8-2015

Open Access: The Whipping Boy for Problems in Scholarly Publishing

Danny A. Kingsley
Australian National University, Australia and University of Cambridge, danny.kingsley@anu.edu.au

Mary Anne Kennan
School of Information Studies, Charles Sturt University

Follow this and additional works at: http://aisel.aisnet.org/cais

Open Access: The Whipping Boy for Problems in Scholarly Publishing

Danny A. Kingsley

Visiting Fellow, Australian National Centre for the Public Awareness of Science, Australian National University, Australia and Head of Scholarly Communications, University of Cambridge.

danny.kingsley@anu.edu.au

Mary Anne Kennan

Senior Lecturer, School of Information Studies, Charles Sturt University, Australia and Visiting Fellow, School of Information Systems, Technology and Management, Australian School of Business, University of New South Wales, Australia.

Abstract:

With this paper, we hope to foster debate about the place of open access (OA) in scholarly publishing. After providing a background to OA's development and current state, we examine some of the accusations leveled against it: that OA publishers are predatory, that OA is too expensive, and that self-depositing papers in OA repositories will bring about the end of scholarly publishing. After contextualizing each accusation, we show that they arise from problems with not only access, open or otherwise, but also the scholarly publishing system more broadly. Accordingly, we instead propose the discussions we believe the scholarly community should be having about scholarly publishing to take advantage of social and technological innovations and move it into the 21st century.

Keywords: Scholarly Publishing, Open Access, Predatory Publishing, Institutional Repositories, Article Processing Charges, Subscriptions, Hybrid Publishing, Megajournals.

Editor's Note: The paper was handled by the Department Editor for Debates.

1   Introduction

With this paper, we hope to stimulate discussion about the scholarly publishing system by focusing on some of the charges recently laid against open access (OA) to scholarly output. The charges we address are that OA publishers charging a fee are predatory, that OA is too expensive, and that self-depositing papers into institutional or other repositories will cause the demise of the scholarly publishing system. We discuss each of these charges against OA and explain how the charge is not related directly to OA but rather symptomatic of issues in the scholarly publishing system.

We content that OA is the "whipping boy" for problems in the scholarly publishing system. In 15th and 16th century English courts, the belief in kings' divine rights led to difficulties in punishing young princes who did not attend their lessons or behave appropriately. Accordingly, young boys were assigned to the young princes and, when the young prince erred, the boy was whipped instead. We argue that the scholarly publishing system has many problems and that OA is shouldering the blame. However, the problems arising lie with the system itself (the prince) and are not problems only associated with OA (the whipping boy).

In Section 2, we introduce OA and discuss its development, its forms, and its issues. In Sections 3-5, we address some of the accusations leveled at OA by contextualizing them and discuss how the problems, commonly attributed to OA, are seated more deeply in the scholarly publishing system. We do, however, recognize that, like the scholarly publishing system, OA is not perfect, and, accordingly, in Section 6, we discuss some issues we believe that scholars, researchers, authors, editors, publishers, and research administrators should be discussing with regard to OA and to scholarly publishing more broadly. Finally, in Section 7, we conclude the paper.

2   Open Access: Background and Current Situation

The development of information and communication technologies (ICT) such as the Internet and the World Wide Web created high expectations for improvements in scholarly communications (Kling, McKim, & Kin, 2003) and scholarly publication (Kling & Callahan, 2003). From the 1990s, many scholars envisaged that electronic publication, enabled by ICT developments, would:

- Make research papers available to readers 24 hours a day
- Lower costs because there would be no need to print hardcopies and electronic materials are cheaper to store than paper
- Assist publication to be more timely by improving communications, and
- Enable authors to include a wide variety of document formats and other media in their papers.

Scholars envisaged that these potential benefits would lead to more open and democratic participation in scholarly publishing and that outputs would be available to a wider audience. Physicist Paul Ginsparg founded the Internet's first electronic scientific preprint service, arXiv, in 1991, which enabled scientists to share ideas prior to publication using the Internet instead of copying them and posting them to colleagues (Ginsparg, 1996). Sharing work in this way via the Internet is commonly known as making research papers open access (OA).

We use a widely accepted definition of OA that largely concerns OA as it relates to peer-reviewed journal and conference literature (Budapest Open Access Initiative, 2002, Drott, 2006). In this definition, work is freely available via the Internet without financial cost or legal or technical barriers. Users can "read, download, copy, distribute, print, search or link" to the full text of OA works with the expectation that they respect the integrity of authors' work and authors' rights to be correctly acknowledged and cited (Budapest Open Access Initiative, 2002). Suber (2012) uses terminology from the open source software community to further define two "sub-species of OA": gratis OA and libre OA. Gratis OA papers are free to read, but users must still seek permission to use them for other purposes, such as text mining (Suber, 2012, pp. 65-66). Thus, gratis OA removes some barriers but not all. On the other hand, libre OA papers are free of charge and also free of some copyright and licensing restrictions, which allows activities such as text mining without permission.

One can achieve OA in many ways. Indeed, Willinsky (2006) identifies ten OA "flavors". The most common two are either for authors to publish their work in a traditional subscription journal and then self-

deposit (sometimes referred to as self-archive) that work in their own websites or in an institutional repository (IR) or disciplinary repository (DR) created to store, preserve, and disseminate their research; or to publish in an OA journal (Drott, 2006).

Self-deposited works are generally those that scholars give away without expecting payment; for example, works published in traditional peer-reviewed journals or conference proceedings. Self-depositing work can occur at the pre-print (unrevised, un-refereed draft, and unaccepted by a journal) or post-print (all post publication works including the official published manuscript) stage. Standardized terms now exist for these different states: submitted manuscript, accepted manuscript, and version of record (the final published version) (National Information Standards Organization, 2008). One can often deposit an accepted manuscript immediately after it has been accepted, which more quickly disseminates research. Harnad et al. (2004) dub self-depositing the "green" road to OA as opposed to what they termed the "gold" road, which focuses on converting whole journals to OA. The green road operates in the existing journal system. The papers are still reviewed and processed and published in traditional journals, but they are also disseminated outside of journals for those without access to personal or institutional subscriptions.

Gold OA journals are freely available on publication. As such, they do not require a library or other organization to pay a subscription to enable readers to access the content. Instead, the author, their employer, or funder pays an article processing charge (APC), or universities, other research organizations, or learned societies subsidize gold publication by providing staffing and infrastructure for producing the journal and have no APC. Thus, the gold road also initially involved few changes to the system; rather, it suggested a change to journals' business models. Instead of readers paying to read via their personal or institutional (library) subscriptions, gold OA authors, their institutions, funders, or other organizations pay pre-publication charges directly or indirectly. A recent large study of APCs paid for over 100,000 OA papers published in 2010 showed the average cost to be USD$906 (Solomon & Björk, 2012). Many OA journals do not charge a fee: in 2010, fewer than 27 percent of all journals listed in the Directory of Open Access Journals charged to publish (Solomon & Bjork, 2012). This figure was 28 percent in 2013 (Kozak & Hartley, 2013). Of the OA publishers that do charge a fee, many offer reduced fees or waive fees completely for researchers from certain countries (Public Library of Science, 2014b).

An emerging iteration of gold OA is the hybrid journal where traditional journals offer authors the option of making their papers OA after they pay a fee. Paying an APC in a hybrid journal only makes one paper available—the rest of the journal must still be accessed by subscription. Paying an APC for one paper in a hybrid journal has been marketed as a transition phase from subscription to OA, where publishers offered to decrease subscription prices in proportion to the increased revenue and percentage of open papers in a given journal.

Megajournals are another emerging form of OA online-only publications. Megajournals are rigorously peer-reviewed and normally supported through pre-publication APCs or membership fees. What distinguishes megajournals from other journals—both open access and subscription—is the journals' "mega" nature; that is, an intentionally wide scope. For example, *PLOS ONE* and *Nature Scientific Reports* publish papers across the entire disciplines of science and medicine, *SpringerPlus* covers all the sciences, *AIP Advances* covers all the physical sciences, and Sage Open covers the social and behavioral sciences and the humanities.

OA has been growing, though not at the rate many OA activists would like it to. Still, Laakso and Bjork (2012) estimate that, in 2012, nearly 17 percent of papers indexed in ISI's Web of Knowledge index were available OA through journal publishers, most articles immediately (12%) but some within 12 months of publication (5%). The Directory of Open Access Journals (DOAJ) (2014) lists almost 7,000 journals that are now freely accessible online. The worldwide proportion of peer-reviewed research available through green OA—that is, papers their authors deposit into open archives—has been estimated at 21.4 percent and is likely to grow stronger as self-depositing mandates become more prevalent (Gargouri, Larivière, Gingras, Carr & Harnad, 2011.

As OA has grown more prolific, it has attracted the interest of research funders such as universities and other research institutions, private funders such as the Wellcome Trust (Wellcome Trust, 2003, 2004) ,and governments (the biggest providers of research funds). A United Kingdom (UK) Government inquiry questioned how the output from publicly funded research could be handed free of charge to commercial organizations that increasingly make it difficult to access the publications resulting from the research (Poynder, 2004; Gibson, 2005). In December, 2007, the U.S. Government passed a law requiring that grantees of funds issued by the National Institutes of Health (NIH), which at that time distributed USD$29

billion a year in research grants, deposit their resulting scholarly papers in an OA repository within 12 months of publication (Van Orsdel & Born, 2008). More recently, the Finch Report recommended a clear policy direction in the UK towards support for "gold" OA publishing, and the U.K. Government accepted the report's recommendations, as did the main government-sponsored research funders in the UK (Finch, 2012; Pinfield, 2013). The European Commission (via the Horizon 2020 funding rules report) suggests a general obligation to disseminate results emanating from E.U. grants in a way that makes them available to the public (article 29) (European Commission, 2013). In the OA literature, these requirements are collectively referred to as mandates (Kennan, 2011). The Australian Open Access Support Group (AOASG) recently summarized the increasing number of supporting statements, mandates. and policies about OA at government and large-funder level since mid-2012 (Australian Open Access Support Group, 2014). There has been discussion about whether these statements supporting open access and the actual mandates have any impact on researchers' behavior. Recent decisions by the Wellcome Trust in the UK and the NIH in the US to enforce their policies has seen an increase in compliance (Van Noorden, 2014a).

