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Enhancing Accessibility of Communication Sciences and Disorders Research: Open Access and Self-Archiving

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Abstract

This article provides an overview of two open science practices in communication sciences and disorders. Readers will learn the importance of open access and self-archiving, as well as their benefits and drawbacks.

The history of open science

Open science is a collection of scientific practices designed to increase the transparency and accessibility of research (van der Zee & Reich, 2018). Open science has garnered popularity due to the “replication crisis,” which refers to the inability to replicate scientific findings in many fields (e.g., psychology) and puts the validity of these studies into question. In 2015, the Open Science Collaboration sought to replicate 100 studies from three journals in psychology. The group found that only 36% of the replications were successful in matching the original studies’ significant results (Open Science Collaboration, 2015). This finding sparked a major debate about responsible research practices and scientific publishing, leading to discussions and initiatives to increase the reproducibility and transparency around scholarly research. Compared to the field of psychology, open science practices in audiology are more recent. A 2020 editorial from *Ear and Hearing* explained how the journal will promote the movement through “Open Practice Badges” (Svirsky, 2020), which identify preregistered, accessible, and/or sharable content. In this article, we will describe ways in which researchers and clinicians in communication sciences and disorders (CSD) can promote transparency and improve accessibility through two open science practices: open access and self-archiving.

Open access

Much of the research process is currently inaccessible to key stakeholders, including researchers, clinicians, and the general public. Publications, which are a common product of the research process, are often unavailable to those who do not have access to journals through professional membership or university/institutional affiliation. Additionally, evidence-based practice gaps can result from clinician-related barriers for performing searches, accessing papers, and interpreting these research findings (Nail-Chiwetalu & Ratner, 2007; Thome et al., 2020). A main principle of open access is to remove these barriers to provide free and immediate access to online information such as scholarly publications. Open access can help reduce the 17-year research-to-practice implementation gap (Morris et al., 2011) by making the latest research findings available to more people, more quickly. This allows for implementation of the most recent, evidence-based practices to be integrated into clinical care more efficiently, improving service delivery for patients and their families. Moreover, clinical practice can be more contemporary, and health policy changes can keep pace with current research.

Open access benefits researchers, clinicians, patients, and stakeholders. It allows users to view, download, and distribute literature, data, software, etc., without any reader fees or permission restrictions. Open access can increase the visibility of researchers’ work, allowing it to be easily discovered and disseminated. Researchers may also choose to make their analysis code or data available through online repositories for sharing and collaboration. For clinicians, open access makes recent research readily available. Having access to the most up-to-date information, particularly for those from rural settings or practicing in developing countries or areas, ensures

that clinicians can make more informed decisions for their patients. For patients and stakeholders, increased access to research findings allows for more knowledge about health conditions and greater transparency for funding and advocacy, especially since clinical research often relies on patients volunteering as participants (Day et al., 2020).

In addition to the benefits of open access, we must also acknowledge its limitations. The first limitation is that some open access journals (known as predatory) may lack peer review processes, leading to lower quality work being published. Predatory journals can place an additional burden on consumers of research to critique the source of the research. In addition, not all open access journals have impact factors, which can be an important consideration for researchers seeking tenure and/or promotion. Further, fees for publishing in an open access journal are often substantial, requiring grant funds or other supports to cover the costs (see the next section on self-archiving for alternatives to paying fees for open access).

Types of open access

There are a few different types of open access, which are typically referred to by their colors:

Gold: A journal that has content freely available for download and distribution while the author is acknowledged and retains copyright. The author typically pays an article processing charge.

Hybrid: A journal is subscription-based but allows some of the articles to be published open access. Authors have the option to pay an article processing charge to make their work open access.

Platinum: A journal that has content freely available for download and distribution but does not require authors to pay an article processing charge. Instead, the journal receives funding from a university or organization.

Green: Authors self-archive their work, which may be a submitted, accepted, or published version of a manuscript, in a repository or on their own professional website.

It's easy to be green

For the purpose of this article, we will be focusing on green open access, also known as self-archiving. Self-archiving is a free and legal way of sharing publications, while honoring the conditions of the copyright agreement with the publisher. The majority of publishers allow authors to post a version of their manuscript to a repository or on their own professional website; the version allowed, however, varies from publisher to publisher. There are many benefits of self-archiving including that it: (a) is a free way for researchers to share their work, (b) is associated with a citation benefit when compared to paid open-access publications (Piwowar et al., 2018), and (c) increases the visibility of researchers' work and enables it to reach audiences outside of academia.

