

Work Item Title: Communication of Retractions, Removals, and Expressions of Concern - CORREC

Proposal for Consideration by the NISO Voting Membership

Approval Ballot Period: August 16 – September 15, 2021

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Background and Problem Statement:

Retracted research is published work that is withdrawn, removed, or otherwise invalidated from the scientific and scholarly record. This may occur for many different reasons, which can include error, misconduct, or fraud. Although retraction is relatively rare, it has an outsized impact. Retracted research that is integrated into the scientific publication network via citations—either before or after retraction—enables the inadvertent propagation of potentially unsupported or fabricated data, fundamental errors, and unreproducible results.

Although retraction is meant to remove publications from the citable literature, 95% of post-retraction citations to retracted science in biomedicine do not demonstrate awareness of the retraction (Hsiao & Schneider <https://osf.io/4jexb/>). Some retracted articles are highly cited. Two COVID-19 articles that were retracted less than a month after they were published continue to enjoy widespread use, with over 900 citations each. *Science* magazine examined 200 of the post-retraction citations to these papers and concluded that over half inappropriately cited the retracted articles (Piller, 2021; <https://doi.org/10.1126/science.abg5806>). In other words, neither authors nor editors had identified the inappropriate citations.

Further, citations to retracted research are more likely to happen when content is ‘silently’ withdrawn or when the process for effectively communicating the retraction of research at all lifecycle stages (preprint to versions of record) is unclear. A 2020 article in *Online Information Review* by Silva pointed out the large-scale impacts of the citation of such research during the COVID-19 pandemic and offered some recommendations for improvement (Silva, 2020; <https://doi.org/10.1108/OIR-08-2020-0371>).

Once a decision is made to retract, to withdraw, or to publish an expression of concern by an appropriately authorized organization, how do the scholarly communications ecosystem and other information consumers become aware of and share information about the status of the original object?

Retraction primarily affects articles that are the versions of record, but all scholarly outputs are considered to be in scope, including (but not limited to) datasets, preprints, supplemental materials, or conference presentations. The working group will focus on the metadata elements and relationships that affect the communication of and awareness of retraction. The specifics of the metadata that are most relevant to the retraction will be defined by the group.

It is of utmost importance that researchers who discover a retracted publication are able to identify the status of the research reported. It is therefore necessary that the identification of retractions be effectively communicated to human researchers, and it is critical that these same features be evident to machine-reading and other automated processes as well as to other entities in the scholarly information workflow.

Retraction of a related object may not affect the whole published item. The working group will need to explore and explicate the relationships between and among retracted objects and ensure information about retractions is propagated in the community, including to non-retracted, related research objects. A critical, emerging example is the retraction record for datasets; articles that are retracted may not affect the status of the dataset itself; alternatively, retraction of a dataset—depending on the reason for the retraction—may fundamentally affect the conclusions drawn by past and subsequent research based on the dataset.

Statement of Work:

The output of this project will be a NISO Recommended Practice, created by a Working Group made up of stakeholders, that describes the involved parties, along with their responsibilities, actions, notifications, and the metadata necessary to communicate retracted research. This will include:

- Recommended additions to existing metadata deliverables, as examples
- Proposed channels by which retraction information is distributed
- Suggested best practices around populating metadata in retraction notices, as well as in retracted publications, and expressions of concern
- Identification of who is responsible for creation of metadata and what are the subsequent responsibilities of consumers of those metadata, e.g., display and indexing of retraction-related metadata
- Best practices around the communication of the item's status, include display labels, information available to support accessibility and machine processes, etc.
- Recommendations regarding the visibility of the retracted digital object and consistency in signaling that status. Are there different solutions needed for different expressions of objects, e.g., will the requirements for a PDF version differ from those for an HTML, EPUB, or XML version?
- An illustrative workflow process from issuing a retraction notice, through display & discovery of the retracted item; implementation will be modeled and scalability will be considered.

The Recommended Practice will need to be consistent with guidelines on retractions published by COPE¹, International Committee of Medical Journal Editors (ICMJE) and the Council of Science Editors², as these provide important reference points to many publishers.

