

# Readersourcing — A Manifesto

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## Abstract

This position paper analyzes the current situation in the scholarly publishing and peer review practices and presents three thesis: (i) we are going to run out of peer reviewers; (ii) it is possible to replace referees with readers, an approach that is named Readersourcing; and (iii) it is possible to avoid potential weaknesses in the Readersourcing model by adopting an appropriate quality control mechanism.

The `readersourcing.org` system is then presented as an independent, third-party, non-profit, academic/scientific endeavor, aimed at quality rating of scholarly literature and scholars, and some possible criticisms are discussed.

## 1 Introduction

Scholarly publishing, the main mechanism to spread scientific knowledge, is based on peer review, the judgment by colleagues of the goodness of submitted papers. This short position paper first briefly summarizes the current practice of scholarly publishing and peer review and emphasizes some of their critical aspects (Section 2). Then, Section 3 presents some evidence of a specific problem in scholarly publishing: we are “running out of reviewers”. Section 4 illustrates the proposal of outsourcing to the crowd of readers the quality control mechanism usually performed by peer review, an approach that is named *Readersourcing*. I also describe a mechanism to cope with the, probably obvious, reaction to Readersourcing, i.e., that expert readers can provide more correct and reliable judgment on the papers they read, and a prototype implementing that approach. Finally, Section 5 discusses some reactions to the proposal and Section 6 closes the paper.

## 2 What's wrong with peer review?

How do scientists work? We all know: a researcher has an idea, or discovers some new phenomenon, she does some theoretical or experimental work, and she writes a paper and submits it to a journal, a conference, a workshop, or any other appropriate forum. The paper is not immediately published; before, it has to pass *peer review*: some peers, i.e., researchers themselves, that are hopefully as expert as the author, read the paper and judge it. Then an editor makes the final decision on the basis of referees' remarks. If the decision is positive, the paper will be published. This process is named *scholarly publishing*, and is it common to many — though not all — research fields. Peer review is a crucial element of the process, as well distilled in the famous statement by Stevan Harnad, “The invisible hand of peer review”, that synthesizes the fundamental role of peer review(ers) that allows to keep at a high level the quality of the scholarly literature.

The above description is oversimplified, and there are several aspects that are left out. For example, several forms of published material exist, including books, thesis, reports, and so on. There are important differences across disciplines. Not all published work undergoes peer review, and there are several variants and changes to the basic peer review process (see, e.g., Meyer, 2010; Akst, 2010): anonymous (blind, double blind) vs. open; with a meta-reviewer; with rebuttal; and so on. Also, although it is impossible to provide here a complete account of a history that lasts centuries, it is important to note that the contemporary practices of scholarly publishing and peer review were not born in a vacuum. Rather, their current status has been reached after centuries of social, economical, and technological progress and changes that include, for example, the so called Republic of Letters, the habits of circulating preprints among scholars, and the first scholarly journals in the 17th century. In particular, current peer review and scholarly publishing were not born together: at first, since the number of submitted papers was low, the editor of the journal could review them; peer review was added later to cope with the increasing number of submitted papers, and their increasing specialization levels.

Moving to more recent years, during the 90s, the coming of Internet, email, and Web fostered *electronic scholarly publishing*, i.e., to replace the paper mailing that was in place with faster electronic communication, and to rely on novel forms of publications, in terms of multimedia, data/databases, software, etc.

Electronic scholarly publishing is today a reality. What is probably more interesting, the Web — and more recently the Web 2.0 — encouraged, inspired, or simply made possible alternative publication models as well: “do-it-yourself-publishing” (anyone can “publish” on a Web page whatever she wants, without any peer review); open access (scientific publications should be freely accessible by anyone); commentaries (a paper is published together with some comments by other authors); and so on. After the Web 2.0, these proposals are labeled as “Science 2.0”, and this label includes more innovative approaches as well: one

example is the concept of publication proposed in the Liquidpub project,<sup>1</sup> that advocates a more “liquid” (i.e., wiki-like — but this is an oversimplification) notion of paper.