There are three main manuscript versions in the publication life cycle that an author may be allowed to share depending on the publisher's self-archiving policy:

1. Preprint: The submitted version of the manuscript,
2. Postprint: The accepted version of the manuscript that has undergone peer review without formatting from the publisher, and
3. Offprint: The published, formatted version of the manuscript that appears in the journal.

There are also several places that an author may be allowed to post their manuscript, again depending on the publisher's self-archiving policy. As a general rule-of-thumb, an author's own professional or laboratory website is generally the most permissive place to post self-archived works (i.e., publishers place the least restrictions on what is allowed on these websites). Other options include:

1. Institutional repositories: Many universities have their own digital repositories, where authors can post their self-archived work. Library staff often provide support in adhering to the publisher's self-archiving policy, as well as uploading and sharing self-archived work.
2. Preprint servers: Preprint servers are online repositories where authors can post preprints of manuscripts (often these can be updated to the postprint at a later date). Preprint servers facilitate early sharing and discussion of work by assigning it a citable digital object identifier (DOI) which allows authors to cite their work and receive acknowledgement of completed research prior to formal manuscript acceptance. Citing preprints can be particularly helpful when applying for grant funding as it provides a way to show preliminary work in the area. Examples of preprint servers include BioRxiv and PsyArXiv.
3. PubMed Central: PubMed Central is an online repository for posting postprints and offprints, but this option is only available to those who have been funded by specific funding agencies (e.g., National Institutes of Health). A number of funders now mandate that any publications arising from their funding must be made open access, whether that is through paying for gold open access or self-archiving.

Self-archiving steps

To "go green," first review the publisher's self-archiving policy. The policy can typically be found on the publisher's website or on a website called Sherpa Romeo. Sherpa Romeo is an aggregate site that pools open access policies from publishers around the world. The records are continuously updated by the editorial team, and users of the database/journal staff can also submit updates for ad hoc amendments (Jisc staff, personal communication, November 19, 2021). Sherpa Romeo can be used to identify which version of a manuscript can be self-archived (preprint, postprint, offprint), where it can be posted (e.g., personal website, preprint server), when it can be posted, as well as other self-archiving conditions (e.g., funding sources, fees). After this information is identified, the appropriate version of the manuscript can be self-archived when, and in the location, specified in the publisher's policy. On the cover page of the manuscript, it is good practice – and often required – to include what is referred to as a user license. A user license indicates the version of the manuscript and whether it has been peer-reviewed, citation information, a link to the version on the publisher's website if published, and

permissions with regards to using and adapting material (e.g., by including a Creative Commons license).

Despite several advantages to self-archiving, researchers should also be aware of its drawbacks. First, self-archiving requires researchers to take the time to find and review publishers' self-archiving policies to ensure that they are legally sharing their work. In addition, publishers may stipulate other conditions associated with self-archiving, such as mandating that authors also include a link to the publisher's website or requiring them to wait a defined period of time before self-archiving the manuscript (referred to as an embargo period). This embargo period is a barrier that prevents work from being immediately available for others to access. Further, when self-archiving, it is the authors' responsibility to create and place a user license on postprints to ensure that they are clearly and appropriately labeled. Lastly, if authors choose to self-archive preprints (before their work is peer-reviewed) to allow others to access their work as quickly as possible, there is additional work required to update the archived manuscript with the accepted, peer-reviewed form at a later date.

Within CSD, a group of scientists and clinicians recently formed CSDisseminate to advocate for greater accessibility and access in the field. Initially a group of four, the group has grown to over 10 volunteer researchers in audiology and speech-language pathology who seek to inform the CSD community about the importance of increasing accessibility of research. In addition to workshop-hosting (most recently, a how-to workshop on self-archiving), their website (<https://www.csdisseminate.com/>) has helpful information for clinicians and researchers looking to share or find green open access works. The website also features several CSD scientists that self-archive their work.

Open science resources

- Share the data: Consider sharing your dataset and/or analysis code for researchers to replicate. In addition to data, materials and scripts can be uploaded to a website or repository. For example, the OSF (<https://osf.io/>) can be used to find materials, preregister studies, collaborate with others, and share preprints of your work. Zenodo (<https://zenodo.org/>) is another site for storing and sharing data.
- Self-archive: If you are new to self-archiving, visit CSDisseminate's website (www.csdisseminate.com) to download their free Self-Archiving Checklist, access their self-archiving tutorial, and/or watch a recording of the above self-archiving workshop. Check out <https://v2.sherpa.ac.uk/romeo/> to browse open access policies from various journals.
- Get involved: Advocate for open access in the field of audiology. There are also opportunities to become an ambassador or collaborator with CSDisseminate. For more information, see <http://www.csdisseminate.com/join-us>.

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