Open access is predicated on the reasoning that publicly funded research should be publicly available (Kingsley, 2012). International studies identify social and economic benefits of open access that lead to increased research impact (Houghton & Sheehan, 2006; Houghton, Steele, & Sheehan, 2006b; Houghton et al., 2009; Houghton & Sheehan, 2009; Houghton, Rasmussen, & Sheehan, 2010; Houghton, Dugall, Bernius, Krönung, & König, 2012). For instance, growing evidence suggests that OA papers see higher citations (Swan, 2010; Xia & Nakanishi, 2012). Corrall and Pinfield (2014) argue that OA also benefits policy and practice and that OA enables people to reuse, reanalyze, recombine, and redistribute material, all of which have the potential to positively transform research practice.

So why, given that "(a)n old tradition and a new technology have converged to make possible an unprecedented public good" (Budapest Open Access Initiative, 2002)—which is OA—and that OA has the support of many funders, researchers, and scholars, does OA get such bad press in the scholarly community? We contend that, similar to the whipping boys in the 15th and 16th centuries who were blamed or punished for their princes' faults or incompetence, so too do many in the scholarly community incorrectly blame OA instead of the scholarly publishing system. As such, we now address some accusations leveled at OA; namely:

- that OA journals and publishers are predatory
- that OA is too expensive, and
- that making work available OA in a repository means the publishing system will collapse.

We contextualize each of these arguments and discuss how the issues commonly attributed to OA are, in fact, endemic to the scholarly publishing system. Subsequently, we acknowledge that OA is, however, not perfect and propose some arguments about scholarly publishing the scholarly community should be having instead of quibbling about OA.

3   Argument One: Open Access Journals and Publishers Are Predatory

Gold OA publishers that charge an APC instead of marketing to libraries, other organizations, or individuals for subscription fees market to authors who pay to publish their research in gold OA journals. These publishers gain financial benefits by attracting authors to publish their manuscripts with them (Solomon & Björk, 2012). This disintermediation of libraries and information organizations, traditionally responsible for managing subscription payment and dissemination, could result in a new publishing system with only two parties (i.e., journal publishers and authors), both of whom are keen to publish for different reasons (Vardi, 2012).

Consequently, with gold OA's increasing prevalence, some publishers and/or journals with questionable practices have unsurprisingly emerged and, thus, exploited the author-pays OA business model (Beall, 2013) and researchers' need to publish (Steele, Butler, & Kingsley, 2006; Adler & Harzing, 2009; Van Dalen & Henkens, 2012). To attract authors, these "predatory" (Beall, 2013) OA publishers and journals promise a speedy publishing process and high acceptance rate, which often occurs at the expense of peer review and quality. These journals and publishers frequently market directly to authors via unsolicited emails by appealing to authors' ego by claiming to have read and been impressed with an author's previous papers or dissertation or to have seen a conference presentation that might be turned into a journal paper. The journals employ techniques to make themselves seem more attractive, such as offering fast turnaround times for peer review and sometimes even falsifying credentials to entice reputable people

to submit papers or join editorial boards. Some do not make it clear at the outset that an APC is required, and the author is only aware of this requirement once the paper has been through the so-called "process" (Stratford, 2012). In some extreme cases, publishing decisions by these questionable publishers appear to be made solely based on the goal of generating revenue rather than promoting scholarship (Stratford, 2012; Vardi, 2012; Beall, 2013). Thus, the predatory publishing debate features two main issues: cursory or absent peer review and the unethical recruitment of authors and editorial board members (Stratford, 2012).

Predatory publishing hit the news in a big way in October 2013 when Science published a paper that reported on different versions of a deliberately flawed paper being sent to a group of 304 OA journals, more than half of which accepted the papers including OA journals hosted by the normally reputable publishers Sage, Kluwer, and Elsevier (Bohannon, 2013). The paper sparked a lengthy discussion in journals and on social media about OA's pros and cons, peer review in old and new forms, and the scholarly publishing system (see Crawford, 2014, for a lengthy report). Interestingly, while Bohannon points out that the flaws associated with the papers he submitted included methodological ones that any reviewer should have picked up, such as sampling and lack of control groups, his methodology in what he calls his "sting" featured the same flaw: he used no comparative or control groups of subscription-based journals or gold OA journals with no APCs, for example.

3.1 What this Demonstrates about Problems with Scholarly Publishing

Two major issues have arisen with OA predatory publishing: 1) quality (i.e., evidence of no, or little, peer review) (Bohannon, 2013) and 2) the unethical recruitment of authors and editors and the concealment of APCs until after a paper is accepted (Stratford, 2012). As for the first issue, we contend that problems with quality exist in both subscription journals and in OA journals. Thus, we should be questioning the presence or absence of peer review and, where present, its quality, not the method of dissemination (subscription or OA journal).

Examples of inadequate peer review exist both in traditional journals and in OA journals. For example, the Elsevier journal Medical Hypotheses allowed an unscientific paper that many scholars later discredited to be published (Beall, 2013). Science itself has had its own problems with peer review: it published a paper that was exposed to be seriously flawed (Vergano, 2013), which caused it to retract the paper. Recently, IEEE and Springer, generally highly regarded subscription publishers, had to withdraw more than 120 papers that were essentially "gibberish" (Van Noorden, 2014b). Indeed retracting flawed papers, even from traditional journals, is not a new phenomenon (Budd, Sievert, & Schultz, 1998). However, it is such an issue that it has spawned a website called Retraction Watch *(http://retractionwatch.com/)*.

Indeed, despite the faith that researchers and journal editors put in peer review, studies frequently call into question its fairness, rigor, trustworthiness, and objectivity (White, 2003; Economist, 2013). Because potential errors by both researchers and reviewers in research and reporting research are always possible, replication is seen as important to research. However, replication is not significantly recognized, published, or rewarded. Similarly, peer review is not recognized or rewarded but is an essential component of the research process and is usually done freely in addition to reviewers' regular work roles (Economist, 2013). A Cochrane Collaborations study based on the findings of 21 studies of the peer-review process in the biomedical sciences concluded that "the practice of peer review is based on faith in its effects, rather than on facts". The Cochrane study called for researchers to investigate alternatives or ways to make peer review more open and accountable (White, 2003, p. 24).

Some investigations have already taken place. For example, researchers have experimented with open peer review, which can take two forms: 1) to open a paper up completely and allow anyone who wishes to comment on the work or 2) to make the review "open" in the sense that the author and reviewers are known to one another and the review is available with the final paper when published. The BioMed Central series of medical journals practices this second type of open peer review: the reviewers' names are included on the peer review reports, and, if the manuscript is published, the reports are made available online along with the manuscript's final version (BioMed Central, 2014). Several publishers have trialed open peer review, but they have seen varying degrees of success (Greaves et al., 2006; Nature, 2006; Palgrave MacMillian, 2014). Also, not only publishers are exploring this space. ResearchGate, a Web 2.0 collaboration space designed "by scientists for scientists", has also launched an initiative called open review (ResearchGate, 2014). Suggestions for reforming peer review continue apace and some suggested transformations and discussions are recorded in an online English-language bibliography (Bailey, 2014).

Thus, the issue of questionable or predatory publishers not conducting adequate peer review is not about access, open or otherwise, but about quality and what peer review as one of the major arbiters of quality does, or does not, achieve in specific contexts. The discussion scholars should be having is how to improve quality assessments of research such as those conducted via peer review rather than on just one of the potentially flawed places (gold OA journals) it may be conducted.

The second issue associated with these so-called predatory publishers is the techniques which they employ to make their gold OA journals seem more attractive, such as falsifying credentials to entice reputable people to editorial boards and submit papers and sending unsolicited emails and not making it clear at the outset that an APC is required (Stratford, 2012). Further, some people even create counterfeit websites that pretend to represent legitimate scholarly journals that often don't already have a website. The website creators then solicit manuscript submissions for the hijacked version of the journal to pocket the APC (Beall, 2014b; Jalalian & Mahboobi, 2014). Again, we contend that these problems do not concern OA but rather unethical business behavior that are exacerbated by some researchers not being familiar with the landscape of their discipline and a lack of due diligence prior to publication. As Beall (2013) suggests, it is incumbent on all involved in scholarly publishing—researchers/authors, research administrators, librarians, journal editors, members of editorial boards, and publishers—to develop what he coins as "scholarly publishing literacy"; that is, the ability to discern publication outlets that offer rigorous, or at least appropriate, peer review, that ethically recruit and disseminate research, and that operate to disseminate quality research. Researchers need to continue to consider traditional factors when selecting outlets for their publications in the online and OA environments such as fit, journal reputation, quality, visibility, credibility and impact, philosophical and ethical issues (such as author rights policies), and, if relevant, turnaround times (Beaubien & Eckard, 2014).

To assist authors and others to identify predatory publishers, academic librarian Jeffrey Beall maintains a list of predatory publishers and predatory independent journals (Beall, 2014a) along with the criteria he uses to judge them (Beall, 2012). Although, as Crawford (2014) points out, one out of five journals denounced by Beall demonstrated appropriate peer-review processes by rejecting the flawed papers submitted by Bohannon (2013) in his sting. Others, including Beaubien and Eckard (2014), have proposed developing a set of journal quality indicators to enable researchers to make decisions regarding a journal's or publisher's quality and ethical practices, whether the journal is traditional or OA. We contend that understanding the scholarly communication environment should be a part of every researcher's tool kit and any research training.

