

*Learned Publishing*, 21, 322–324  
doi:10.1087/095315108X356752

Johannes Gutenberg is credited with creating the first moveable-type printing press in Europe around 1440, a feat that resulted in a knowledge (r)evolution. Now, nearly 600 years later, the biomedical community is presented with the potential for a similar information (r)evolution, one that augments text, moving beyond it to involve multiple senses; this information (r)evolution involves the acknowledgement and adoption of rich media presentations, posters, and abstracts captured at or published for a meeting – what we have termed ‘event knowledge’.

Event knowledge is a resource that, until recently, has been largely ignored by the scholarly community despite the fact that meetings, a forum for the latest and greatest knowledge in a given field, have been occurring for centuries. The main reason why the full diversity of event knowledge has hitherto rarely been captured is the technology needed to capture and disseminate rich media presentations. Yet there are other reasons why, even with the worldwide adoption of the Internet, coupled with significant advances in presentation capture technology, event knowledge is still not fully acknowledged and adopted as a valuable resource.

It is undoubtedly difficult to expect a sudden change in the way most human beings perceive information resources, when perceptions have remained largely unchanged since the mid-1400s. However, many other (r)evolutions have occurred since the mid-1400s; perhaps it is time for the scholarly community to have its own (r)evolution by changing its attitude towards rich media event knowledge.

For centuries journals have been

## POINTS OF VIEW

# Event knowledge: a biomedical resource (r)evolution

Joshua B. ILLIG and David SAMPSON

*Conference Archives, Inc.*

© Conference Archives, Inc., 2008

looked upon as the gold-standard resource for authoritative, peer-reviewed information, and this is still so today. And as readers of *Learned Publishing* know, many journals are published by associations and societies, organizations which also sponsor meetings and conferences. The *Journal of the Medical Library Association* website notes, ‘Papers presented at meetings often contain the seeds of excellent journal articles’<sup>1</sup>; nevertheless, there is little formal acknowledgement and adoption of event knowledge – specifically, of rich media presentations from meetings.

Perhaps the most compelling reason to acknowledge and adopt event knowledge as a valid formal communication medium is the potential value of the unpublished or ‘dark data’ – primarily of ‘negative’ studies – therein. ‘Dark data’, as defined by Thomas Goetz, is ‘a vast body of squandered knowledge that represents a waste of resources and a drag on scientific progress’.<sup>2</sup> As to the potential importance of ‘dark data’, Goetz goes on to note that

[one scientist’s] dead end may be another scientist’s missing link, the elusive chunk of data they needed. Freeing up dark data could represent one of the biggest boons to research in decades, fueling advances in genetics, neuroscience, and biotech.

In regard to biomedicine, Goetz’s definition of ‘dark data’ can be expanded to include the estimated 55% of abstracts presented at biomedical meetings that go unpublished and become effectively lost. In a 2003 article published in *BMC Medical Research Methodology*, the authors analyzed 19,123 abstracts from 234 biomedical meetings held between 1957 and 1999; they concluded that ‘about 45% of abstracts that are accepted for presentation at biomedical meetings will subsequently be published in full’.<sup>3</sup> They went on to note that it can take up to six years for a presented abstract to be published as a journal article, a delay that detracts considerably from its value.<sup>4</sup> Now, more than ever, technology and the near-instantaneous means of knowledge

transfer via the Internet make it possible to bring 'dark data' to light.

But why should 'dark data' be brought to light and preserved? The critical aspects of event knowledge are its timely delivery and long-term preservation, both of which technology now makes possible. The timely delivery of event knowledge ensures, much like the delivery of a new journal issue, that the knowledge contained therein reaches the scholarly community in the quickest way possible for the medium without sacrificing quality or oversight.

The long-term preservation of event knowledge is critical for the reasons pointed out earlier by Goetz, but more importantly, for the same reasons that journals, books, magazines, and so forth are preserved – for future reference and future generations. Without the preservation of event knowledge, scholars would be unable to refer a colleague to a particularly interesting presentation they attended years earlier; instead, they would have to summarize the presentation from their own recollection. This stands in sharp contrast to a journal article or book passage, where a reader can refer a colleague to a particular article or passage from years earlier, and the colleague can read the entire item verbatim for herself.

Further amplifying the importance of event knowledge's timely delivery and preservation is its potentially large impact on systematic reviews, which summarize 'all pertinent evidence on a defined health question' and 'occupy the highest position in currently proposed hierarchies of evidence'.<sup>5</sup> According to a study by Scherer *et al.*,

Less than half of all studies, and about 60% of randomized or controlled clinical trials, initially presented as summaries or abstracts at professional meetings

are subsequently published as peer-reviewed journal articles.<sup>6</sup>

The study went on to note that studies with 'positive' results were more frequently published than 'negative' studies, and that the presence of 'positive' results was an 'important factor appearing to influence whether a study described in an abstract' would be published or not. The authors concluded that this publication bias 'creates problems for those conducting systematic reviews or relying on the published literature for evidence' and that any systematic review 'will tend to over-estimate treatment effects' as a result of this bias.

Perhaps the biggest hindrance to the acknowledgement and adoption of event knowledge as a formal information source is the argument that it is of poor quality as it has not been subject to peer review, and that the low rate of publication indicates that much of it is poor science. However, various studies have shown that the most frequently mentioned reason for non-publication is simply lack of time.<sup>7-10</sup> Furthermore, for most meetings all submitted abstracts and posters are rigorously reviewed by a committee of peers, and only those deemed of worth are chosen for presentation – had the reviewing committee felt the abstract or poster to contain 'poor science' or to be valueless to their constituents, they would not have selected it in the first place.

