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I Hear the Train A Comin' — “A Roundtable Look at the Future of Scholarly Communication”

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I was very pleased to be back in Charleston this past November convening the annual “Train — LIVE!” session. The goals of that presentation align with the intent of this column — to take a look around the bend, into the future of scholarly communication. In person and in print, my intent is to provide a sense of a future intuited but as yet unseen.

I have had the good fortune to engage with a number of innovative, thoughtful, and exceedingly professional publishers, information providers, and librarians over the years. This allows me to periodically pick the brains of some of our best and brightest to get their sense of where our industry is headed. At this year’s **Charleston Conference**, I thought it might be interesting to share how a number of scholarly communication experts view some of the “big picture” issues in our space. This issue’s column summarizes my findings.

I was pleased to get the input from a blue ribbon panel for this exercise. The participants were **Doug Armato (University of Minnesota Press)**, **Geoff Bilder (CrossRef)**, **Jane Burke (ProQuest)**, **Terry Ehling (Cornell University)**, **Kevin Guthrie (Ithaka)**, **Phil Hurst (The Royal Society)**, **Peter Jerram (Public Library of Science)**, **James Mullins (Purdue University)**, **Jim Neal (Columbia University)**, **Ann Okerson (Yale University)**, **Ed Pentz (CrossRef)**, **John Sack (HighWire)**, and **John Willinsky (Public Knowledge Project)**. I should note that the views expressed are their own rather than their employers. I asked them five straightforward questions, as follows.

What is the single biggest game changer that will alter scholarly communication in the next 3-5 years?

In sifting through the responses, the most discernible trend here is that the existing system for content delivery — wherein scholars research and write, editors edit, and publishers, largely commercial, disseminate — is ripe for change. The forces pressuring this change were the subject of some debate. One school of thought is that this change will be driven by technology, which will put pressure on the publishing community to reimagine how they package and deliver content.

For example, take storage and bandwidth improvements. There was some sentiment that this will make the transmittal of all forms of communication easier, putting pressure on publishers to deliver not just polished articles but large tracts of research data, community commentary, and a wide range of supplementary materials. **PLoS** has started doing some of this with their Hubs model, capturing a host of inputs and outputs that share a journal article as a common denominator. How to effectively serve these complementary bits of information and create a valuable experience for end users could well be a game-changing challenge for publishers that are traditionally used to packaging neat and tidy conclusions, not messy raw ingredients.

Another technological game-changer is the mobile device. Mobile devices will potentially

alter both content delivery and payment mechanisms. The proliferation of smart phones and tablets may change how, where, and when end users wish to access content. This would put substantial pressure on publishers to loosen control of their distribution mechanisms, moving from the walled garden publisher Website to marketplaces similar to the **iTunes** or **Kindle** stores.

Another example of technological impact may be found in enhancements to the semantic Web and data mining capabilities. One impact of these developments could well be the invention of new ways to assess content quality. The effect of this would be to undermine the current system of impact factors and publisher brand identities. This would certainly influence how libraries assess their collections, for example, or how authors decide where to submit their manuscripts.

Not all of the respondents focused on technological developments as the cornerstone to change. Some believe the industry’s evolution will be driven largely by economics. For example, several experts felt that scholarly societies and university presses were increasingly confident in their ability to move away from their historical business models toward a new form of service delivery. There is now a wealth of both theoretical research and practical experiences on which these entities can draw as they seek to develop long-term business strategies. These data make change less intimidating. As a result, a number of our experts felt that we will see a significant number of scholarly societies and university presses move away from their traditional financial models in the next 3-5 years. Some will embrace open access. Others will embrace digital publishing. Others will change the dynamics of their relationships with the libraries from customer to collaborator. It is not clear, of course, whether some or all of these transitions will succeed. But Press X or Society Z that is looking at their current financial picture as untenable may feel increasingly confident that alternative paths forward have been at least partially explored.

What is the most over-discussed scholarly communication issue, and why?

The last time I conducted one of these surveys, in 2007, the response to this question was unanimous, with all agreeing that Open Access was the most over-discussed issue. This time around, it was mentioned by only half the respondents. So we have either stopped discussing OA quite so much, or we have found other topics which we find even more irksome. Either way, good job by us!

