin Conferences has had its own distinct flavor, reflecting both the current “state of the art” of open access, as well as the particular interests of the local country's host. The earliest meetings were all held in Europe, when open access was still an emerging idea. They were, by nature and by necessity, focused on the pragmatic—on forging a common understanding of the definition of open access, and crafting the tools and strategies that could be used to make it a reality.

Subsequent meetings were devoted to an evaluation of these emerging practices and policies, collectively sorting through what was working, and what wasn't. The 2010

conference, held in Beijing, represented an important departure for the conference series. The power that democratizing access to information holds to create an informed citizenry was a strong thematic undercurrent running throughout the meeting.

This thematic evolution reached a new level at the U.S.-based meeting. The program for Berlin 9 was deliberately constructed to examine how open access can amplify and improve each phase of the research process. High-caliber speakers, including a university president, a European commission cabinet member, a vice president of the World Bank, and the director of U.S. National Cancer Institute, discussed their own experiences with open access, and the role it is playing in transforming the research process.

The meeting provided striking examples of the impact of open access on the construction of research questions and methodologies, on the design and conduct of experiments, and on the communication and, ultimately, the use of research by various stakeholders. Over the course of the three-day meeting, common threads appeared throughout the

Heather Joseph is executive director of Scholarly Publishing and Academic Resources Coalition (SPARC), e-mail: heather@arl.org

Contact Mike Furlough—series editor, assistant dean for scholarly communications, and codirector of the Office of Digital Scholarly Publishing at Penn State University—with article ideas, e-mail: mfurlough@psu.edu

© 2012 Heather Joseph

presentations and subsequent discussion, and several key themes emerged that merit highlighting.

Open access as key element of the research infrastructure

Perhaps the most important theme to emerge was the shared vision that many of the speakers presented of open access as an integral part of the infrastructure supporting scholarly research. Speakers and participants alike discussed the need to move away from seeing open access as simply an add-on, thought of at the end of the research process to make sure your articles can be read and that you can read articles written by others.

Rather, they focused on the idea that ensuring the full accessibility and utility of articles is a critical part of the design of the research system, and should be taken into account at the start of the research process. This reflects an important reality in scholarly research: that the work is not complete until the results have been fully communicated, and are openly available for others to build upon.

Understanding open access as infrastructure highlights the importance of ensuring that forward-thinking technical and legal constructs to enable full open access are built into the system as early as possible, and that they are designed for the long-haul. As one speaker put it, we need to make sure we are building a bicycle we can ride into the future.

This theme underscores the role that open access can play as part of a stronger foundation for research, emphasizing the most efficient ways to communicate results and amplifying all of its desired outcomes: accelerating discoveries, fostering innovation, creating new business opportunities, and contributing to the welfare of society as a whole.

Open access as key driver of scientific productivity

As a corollary to considering open access an integral part of the research infrastructure, another theme was prevalent: the role that open access can play in helping scholars and researchers to do their work more efficiently.

The community has long recognized the opportunity that providing immediate, barrier-free, online access presents to researchers to work *faster* by enabling them to get to research articles and incorporate new findings into their research *more* rapidly. Discussions at the Berlin 9 meeting also emphasized how open access to data, as well as scientific articles, can help scientists to incorporate more information into their work. As the amount of digital information continues to expand at a breakneck speed, its crucial for researchers to be able use new tools to access, read, and understand a larger amount of information in a shorter amount of time.

This requires a research infrastructure in which machines are fully enabled as a new category of reader. Computers can help researchers work smarter, powering through huge numbers of digital articles that a human reader has no possibility of reading one-by-one (“computers never get tired,” noted one speaker), and identifying papers that may be relevant to a research thread. Semantic and computational tools can also help researchers to contextualize ideas contained in papers. But machines can only be effective in achieving these things if there are no technical, legal, or financial barriers in place—if the research environment is truly an open-access environment.

Another compelling thread was the potential for open access to change the way researchers work by encouraging contributions by “unforeseen participants.” Presenters shared examples of individuals making unexpected, important contributions to research, including a 15-year-old girl authoring a paper on a novel approach to pandemic modeling. Speakers also explored the rapidly growing engagement of huge numbers of people in citizen cyber-science projects, leveraging the open environment and increasing opportunities for innovative discoveries to come from unexpected quarters.

Open access as an accelerator for innovation and commercialization

One theme of particular interest to many, given the current economic climate, was the

potential for open access to help speed the translation of ideas into innovative new services, products, and other commercial ventures that fuel economic growth. The same characteristics that enable researchers to work faster, to incorporate more information into their work more rapidly, and to use computational tools to make better sense out of vast amounts of digital material, mean open access also benefits potential commercial users.