3.2   Verdict

The major issue with "predatory" publishers is not access, open or otherwise. The major issue is quality control. The scholarly publishing system reflects problems in the scholarly research community. No one has time to repeat experiments or replicate studies, and researchers face increasing pressure to publish more novel research. Peer review is not rewarded and is extremely time consuming. Research schools and supervisory teams for PhD candidates, education and training programs for academic and research librarians, and research administrators need to include scholarly publishing literacy skills as part of their processes. The discussions we should be having as a community of scholars should center around how to improve (or replace) peer review, how to improve research's and its output's quality, and how to increase literacy about the scholarly communication process so that researchers and authors can choose appropriate and ethical venues for their work.

4   Argument Two: Open Access Is Too Expensive

Gold open access has long been the term used to describe publishing work in an OA journal. However, the word "gold" is somewhat misleading. It implies two things: superiority and expensiveness. In reality, the majority of OA journals do not charge an open access fee (Solomon & Bjork, 2012).

A 2010 study found that over 50 percent of authors who had made their work OA had done so without incurring a charge (note many of these may have made their work OA by placing a copy in a repository) (Mark Ware Consulting, 2010). This is possible because many OA journals' administration is subsidized by the research institution in which they are housed and because they are managed through the open source software such as Open Journal Systems, which does not require licensing (Public Knowledge Project, 2013). As with most academic journals, the academic community undertakes editorial and peer review work without compensation. Among the OA journals that do impose an APC, the fees vary widely.

Some studies have analyzed the amounts charged for APCs. For instance, one 2010 study surveyed people who had paid for OA and found the most common price band was EUR$501-1000 (roughly AUD$700-1400) (Mark Ware Consulting, 2010). A large 2011 study of APCs paid for over 100,000 OA papers published in 2010 showed the average cost to be USD$906. Another study observed that "Biology researchers appeared to be quite familiar with page charges and did not consider APCs for OA journals excessive" aligns with the finding that journals in biomedicine have had the highest APCs of any discipline (Nariani & Fernandez, 2011, p. 187). Many OA publishers will also waive the fees for researchers who cannot afford them (PLOS Public Library of Science, 2014b).

Two fully OA publishers exist: BioMed Central and Public Library of Science (PLOS). PLOS has been a game changer in the OA space: it started in 2000 by calling on researchers to publish only in journals that allowed them to deposit their papers in OA repositories within six months. However, despite collecting nearly 34,000 signatures, the call had little impact on publishing behavior (Public Library of Science, 2011). In 2003, PLOS launched its first journal. All papers published in PLOS journals offer opportunities for comment from readers and provide statistics on citations, use, and other metrics, which, according to PLOS means it is "a unique forum for community discussion and assessment of articles" (Public Library of Science, 2014a).

In December, 2006, PLOS ONE launched, the first of what are now described as "megajournals". This business model is slightly different to traditional publishing. The APC is lower than those charged for their premium journals: USD$1350 compared to USD$2250-2900 (Public Library of Science, 2014b). PLOS ONE is a multidisciplinary journal and offers fast peer-reviewed publication across all areas of science and medicine, which is possible because of a peer-review process that "does not judge the importance of the work, rather focuses on whether the work is done to high scientific and ethical standards and is appropriately described, and that the data support the conclusions" (Public Library of Science, 2014a). Sage describes this approach as the related test of "scientific and research methods of each article for validity" (Sage Open, n.d.). As such, they intend for readers to determine papers' significance, and they communicate this information through paper-level metrics, sometimes called altmetrics, and often also allow a reader to follow discussions about the work in social media and to comment on the paper itself. The model has certainly been successful: a search for papers during 2013 on the PLOS ONE website shows it published 32,986 papers that year alone. Commercial publishers have adopted a similar model with 19 established megajournals and eight journals with tentative launch dates in 2014 (Björk & Solomon, 2014).

One reason for the confusion about the term "gold open access" comes from a development by commercial publishers called "hybrid open access"—an instance where the author has the "opportunity" to pay an APC to make their paper OA in an otherwise subscription-based journal. Hybrid options were first offered in 2004 with Springer's Open Choice product charging USD$3000 per paper (Springer, 2004). A decade on, the price has not changed (Springer, 2014). Wiley Online Open's trial began the same year and charged USD$2500 (Blackwell Publishing, 2005). In 2014, this price rose to USD$3000 (Wiley Publishing, 2014). Oxford Open launched in 2005 (Oxford University Press, 2012), and, in 2006, Elsevier Open Access (Elsevier, 2012) and Sage Choice (Sage, 2012) began. In 2007, Taylor & Francis Open Select (Taylor and Francis, 2012), Cambridge Open (Cambridge University Press, 2012), and Nature Publishing Group began (Nature, 2012). A recent study (Björk, 2012) reports that, despite the rapid increase of journals offering hybrid (4300 titles in 2011), only 1-2 percent of papers in these journals are being published through the hybrid option. Hybrid OA options charge consistently higher APCs than OA journals. A 2013 comparison of eight hybrid journals notes that they charged APCs between USD$2620-5000 (with the standard being USD$3000), which is considerably higher than the average cost for a "pure" OA journal (Emery, 2013). In addition, it can be difficult for readers to locate hybrid OA papers, secreted away as they are in subscription journals.

Researchers have expressed concern that hybrid OA opens up the issue of publishers "double dipping"; that is, charging for OA for some papers and continuing to charge full subscription costs for the remainder of the journal. Many publishers have statements about how they are managing this issue (Elsevier, 2014), but the situation is complicated because many large publishers have licences to provide access to large bundles of journals with institutions such as university libraries. These bundles are known in the trade as "big deals". They are usually tailor made for each institution, lack transparency, and involve multi-year contracts with long negotiation periods. Researchers have expressed concern that big deal and other subscribers may pay the full cost for access to journals in which authors or funders have also paid APCs to make some papers OA in the hybrid journals (Björk & Solomon, 2014).

We can see that large variation exists in what publishers charge for APCs. Studies that have compared APCs against journals' impact factor show no direct correlation between them (Andrew, 2012). A 2013 analysis shows a general trend of higher charges for papers with "more influence" exists (Van Noorden, 2013). But these studies starkly demonstrate the lower charges from fully OA journals compared to those from hybrid journals, which generally start at USD$3000 and escalate from there. This huge price variance for APCs raises the potential issue that the price being paid for APCs does not relate to the cost of production but rather is priced according what the market will bear: "As authors still want to publish in the high-impact-factor journals, what is to stop those journals charging excessively high APCs knowing that authors will still pay up?" (Pinfield, 2013, p. 86).

4.1   What this Demonstrates about Problems with Scholarly Publishing

A lot of money has and will continue to change hands in the name of open access, and the big publishers are receiving the lion's share. Recent figures released by the Wellcome Trust, which was one of the first research funding bodies in the world to instigate an OA policy in 2005, demonstrate how concentrated these payments are to large publishers (Brook, 2014). The payment for researchers' APC charges provide an opportunity to open up discussion about the scholarly publishing system. Researchers in well-resourced universities have traditionally been separated from the economic realities of scholarly publishing. Under the subscription model, from a researcher's perspective, one can "freely publish" and "freely read" papers via subscriptions managed by well-resourced libraries. One argument supporting authors having to negotiate APCs with publishers is that, as payment for publication at a paper level becomes more prevalent, it gives the researcher an opportunity to determine value for money. The author can evaluate the service that they're getting for the fee they're paying (Van Noorden, 2013). Some conclude that publishing would be a more functional market as a result (Pinfield, 2013).

The alternative OA option is "green OA", which makes a version of research publications available in a digital repository. While this does not cost the researcher or the funder anything, there are costs associated with maintaining repositories. The cost of managing institutional repositories for universities in Australia was estimated to be approximately AUD$2 million across the country in 2006. That study noted the potential for managing repositories was as much as AUD$200, 000 per institution, so this overall cost could be as much as AUD$10 million annually (at 2006 prices) (Houghton, Steele, & Sheehan, 2006a). Subject-based repositories also require support. The longest-established repository, arXiv, has instigated a membership model for institutions in recent years. Institutional members pledge a five-year commitment with the cost related to usage of the service by researchers at the institution, ranging from USD$1,500 to USD$3,000 (Rieger, 2014). This is equivalent to the APC for one paper a year in a hybrid journal.

4.2   Verdict

Open access does not have to be expensive. Researchers can choose to make their work available in repositories, which, of course, do have some operating costs. The vast majority of OA policies are green policies, and those funding agencies that have gold policies tend to provide funds for payments of APCs. Many of those funds do not support hybrid OA. APCs provide an opportunity for researchers to experience the actual cost of the publishing process and therefore can start to choose publications based on what they feel is value for money in a way not open to them in previous decades. Open access journals are largely free to publish in, and those that do charge cost considerably less than the costs for hybrid OA in otherwise subscription-based journals. Do not blame open access. The high perceived cost of OA falls squarely on the shoulders of commercial publishers.

5   Argument Three: Making Work Available Open Access in a Repository Means the Publishing System Will Collapse

One argument against OA relates to the green route: making working versions of research publicly available in a repository. Individuals argue that permitting researchers to deposit papers in a repository will result in librarians cancelling subscriptions and, therefore, threaten publishers' "sustainability". We first address the argument on face value before exploring the evidence put forward to support the argument that green OA equals cancellations. We then address the flaws in these arguments and look at the real issues in the scholarly publishing system that is causing subscription cancellation.

Ware (2006, p. 226) summarizes the argument as: "It must be patently obvious that libraries under budget pressure will not subscribe to journals if the content is available free on the Internet". This statement leads

into a secondary argument that has emerged in the past couple of years: that, because of this (perceived) problem, the embargo periods that funding bodies impose (the time between the date of publication and when an accepted version of the work is required to be made available in a repository) should be longer. Generally, funder embargoes tend to be 12 months from publication (National Health and Medical Research Council, 2012; Australian Research Council, 2013). Many publishers impose a 12-month embargo for scientific, technical, and medical research, but have a 24-month embargo for the social sciences and humanities (Oxford Journals, 2013). These embargo lengths reflect the Finch Report's recommendations (Finch, 2012), although the subsequent Business, Innovation and Skills Committee report (2013 S.8 Par 45) found there was no evidence to support this recommendation. The RCUK OA policy has embargo periods of six months and 12 months for the above research types, respectively (Research Councils UK, 2013).

