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Past, Present, and Future of Scholarly Publishing

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1. Scholarly publishing in 2012

2. The Past

2.1 The history of scholarly publishing
- The reasons for scholarly publishing: to enable researchers to share their work quickly to a broad audience and to establish the priority of researchers investigating the same problem.
- The printing press enabled the earliest journals. (Similarly, the Internet has enabled a new generation of journals.) News digests were printed first, followed by scientific journals in 1665.
- Early scientists did not depend on large numbers of publications for funding, recognition, hiring, and promotion. Sir Isaac Newton was reportedly reluctant to publish his work and reluctant to associate his name with his publications. Other great scientists produced relatively few papers, and many of them were single-author manuscripts (e.g., those of Gregor Mendel).
- The scholarly manuscript has also transformed over the centuries, largely because scientists have needed to demonstrate their productivity. What began as a long article taking five years to produce is now broken up into articles that are frequently written in one year.
- Broader scientific theory, which traditionally had been an important part of long papers, began to disappear from journal articles to be published in books instead.
- In the mid-18th century, journals began to specialize, especially those in the medical field. At this time, the abstract was NOT written by the author.

2.2 The big change
- In the 1930s, German was considered the primary language of international scientific communication.
- In English-speaking countries such as the UK and the US, scientists were expected to read German to keep up with developments in their fields.
- The National Socialist Party came to power in 1933, and Germany lost many of its greatest scientists in the exodus from Hitler’s anti-Semitic and anti-intellectual regime. Many scientists sought freedom in the US.
- After WWII, the intellectual landscape changed again, with its center of gravity shifting from Germany to the mid-Atlantic.
• The U.K. and U.S. began publishing their own scientific findings in English through the efforts of scientific societies, smaller-scale publishers who favored local authors and printers.
• In 1947, *Biochimica et Biophysica Acta*, one of the first international journals, was launched with fierce opposition. Some scientists argued that the growing subdivision of science into smaller specialties (instead of adhering to the old linguistic and geographical boundaries) would weaken science by reducing the range of individual scientists’ knowledge.
• In the 1950s, another Dutch international science publisher, North Holland, failed in its attempts to establish a European journal of nuclear physics because of such resistance.
• After WWII, most areas of modern science began to flourish. From 1951 until 2001, the number of chemistry papers published per year, as tracked by the Chemical Abstract Service, rose from 50,675 to 606,680.

2.3 The scholarly publishing “setup”
• The scholarly journal article is unique in its lack of royalty generation. Authors receive no payment for writing up their work.
• Even if they had desired to pay authors, early journals could not afford to do so. As time passed, the intrinsic rewards from publishing scholarly articles became valued instead of payment.

3. The Present

3.1 The current publishing model
• Authors conduct research at the top of the chain, passing their work to journals, where Evaluation, Quality Assessment, and Selection (EQAS) functions are conducted and the work is eventually published. The output is consumed by readers, who are themselves part of the research community.
• Not everything that is written (even by a good author) is worth publishing, and not everything that is published is worth citing. Therefore, journals are not compensated for the papers they reject, nor are they rewarded for papers that are not cited.
• Citation rates are highly subject to manipulation. How often an article is cited depends on how many researchers are active in the field and whether a journal reaches those researchers. It would be a good idea for everyone, including tenure committees, to reject citations as an evaluative criterion.
3.2 Problems facing the traditional publishing model

- In the 1960s and 1970s, commercial publishers began to selectively acquire "top-quality" journals, which were previously published by nonprofit academic societies.
- Commercial publishers quickly found that they lost little of the market when they raised their prices significantly. Although there are over 2,000 publishers, three for-profit companies (Elsevier, Springer, and Wiley) account for 42% of articles published (McGuigan and Russell, 2008). Available data indicate that these companies have high profit margins, especially compared to the smaller publishers that tend to operate with low margins.