In terms of OA, there was a practical strand to the feedback. Librarians and publishers alike felt that open access is here to stay, that it is one viable business model along a continuum of possibilities, and that it should be viewed as part of the scholarly communication tableau, just not the centerpiece. There are interesting discussions to be had about how to fund OA properly, how to balance the goals of openness and impact,

whether open vs. closed is an absolute, and how to accelerate dissemination speed while maintaining editorial quality. So in a sense, it’s not that open access is over-discussed, but rather that the raging ideological debates overshadow the far-more-interesting nuances that the topic has to offer.

Beyond open access, we had a number of other interesting responses. A few people cited library-press collaborations, which they feel have gotten attention disproportionate to actual results thus far, in terms of bending the cost curve or generating a positive impact on scholarship.

Another interesting response was “the death of print.” There was concern that this term reduces to tabloid headline form, as one participant phrased it, what should be a serious discussion of how the digital environment can expand access to scholarship. Again, beyond the overtilled topsoil lies fertile ground for examination and discussion. What are the technical, operational, and economic reasons why the majority of publications cannot effectively produce both digital and print? How can new publishing workflows be created to efficiently serve print, Web, mobile, and enhanced editions? Respondents felt that opposing print and digital is a false dichotomy.

Finally, a few respondents felt that we spend too much time talking about the need for better tools — tools for content creation, for XML conversion, for more efficient peer review, for post-publication enhancement, for linking, and so forth. While there is always room for improvement, we have a heck of a lot of tools already. Our ability to disseminate information quickly, widely, and efficiently is at an all-time high. So instead of looking at this particular glass as half-empty, perhaps we should view it as three-quarters full.

Is there still a scholarly communication crisis? If so, what is it?

This was perhaps the most interesting set of responses. Some participants said yes, others said no. However, their explanations were actually quite consistent. Nearly all believed that the industry faces a number of challenges, that these challenges are significant though not insurmountable, and that we are in better shape than we were a decade ago.

Most of the respondents believed that the most taxing aspect of the current state of affairs is how to support the proliferation of resources. From the library standpoint, it is difficult to get a handle on this information overabundance. What is an essential resource for users? How do new publication forms get evaluated? How does the library balance its desire to support innovation with its need to stock core traditional resources?

Nearly all respondents agreed that there is an ongoing challenge associated with identifying valuable scholarly content and making it available to those who want and need it. There are too many resources and not enough money. The time and effort it takes to sift through new

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publications and content sources can seem overwhelming. But many institutions are navigating through these difficult issues, even as they sometimes stumble along the way. But does this constitute a crisis? An opportunity or, again, a challenge feels like a better word.

From the publishers' standpoint, there was less terminological ambiguity. No respondent felt that there is a crisis at this point. Again, there are weighty issues to be confronted, particularly by learned societies and smaller publishers that are unable or ill-equipped to adapt to industry changes such as digital workflows, online discovery tools, and alternative business models. These struggles may have unforeseen consequences within the broader scholarly communication realm over the longer term, of course. As one respondent points out, "If these niche publications are an important part of the ecosystem, what happens when they disappear? What happens to their authors and their readers? Are they as well or better served in larger consolidated publications, or by some other form of publication entirely?" These are good questions that we would be wise to keep an eye on.

Again, to be clear, no respondent painted a smiley face on our industry's current state of affairs. There are serious concerns that impact both libraries and publishers. However, the general consensus was that crisis is too strong a word.

Does traditional scholarly publishing matter?

There was near unanimity among the group that traditional scholarly publishing still matters. The emphasis, though, was on the function of the publisher, not the form. The publisher serves as a tool to disseminate information, to connote legitimacy on new ideas and arguments, to ensure certain standards of peer review, to collect materials bound together by certain characteristics and make that content discoverable, and so forth. These functions, in turn, inform decisions about tenure and promotion, research funding, hiring, and other essential elements of the research world.

Many of the respondents, however, questioned the traditional forms of scholarly publishing. For example, do monographs still matter? Does subscription-based print distribution still matter? What about the packaging of a traditional article in a traditional journal? On these points, our panel was less certain. The conventional role of the scholarly publisher remains very relevant, in their eyes, even as the means by which that role is fulfilled may be changing.