We begin by discussing the argument that permitting the deposit of work in a repository will result in subscription cancellations. First, individuals often argue make this argument without evidence of any direct cause and effect. For librarians to logically make a cancellation decision based on OA in repositories, a large enough percentage of a particular journal would need to be available OA before the financial benefit of canceling would be seen as more desirable than the inconvenience of not having access to the remaining (non-OA) papers. However, it also means that researchers given *permission* to deposit their papers into a repository would need to actually *do so*. Therein lies one problem with the argument: in reality, the percentage of research that is made OA by placing a version of the work in a repository across the board remains below 20 percent, albeit with wide variations between countries and disciplines as we describe below.

Björk et al. (2010) analyze what percentage of research papers were available OA one year from publication in 2009. They found that, overall 20.4 percent of the 1,837 randomly sampled titles were available OA. This number was split between those papers found as an author manuscript in repositories or on websites (11.9 percent)) and the papers that were freely available at the publishers' websites (8.5 percent). The distribution was not even across disciplines. In terms of the overall share of OA, chemistry (13 percent) had the lowest and earth sciences (33 percent) the highest. There were also disciplinary differences in the type of OA used by different disciplines. In medicine, biochemistry, and chemistry, publishing in OA journals was more common. In all other disciplines, author-posted manuscript copies in repositories or on websites dominated. In their study, Gargouri, Larivière, Gingras, Carr, and Harnad (2011) also noted similar discrepancies between the percentages of work available OA in different disciplines.

In August, 2013, Archambault and Nicol (2013) published their follow up study and state that "the tipping point for OA" (more than 50 percent of the papers available for free) had been reached in several countries, such as Brazil, Switzerland, the Netherlands, the US, and in biomedical research, biology, and mathematics, and statistics. Note that the authors articulate the amount of work available as gold OA but conflate all green and hybrid OA work, with a total for latter category of 32 percent of publications. While this figure appears at first glance to partially support the green OA equals cancellation argument, it requires some clarification. The authors found any version of the work available online for free, including items loaded up into social media sites such as ResearchGate in contravention of the copyright transfer agreements the authors had signed with their publishers. They also included works that had been made available at the publisher's site after a period of time. As the first situation is illegally uploading publisher's final versions of the work and the second is delayed access rather than immediate, this study has inflated estimates for the amount of work legally and immediately open access and does not support the argument.

Thus, we can see that simply *allowing* authors to deposit their papers into a repository does not translate into a large OA proportion of a given discipline (let alone a specific journal), so it is unlikely that, for the foreseeable future, permission to deposit alone will result in subscription cancellations. What is left to support the argument that permitting green OA will result, or is resulting, in subscription cancellations?

A 2012 study has been cited as evidence for the argument that "short embargo periods are likely to lead to significant cancellations" by Wiley in a blog post (Meadows, 2013) and by Springer in an interview (Poynder, 2013). The study was conducted by the Association of Learned and Professional Society Publishers (ALPSP). However, the study, which was published online, had some major methodological issues. It comprised a single question to librarians:

"If the (majority of) content of research journals was freely available within 6 months of publication, would you continue to subscribe? Please give a separate answer for a) Scientific, Technical and Medical journals and b) Humanities, Arts and Social Sciences Journals if your library has holdings in both of these categories."

This question alone is problematic as it is highly ambiguous. It is possible the question meant to ask:

"If the (majority of) the papers in a given subscription-only research journal were freely available within six months of publication through the deposit of the accepted version in open access repository, would you continue to subscribe?.." etc.

This has a considerably more specific meaning, and there is no way of determining whether respondents interpreted the original question in this way. For this reason alone, any results have little validity. The work was not peer reviewed. While an analysis of the study highlighted methodological criticisms (Morrison, 2012), there are deeper questions about the survey's motivation. The researcher was the Chair of the ALPSP Research Committee and was on the steering committee for the Publisher's Research Coalition at the time, which raises questions about her (and the study's) objectivity. Several other issues also concern the researcher's validity (Poynder, 2012).

An extensive review of the literature undertaken by the U.K. House of Commons Select Committee on Business, Innovation, and Skills concluded that "there is no available evidence base to indicate that short or even zero embargoes cause cancellation of subscriptions" and "We note the absence of evidence that short embargo periods harm subscription publishers" (Business Innovation & Skills Committee, 2013, Sec. 8 Par 44 & 49). Similarly, the Committee for Economic Development (2012) concluded: "No persuasive evidence exists that greater public access as provided by the NIH policy has substantially harmed subscription-supported STM publishers over the last four years or threatens the sustainability of their journals" (p. 6).

The second study the publishing industry has cited is an analysis of journals' half-lives (the period of time for a group of papers to reach half of their total number of downloads). This analysis of 2812 journals found that there was considerable variation of half-lives in and between subject disciplines. Only a small number overall (3 percent) had half-lives of less than 12 months. Generally, most half-lives peak between two and four years. The study showed health sciences tended to have shorter half-lives, and a reasonable percentage of mathematics, physics and humanities had half-lives of more than six years (Davis, 2013). Again, this study was not peer reviewed, and. Again. it was commissioned by the publishing industry, specifically the professional & scholarly publishing (PSP) division of the Association of American Publishers (AAP) on whose site the results were published. However. the problem is not with the study itself: it is with the logical jump that this study supports the argument that shorter embargoes threaten subscriptions. The lack of evidence for the argument that making work available OA results in cancelled subscriptions means the journal half-life is of no consequence to any proposed embargo periods

The half-life "evidence" has already been co-opted by some proponents of longer embargoes. A British Academy report into OA journals in the humanities and social sciences addresses the issue of embargoes. It notes that there was a difference in half-lives of journals from different disciplines and recommends embargoes of 12 months for some disciplines and 24 months for others. It does not address the question of the connection between green open access and subscription cancellation (Darley, Reynolds, & Wickham, 2014). Despite acknowledging that: "to date, no publisher has presented concrete evidence that (green open access) has resulted in lost subscriptions", an editor for Oxford University Press has stated that the half-life study should cause a rethink of the NIH 12-month embargo across other disciplines (Crotty, 2013).

Indeed, some have noted that journal half-life is not something librarians generally consider in deciding whether to cancel old or order new subscriptions. The half-life study would only support the argument that shorter embargoes threaten subscriptions if there were evidence that making a version of the research available early reduces subscriptions. A cautionary note is that: "we should not accept anything that is presented as evidence just because it looks like data; some connection to the topic at hand must be proved" (Smith, 2014).

5.1   What this Demonstrates about Problems with Scholarly Publishing

There is no doubt that research libraries are cancelling subscriptions, but the purchasing questions they are asking do not consider the availability of a given journal's content in open access repositories despite

some attempts to create a discourse implying that librarians are focused on OA. One example is: "The real purchasing question for librarians will not be, 'is it free?' Instead they must ask: 'is it free soon enough to meet the needs of my researchers?'" (Crotty, 2013).

The issues surrounding research library purchasing decisions are complex and multi-faceted: "Rather than focusing on acquiring the products of scholarship, the library is now an engaged agent supporting and embedded within the processes of scholarship" (Association of Research Libraries, 2012, p. 2). Any assessment of why libraries are cancelling journals needs to recognize the research and tool development happening worldwide in libraries. It is not a simple question. Ware's (2006) study was one of the first to attempt to answer the question whether green OA was a threat or a parallel system to subscription journals. Ware notes: "One problem with this debate is that there is a lack of hard data to back up either position" (Ware, 2006, p. 266). The study, based on responses from 340 librarians worldwide, found the primary factor for determining journals to cancel was that researchers no longer needed the journal. Declining usage of the journal and its cost were the next two most important factors. Note this work was also commissioned by the ALPSP but was published in the scholarly literature after peer review.

Some universities make public the factors they have used in their decisions to cancel subscriptions. North Carolina State Universities (NCSU Libraries, 2014) use tangible measures such as cost per use and whether their researchers are publishing in the journal. The criteria do not include either the current availability of some OA versions of papers or a journal's policy on green OA. Writing about this issue, Day and Davis (2012, p. 81) suggest an "array of data that can be used to support your decisions and advocate for your collection", including cost, usage, journal impact factors, citation and publication patterns. They do not mention OA. A 2005 analysis of the "serials crisis" refers to OA as a positive development but primarily in terms of OA journals' expanded offering. It concludes that OA is "emerging as the most likely alternative or complement to the for-profit publishing model" (Panitch & Michalak, 2005).

The high cost of subscription remains another primary reason for libraries cancelling them. Several universities have made public their reasons for cancelling subscriptions, such as the cost of bundled "big deals" (Canadian Research Knowledge Network, 2013) or value for money given usage data (California Digital Library, 2013). In at least one case, the publisher's "unacceptable" policy on green OA and "overpriced APCs" was cited (Humaker, 2014). Similarly, Harvard University (2012) noted to its faculty that the library had been forced to change its subscriptions due to high cost and advised that staff use OA options available to them. The recurring issue is not whether published research is available OA in a repository or not. Libraries are cancelling subscriptions because of high prices.

Irrespective of any lack of supporting evidence, the premise that green OA means subscription cancellation and, thus, that funding policies should extend embargo periods has another issue. More than one observer has noted that the decision to set an embargo period within a funder or government policy should not be based on maintaining the high profit levels of private companies at public expense (Smith, 2014; Suber, 2014).

