



The effect of correction and republication of the biomedical literature – a bibliometric analysis.

Gabriel M. Peterson

School of Information Science and Learning Technologies - University of Missouri, Columbia



Abstract

This study evaluates the effectiveness of the phenomenon of correction and republication in the biomedical literature by measuring the extent to which republications replace original articles as a source for citing authors. The research does so by comparing citation levels between corrected and republished versions and measures the incidence of post-republication co-citation of original and republished articles. The extent to which bibliographic information sources alert users to the status of original articles and the existence of republications is measured as a possible explanation for post-republication citation.

Introduction

The presence of erroneous information in the biomedical literature may have significant human health impacts; it is imperative that users be aware of post-publication changes to the literature so that they have the best information when making clinical and research decisions. Maintaining the integrity of the scientific literature is crucial: use & citation of flawed literature can lead to delay, increased costs, propagation of error or the elimination of potentially valid research from the literature. This research evaluates the extent to which republications replace original articles in subsequent research literature.

Address for correspondence:

Gabriel M Peterson
University of Missouri-Columbia, SISLT
301 Townsend Hall, Columbia, MO 65211, USA
petersong@missouri.edu

Central Question:

How effective is the practice of correction and republication as a mechanism for modifying the biomedical literature?

This central question will be addressed by posing two sub-questions, each of which will be addressed through two further questions:

- 1) *To what extent does citation behavior reflect user awareness of the status of corrected & republished versions of documents?*
 - 1) *Is there a difference in average citation levels of original and republished versions over time?*
 - 2) *To what extent does citation behavior indicate user awareness of corrected and republished articles as indicated by post-republication citation of both members of the corrected & republished article pair?*
- 2) *To what extent do bibliographic information retrieval systems make users aware of the status of corrected versions and the existence of republished versions of documents?*
 - 1) *Do bibliographic entries for anomalous articles alert users to their status?*
 - 2) *Does bibliographic information about a member of an anomalous article pair direct the user to the other member of the pair?*

Research design

- A sample was obtained by identifying corrected and republished articles indexed in Medline.
- Citation information for each article was obtained from Web of Science's Science Citation Index.
- Average incidence of citation of corrected and republished versions was compared using a t-test.
- The percentage of articles that engage in appropriate post-republication citation was determined by measuring co-citation of article pairs.
- Medline and Web of Science entries were examined for information about the status of the anomalous article.
- Bibliographic information for each article was examined in Medline and Web of Science for information directing the user to the complementary version of the anomalous article.

Results

Average incidence of citation of original articles 1-5 years after republication:

Average incidence of citation of original articles 5-10 years after republication:

Average incidence of citation of republished articles 1-5 years after republication:

Average incidence of citation of republished articles 1-5 years after republication:

Percentage of articles that cite both versions:

Percentage of articles that cite only the original version:

Percentage of article that cite only the republication:

Percentage of Medline entries for original articles that indicate status as being corrected:

Percentage of Medline entries for republished articles that indicate status as being corrected:

Percentage of Web of Science entries for original articles that indicate status as being corrected:

Percentage of Web of Science entries for republished articles that indicate status as being corrected:

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