After having set the background, let us analyze peer review, and its criticisms, in more detail. Peer review has been criticized even before the Science 2.0 innovations (see the Wikipedia page on peer review<sup>2</sup>), and it is not surprising that it is particularly discussed in this environment. Peer review is sometimes simply “wrong”, because the reviewer does not always understand the submitted paper (i.e., sometimes the reviewer is not good enough to be a “peer” of the author). Sometimes peer review takes too much time. It is probably one of the causes of the so called “positive bias”,<sup>3</sup> i.e., the bias towards publishing mainly positive results, which is a problem particularly in some fields like medicine. It tends to suppress the dissent against “mainstream” theories. Peer review is of course subjective to some extent, and sometimes it is simply inadequate since, for example, the referee can not replicate complex and long experiments and an act of faith — that the author is honest — is required (Arms, 2002). Indeed, peer review is not designed to detect fraud: in the past, fraudulent misconduct by authors has been detected by readers rather than referees (Service, 2002). Conflict of interest is also sometimes an issue, since the referee can hinder or favor papers from competitors or friends.

Two authoritative quotations, also included in the above cited peer review Wikipedia page, are useful to provide a measure of the problem. Richard Horton, editor of The Lancet, stated:

*The mistake [...] is to have thought that peer review was any more than a crude means of discovering the acceptability — not the validity — of a new finding. Editors and scientists [...] insist on the pivotal importance of peer review. We portray peer review to the public as a quasi-sacred process that helps to make science our most objective truth teller. But we know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish, and frequently wrong.*

Drummond Rennie, deputy editor of Journal of the American Medical Association, stated:

*There seems to be no study too fragmented, no hypothesis too trivial, no literature too biased or too egotistical, no design too warped, no methodology too bungled, no presentation of results too inaccurate, too obscure, and too contradictory, no analysis too self-serving, no argument too circular, no conclusions too trifling or too unjustified, and no grammar and syntax too offensive for a paper to end up in print.*

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<sup>1</sup>[liquidpub.org](http://liquidpub.org)

<sup>2</sup>[en.wikipedia.org/wiki/Peer\\_review](http://en.wikipedia.org/wiki/Peer_review)

<sup>3</sup>[en.wikipedia.org/wiki/Publication\\_bias](http://en.wikipedia.org/wiki/Publication_bias)

More anecdotal evidence is provided by the well known story of SIGIR reviewers rejecting in 1996 the Google/PageRank submission (allegedly because there was no evaluation), and the birth of *Rejecta Mathematica*<sup>4</sup> “a real open access online journal publishing only papers that have been rejected from peer-reviewed journals in the mathematical sciences”, let alone the bad review(s) that any researcher has received at some point in her career.

Another cue that peer review is somehow under attack is the above mentioned large number of variants and changes to the peer review process (Meyer, 2010; Akst, 2010). Even more radical approaches like Liquidpub (see above) suggest collaborative reviews and/or a more distributed peer review practice.

So, to make a long story short, and to summarize this section: scholarly publishing and peer review are reasonably effective ways to achieve an effective scholarly knowledge communication, with an a-priori, pre-publication quality filter; however, they are not perfect, and their limitations are also often perceived in the field, as shown for instance by a recent large survey among authors and reviewers<sup>5</sup>. Therefore, it makes sense to study alternative approaches.

### 3 A problem: referees as a scarce resource

The first thesis of this paper can be stated as:

**Thesis 1 We are going to run out of good referees.**

Why? To support this thesis, let us try to be more analytic and analyze a breakdown into 10 factors. First, let us note that the increasing number of scholars is not a problem per se: more researchers imply of course more papers, but more referees as well.

- 1. Technology.** Writing is made easy by technology. We have better and more powerful tools for writers today than 20-30 years ago: text editors, cut & paste, search engines, bibliographic management software, email, tele- and video-conferencing tools, spell-checkers, etc. All these tools were not available, say, during the 70s, when authors wrote papers by hand or on a typewriter. Also, copyediting was more cumbersome, whereas it is quite common today to leave it to authors (and software), that are requested to provide a camera-ready. Thus, technology progress leads to more publications — and to more submissions as well.
- 2. Publication opportunities.** The number of publication opportunities is increasing. Technology makes easier the creation of publication venues and forums (e.g., conferences, journals) by means of conference management software, journal submission sites, and similar tools. More publication opportunities of course lead to more submissions.