5.2 Verdict

While it may seem logical that the availability of research in an OA repository would lead to subscription cancellations, in practice, this does not appear to be happening, not least because green is not prevalent enough to justify cancelling subscriptions, and libraries do not have a systematic way yet to gauge OA availability. In addition, the two studies publishers have put forward to support the argument for longer embargoes—one a survey of librarians, the other a study of journal half-lives—do not contribute any evidence to the discussion despite their appearing to be relevant. If a single reason for subscription cancellation needs to be identified, the evidence points to the high prices charged by the publishing industry—not OA.

However, we do need evidence in this space. Two clear case studies could provide direct evidence if the publishers were willing to share what they have learned. In both cases, there has been a move from an embargo period for green OA to removing embargoes completely. In the first instance, Taylor and Francis extended their trial for immediate green OA for their library and information science journals, which began in 2011, to the end of 2014 (Routledge, 2014). It is unlikely they would have extended the trial if it were resulting in cancellations. The second is Sage that, in 2013, decided to move to an immediate green policy. If it were the case that permission to deposit resulted in subscription cancellations, then these publishers would see a drop in subscriptions to the affected journals. The publishers could collect and

provide hard data to demonstrate whether these decisions have had any measurable impact on their subscriptions.

There are no guarantees that, at some point in the future, the amount of work available OA through repositories won't impact subscriptions. It is, therefore, imperative that, rather than trying to refute poorly constructed evidence, we start to collect real data about what is happening so the larger, more important questions can be considered: what are the implications? Does this mean publishers will fold or will they take a different role in the system? Will some journals close and is that a problem? And how does this affect the scholarly communication system more broadly?

6   Open Access Isn't Perfect—The Arguments We Should Be Having

Thus far, we have discussed some of the common accusations leveled at OA and explained how these issues reflect problems in the scholarly publication system rather than being specifically OA's responsibility. In this final section, we discuss some of the issues that have arisen in the OA landscape that do require some thought and deliberation. This list is not in any way exhaustive but does highlight areas that need further exploration, such as: open monographs, the management of APCs, issues with institutional repositories, the necessity to make OA inclusive, and the reward system in scholarly communication.

6.1   What about Monographs?

Open access as a model for scholarly publication is still being fine-tuned, and some of the issues are still far from being resolved. Open access to monographs, for example, is a tricky issue for disciplinary, financial, copyright, and prestige reasons.

Differing disciplines feature a wide variation in the publishing practices. Monographs feature more in the humanities and the social sciences and are almost nonexistent in the sciences (Darley et al., 2014). Early examples of OA experiments were predominantly in science, technology, and medical (STM) disciplines. The earliest OA repository, arXiv, has shared submitted versions of physics and other mathematically based papers since 1991, and many early mainstream OA journals were in the STM disciplines (Ginsparg, 1997). This has meant that much of the discourse about OA has focused on the process of making journal papers available. Only in the past few years, as funders are increasingly requiring the open accessibility of all research outputs, including monographs, has the issue of OA to monographs become mainstream (Australian Research Council, 2013; Research Councils UK, 2013). According to a report from the British Academy, new funding requirements for OA monographs have: "alarmed many, for there is very little tradition of publishing monographs in electronic form" (Darley et al., 2014).

This disciplinary variation extends beyond the choice of publication outlet through to the content included in those publications:

> Literature-based disciplines in addition face the problem of third-party copyright for the literary texts cited and discussed in articles (as also monographs), which is particularly problematic in the fast-expanding field of 20th- (and now 21st-) century literature: such copyright can become disproportionately expensive to obtain, or indeed impossible, if the journal is published electronically, including for AAMs (Accepted Author Manuscripts) which are available in repositories (Darley et al., 2014, p. 45).

Aside from the copyright issues, the financial model for monographs is very different to that of the journal system. Monograph publishers invest significant time in the editing process, and authors receive a (albeit sometimes small) royalty. This means that publishers have financial reasons to not permit chapters of books (or indeed whole books) to be made available in a repository. As this type of "secondary open access" is not appropriate in most cases for monographs, one can, therefore, argue that the solution for OA monographs lies with "born open access" works.

Despite the British Academy report that states: "although moves to do so are gaining speed, as yet no business model exists for doing so in any OA form on more than a tiny scale" (Darley et al., 2014, p.15), some excellent examples of successful OA monograph publishing models exist (AOASG, 2013; Vincent, 2013). Indeed, the British Academy's position appears to be unaware of the longstanding and highly successful OA model developed in Australia. The fully OA digital press at the Australian National University celebrated its first decade of publishing by dropping the 'e' from its name and continue as simply ANU Press because: "Now digital publication has become the norm across publishing, the Press

no longer needs to set itself apart as a digital publisher". This milestone coincided with the publication of its 500th title (ANU Press, 2014).

Despite this increasing landscape for OA monograph publishing, the issue of cost remains central. Unlike many STM counterparts, as few as 22 percent of humanities and social sciences monographs resulted from grant-funded research, which prompts the question: "where will the funding come from and how, if a book is a lot more expensive to produce than an article, will it be affordable and sustainable?" (Milloy, n.d.). Clearly, the OA monograph space still needs considerable work.

6.2   How to Manage Article Processing Charges?

As more funds are being provided for the payment of APCs due to policies that support this form of OA (Research Councils UK, 2013; Wellcome Trust, 2013), the practicalities of managing these payments on a large scale begin to become apparent. This is not an insignificant activity: as an example, the fully OA publisher PLOS has published over 100,000 papers (Public Library of Science, 2013). Paying APCs, however, introduces new players in scholarly communication transactions. While librarians traditionally have had a relationship with publishers in terms of licensing published research from them, they might not have access to the funds provided to an institution or researcher for publication—these are often the responsibility of a research office, grant management department, or the like. Many of the relationships between those involved in scholarly publication need to be reconsidered, and, in some cases, they need to be instigated to ensure these payments can be managed in a scalable way.

Unsurprisingly, some services have launched with the specific purpose of managing APCs. An early starter in this field has been Open Access Key (Open Access Key, 2013). In the UK, the pilot Jisc APC management service (Jisc, 2014) "aims to assist UK higher education institutions and publishers worldwide in managing Gold OA article processing charges". While this type of service aims to address the practicalities of invoicing and transferring funds, some have argued that moving the responsibility for paying for scholarly publishing out of the library and into the academic sphere exposes researchers for the first time to the system's expense. Giving researchers an opportunity to determine value for money, in some arguments, means that scholarly publishing would be a more functional market (Pinfield, 2013). The "functionality" in this instance refers to the economics of the market and not the logistics.

Clearly, this issue is far from resolved. and considerable work still needs to be done before there is any maturity in the market, not least in ensuring that members in the space are informed and knowledgeable of the issues (Fruin & Rascoe, 2014) and in obtaining information about the expenditure and costs in this aspect of the scholarly publishing system (Kingsley, 2014).

6.3   Institutional Repositories are not Perfect: How do We Make Them Better?

Another issue that could benefit from some discussion in the OA arena is the technology being used to provide green OA. The Registry of Open Access Repositories shows that there were fewer than 50 repositories in existence before 2000, with the numbers increasing substantially after that point. Three hundred and fifty-nine new repositories were registered in 2006, for example (Brody, 2007). Much of the open source repository software still in use today originated in the early 2000s, such as ePrints, the first OAI-compliant repository software launched in 2001 (ePrints, n.d.), and DSpace, developed by MIT in 2002 (Ware, 2004). While these and other software platforms (both open source and proprietary) are constantly being developed and upgraded, in many ways, they remain Web 1.0 technology, a place to store research.

Some services exist that aggregate and search the contents of institutional and subject-based repositories, such as OAIster with more than 25 million records representing digital resources from more than 1,100 contributors (OAIster, n.d.) and the Bielefeld Academic Search Engine providing more than 50 million documents from more than 2,700 sources (BASE, n.d.), but we remain a long way from the "one great scholarly search engine" that Willinksy (2006, p. 182) moots. There are some attempts to address this issue with the Confederation of Open Access Repositories in 2014 instigating a project to align repository networks across the globe (COAR, 2014).

In the past few years, services have emerged that share research through social networking. Two examples, both launched in 2008 are Academia.edu, which boasts over 9 million members and "over 15.7 million unique visitors a month" (Academia.edu, n.d-a), and the science-focused ResearchGate, which now hosts over 4 million members (ResearchGate, n.d). ResearchGate states its mission is: "to connect researchers and make it easy for them to share, discover, use, and distribute findings. We help

researchers' voice feedback and build reputation through open discussion and evaluation of each other's research". Academia.edu has even further reach in that it aims to: "build a completely new system for scientists to share their results, one that is totally independent of the current journal system. … the goal is to increase the pace of scientific discovery" (Academia.edu, n.d-b). In both instances, authors can easily upload versions of their work to their personal profiles, and many simply use their final published paper in contravention of their signed publisher agreement. It is perhaps not surprising then that, at the end of 2013, Elsevier sent takedown notices to Academia.edu and some institutions to request the published versions be removed from their websites "to ensure that the final published version of an article is readily discoverable and citable via the journal itself in order to maximize the usage metrics and credit for our authors, and to protect the quality and integrity of the scientific record" (Reller, 2013).

The increasing number of successful innovations in this market may indicate a greater need for services different to those offered by IRs—services offering Web 2.0 functionalities such as social networking and that operate at the disciplinary or interdisciplinary level. However, this increased fragmentation indicates that scholarly publishing is still in a transitional phase. Institutions may need to consider whether the IR technology they have currently invested in is actually serving the changing needs of their researchers. Perhaps IRs could adopt Web 2.0-type applications, or universities and research organizations could partner with the new research social networking services. Social networking is a vital part of the research endeavor, but the best way of harnessing it without flouting copyright arrangements has yet to be established.