3.3 Publishing houses

<table>
<thead>
<tr>
<th>Large publishers</th>
<th>Medium-sized publishers</th>
<th>The new breed: Gold OA publishers</th>
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<tbody>
<tr>
<td>Elsevier</td>
<td>Mary Anne Liebert</td>
<td>PLoS</td>
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<td>Wiley</td>
<td>Emerald</td>
<td>BioMed Central</td>
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<td>Springer</td>
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<td>Taylor &amp; Francis</td>
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<td>Nature</td>
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<td>Sage</td>
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<td>Predatory OA publishers</td>
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3.4 Problems facing the traditional publishing model

- In contrast to many industries, in academic publishing, the two most important inputs are provided virtually free of charge: submitted articles and the peer review process. Publishers argue that they add value to the publishing process through organizing the peer review process (including providing stipends on rare occasions) as well as through typesetting, printing, and web publishing.

3.5 The "serials crisis"

- Between 1986 and 2005, the number of serials purchased has increased an average of 1.9% per year, while total expenditures on serials have increased 7.6% per year (Association of Research Libraries, 2006).
- The high prices that the journals demanded were not solely the result of increased costs but were also motivated by profit-seeking publishers.
- University budget cuts have reduced library budgets and reduced subsidies to university-affiliated publishers.
- Librarians sounded the lone voice of protest in the face of strong demands from administrators to better control library budgets, as well as pressure from scientists and clinicians who were losing access to critically important journal literature.
- Harvard University has recently stated that it will not continue to pay increasing journal subscription prices.

3.6 At this time

- Barriers to access most of the research published in scholarly journals remain. Peer-reviewed literature is often funded by taxpayer-supported government grants and is highly valued by
consumers, researchers, and medical professionals alike. While scientists and clinicians provide free peer review, access is controlled by publishers who charge libraries and consumers hefty subscriptions to view this material.

- Between 1986 and 2003, journal prices increased 215% (Albert, 2006). Academic and research institutions cannot afford to subscribe to all the necessary journals, and providing reasonable collections is a challenge given large annual subscription price increases.
- Global science, technology, and medicine (STM) publishing grew from a $7 billion industry in 2002 to a $19 billion industry in 2012 (60% of that revenue came from North America) (McGuigan and Russell, 2008).
- Scientific journals were the fastest-growing media subsector of the prior 15 years. In recent years, commercial publishers have averaged profit margins in the range of 20% to 40%. As part of a multibillion dollar industry, scholarly publishing corporations are motivated by profits and stockholder interests first. Elsevier, one of the leading commercial STM publishers, had operating margins of approximately 26% in 1997 and 36% in 2010 on revenues of $3.2 billion (McGuigan and Russell, 2008; Lin, 2012).
- Today’s prices have risen dramatically because publisher mergers have led to decreased competition. Mergers of note include the 1991 purchase of Pergamon Press by Elsevier Science, the 1993 Reed-Elsevier merge, the 1996 Thomson-West union, the 2001 Elsevier purchase of Harcourt General, and the consolidation of Springer and Kluwer in 2004.
- In addition, publishers of major STM journals routinely charge authors significant figure reproduction, reprint, and page fees at the time of publication.
- Authors have also traditionally been required to surrender copyright to the publisher, thus limiting the subsequent use of their own publications, including posting their own papers on a personal website. These restrictions do not satisfy authors who desire maximum exposure for their work, researchers who need access to the prior literature to build on it, or the public, who want access to important medical and scientific advances.
- The sole winners in the current system appear to be commercial publishers; researchers, physicians, libraries, institutions, and the public all suffer the consequences of high costs and access barriers.
- Librarians also struggle with the complexities of subscription pricing models and licensing options, as well as uneven customer service.
- Growing frustration with the dysfunctional scholarly communication system has gained global notice.

3.7 New publishing models

- The scholarly publishing crisis, created by journal price increases, has seriously harmed libraries, universities, and researchers from accessing publications necessary for research and education.
- In 1991, physicist Paul Ginsparg founded the Internet’s first scientific preprint service (arXiv), allowing scientists to share ideas prior to publication.
- In 1994, Professor Steven Harnad wrote what he called a “subversive proposal,” asking researchers to immediately start self-archiving depositing papers in a publicly accessible, Internet-based archive to maximize exposure to their work and eliminate subscription price barriers hampering research sharing worldwide.
- Harnad’s proposal led to extensive debate and influenced subsequent events leading to the
open access (OA) movement of today.