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<sup>4</sup>[www.rejecta.org](http://www.rejecta.org)

<sup>5</sup>[www.senseaboutscience.org/pages/peer-review-survey-2009.html](http://www.senseaboutscience.org/pages/peer-review-survey-2009.html)

- 3. Publish or Perish.** There are strong career pressures to publish more. There are even some widespread ways of saying that summarize the situation: besides the famous “Publish or Perish”, LPU (“Least Publishable Unit”) and “salami publishing” both refer to the practice of publishing small increments in place of a single good publication. This “arms race” leads to more publications/submissions per researcher, and thus more submissions in general.
- 4. Shameless resubmissions.** Rejection is not a problem anymore: a rejected paper can be just resubmitted to another venue, with minimal effort. Since most of the submissions are done electronically, we could speak of “One-click-away resubmission”. Also, *Rejecta Mathematica* (see above) is a last resort. Of course, this leads to more submissions as well.
- 5. Paper & pencil.** On the other hand, technology has not improved the reviewing activity so much. Still, peer reviewers rely on paper and pencil for their work. It is true that ebook readers, search engines for plagiarism, and similar tools can help, and that often the referee report is written and submitted electronically; nonetheless these are only minor improvements for the referee work itself, an activity that has been unchanged for decades. Thus, reviewing is as difficult as two centuries ago, or perhaps even more, since papers are often very specialized or interdisciplinary, and the referee is often required to provide her report very quickly.
- 6. No reward. No accountability.** Good referees are not rewarded, and bad referees are not penalized. At least, this does not happen to a large extent, in public, and systematically. On the one hand it is true that program committees and editorial boards members keep good and bad referees lists, the rumor sometimes spreads among colleagues, a best reviewer prize is sometimes awarded, and so on. However, on the other hand, these are just palliatives: they stay at the level of personal communication or little more, and it is clear that there is no rational, selfish, and compelling reason to be good referees. Gene Golovchinsky states it well in his blog:<sup>6</sup> “the only reward for good reviewing is more reviewing”.
- 7. More cooperation.** Cooperation and co-authorship networks are growing, for several reasons that include, for example, cooperative tools, ease of traveling, the Web, and other tools. Also, doing research and authoring is far more cooperative than reviewing, and it is always more so (Cronin, 2009). Therefore, because of increasing cooperation, more research is done, and this leads to more submissions. Furthermore, the increasing number of co-authors also makes more difficult to find referees, since they can not be chosen among co-authors.
- 8. Specialized circles.** Science is often done within smaller and more specialized research fields. Since in small circles anyone knows everybody else,

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<sup>6</sup>[palblog.fxpal.com/?p=2230](http://palblog.fxpal.com/?p=2230)

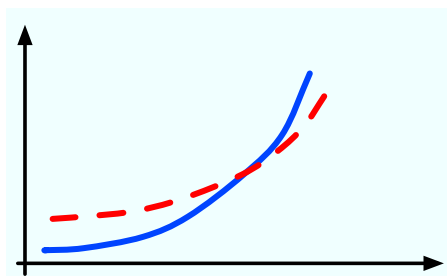


Figure 1: Submission (blue) and reviewing (red, dashed) forces.

conflict of interest and anonymity become more serious concerns. This phenomenon increases the number of cases in which it is more difficult to find referees.

9. **Money.** Although as discussed in item 6 above in the vast majority of cases referees are not rewarded, some journals are beginning to pay referees (indeed, referees of research project are usually paid already.) Would they if not needed? A related proposal in this direction has been made in (Fox and Petchey, 2010), where the authors propose to reward the reviewers in an artificial currency that can be spent later on for publication.
10. **Open access.** Although open access is a threat to current commercial practice of publishers, scholars and authors would like to have their papers fully accessible, and someone has decided of not acting as a referee for publishers not providing open access<sup>7</sup>. Another reason to have even fewer referees.