Faster, barrier-free access allows users to identify, extract, and incorporate new ideas from articles and data more rapidly into product development cycles. This is already speeding innovation in industries such as biotechnology, where models of openly sharing data are being experimented with in the drug development process, potentially shortening the time from development to market for effective new treatments and therapies.

Open access also enables innovation and business development in the scholarly communication marketplace. New journals built on open-access business models represent the fastest growing segment of the scholarly journal market. Both new and established businesses are taking advantage of the open environment to build analytic and research productivity tools on top of open access article content. Some, such as Mendeley, a company that provides research article management and a research collaboration environment, would not exist without a robust corpus of open-access articles to build on.

Reconsidering the evaluation of research merit

Perhaps the single largest barrier to the adoption of open access publication practices by scholars and researchers is the concern over how publication in an open access journal will be valued by decision makers in the tenure, promotion, and funding processes. Nearly every speaker expressed the need to re-think the current evaluation and merit structure, in light of

the new opportunities presented in an open-access environment.

Speakers and audience members were deeply engaged in discussing how to construct and deploy new measures of the impact of scholarly research. While journal articles are likely to remain the primary vehicle by which research is evaluated, participants made the case that open access creates new avenues for putting those articles into context against other types of research outputs, and to measure a variety of outcomes in addition to citations. Talk of rethinking the scholarly reward system included a robust discussion of potential changes in not only how the value of results might be measured, but also in how researchers might evaluate one another.

Discussants highlighted new review practices now in place by funding and research organizations, and floated new proposals, such as changing tenure and promotion committee review forms to include information about open access publishing practices.

A call to action

Besides providing a platform for in-depth discussion, the Berlin 9 Open Access Conference was also a clear call to action that highlighted opportunities to engage more of the research community as the potential for open access to transform the scholarly research enterprise becomes more widely understood. Opportunities raised include:

- **Helping to shape national policies.**

Research funders are actively exploring how to best incorporate “open” into the core of their research agendas. Calls for public and stakeholder input are increasingly frequent and many, such as the late 2011 Request for Information on Public Access to Digital Data and Scientific Publications from the White House Office of Science and Technology, represent an important opportunity to help shape policies on a national level.²

(continues on page 87)

job is essentially the same. Before anything can be accomplished, the patron must be calm. There is a level of quiet hysteria at the reference desk. While the screaming and threats found in a 911 call may be absent in the reference interview, the panic itself can still be seen. Frightened students lining up pleading for help is not really much different than a grave call for help. My purpose is to assist regardless of whether I sit at a reference desk or in front of a police radio. It does not matter if I call my customer *patron* or *victim*. What is important is that they need help and are coming to me to provide that assistance.

Once the patron is calm, I ask what the problem is. Do they need to locate a journal article or hard-to-find book? Do they need a police officer or an ambulance? This is where the details come into play. What do they need and when? What type of help are they looking for?

A 911 call is a lot like a reference interview. You have to start at the beginning and

keep digging until you understand exactly what the user wants. Sometimes it is easy and other times it is incredibly hard to provide the help the patron needs.

Because both careers are service oriented, I work directly with the public. Although I realize the reference desk is not ordinarily an emergency situation, somehow I cannot trivialize a student's desperation. Research for their paper might not be a crisis situation to me, but it is to them. The one thing law enforcement has taught me above all else is that an emergency looks different in each person's eyes. Who am I to pronounce how significant each question is? My purpose is to help, not to judge.

I am indeed fortunate to be able to serve my community in both areas. My experience as a 911 dispatcher teaches me to be more appreciative of the good I find around me. At the same time, my experience as a librarian makes me realize how very hard so many people work to better themselves. I am proud to be a part of both worlds. *~*

("The impact of open access..." cont. from page 85)

• **Collaborating with other open movements.** Shared goals across communities working for greater openness in other areas of the research process (such as data, teaching, and even the basic conduct of science) are becoming more apparent. Opportunities for new, productive collaborations abound.

• **Developing local policies.** Faculty and researchers on campuses and in research institutions are increasingly interested in exploring how institutional open-access policies can help them leverage the impact of their work. There will be important openings to help shape and implement policies on a local level.

• **Signing the Berlin Declaration.** Institutions continue to examine and sign the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, creating one more valuable avenue to continue focused, productive discussions

and deepen understanding of the benefits of open access.³

The Berlin 9 Open Access Conference was an important opportunity to further advance understanding of the potential of open access among key stakeholders. The evolution of the conversation to focus on the positive impact that open access can have—and is having—on the scholarly research process marks yet another important milestone in the movement towards making open access the norm in the way scientific and scholarly research is shared.

Notes

1. www.berlin9.org/.
2. www.whitehouse.gov/blog/2011/11/07/request-information-public-access-digital-data-and-scientific-publications.
3. The declaration can be found and signed at <http://oa.mpg.de/berlin-prozess/berliner-erklarung/>. *~*