6.4   How do We Make Scholarly Publishing and Open Access Inclusive?

While one of OA's goals is to ensure equity in access to research by allowing: "a global and interactive representation of human knowledge, including cultural heritage and the guarantee of worldwide access" (Max Planck Institute, 2003), moves away from green OA toward gold OA raise a different set of equity issues. OA initially endeavored to provide access to literature by removing subscription costs. However, while gold OA research is freely available to read, the costs associated with paying for publication in many OA journals excludes many researchers from publishing their research. Thus, "(t)he open access movement needs to broaden its focus from access to knowledge to full participation in knowledge creation and in scholarly communication" (Bonaccorso et al., 2014, p.10).

This exclusion of researchers from the academic discourse extends beyond researchers in developing countries. A Danish publisher undertook a study of Danish academic journals and found 30 percent of the authors were "unemployed, retired, students or are working for not-research companies/institutions" (Kirkup 2012). As the OA landscape changes and matures, we need to continue to consider whether the fundamental tenets of equity of access to research, and to publish research, are addressed.

6.5   How do We Fix the Reward System?

Space does not permit further analysis, but a section looking at issues that need to be addressed in this area would not be complete without mentioning the biggest issue affecting both OA and any future scholarly communication system: the way researchers are rewarded and valued. Until there is a move to a system that more significantly emphasizes a given's paper quality rather than the journal in which it is published, the status quo will remain in scholarly publishing and scholarly publishing will continue to ignore the advantages of the Internet and digital communications. New innovations in publishing, such as megaournals, are starting to provide alternative ways of collecting information about published research and assessing its value. There is also an emerging interest in the area of altmetrics. Altmetrics aim not only to quantify interest and use of individual papers through their citations but also to track their progress through social media and, therefore, quantify their "impact" (Priem, Taraborelli, Groth, & Neylon, 2010). While researchers are embracing these new technologies, to date, governments, funders, policy makers, and institutions have yet to recognize and validate them as a way of assessing researchers' contribution and value.

7   Conclusions

The scholarly publishing system is in a state of transition. This change began in the mid-1990s with the introduction of the Internet and then the World Wide Web. New modes of publishing, disseminating, and sharing research have emerged, some working in tandem with the current publishing system, others in competition with it. As the number of researchers and subsequently the number of publications continue to

grow, there is a real need to consider how these technologies can be harnessed to ensure fair and equitable access to research output. Any time of change raises issues with the old system, and new issues arise with any proposed solution. Open access publishing has emerged as a viable alternative to the current subscription-based publishing system by making the output freely available for all to read, but it raises its own issues with equity to publish. These issues do not mean that open access is unobtainable for all researchers due to cost—many open access journals do not charge a fee. Alternatively, open access through making work available in a repository is a means to achieve open access that works alongside the current subscription model, which is free to all researchers (albeit with some cost to the institution hosting the repository). No evidence exists that making research available to the world in this manner threatens journal subscriptions. This period of change has also meant new, unethical publishers have emerged that are keen to take advantage of the changing landscape and exploit some researcher's lack of knowledge about the scholarly publishing system. The discussions we should be having as a community of scholars should center around how to improve (or replace) peer review and improve the quality of research and its outputs and how to increase literacy about the scholarly communication process so that researchers and authors can choose appropriate and ethical venues for disseminating their work.

In this time of change, we need informed, intelligent consideration about how open access will impact scholarly publishing and scholarly communication more broadly into the future. To do so, we believe it beneficial to move away from using open access as a whipping boy for problems inherent in the system to discussing areas in need of attention. Open access monographs are a developing service; we need to consider whether the technology currently being used to provide open access to author's manuscripts serves the changing needs of today's researchers; and we need to remain focused on the fundamental tenet of open access—equity. Above all, the current reliance on a reward system that supports the traditional publishing system needs to be questioned, evaluated, and altered to reflect the changing needs of, and technologies available to, today's international research community.

References

Academia.edu. (n.d-a). *About Academia.edu.* Retrieved from https://www.academia.edu/about

Academia.edu. (n.d-b). *Our mission.* Retrieved from https://www.academia.edu/hiring/mission

Adler, N. J., & Harzing, A. W. (2009). When knowledge wins: Transcending the sense and nonsense of academic rankings. *The Academy of Management Learning and Education*, *8*(1), 72-95

Andrew, T. (2012). Gold open access: Counting the costs. *Ariadne.* Retrieved from http://www.ariadne.ac.uk/issue70/andrew

ANU Press. (2014). *About.* Retrieved from http://press.anu.edu.au/about/

AOASG. (2013). *Developments in OA monograph publishing.* Retrieved from http://aoasg.org.au/oa-monographs-developments/

Association of Research Libraries. (2012). *ISSUE BRIEF: 21st-century collections: Calibration of investment and collaborative action.* Retrieved from http://www.arl.org/storage/documents/publications/issue-brief-21st-century-collections-2012.pdf

Australian Open Access Support Group. (2014). *Statements on OA in Australia & the world.* Retrieved from http://aoasg.org.au/statements-on-oa-in-australia-the-world/

Australian Research Council. (2013). *ARC open access policy* (version 2013.1). Retrieved from http://www.arc.gov.au/applicants/open_access.htm

Bailey, C. (2014). *Transforming peer review bibliography.* Retrieved from http://digital-scholarship.org/tpr/tpr.htm

BASE. (n.d.). *BASE Bielefeld academic search engine.* Retrieved from http://www.base-search.net/

Beall, J. (2012). *Criteria for determining predatory open-access publishers.* Retrieved from http://scholarlyoa.com/2012/11/30/criteria-for-determining-predatory-open-access-publishers-2nd-edition/

Beall, J. (2013). Predatory publishing is just one of the consequences of gold open access. *Learned Publishing, 26*(2), 79-83

Beall, J. (2014a). *Beall's list: Potential, possible, or probable predatory scholarly open-access publishers*. Retrieved from http://scholarlyoa.com/publishers/

Beall, J. (2014b). Hijacked journals. Retrieved from http://scholarlyoa.com/other-pages/hijacked-journals/

Beaubien, S., & Eckard, M. (2014). Addressing faculty publishing concerns with open access journal quality indicators. *Journal of Librarianship and Scholarly Communication, 2*(2), eP1133

BioMed Central. (2014). What is "open peer review", as operated by the medical journals in the BMC series? Retrieved from http://www.biomedcentral.com/authors/authorfaq/medical

Björk, B.-C., & Solomon, D. J. (2014). Developing an effective market for open access article processing charges, *Wellcome Trust.* Retrieved from http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Open-access/Guides/WTP054773.htm

Björk, B.-C., Welling, P., Laakso, M., Majlender, P*.,* Hedlund, T., & Guðnason, G. (2010). Open access to the scientific journal literature: Situation 2009. *PLoS ONE, 5*(6), e11273. Retrieved from http://www.plosone.org/article/info:doi/10.1371/journal.pone.0011273

Björk, B. C. (2012). The hybrid model for open access publication of scholarly articles: A failed experiment? *Journal of the American Society for Information Science and Technology*, *63*(8), 1496-1504

Blackwell Publishing. (2005). Online open—a new open access journals service from Blackwell Publishing. Retrieved from http://www.blackwellpublishing.com/press/pressitem.asp?ref=272&site=1

Bohannon, J. (2013). Who's afraid of peer review? *Science*, *342*(6154), 60-65.

Bonaccorso, E., Bozhankova, R., Cadena, C. D., Čapská, V., Czerniewicz, L., Emmett, A., Oludayo, F. F., Glukhova, N., Greenberg, M. L., & Hladnik, M. (2014). Bottlenecks in the open-access system: Voices from around the globe. *Journal of Librarianship and Scholarly Communication*, *2*(2), eP1126.

Brody, T. (2007). *Registry of open access repositories*. Retrieved from http://roar.eprints.org/

Brook, M. (2014). *The sheer scale of hybrid journal publishing.* Retrieved from http://access.okfn.org/2014/03/24/scale-hybrid-journals-publishing/

Budapest Open Access Initiative. (2002). *Budapest open access initiative*. Retrieved from http://www.soros.org/openaccess/

Budd, J. M., Sievert, M., & Schultz, T. R. (1998). Phenomena of retraction: Reasons for retraction and citations to the publications. *JAMA*, *280*(3), 296-297

Business Innovation & Skills Committee. (2013). *Business, Innovation and Skills Committee—fifth report: Open access, business, innovation & skills committee*. Retrieved from http://www.parliament.uk/business/committees/committees-a-z/commons-select/business-innovation-and-skills/news/on-publ-open-access/

California Digital Library. (2013). *UC libraries discontinue Taylor & Francis systemwide journals license.* Retrieved from http://www.cdlib.org/cdlinfo/2013/07/03/uc-libraries-discontinue-taylor-francis-systemwide-journals-license/

Cambridge University Press. (2012). *Open access content*. Retrieved from http://journals.cambridge.org/action/openAccessContent?sessionId=0A1D632AE37ED813CEFFB02501DFA88D.journals

Canadian Research Knowledge Network. (2013). Université de Montréal takes bold turn, terminates participation in Wiley Online library license. Retrieved from http://crkn.ca/communications/universite-de-montreal-takes-bold-turn-terminates-participation-in-wiley-online-library-license

COAR. (2014). *COAR launches strategic initiative to align repository networks*. Retrieved from https://www.coar-repositories.org/news-media/coar-launches-strategic-initiative-to-align-repository-networks/

Committee for Economic Development. (2012). *The future of taxpayer-funded research: Who will control access to the results*? Retrieved from http://www.ced.org/reports/single/the-future-of-taxpayer-funded-research-who-will-control-access-to-the-resul

Corrall, S., & Pinfield, S. (2014). Coherence of open initiatives in higher education and research: Framing a policy agenda. *iSchools.* Retrieved from https://www.ideals.illinois.edu/handle/2142/47316

Crawford, W. (2014). Ethics and access 2: The so-called sting. *Cites & Insights*, *14*(5), 1-34. Retrieved from http://citesandinsights.info/civ14i5.pdf

Crotty, D. (2013). *Getting open access embargoes right: Rational policy must be evidence-based.* Retrieved from http://scholarlykitchen.sspnet.org/2013/12/18/getting-open-access-embargoes-right-rational-policy-must-be-evidence-based/

Darley, R., Reynolds, J., & Wickham, C. (2014). Open access journals in humanities and social science. *British Academy.* Retrieved from http://www.britac.ac.uk/openaccess/index.cfm

Davis, P. (2013). Journal usage half-life. Retrieved from http://www.publishers.org/_attachments/docs/journalusage halflife.pdf

Day, A., & Davis, H. (2012). Collection intelligence: Using data driven decision making in collection management. *Charleston Conference*. Retrieved from http://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1110&context =charleston

Directory of Open Access Journals. (2014). Retrieved from http://doaj.org/

Drott, M. C. (2006). Open access. *Annual Review of Information Science and Technology*, *40*, 79-109.