To summarize this analysis, we can say that in the scholarly publishing world there is a strong and fast increasing “Submission force” (as detailed in items 1-4, 7), whereas the “Reviewing force” is not so strong and is not increasing so fast (5-10). If this is true, at some point the Submission force will overtake the Reviewing force, as represented in Figure 1, and the system will collapse. Leaving ethical considerations aside, if being a good referee is not an evolutionarily stable strategy,<sup>8</sup> good referees will be constantly more scarce.

I am not alone in supporting this thesis, and there are even more extreme positions (see, e.g., Fox and Petchey, 2010); however, there is also the opposite stance, that there is no peer review crisis at all, even supported by some data (Vines et al., 2010). In the following, I will anyway assume that I have convinced the reader that the thesis is true, at least as a (reasonable) working hypothesis.

<sup>7</sup>[www.crypto.com/blog/copywrongs/](http://www.crypto.com/blog/copywrongs/)

<sup>8</sup>[en.wikipedia.org/wiki/Evolutionarily\\_stable\\_strategy](http://en.wikipedia.org/wiki/Evolutionarily_stable_strategy)

## 4 A proposed solution

### 4.1 Readersourcing

So, we do not have enough referees. Is there any solution? The second thesis of this paper is that:

#### **Thesis 2 We have plenty of readers!**

Readers read papers, and they form an opinion on the paper. Moreover, readers are many; therefore, potentially at least, there is a quite strong reading — and reviewing as well, in some sense that we are going to discuss soon — force. The number of papers that each researcher reads per year is at least one order of magnitude higher than the number of papers that she writes: Tenopir and King (2008) report almost 300 (and increasing) papers read per year in 2005, whereas the number of papers written per year is probably around 10 on average, and the latter figure is even lower when one considers that writing often means co-authoring, whereas reading is done alone. Moreover, this estimate does not take into account the readers that do not publish like, e.g., students. However, this reading/reviewing force is not used at all, and readers’ opinions are quite likely to stay closed in their own mind— and probably go forgotten after some time.

Using many readers in place of a few referees can be seen as *crowdsourcing*. Crowdsourcing is a term proposed by Jeff Howe (Howe, 2008) and means “taking a task traditionally performed by an employee or contractor, and outsourcing it to an undefined, generally large group of people or community in the form of an open call” (see also the Wikipedia page on Crowdsourcing<sup>9</sup>).

Notable successful crowdsourcing examples include the “Kasparov versus the World” chess match that was played in 1999; Wikipedia, whose quality seems comparable to more classical encyclopedias (Giles, 2005); the well known open source movement in software; several Web sites and services for, e.g., t-shirt design (threadless.com), photography (iStockphoto), research and development (Innocentive), and the rise of crowdsourcing platforms and markets, like Amazon Mechanical Turk<sup>10</sup>, that allow their users to outsource to the crowd simple tasks for a small amount of money. Of course, not everyone is a crowdsourcing enthusiast: for a critical viewpoint, see (Keen, 2008) (or the Wikipedia page<sup>11</sup>). Indeed, the “Wisdom of crowds” expression pre-dates crowdsourcing, and it is well known that, in some cases at least, a crowd can be as wise as, if not more, a small group of experts.<sup>12</sup> What the number and variety of the above successful examples tell us is that crowdsourcing is rather common and seems effective.

Peer review is not crowdsourced: still a few referees do the job (if they can be found, given the analysis in Section 3). What is particularly striking is that it is quite strange that the Web 2.0 tools and approaches that we developed are

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<sup>9</sup>[en.wikipedia.org/wiki/Crowdsourcing](http://en.wikipedia.org/wiki/Crowdsourcing)

<sup>10</sup>[www.mturk.com](http://www.mturk.com)

<sup>11</sup>[en.wikipedia.org/wiki/The\\_Cult\\_of\\_the\\_Amateur](http://en.wikipedia.org/wiki/The_Cult_of_the_Amateur)

<sup>12</sup>[en.wikipedia.org/wiki/The\\_Wisdom\\_of\\_Crowds](http://en.wikipedia.org/wiki/The_Wisdom_of_Crowds)

not used by us where they can be naturally applied. The cobbler's children go barefoot.

