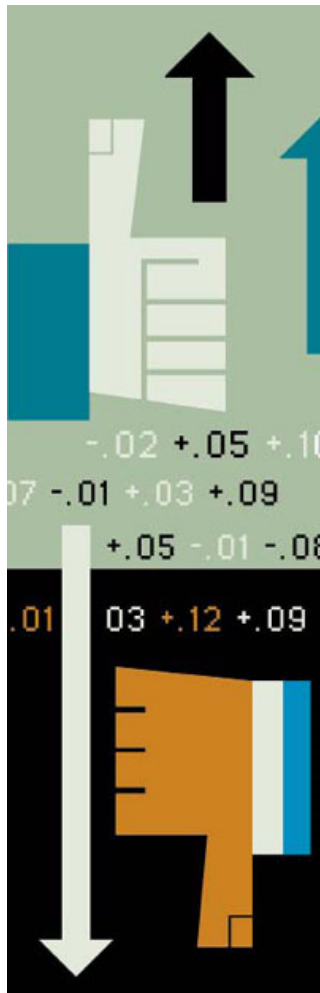


By Bo Adler, Luca de Alfaro, and Ian Pye

Redesigning Scientific Reputation

Rewards and incentives for online collaboration can make better science.



The current system of peer-reviewing scientific publications has the momentum of centuries, and is still ruled by a rigid cycle based on its original print medium. The review phase must be complete before publication takes place; once the work is published, it cannot be updated. While insightful comments may have been made during the review process, or afterward by readers, these comments are not distributed together with the published work, so that crucial context may not be passed on to readers. What if we could redesign the process of scientific review to take advantage of modern technologies?

People are experimenting with new ideas. Archival sites are available that allow scientists to post their work without delay: the most prominent is Cornell's arXiv.org, and other institutions such as the California Digital Library are following suit. Many researchers are interested in developing review systems around these repositories that may augment, and eventually supplant, the traditional process of journal and conference reviews. Several scientific publishers and Web platforms—e.g., PLoS, BioMedCentral, AcaWiki, Faculty of 1000, and the recently announced LiquidPublications—are using article metrics, comments and other post-publication rating systems to identify important research. These systems are interesting, but they can be subject to the same drawbacks of the current peer review system, where social or academic obligation and coercion can skew the results.

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Peter Frishauf,

founder of Medscape, has [proposed](#) that quantifiable “reputation systems” would reflect the depth of review a paper has undergone, and could serve as a reward system for those scientists who contribute to enhancing or judging a paper’s value. He draws his ideas from a 2003 [paper](#) by Jeff Ubois, published in Esther Dyson’s Release 1.0 newsletter, titled “Online Reputation Systems.” From this early work he expands on research by us and others who have proposed quantification schemes based on longevity and impact of text passages in articles and reviewed comments. Thus, one’s reputation is not measured by credentials, but by one’s contribution both to

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