Acknowledging and adopting event knowledge as a useful medium for formal communication is one part of the information (r)evolution; however, the current system of 'publish or perish' for academic achievement, coupled with some journals' archaic policies which stipulate that any presentation given at a meeting is considered prior publication, also need to be altered in order for this (r)evolution to occur.

While some leading publications, such as the *New England Journal of Medicine*, have stated that they do not consider a presentation given at a meeting to constitute prior publication, there are still many publications that either state the opposite or have no clear policy in place.

In order to create a more open and collaborative environment among professionals from *all* walks of life and expertise, the scholarly community must first address and alter the 'publish or perish' mindset. For the most part, this mindset creates a competitive, almost secretive climate in which professionals are reluctant to share information for fear that their research might be stolen or replicated by someone else, at a cost to their own careers.

However, would not humanity as a whole benefit more from the free flow of this information? If our practices create many individual guarded scholarly communities, how can the true collaboration of many minds take place? The retention of information as a result of this mindset goes against the concept of the 'marketplace of ideas', whereby *all* ideas are exposed and the best, as dictated by the masses, rise to the surface. This is not to say that formal communication (e.g. in journals) is an outdated concept; rather, event knowledge presents a new way to complement current research resources and thus helps to move away from the 'publish or perish' mindset by providing another avenue for scholars to disseminate their research.

As the times change, bringing about advances in technology including information capture and delivery, it is important to explore new ideas, concepts, and technologies in order to augment and support the role of journal literature for the benefit of research. If history is any indicator, print will continue to provide the core of scholarly knowledge

and resources; however, the Internet and the proliferation of media technology – much like Gutenberg's printing press during the mid-1400s – will probably (r)evolutionize the resources and means by which human beings build and preserve knowledge. However, this can only occur if human beings are able and willing to adopt, acknowledge, and embrace new habits.

#### References

1. Medical Library Association. *JMLA Guidelines for Converting an oral Presentation to a Manuscript for Publication*. Chicago, IL, Medical Library Association, 2007. Available at <http://www.mlanet.org/publications/jmla/convert.html>
2. Goetz T. 2007. Freeing the dark data of failed scientific experiments. *Wired Magazine*, 15: 10. [http://www.wired.com/science/discoveries/magazine/15-10/st\\_essay](http://www.wired.com/science/discoveries/magazine/15-10/st_essay)
3. Von Elm, E., Costanza, M., Walder, B. and Tramèr, M. 2003. More insight into the fate of biomedical meeting abstracts: a systematic review. *BMC Medical Research Methodology*, 3: 12. <http://dx.doi.org/10.1186/1471-2288-3-12>
4. Cheng, K., Preston, C., Ashby, D., O'Hea, U. and Smyth, R.L. 1998. Time to publication as full reports of abstracts of randomized controlled trials in cystic fibrosis. *Pediatric Pulmonology*, 26: 101–5. [http://dx.doi.org/10.1002/\(SICI\)1099-0496\(199808\)26:2%3C101::AID-PPUL5%3E3.0.CO;2-P](http://dx.doi.org/10.1002/(SICI)1099-0496(199808)26:2%3C101::AID-PPUL5%3E3.0.CO;2-P)
5. Montori, V., Wilczynski, N., Morgan, D. and Haynes, B. 2003. Systematic reviews: a cross-sectional study of location and citation counts. *BMC Medicine*, 1: 2. <http://dx.doi.org/10.1186/1741-7015-1-2>
6. Scherer, R., Langenberg, P. and von Elm, E. 2007. Full publication of results initially presented in abstracts. *Cochrane Database of Systematic Reviews* 2007 Apr; 2. <http://dx.doi.org/10.1002/14651858.MR000005.pub3>
7. Krzyzanowska, M., Pintilie, M. and Tannock, I. 2003. Factors associated with failure to publish large randomized trials presented at an oncology meeting. *Journal of the American Medical Association*, 290: 495–501. <http://dx.doi.org/10.1001/jama.290.4.495>
8. Hartling, L., Craig, W., Russell, K., Stevens, K. and Klassen, T. 2004. Factors influencing the publication of randomized controlled trials in child health research. *Archives of Pediatric and Adolescent Medicine*, 158: 983–7. <http://dx.doi.org/10.1001/archpedi.158.10.983>
9. Camacho, L., Bacik, J., Cheung, A. and Spriggs, D. 2005. Presentation and subsequent publication rates of phase I oncology clinical trials. *Cancer*, 104: 1497–1504. <http://dx.doi.org/10.1002/cncr.21337>
10. Sprague, S., Bhandari, M., Devereaux, P., Swiontkowski, M., Tornetta, P., Cook, D., Dirschl, D., Schemitsch, E. and Guyatt, G. 2003. Barriers to full-text publication following presentation of abstracts at annual orthopaedic meetings. *Journal of Bone and Joint Surgery – American Volume*, 85A: 158–63. <http://www.ejbs.org/cgi/content/abstract/85/1/158>

#### Joshua B. Illig

Sales and Marketing Manager –  
Institutions  
Conference Archives, Inc.  
239 Main Street, Suite 300  
Johnstown, PA 15901, USA  
Email: [jillig@conferencearchives.com](mailto:jillig@conferencearchives.com)

#### David Sampson

Executive Vice President  
Medical Content Division  
Conference Archives, Inc.  
239 Main Street, Suite 300  
Johnstown, PA 15901, USA  
Email:  
[dsampson@conferencearchives.com](mailto:dsampson@conferencearchives.com)