It is even worse. Indeed peer review *is* crowdsourced! As a matter of fact, readers read the papers, and often the readers are as experts as the original referees, thus the crowd at work seems a particularly good one (although of course it also contains several other not so experts, as any crowd). But the results of this crowdsourcing process are not exploited, because readers' opinions are not made public.

So, summarizing, the proposed solution to the problem presented in Section 3 is to crowdsource peer review to the readers. More in detail, my proposal is: (i) to allow and foster the readers to express their opinions as ratings on the papers that they read; and (ii) to collect and aggregate those ratings to distill a reliable quality score for each paper. I name this approach *Readersourcing*. In its purest form, Readersourcing would replace peer review: authors would directly publish their papers on the Web, with no peer review, and readers will read, judge, and rate them. However, it is also easy to imagine Readersourcing as co-existing with peer review: (some of) the published papers might undergo the usual a-priori filter of peer review. In both cases, Readersourcing would allow to obtain quality scores for papers and researchers, as detailed below.

## 4.2 Quality issues

Readersourcing is a solution to a problem, but it immediately rises another problem, for which we need a solution: how to tell good readers from bad readers? If two hundred undergraduate students say that a paper is good, but five reputation experts in the field say that it is not, it seems obvious that the latter should be given more importance when computing paper quality. In other terms, what is needed is some mechanism that:

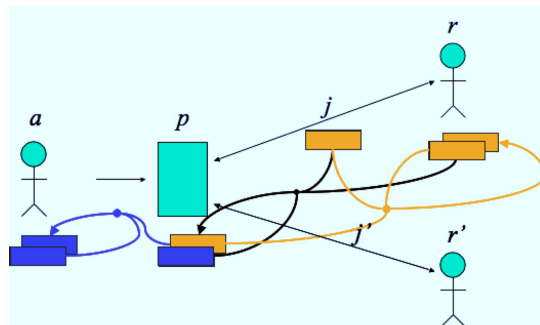
- (i) weighs appropriately good and bad readers; and
- (ii) updates readers importance according to their behavior, in order to be able to do (i) and to generate a virtuous behavior, where readers need to provide correct judgments to keep their reputation high.

The third thesis of this paper is that it is possible to design a mechanism such that:

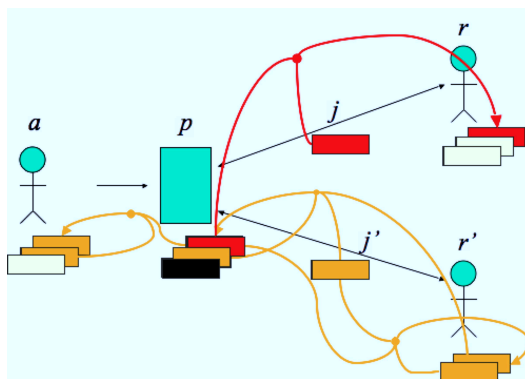
### **Thesis 3 It is rewarding to be a good reader.**

Actually, such a mechanism has already been proposed and precisely defined in (Mizzaro, 2003). In short, it builds on readers reputation. It defines an objective measure of reader goodness, that readers will try to maximize to keep their reputation high. More in detail, the mechanism is based on papers, authors, and readers, each one having a quality score. Paper scores measure papers quality; author scores change accordingly to the scores of the papers published by each author (they are weighted averages of paper scores). Each reader has a score





(a)



(b)

Figure 2: A toy example. The small rectangles represent the scores.

too, different from the author score. Judgments by high scored readers are more “heavy” when computing the average that leads to the score of a paper.

Also, the reader score is a measure of her reviewing capability and it is revised accordingly to correctness of expressed judgments (right judgments mean higher reader score, and wrong judgments mean lower reader score).

The last piece of the puzzle is to define what a right judgment is. In theory, it is equal to the final paper score (the score that the paper will have at time  $= +\infty$ ). In practice, the score at time  $+\infty$  is not available, but it can be approximated by the current score. Also, this approximation can be revised over time as we get closer to  $+\infty$ .