Economist. (2013). Unreliable research: Trouble at the lab. *The Economist,* 409(27). Retrieved from http://www.economist.com/news/briefing/21588057-scientists-think-science-self-correcting-alarming-degree-it-not-trouble

Elsevier. (2012). *Open access articles.* Retrieved from http://www.elsevier.com/about/open-access/sponsored-articles

Elsevier. (2014). *No double dipping policy.* Retrieved from http://www.elsevier.com/about/open-access/open-access-policies/no-double-dipping-policy

Emery, J. (2013). Mining for gold: Identifying the librarians' toolkit for managing hybrid open access. *Insights: The UKSG Journal, 26*(2), 115-119. Retrieved from http://uksg.metapress.com/content/v757245422x57833/fulltext.pdf

ePrints. (n.d.). *ePrints.* Retrieved from http://www.eprints.org/community/

Archambault, E., Amyot, D., Deschamps, P., Nicol, A., Rebout, L. & Roberge, G. (2013). *Proportion of open access peer-reviewed papers at the European and world levels—2004-2011.* Retrieved from http://www.science-metrix.com/pdf/SM_EC_OA_Availability_2004-2011.pdf

European Commission. (2013). EU framework programme for research and innovation horizon 2020: Multi-beneficiary model grant agreement. Retrieved from http://ec.europa.eu/research/participants/data/ref/h2020/ mga/gga/h2020-mga-gga-multi_en.pdf

Finch, J. (2012). *Accessibility, sustainability, excellence: How to expand access to research publications: Report of the working group on expanding access to published research findings*. Research Information Network: London. Retrieved from http://www.researchinfonet.org/wp-content/uploads/2012/06/Finch-Group-report-FINAL-VERSION.pdf

Fruin, C., & Rascoe, F. (2014). Funding open access journal publishing: Article processing charges. *College & Research Libraries News*, *75*, 240-243. Retrieved from http://crln.acrl.org/content/75/5/240.full.pdf+html

Gargouri, Y., Larivière, V., Gingras, Y., Carr, L., & Harnad, S. (2011). Green and gold open access percentages and growth, by discipline. In *Proceedings of the 17th International Conference on*

Science   and   Technology   Indicators.   Retrieved   from
http://eprints.soton.ac.uk/340294/1/stiGargouri.pdf

Gibson, I. (2005). Overview of the House of Commons Science and Technology select committee inquiry into scientific publications. *Serials*, *18*(1), 10-12

Ginsparg, P. (1996). *Winners and losers in the global research village: Invited talk at electronic publishing in science*. Retrieved from http://www.cs.cornell.edu/~ginsparg/physics/blurb/pg96unesco.html

Ginsparg, P. (1997). *The impact of electronic publishing on the academic community*. Portland Press. Retrieved from http://www.portlandpress.com/pp/books/online/tiepac/session1/ch7.htm

Greaves, S., Scott, J., Clarke, M., Miller, L., Hannay, T., Thomas, A., & Campbell, P. (2006). Overview: Nature's   peer   review   trial.   *Nature*.   Retrieved   from
http://www.nature.com/nature/peerreview/debate/nature05535.html

Harnad, S., Brody, T., Vallieres, F., Carr, L., Hitchcock, S., Gingras, Y., Oppenheim, C., Stamerjohanns, H., & Hilf, E. (2004). The access/impact problem and the green and gold roads to open access. *Serials Review, 30*(4), 310-314

Harvard University. (2012). *Faculty advisory council memorandum on journal pricing: Major periodical subscriptions   cannot   be   sustained.*   Retrieved   from
http://isites.harvard.edu/icb/icb.do?keyword=k77982&tabgroupid =icb.tabgroup143448

Houghton, J., Dugall, B., Bernius, S., Krönung, J., & König, W. (2012). *General cost analysis for scholarly communication in Germany: Results of the "Houghton Report" for Germany*. Frankfurt: Goethe University. Retrieved from *http://publikationen.ub.uni-frankfurt.de/frontdoor/index/index/docId/27530*

Houghton, J., Rasmussen, B., & Sheehan, P. (2010). *Economic and social returns on investment in open archiving of publicly funded research outputs: Report to SPARC*. Washington, DC: Scholarly Publishing   &   Academic   Resources   Coalition.   Retrieved   from
http://www.sparc.arl.org/sites/default/files/vufrpaa.pdf

Houghton, J., Rasmussen, B., Sheehan, P., Oppenheim, C., Morris, A., Creaser, C., Greenwood, H., Summers, M., & Gourlay, A. (2009). Economic implications of alternative scholarly publishing models: Exploring the costs and benefits. *Joint Information Systems Committee*. Retrieved from http://www.jisc.ac.uk/publications/documents/economicpublishingmodelsfinalreport.aspx

Houghton, J., & Sheehan, P. (2006). The economic impact of enhanced access to research findings. *Centre for Strategic Economic Studies Victoria University.* Retrieved from http:// www.cfses.com/documents/wp23.pdf

Houghton, J., & Sheehan, P. (2009). Estimating the potential impacts of open access to research findings. *Economic Analysis and Policy*, *39*(1), 127-142. Retrieved from http://www.eap-journal.com/archive/v39_i1_10_-houghton.pdf

Houghton, J., Steele, C., & Sheehan, P. (2006a). Research communication costs in Australia: Emerging opportunities and benefits. Retrieved from http://vuir.vu.edu.au/4778/1/4778.pdf

Houghton, J., Steele, C., & Sheehan, P. (2006b). *Research communication costs in Australia: Emerging opportunities and benefits: A report to the Department of Education, Science and Training*. Melbourne, Victoria University, Centre for Strategic Economic Studies. Retrieved from http://hdl.handle.net/1885/44485 (Current 16 April 2014).

Humaker, C. (2014). *Taylor and Francis cancellations of library journals*. Retrieved from http://listserv.crl.edu/wa.exe?A2=LIBLICENSE-L;ca4cf2de.1402

Jalalian, M., & Mahboobi, H. (2014). Hijacked journals and predatory publishers: Is there a need to re-think how to assess the quality of academic research? *Walailak Journal of Science and Technology*, *11*(5), 389-394.

Jisc. (2014). Jisc APC pilot project. Retrieved from http://www.jisc-collections.ac.uk/Jisc-APC-project/

Kennan, M. A. (2011). Learning to share: Mandates and open access. *Library Management*, *32*(4/5), 302-318.

Kingsley, D. (2012). Build it and they will come? Support for open access in Australia. *Scholarly and Research Communication*, *4*(1). Retrieved from http://www.src-online.ca/index.php/src/article/viewFile/39/121

Kingsley, D. (2014). *What are we spending on OA publication*? Retrieved from http://aoasg.org.au/what-are-we-spending-on-oa-publication/

Kirkup, G. (2012) *Will the Finch Report kill off non-commercial open access journals*? Retrieved from http://www.open.ac.uk/blogs/Kirkup/?p=559

Kling, R., & Callahan, E. (2003). Electronic journals, the Internet and scholarly communication. *Annual Review of Information Science and Technology*, *37*, 127-178.

Kling, R., McKim, G. W., & Kin, A. (2003). A bit more to it: Scholarly communication forums as socio-technical interaction networks. *Journal of the American Society for Information Science and Technology*, *54*()1), 47-67.

Kozak, M., & Hartley, J. (2013). Publication fees for open access journals: Different disciplines—different methods. *Journal of the American Society for Information Science and Technology, 64*(12), 2591-2594.

Laakso, M., & Björk, B. C. (2013). Delayed open access: An overlooked high- impact category of openly available scientific literature. *Journal of the American Society for Information Science and Technology, 64*(7), 1323-1329.