- During the past few decades, Harnad has advocated author self-archiving (posting of pre- and post-prints on individual websites), along with producing tools for creating interoperability and metadata standards to enable multiple, disparate archives to function as one searchable, freely accessible virtual archive.
- In 1998, the Scholarly Publishing and Academic Resources Coalition (SPARC), a library-backed advocacy group that publishes alternative, lower-priced journals in selected subject areas, was founded.
- The biomedical science community joined the act in 1999 with the implementation of E-Biomed, the brainchild of Nobel laureate and then-director of the NIH, Harold Varmus. The aim of this life sciences version of arXiv was to provide a freely available, full-text online repository of electronic pre-prints and post-prints in all areas of biomedicine.
- Due to opposition from learned societies and commercial publishers, E-Biomed evolved into the less ambitious (but still important) PubMed Central, which currently houses full text for more than 160 journals. Many of these are freely available elsewhere; however, PubMed Central stands to become even more important to the OA movement because under the NIH public access policy, it serves as the repository for all publications resulting from NIH-funded research.
- In 2000, Varmus and fellow scientists Michael Eisen and Patrick Brown founded the Public Library of Science (PLoS), which began as a bold movement to persuade scientists to boycott editing or publishing in journals that did not make their content freely available in PubMed Central. (Over 34,000 scientists worldwide signed a pledge to do so, but only a small number complied with the agreement. Promotion and tenure requirements are not easily ignored!)
- After selling off several publishing businesses to Elsevier, Vitek Tracz founded BioMed Central (BMC), an OA commercial publisher, based on the “author-pays” model. Most of BMC’s journals are freely available online and supported by author fees (~ $600 to $1,800 per article).
- Today, BMC is a major player in the OA movement, having over 460 institutional members and publishing more than 110 OA journals. (BMC was recently acquired by Springer.)

3.8 OA milestones

1. Large universities say “no” to the big deal: In 2003, Cornell, Harvard, North Carolina Research Triangle Institutions, Massachusetts Institute of Technology, and for a time, the University of California did not renew Elsevier’s “big deal” involving bundles of titles and limits on canceling low-use titles.
2. The editorial board of a commercially published journal defects: In January 2004, the editorial board of Journal of Algorithms left Elsevier for the Association for Computing Machinery (ACM) to publish a competing journal instead.
3. Three major studies from financial analysts are released: Investec, PNB Paribas, and Citigroup Smith Barney indicate that competition from OA journals should raise concerns for investors in commercial journal publishers.
4. PLoS Biology and PLoS Medicine are launched: Two major, reputable OA journals were PLoS’ first offerings. Several other titles, including PLoS Clinical Trials and PLoS Pathogens, are now being published by PLoS.
5. Governmental agencies get into the action: In 2005, the eight UK Research Councils issued a proposal mandating that grant recipients must post papers resulting from their funding to a free institutional or subject-based repository as soon as possible after publication.
6. Major journals implement OA: *Proceedings of the National Academy of Sciences* (PNAS) and *Nucleic Acids Research*, other journals, and publishers including Springer, Blackwell, and Nature Publishing Group have implemented a variety of OA features and options.

7. Other organizations get behind OA: Library, governmental, and nonprofit groups such as the World Summit on the Information Society, the Medical Library Association, and the International Federation of Library Associations have endorsed OA.

8. Society publishers support the DC Principles: These publishers took a “middle ground” OA position by pledging to provide free full-text online access to their journals either immediately or within several months following publication.

9. An international movement: France, Germany, Spain, and the Netherlands have embraced OA and self-archiving initiatives.

10. The Wellcome Trust, a major UK research funder, sets OA requirements: All grantees awarded funds after October 1, 2005 must make their published results freely available in PubMed Central no later than six months after publication.

- The goal of open-access publishing is to make academic publications centrally available on the Internet at the earliest possible time at little or no cost to the widest audience of investigators and public health consumers. This movement represents a major culture shift in the long-standing tradition of academic publishing.

- A 2001 study in *Nature* showed that in one set of academic disciplines, articles that were freely accessible online were more likely to be cited by other researchers than those that were not freely accessible. The average number of citations for offline articles was 2.74, as compared with 7.03 for those freely available online (Lawrence, 2001).