The NISO CORREC Recommended Practice will address the dissemination of retraction information (metadata & display) to support a consistent, timely transmission of that information to the reader (machine or human), directly or through citing publications, addressing requirements both of the retracted publication and of the retraction notice or expression of concern. It will *not* address the questions of what a retraction is or why an object is retracted. The Recommended Practice will need to be applicable to, and adopted by, various entities: publishers, A&I providers, link resolvers, researchers, journalists, repositories, etc.

The following is a non-exhaustive list of CORREC beneficiaries:

- Users/consumers of scholarly information
- Researchers
- Publishers
- Systems providers for publishers
- Tool developers for community platforms
- Downstream indexers and aggregators of scholarly information
- Crossmark users
- Data repositories
- Preprint platforms
- Research institutions and administration of those organizations, including research integrity officers
- Bibliography management tools

Adoption of and engagement with the NISO CORREC Recommended Practice will support the following improvements to the research communication sphere:

- An updated metadata record for a retracted item should be resubmitted to all original consumers of that record, such as Crossref, PubMed, or other service.
- Entities to which metadata can be submitted should support retraction metadata as a required element, allowing end users of the database to consistently search for and discover retracted items and/or to filter out retracted articles from their search results.
- Retracted items will be identified with a specific tag wherever they appear, and will be easy for readers to identify as retracted in reference lists and bibliographies.
- Users of all platforms where retractions and retracted content are available will be able to search and discover items that have been retracted, and to filter using retraction metadata.
- Retraction tags will be defined in a way that allows cross-industry implementation.
- Retracted materials will be readily visible in a bibliography, independently of the retraction status at the time of publication of the citing work.
- Ideally, the NISO CORREC Recommended Practice will allow for automatic updating of bibliography items where one or more of the cited works have been retracted.

¹ COPE Council (2019). COPE Retraction Guidelines--English. Version 2: November 2019. Committee on Publication Ethics. <https://doi.org/10.24318/cope.2019.1.4>

² <https://www.councilscienceeditors.org/resource-library/editorial-policies/retraction-resources/>

Improving communication of retraction information will also save time and ease administrative costs for stakeholders; correct implementation of retractions will enhance the value of shared data to all downstream recipients.

Partners and Participation:

- COPE, FORCE11, Crossref, DataCite, and other metadata registries
- Crossmark specifically
- People at publishers who handle retractions & metadata updates
- People at abstracting & indexing organizations and directories (e.g. DOAJ) who ingest publisher updates
- Organizations that support citation styles, AMA, APA, NLM, etc.
- People who maintain retraction databases and/or retraction metadata—Retraction Watch, NLM, Scopus, Web of Science, etc.—and who use these databases for alerting (RedacTek, scite, ...)
- System suppliers for publishers; Open source platforms; Library and corporate discovery systems
- Preprint servers, particularly ones in the biomedical sphere
- Repositories, including Institutional repositories; Commercial repositories (e.g., ResearchGate, Academia.edu, Figshare); Generalist repositories (e.g., Dryad, Zenodo)
- Entities that maintain widely used metadata standards such as JATS and Dublin Core (DCMI)

Proposed Timeline:

- Month 1 (October 2021): Appointment of working group
- Month 2 (November 2021): Approval and publication of charge and initial work plan (including final determination of scope)
- Months 3-9 (December 2021-June 2022): Completion of information gathering (phase 1)
- Months 10-13 (July-October 2022): Completion of initial draft recommended practices document (phase 2)
- Months 14-16 (November 2022-January 2023): Public comment period
- Month 18: Responses to comments and publication of final NISO Recommended Practice (target March 2023)

Funding:

The RISRS project³ was funded by the Sloan Foundation and this project is a natural follow-on from that project. NISO staff have contacted the Sloan Program Director to secure additional funding for project management, implementation support and additional research related to the project's adoption and impact.

³ Jodi Schneider, Nathan D. Woods, Randi Proescholdt, Yuanxi Fu, and the RISRS Team.

Recommendations from the Reducing the Inadvertent Spread of Retracted Science: Shaping a Research and Implementation Agenda Project. MetaArXiv Preprints, July 2021.

<https://doi.org/10.31222/osf.io/ms579>