Figure 2 shows a toy example: when the first reader  $r$  expresses her judgment  $j$  on the paper  $p$ , the scores of  $p$ , its author  $a$ , and  $r$  change (Figure 2(a)). When a subsequent reader  $r'$  expresses her judgment  $j'$ , the same updating operations take place on  $p$ ,  $a$ , and  $r'$ ; but the correctness of  $j$  is recomputed as well, on the basis of the new score of  $p$ , and the score of  $r$  is revised accordingly (Figure 2(b)).

With this mechanism, readers “bet on the score the paper will have”.

A last ingredient is steadiness: authors, readers, and papers also have a steadiness value that measures how stable a score is. Papers published a long ago (and very much read) have a high steadiness value; “new” authors whose papers are not yet so much read have a low steadiness; and readers that expressed many judgments have a more stable reader score. Steadiness values change (increase) as well over time.

The aim of this mechanism is to create a virtuous circle, where authors try to publish good papers, readers try to express good/correct judgments, score and steadiness of papers can be used to decide which papers to read (together with the usual tools like, for example, search engines and citations), score of authors measure their scientific productivity, and score of readers measure their scientific reputation and are used to weigh the judgments of the readers and “to tell good readers from bad ones”. Being a good reader (referee) is an evolutionarily stable strategy. Also, this is a more precise mechanism than the much discussed metrics based on citations (impact factor, H-index, etc.): whereas there are several reasons to cite, or not to cite, a paper, the score expressed by a reader is a quality assessment act that is much more compelling than a citation.

Some software simulations show that, under reasonable assumptions, there is no problem for lobbies (people mutually giving high scores), lazy readers (i.e., readers simply confirming the current score of the paper), and other malicious behaviors aimed at gaming the system — see (Mizzaro, 2003) for details. Also, the mechanism has been applied to quality rating of Wikipedia pages (Cusinato et al., 2009), with some adaptations since no explicit judgment is available<sup>13</sup> and the amount of change to a page is assumed to be a reliable implicit judgment of its quality. Indeed, the system seems even more general, and its application to peer assessment (students assessing the quality of other students’ exercises, with the instructor assessing — with the final and correct score, which is not available in peer review — only a small sample of the answers) is in progress, with promising preliminary results. Also, a simplified version has been applied to a social context-aware browser for mobile devices, and the results of its evaluation are promising (Mizzaro and Vassena, 2011).

### 4.3 readersourcing.org

The Readersourcing model is not only theoretical. It has been developed into a concrete application, still in beta but almost complete and available at [www.readersourcing.org](http://www.readersourcing.org). It aims to collect paper judgments and to compute scores according to the mechanism described above. A Firefox plugin will also be available to allow readers to express their judgments without connecting to the Readersourcing website.

Therefore, Readersourcing can be defined as an independent, third-party, non-profit, academic/scientific endeavor, aimed at quality rating of scholarly literature and scholars.

It is probably worth justifying the choice of a new implementation from

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<sup>13</sup>The recent “Rate this page” Wikipedia feature was not available in 2009.

scratch, given the high number of “rating” services on the Web (YouTube, eBay, Amazon, Slashdot, Digg, Epinions, reddit, etc.), some of which explicitly aimed at, or easily adaptable to, scholarly publishing (CiteULike, Mendeley, ACM DL, DBLP, Connotea, Diigo). Since all these are somehow private, the question of who owns the data arises. Readersourcing aim is to keep the data public, to foster accountability and to allow alternative scoring mechanism. Also, the same person will have different identities on the above services, and this would make the computation of the scores more difficult. A centralized solution would help.

It is also worth mentioning PubZone:<sup>14</sup> it is very similar to Readersourcing, though it is aimed at the database community and the underlying score mechanism is different.

## 5 Discussion

There are some objections to Readersourcing. For space limits, I list here only the most natural and frequent criticisms, together with some answers; see also (Mizzaro, 2003) for more discussions, and for the results of some software simulations as well.