### 3.9 Variations on OA

There have been many definitions of OA. The most highly regarded definitions are the three B’s (Budapest, Berlin, and Bethesda). Although differing slightly, they all state the following:

- Authors are allowed to read, download, copy, distribute, print, search, or link to the full text of works, permitting use for any lawful purpose, as long as Internet access to the material is possible.
- OA publications generally maintain peer review to preserve their academic reputations, and many OA journals recover costs by charging an author publication fee or article processing charge (APC).

**There are several types of OA:**

- Green OA (self-archiving or posting the author’s version, e.g., arXiv)
- Gold OA (publishers such as PLoS, BioMed Central, Hindawi, and Frontiers)
- Platinum OA (authors do not pay; publication costs are covered by funding agencies or another source; *eLife*)
3.10 Elsevier, the market leader

- The mega-publisher Elsevier reportedly makes annual profits of $290 million, with margins of nearly 40% on its core journal business (Collins, 2005).
- Accusing Elsevier of charging exorbitant fees for access, scientists at the University of California San Francisco and the academic senate at the University of California Santa Cruz called for boycotting Elsevier journals and called on tenured faculty members to give “serious and careful consideration to cutting their ties with Elsevier, including no longer submitting papers to Elsevier journals, refusing to referee the submissions of others, and giving up editorial posts, unless Elsevier drops its prices” (Collins, 2005).
- Elsevier and the University of California resolved their dispute, signing a five-year agreement giving University of California faculty, staff, and students electronic access to 1,200 Elsevier journals.

3.11 Authors/Researchers

- The average researcher has traditionally aimed to publish in the highest quality journals to gain a wide audience and secure prestige and recognition in support of tenure, promotion, and grant-funding success. These goals could motivate researchers to pursue OA publishing to obtain wider exposure for their work.
- Publication is the heart of scholarship. If scholarship is not disseminated, published science will not have a future.

3.12 Dealing with rejection: Is our only worry a higher number of submissions?

A reviewer’s task is to guide the editor in making their decision on publication of the manuscript. It is not to decide by a majority vote what should not be published.

- Why we need peer review:
  a) Pre-publication review provides the publisher with a preview of how the article will be received by the field.
  b) To exclude papers of poor quality
     i. After the peer review process, the journal selects the top manuscripts for publication (peer review provides an expert opinion).
  c) Peer review is “seen as highly accurate in calculating the quality of science.”
     i. Safeguarding the scientific standard
ii. Keeping with the “wow” factor, improving science, and printing strong and novel science
d) To detect fraud

3.13 Author-related bias by peer reviewers and/or journal
- Prestige of author or institution
  a) Peer review rewards prominent scientists (senior scientists or researchers from prestigious institutions), while junior scientists and less elite institutions are held to a much more rigorous review
- Country of origin
- Reviewer gender and/or author gender
  a) Favoring one gender over another

3.14 Manuscript-related bias by peer reviewers and/or journal
- Positive results (mostly those that go against other studies)
- Negative results are not typically published
- Controversial science (more likely to receive harder reviews)
- English language quality

3.15 Peer review bias
- Personal interest in the topic of the manuscript
- Scientific competition (unjustified harsh review to block or slow down publication)
- Peer reviewer-author friendship
- The author-editor-peer reviewer cycle creates a burden on the reviewer, as the same paper requires various exchanges among the participants without economic compensation

3.16 Responding to reviewers
- Tips for writing responses (see Annesley, 2011 for more tips)
  1. Do not use an aggressive or defensive tone
  2. Never use one reviewer’s response against another
  3. Thank reviewers for the good suggestions
  4. Say things like “we agree” or “this is an excellent point” if you are going to change your manuscript as suggested
  5. Pick your battles! If you can make some changes easily, go ahead. Then, if you refuse other suggestions, it looks like you are compromising with the reviewer instead of fighting them.
  6. For each response:
     1. Number your responses to each reviewer
     2. Restate the reviewer’s question or concern OR quote the reviewer’s comment
     3. Try to acknowledge something that can be improved
        a. Say your text may have been unclear
        b. Say that you could provide more detail
        c. Say that the suggestion is valid, but would belong in another paper
     4. Write each response so it can be read by itself; never refer to other responses (don’t say “see the response to Reviewer 2”)

