Assessing peer review by gauging the fate of rejected manuscripts. The case of *Journal of Artificial Societies and Social Simulation*

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Why looking at the fate of unpublished manuscripts?
Wijnhoven and Dejong (2010) examined 926 manuscripts rejected by the British Journal of Surgery and found that 609 (65.8%) were published in 198 different journals, mostly in subspecialty surgical and non-surgical journals with a mean time lapse of 13.8 months. Only 14 manuscripts (2.3%) were eventually published in journals with a higher impact factor than the British Journal of Surgery. Similar results were found by Khosla et al. (2011) in a study on 371 manuscripts that were rejected by Radiology in 2005-2006, although here the mean time lapse was 17.3 months. Similar results were obtained in a retrospective online survey by Hall and Wilcox (2007) on a sample of authors rejected by Epidemiology in 2002. In general, authors admitted that their manuscripts that were rejected by the first journal were ultimately submitted to a journal of lower impact, so confirming the hypothesis that authors try first prestigious journals and subsequently go for less prestigious ones.
More interestingly, especially to understand whether peer review contributes to increasing the quality of rejected manuscripts for future publication, Armstrong et al. (2008) examined the case of 489 unpublished manuscripts by the *Journal of the American Academy of Dermatology* in 2004-2005. They looked at whether the authors of rejected manuscripts adopted in their final publications the changes suggested by the original journal reviewers. Among the 101 subsequently published manuscripts for which full texts were available, 82% of the authors incorporated at least one change suggested by the original reviewers. These manuscripts were eventually published in journals with higher impact factors than those that did not incorporate any reviewer suggestions (P = .0305). A more in depth-study on *Angewandte Chemie International Edition* by Bornmann, Weymuth and Daniel (2010), who applied a content analysis to referee reports on 1899 manuscripts that were reviewed in 2010, confirmed a relation between original peer review and later publication of rejected manuscripts. While 94% of the 1021 rejected manuscripts were published more or less unchanged in another journal, they found that previously rejected manuscripts were more likely to be published in journals of higher impact factor when there were no negative comments by reviewers on important aspects of the submission, such as relevance of contribution and research design.
From 1998
Published online
Multidisciplinary
1272 submissions
606 published articles
236 book reviews
75% rejection rate
60 days from the author submission to the editorial decision
Average report time by referees of 30 days
20% of first submission authors from the US
1997-2011 submissions
456 rejected manuscripts
Dataset:

✓ Submission date
✓ Referee recommendations
✓ Review rounds
✓ Editorial decision
✓ Academic status of the first author
✓ Background of reviewers
✓ Length of the review reports

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<table>
<thead>
<tr>
<th>Type of publication</th>
<th>Freq.</th>
<th>Percent</th>
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<tr>
<td>Book</td>
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<tr>
<td>Book chapter</td>
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<tr>
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<td>34.04</td>
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<tr>
<td>Total</td>
<td>188</td>
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Table 1. Destination of the manuscripts rejected from JASSS (source: Google Scholar).
55% of the previously rejected manuscripts were published in journals with an impact factor higher than JASSS, but only 38% of them received more citations than the articles published in JASSS in the same year.

Only 6% of manuscripts previously rejected from JASSS and published elsewhere would have reached JASSS top 10 (i.e., 11 of the 185 rejected manuscripts).
More rounds of reviews before rejection were associated with more citations when eventually published.

A positive correlation was found between the level of reviewer disagreement and higher citations when the rejected manuscript is eventually published.
Articles receiving more rounds of reviews before they were rejected by JASSS, experiencing more intra-reviewer disagreement, and getting longer reports had more success in collecting citations when they were eventually published than those that received more cursory reviews.

This confirms previous findings by Armstrong et al. (2008) and Bornmann et al. (2010), who similarly found that rejected manuscripts that underwent more thorough peer review had more success later.

Peer review is not only a selection engine but can also increase the quality of manuscripts.

However, examining the fate of unpublished manuscripts is difficult and costly.