A first reaction is that since Readersourcing is an a-posteriori filter, whereas peer review is an a-priori one, the quality of the scholarly literature would decrease. There are some answers to this:

- even with peer review, it is not clear that a filter is actually in place (see Rennie’s quotation above, or pick your own preferred fraude case among several instance, for example the well known “Schön affair” (Service, 2002) or a more recent one concerning a psychologist<sup>15</sup>;
- even if the number of published papers increases, the reader can anyway find the good ones when a quality score is attached to any of them;
- nothing prevents to apply Readersourcing and classical peer review together, with the former acting as a sort of surrogate to the latter when needed (e.g., when there are no referees).

On a related issue, peer reviewers comments often help to improve the papers. The disappearance of this function could be harmful, but it is also easy to imagine some social dynamics that can surrogate it: commentaries, in a blog-like fashion, can be added to papers; since the paper and its score will be out there forever, authors might seek informal peer reviewing before publication (as it is already done in the high energy physics community, where a major publication target is [arXiv.org](http://arXiv.org), a paper repository with no peer review); some papers (for example, only the most interesting or most discussed ones) might be revised after their publication; and even a more “liquid” notion of paper (see Footnote 1) might develop in this environment.

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<sup>14</sup>[pubzone.org](http://pubzone.org)

<sup>15</sup>[www.nytimes.com/2011/11/03/health/research/noted-dutch-psychologist-stapel-accused-of-research-fraud.html](http://www.nytimes.com/2011/11/03/health/research/noted-dutch-psychologist-stapel-accused-of-research-fraud.html)

Also, referees must read the paper, whereas no reader is forced to read any specific paper; as a consequence, some papers could have very few (even zero) readers, and therefore their quality would not be assessed. Anyway, this does not seem to be so worrying; unread papers will go unnoticed, and papers read by very few readers will perhaps have a high score, but a low steadiness as well (so they can be easily distinguished from good and well-established papers, and if they are found to be not so good after a while, their score will drop rapidly). Similar considerations apply to authors.

Another issue is that today the reading approaches of readers and referees are different: for example, readers often peruse only a part of a paper, and they are somehow reassured that the a-priori quality filter has already been applied. This resembles the common criticisms to crowdsourcing, but the above listed successful crowdsourcing examples witness that, in some cases at least, the quantity (i.e., the crowd) is a good surrogate for the quality (i.e., a few experts). It is also easy to imagine a slight improvement to the mechanism, that could allow the readers to judge only a specific portion of the paper; indeed, a similar solution has been used in the Wikipedia case, with edits in place of the papers of the original model (Cusinato et al., 2009). Also, reading habits are likely to change, and become more careful, because the expressed judgments will affect readers's reputations.

One critical issue in Readersourcing is identity, that should probably be solved by some institutional commitment, i.e., researchers willing to participate in `readersourcing.org` should obtain a sort of token from a recognized research institution (university, research center, etc.). By now, the system is based on an invitational mechanism that requires a new member to be invited by someone already in `readersourcing.org`.

A last problem is social acceptance: will scholars spend time to express judgments? will they accept an “objective” score? will established and authoritative researchers get high scores also because of their status? The social aspects of this kind of system are extremely complex, and it is probably impossible to foresee what would happen, so I prefer not to go into the details. But it is important to notice that the Readersourcing environment is particularly favorable, more than the usual crowdsourcing stories, since its crowd is made up by several people that are as experts as the original referees (plus, admittedly, several not so expert ones, as in any crowd).

## 6 Conclusions

Readersourcing, an independent, third-party, non-profit, academic/scientific endeavor, aimed at quality rating of scholarly literature and scholars has been presented and defended against some possible criticisms. I have shown how there are some aspects that make the proposal attractive: the high number of available readers and “readings”; the quality of this particular crowd; the weaknesses in the current system; the technological facilitators that make it possible in the current Web arena; the existence of similar and successful crowdsourcing

stories; the fact that most of the intellectual work (i.e., the reading of papers) already takes place and is wasted; and so on.

However, there are also some still unresolved issues, again discussed above: social acceptance, gaming attempts, the disappearance of the role of classical peer review that improves the papers, etc. Therefore, only further simulations and analyses, and perhaps only the final deployment and use, will determine if Readersourcing will be successful.

## Acknowledgements

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