Mark Ware Consulting. (2010). *Submission fees—a tool in the transition to open access?: Summary of report to knowledge exchange.* Bristol: Mark Ware Consulting Ltd. Retrieved from http://www.knowledge-exchange.info/Files/Filer/downloads/Open%20Access/KE_Submission_fees_Short_Report_2010-11-25.pdf

Max Planck Institute. (2003). Berlin declaration on open access to knowledge in the science and humanities. Retrieved from http://www.zim.mpg.de/openaccess-berlin/berlindeclaration.html

Meadows, A. (2013). Open access—keeping it real. *Scholarly Kitchen*. Retrieved from http://scholarlykitchen.sspnet.org/2013/06/13/open-access-keeping-it-real/

Milloy, C. (n.d.). Innovative approaches to publishing open access monographs. *Jisc Inform.* Retrieved from http://www.jisc.ac.uk/inform/inform37/OpenAccessMonographs.html

Morrison, H. (2012). *Publisher associations' survey on subscriptions: Methodological critique*. Retrieved from http://pages.cmns.sfu.ca/heather-morrison/2012/06/04/publisher-associations-survey-on-subscriptions-methodological-critique/

Nariani, R., & Fernandez, L. (2011). Open access publishing: What authors want. *College and Research Libraries News, 73*(2), 182-195. Retrieved from http://crl.acrl.org/content/73/2/182.full.pdf+html

National Health and Medical Research Council. (2012). *NHMRC open access policy*. Retrieved from http://www.nhmrc.gov.au/grants/policy/nhmrc-open-access-policy

National Information Standards Organization. (2008). *Journal article versions (JAV) technical working group, journal article versions (JAV): Recommendations of the NISO/ALPSP JAV technical working group.* Baltimore, MD: National Information Standards Organization. Retrieved from http://www.niso.org/publications/rp/RP-8-2008.pdf

Nature. (2006). Editorial: Peer review and fraud. *Nature*, *444*(21), 971-972. Retrieved from http://www.nature.com/nature/journal/v444/n7122/full/444971b.html

Nature. (2012). Open access option. Retrieved from http://www.nature.com/ncomms/open_access/index.html

NCSU Libraries. (2014). 2014 collections review: Explanatory notes and factors to consider. Retrieved from http://www.lib.ncsu.edu/collections/collectionsreview2014/factors

OAIster. (n.d.). *OAIster find the pearls*. Retrieved from http://oaister.worldcat.org/

Open Access Key. (2013). *Open access key: Connecting the open access publishing community*. Retrieved from https://www.openaccesskey.com/

Oxford Journals. (2013). *Funder policies.* Retrieved from http://www.oxfordjournals.org/for_authors/repositories.html

Oxford University Press. (2012). Oxford open. Retrieved from http://www.oxfordjournals.org/oxfordopen/

Palgrave MacMillian. (2014). *Palgrave Macmillan's open peer review trial.* Retrieved from http://palgraveopenreview.com/

Panitch, J. M., & Michalak, S. (2005). The serials crisis: A white paper for the UNC-Chapel Hill scholarly communications convocation. Retrieved from http://www.unc.edu/scholcomdig/whitepapers/panitch-michalak.html

Pinfield, S. (2013). Is scholarly publishing going from crisis to crisis? *Learned Publishing, 26*(2), 85-88.

Poynder, R. (2004). No gain without pain. *Information Today*, *21*(10), 1-5.

Poynder, R. (2012). *The OA interviews: Audrey McCulloch, ALPSP Chief Executive.* Retrieved from http://poynder.blogspot.com.au/2012/07/oa-interviews-audrey-mcculloch-alpsp.html

Poynder, R. (2013). Open Access: Springer tightens rules on self-archiving. Retrieved from http://poynder.blogspot.com.au/2013/06/open-access-springer-tightens-rules-on.html

Priem, J., Taraborelli, D., Groth, P., & & Neylon, C. (2010). *Altmetrics: A manifesto.* Retrieved from http://altmetrics.org/manifesto/

Public Knowledge Project. (2013). *Open journal systems.* Retrieved from http://pkp.sfu.ca/ojs/

Public Library of Science. (2011). *History.* Retrieved from http://www.plos.org/about/plos/history/

Public Library of Science. (2013). PLOS celebrates milestone. Retrieved from http://www.plos.org/plos-celebrates-milestone/

Public Library of Science. (2014a). *PLOS journals.* Retrieved from http://www.plos.org/publications/journals/

Public Library of Science. (2014b). *PLOS publication charges.* Retrieved from http://www.plos.org/publications/publication-fees/

Reller, T. (2013). *A comment on takedown notices (with update).* Retrieved from http://www.elsevier.com/connect/a-comment-on-takedown-notices

Research Councils UK. (2013). RCUK policy on open access. Retrieved from http://www.rcuk.ac.uk/research/outputs/

ResearchGate. (2014). *Open review.* Retrieved from http://www.researchgate.net/publicliterature.OpenReviewInfo.html

ResearchGate. (n.d). *About us.* Retrieved from https://www.researchgate.net/about

Rieger, O. Y. (2014). *arXiv Update.* Retrieved from https://confluence.cornell.edu/display/culpublic/arXiv+Update

Routledge. (2014). Taylor & Francis extend green open access zero embargo pilot scheme for Library & Information science authors until end 2014. Retrieved from http://newsroom.taylorandfrancisgroup.com/news/press-release/taylor-francis-extend-green-open-access-zero-embargo-pilot-scheme-lis#.U2nXfq2Syhk

Sage. (2012). *Sage choice.* Retrieved from http://www.sagepub.com/sagechoice.sp

Sage Open. (n.d.). *Sage open: About the title.* Retrieved from http://www.sagepub.com/journals/Journal202037/manuscriptSubmission#tabview=title

Smith, K. (2014). *Half-lives, policies and embargoes.* Retrieved from http://blogs.library.duke.edu/scholcomm/2014/01/15/half-lives-policies-and-embargoes/

Solomon, D. J., & Björk, B. C. (2012). A study of open access journals using article processing charges. *Journal of the American Society for Information Science and Technology, 63*(8), 1485-1495.

Springer. (2004). *Springer open choice.* Retrieved from http://www.lib.utk.edu/mt/weblogs/scholcomm/archives/000300.html

Springer. (2014). *Springer open choice.* Retrieved from http://www.springer.com/gp/open-access/springer-open-choice

Steele, C., Butler, L., & Kingsley, D. (2006). The Publishing imperative: The pervasive influence of publication metrics. *Learned Publishing*, *19*(4), 277-290.

Stratford, M. (2012). "Predatory" online journals lure scholars who are eager to publish. *Chronicle of Higher Education*, *58*(27).

Suber, P. (2012). *Open access.* Cambridge, MA: MIT Press.

Suber, P. (2014). *The evidence fails to justify publishers' demand for longer embargo periods on publicly-funded research.* Retrieved from http://blogs.lse.ac.uk/impactofsocialsciences/2014/01/14/suber-embargoes-on-publicly-funded-research/

Swan, A. (2010). *The open access citation advantage: Studies and results to date.* Southampton: University of Southampton. Retrieved from http://eprints.ecs.soton.ac.uk/18516/

Taylor and Francis. (2012). *Taylor & Francis open select and Routledge open select.* Retrieved from http://www.tandfonline.com/page/openaccess/openselect

Van Dalen, H. P., & Henkens, K. (2012). Intended and unintended consequences of a publish-or-perish culture: A worldwide survey. *Journal of the American Society for Information Science and Technology, 63*(7),1282-1293.

Van Noorden, R. (2013). The true cost of science publishing. *Nature*, *495*(7442), 426-429. Retrieved from http://mccabe.people.si.umich.edu/Nature_2013.pdf

Van Noorden, R. (2014a). Funders punish open-access dodgers. *Nature,* 508(7495). Retrieved from http://www.nature.com/news/funders-punish-open-access-dodgers-1.15007

Van Noorden, R. (2014b). Publishers withdraw more than 120 gibberish papers. *Nature.* Retrieved from http://www.nature.com/news/publishers-withdraw-more-than-120-gibberish-papers-1.14763

Van Orsdel, L. C., & Born, K. (2008). Periodicals price survey 2008: Embracing openness. *Library Journal.* Retrieved from http://www.libraryjournal.com/article/CA6547086.html

Vardi, M. Y. (2012). Predatory scholarly publishing. *Communications of the ACM, 55*(7), 5-5.

Vergano, D. (2013). Glowing reviews on "arseniclife" spurred NASA's embrace. *USA Today.* Retrieved from http://www.usatoday.com/story/tech/columnist/vergano/2013/02/01/arseniclife-peer-reviews-nasa/1883327/

Vincent, N. (2013). The monograph challenge. Debating open access. *British Academy.* Retrieved from http://issuu.com/thebritishacademy/docs/debating_open_access-vincent-the_mo

Ware, M. (2004). Universities' own electronic repositories yet to impact on open access. *Nature.* Retrieved from http://www.nature.com/nature/focus/accessdebate/4.html

Ware, M. (2006). Open archives and their impact on journal cancellations. *Learned Publishing*, *19*(3), 226-229. Retrieved from http://www.ingentaconnect.com/content/alpsp/lp/2006/00000019/00000003/art00010

Wellcome Trust. (2003). *Economic analysis of scientific research publishing: A report commissioned by the Wellcome Trust.* Retrieved from http://www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtd003182.pdf

Wellcome Trust. (2004). *Costs and business models in scientific research publishing: A report commissioned by the Wellcome Trust.* Retrieved from http://www.wellcome.ac.uk/stellent/groups/corporatesite/@policy_communications/documents/web_document/wtd003184.pdf

Wellcome Trust. (2013). *Open access at the Wellcome Trust.* Retrieved from http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Open-access/index.htm

White, C. (2003). Little evidence for effectiveness of scientific peer review. *British Medical Journal, 326*(7383), 24.

Wiley   Publishing.   (2014).   *Wiley   OnlineOpen.*   Retrieved   from
        http://olabout.wiley.com/WileyCDA/Section/id-406241.html

Willinsky, J. (2006). The access principle: The case for open access to research and scholarship.
        Massachusetts: MIT Press.

Xia, J., & Nakanishi, K. (2012). Self-selection and the citation advantage of open access articles. *Online
        Information Review*, *36*(1), 40-51.

About the Authors

Danny A. Kingsley is a Visiting Fellow at the Australian National Centre for the Public Awareness of
Science at the Australian National University. She works as the Head of Scholarly Communications at the
University of Cambridge with responsibility for compliance with UK open access and open data policies.
Her research interests focus on scholarly communication with a specific interest in the advocacy of open
access, policy developments and implications, disciplinary differences and use of new author tools in the
research process.

Mary Anne Kennan is a Senior Lecturer in the School of Information Studies at Charles Stuart University,
where she teaches courses on the digital environment, research data management, and research
methods. Her research interests include scholarly communication, institutional repositories, open access,
and research data management. She also investigates more broadly at the information practices of
sharing and collaboration. Mary Anne is a member of the Australian Library and Information Association
(ALIA), and serves on the ALIA Research Committee. She has published widely and is co-editor of
Australian Academic & Research Libraries.