To quote one of the respondents, "If 'traditional' means publishers certifying trustworthy content and maintaining and stewarding the scholarly record, then it's more important than ever. The Web is awash with junk and there needs to be a filter. Formats will change, data is becoming more important, semantic tagging, blogs, and wikis are all having a huge impact, but nothing looks close to replacing peer review and

the idea of the Version of Record as the backbone of our system."

In one word, how would you describe the future of scholarly communication?

The answers to this question were as follows, listed alphabetically: different, dynamic, exciting (twice), experimental, flux, multi-faceted, necessary, network, reinvention (twice), torrent, and vital.

It is interesting that these one-word responses foresee an environment that is fertile, interesting, challenging, complex, and unwritten. This is what I will take away from this roundtable exercise. Scholarly communication — driven in part by technology, in part by economics, and in part by the insight and acumen of people like our panelists, and like you in our audience, for that matter — is in a fascinating period of reinvention. This transformation is in part due to the lessons we have learned over a prolonged period of crisis, but it goes beyond that. We have talked about so many of these issues for such a long time, and now the focus seems to be shifting toward action. Innovations in business models and content delivery are here. We are experimenting with better ways to process and make sense of disparate forms of information. We are developing and implementing tools to make every step of the scholarly communications process more efficient. Not all of these efforts will succeed, and even the ones that do will have their trials along the way. But it is terrific to see the enthusiasm with which our collective future is being met. 🌱

Wandering the Web — To Your Good Health: Health Websites for Parents, Teens, and Kids

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Who **Googles** a diagnosis? Dr. Mom, that's who! Parents are more likely than non-parents to look for health information online, and women with children under 18 are the most frequent online seekers of medical information. According to a 2002 survey, 72% of online mothers and 57% of online fathers had searched for health information on the Web.¹ Many parents look for disease or health conditions affecting their children. 31% of teens also say they look for health information online; they search for health, dieting, fitness, and "sensitive health topics."² Health information searchers begin more often with a search engine (66%) than with a health-related Website (27%); many admit they don't check the source and date of the information they find.³

How can kids (and their parents) separate the good from the bad? The **Medical Library Association** has produced "A User's Guide to Finding and Evaluating Health Information on the Web," available free online at <http://www.mlanet.org/resources/userguide.html>. Another source of information is the **Health on the Net Foundation** (<http://www.hon.ch/home1.html>), which certifies health and medical Websites with the "HONcode" designation for reliability and trustworthiness. However, not all credible sites participate, and HONcode sites may not contain the needed information on an age-appropriate level. In general, ask: who sponsors or pays for the Website and why? What are the authors' credentials, where did they get their information, and when was it written? Do expert editors review the content? If they link to other sites, how are these sites selected? Is information complete and unbiased; is advertising content clearly separated from other content? Are users asked to buy anything; if they must register, how is personal information used? Other "red flags" are unsolicited emails, "miracle" or "secret" cures, and "diet supplements" for complex conditions

such as autism, hyperactivity, cancer, or obesity. Even high-quality health Websites require critical thinking; they supplement rather than replace face-to-face visits to health professionals.

Child/teen health Websites fall into two groups (1) those targeted mainly to adults and (2) sites meant for kids/teens. Kids' Websites such as **Tox Town** and **BAM!** are becoming more visually appealing and are utilizing the unique capabilities of the Web rather than trying to copy print encyclopedias. Some teen sites are suited to school and library settings; others are designed for recreational use and/or contain controversial or sexually explicit materials.

The U.S. government is a top producer of quality kids' health information (*.gov sites*); so are universities (*.edu*) and professional organizations (*.org*). Not all *.org* sites are nonprofit or high-quality; some commercial sites (*.com*) are subtle or not-so-subtle sales pitches, while others are highly-regarded.

Sites for Parents and School Assignments

MedlinePlus — <http://www.nlm.nih.gov/medlineplus/> — The most comprehensive of all consumer health Websites, the **U.S. National Library of Medicine's MedlinePlus** has something for kids of all ages. If you only use one consumer health site, **MedlinePlus** should be the one — information is reviewed for quality and numerous links to other carefully-selected Website are provided. Articles are information-dense; except for those designated "easy to read," most are suited to educated adults. **MedlinePlus** has an A-Z encyclopedia, drug and supplement index, dictionary, doctor/dentist/facility finders, news, patient handouts, slideshows, videos, quizzes for kids and adults, Spanish and ASL materials, and more. "Evaluating health informa-

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