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3.17 **When rejected**
- Be positive, the journal likes your science enough to put your paper through peer review
- Give yourself time to figure out what to change in the manuscript
- Rejection is part of the learning process
- Rejection can lead to a better manuscript
- Always write nice responses to reviewers
- Do not write excuses; focus on solutions
- Try to make the changes asked for; reviewers have the upper hand

3.18 **New players emerging in the field of scholarly publishing**

4. **The Future**

4.1 **What publishers will not allow to change**
- To protect subscription revenues, publishers must ensure that authors do not distribute material in any other way, meaning that authors must assign copyright to the publisher. Even the *British Medical Journal* and *Nature*, journals that allow authors to retain copyright, maintain exclusive licensure. This limits authors from freely distributing or allowing open access to their articles.
- Maintaining the EQAS bottleneck will also help maintain the current system.
- Impact factors are widely used as criteria for success. They powerfully discriminate against submission to most journals, restricting the number of acceptable outlets for publication for many researchers.
Scientific publishing will continue to be used for career advancement: publication in specific journals provides scientists with a status signal. As with other luxury items intentionally kept in short supply, there is a motivation to restrict access.

Artificial scarcity

- The authority of journals is increasingly derived from their selectivity. A common excuse for rejection is selectivity based on a limitation ironically irrelevant in the modern age: printed page space. This is an example of artificial scarcity. Low acceptance rates create an illusion of exclusivity based on merit and more furious competition among scientists.
- Manuscripts are assessed with a fundamentally negative bias: how they may best be rejected to promote the presumed selectivity of the journal.
- Journals closely track and advertise their low acceptance rates, equating these with rigorous review.

“Nature has space to publish only 10% or so of the 170 papers submitted each week, hence its selection criteria are rigorous” – even though it admits that peer review has a secondary role: “the judgment about which papers will interest a broad readership is made by Nature's editors, not its referees.”

Science also equates “high standards of peer review and editorial quality” with the fact that “of the more than 12,000 top-notch scientific manuscripts that the journal sees each year, less than 8% are accepted for publication.”

4.2 Lessening the current stranglehold of commercial publishers

- The key is to reduce large profits collected by publishers without destroying high-quality journals, e.g., through electronic archiving/publishing systems with quality control provided by peer review
- Development of more OA journals that grow in stature and impact over time to provide true competition with traditional established titles (eLife, Faculty of 1000 Research, PeerJ, etc.)
- Increased implementation of institutional repositories (IRs) and self-archiving, enabled by further development of effective finding tools like OAIster and Google Scholar
- More funders mandating deposit of grant-supported manuscripts in free archives like PubMed Central
- Creation of additional tools for publishing work with extras (linked data, embedded media, etc.) and technology-based collaborations (e.g., informatics)
- Distribute authors’ works directly to readers, circumventing the journals and disintermediating the EQAS function

Different publishing models and trends will likely coexist for some time. Publishers may fight change, but some alteration of the current structure is inevitable. What remains largely unknown is how all the various experiments, proposals, business models, and governmental actions will impact libraries and scholarly publishing.
### 4.3 Current peer review systems

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<thead>
<tr>
<th>Open Peer Review</th>
<th>Blinded Review with Reviewer Comments Published</th>
<th>Collaborative Peer Review</th>
<th>Single Blind</th>
<th>Double Blind</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No Peer Review of any form prior to publication</td>
<td>• Reviewers comments are included in the final published article to provide a level of transparency to the validation process</td>
<td>• Reviewers communicate as a group to collaboratively review the paper</td>
<td>• Traditional process where reviewers know the author, but the authors do not know the reviewers identity</td>
<td>• Authors do not know the identity of the reviewers and reviewers do not know the author’s identity.</td>
</tr>
<tr>
<td></td>
<td>• Scientific validation performed through post publication comments and ratings</td>
<td>• In many cases the journal editorial team facilitates the group discussion</td>
<td></td>
<td>• Considered the most unbiased approach to peer review</td>
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**More transparent**  
**Less transparent**

### 4.4 A new approach to peer review: Rubriq

[www.rubriq.com](http://www.rubriq.com)

### 4.5 Helping authors

- Recommendations for tenure consideration: limit the number of works that can be considered (the preventing over-publication and encourage better quality works).
- Encourage less formal avenues for work deemed "ephemeral" or of lower impact.
- Subsidize publication fees whenever possible.
- Do not withhold promotions from researchers that have not published in high impact factor journals; there are other classifications that should be considered (h-Index, Eigenfactor, Immediacy Index, Journal Citation Report, number of downloads, etc.)
- Universities, research funders, and employers should mandate universal online access.
- Authors should be encouraged to publish anything that is true, regardless of perceived importance.
Authors should be encouraged to publish studies with apparent negative results, which should not be abandoned!

4.6 Other journal metrics
- Eigenfactor → Frequency of access
- Impact Factor → Average citation
- Journal Citation Reports (JCR) → Category of journal
- h-Index → Productivity of researcher
- Immediacy Index → Speed of citation

4.7 Summary
The most challenging aspects of being a scientist will always include dealing with the complexity of publishing one’s research and knowledge. One must do much more than just accurately record the results and methods used in finding results. Scientists are expected to place the research in proper context, add new knowledge to a scientific discipline, use proper grammar and style, and accomplish these tasks so that the paper will be published in a journal of choice, while guarding against any perception or actuality of improper behavior.

In the future, journals will still be written to advance knowledge and professional status, the difference will be how we go about disseminating new knowledge.

4.8 Author services

4.9 Gaining visibility as a researcher
5. Scholarly publishing timeline

1323 - Compagnie du Gai Sçavoir (oldest learned society on record) founded in Toulouse, France. The society focuses on performances – plays, ballads, etc.
1430 - Accademia dei Sollevati founded in Treia, Italy (focused on poetry and literature)
1660 - Royal Society of London founded
1665 - Journal des Scavans (intended to cover all fields of knowledge) and Philosophical Transactions of the Royal Society of London are first published. Each journal used some form of peer review, although not fully. Philosophical Transactions published famous scientists such as Newton, Hooke, van Leeuwenhoek, Faraday, and Darwin.
1731 - Medical Essays and Observations, the first fully peer-reviewed journal, is launched by the Royal Society of Edinburgh
1743 - American Philosophical Society founded in Philadelphia (first society in what is now the US)
1848 - American Association for the Advancement of Science founded. AAAS publishes the journal Science and is the largest general society in the world.
1869 - Nature publishes its first issue
1880 - Science publishes its first issue
1947 - Elsevier publishes its first international journal (Biochimica et Biophysica Acta)
1972 - Elsevier launches EMBASE
1990 - Postmodern Culture becomes the first online-only journal (no print copy)
1991 - arXiv created
2003 - PLoS founded
2006 - PLoS One begins publishing
2011 - PubMed Central formed
2012 - F1000 Research, PeerJ, and eLife are launched

6. References

Scholarly publishing
Acord, KS and D Harley. 2011. Peer review in academic promotion and publishing: its meaning, locus, and future. The Future of Scholarly Communication Project, University of California, Berkeley. (http://escholarship.org/uc/item/1xv148c8#page-1)


(http://scholarlykitchen.sspnet.org/2012/03/19/predicting-the-present/)

(http://www.nature.com/nature/debates/e-access/Articles/lawrence.html)

(http://www.nytimes.com/2012/02/14/science/researchers-boycott-elsevier-journal-publisher.html)

(http://southernlibrarianship.icaap.org/content/v09n03/mcguigan_g01.html)


Peer review

(http://www.clinchem.org/content/57/4/551.full)

(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3237011/)

(http://www.lutz-bornmann.de/icons/BornmannDanielLB.pdf)

(http://www.psh.ethz.ch/research/publications/reliability2010.pdf)

(http://www.plosone.org/article/info:doi/10.1371/journal.pone.0014331)

(http://www.ejournal.unam.mx/cns/no40/CNS04008.pdf)

(http://sss.sagepub.com/content/35/4/549.short)


(http://www.emwa.org/JournalArticles/JA_V17_I2.Langdon_Neuner1.pdf)

(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1286270/)

(http://www.tremedica.org/panacea/IndiceGeneral/n3_FANavarro.pdf)

(http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1420798/)

(http://pps.sagepub.com/content/4/1/40.short)