

Institute of Education and Child Studies (IECS)

Open science policy and guidelines

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1. Broader context of Open Science

The Open Science (OS) movement that is currently gaining momentum in the (social) science community is aiming to deal with two important and related challenges. Firstly, how can we improve the quality of the scientific work currently been done? Secondly, how can we make science more accessible to other scientists and the broader community? The [OS movement](#) proposes a change in the way we practice science, thereby increasing transparency, cooperation among scientists, reducing competition, focusing on social impact over impact factors and making a shift toward quality over quantity. These proposed changes include making our data available to others, publishing our work Open Access (OA), and preregistering our studies or analyses. These practices, on which the current vision document focuses, are only part of the process towards better and more open science, and should be seen in light of other developments in academia such as those described in the [‘Recognition and rewards of academics’](#) position paper by the VSNU.

A crucial impetus for the OS movement has been the replication crisis in the social sciences, which revealed that most of the published findings in academic flagship journals do not replicate (Open Science Framework, 2015). This problem is caused by implicit and explicit practices by scientists that increase the chance of publishing ‘false positives’. Preregistration (see 2.) and FAIR data management (see 3.) are relatively simple practices mitigating this problem.

The poor reliability of the work we publish can also negatively affect public trust in academia, while the need of robust scientific knowledge in addressing current and future societal challenges is only increasing. In addition to preregistration and FAIR data management, it is important to make our knowledge and the work we do leading to that knowledge better available to the public. In order to do this we should more actively engage with the community outside academia. Making all our published work available and open access (OA, see 4.) is part of that engagement. Under the header ‘Small steps and tips along the way’ we give some suggestions for the different phases of your study.

As Institute of Education and Child Studies (IECS), we wholeheartedly support the OS movement. We also realize that this transition and cultural change demands something from individual academics and research support, who often already are under pressure. Yet cultural changes do not happen overnight, they need time to settle in. And with small steps individual academics can make this new approach to academic research gradually happen. We think the extra efforts are worth the investment, as they will make our research more reliable, more applicable, and therefore more valuable. As such, it characterizes the need for an academic culture that values quality over quantity. Also note that many of the practices that we encourage do not mean extra work, but make the work we do more explicit. And such openness about the way we work, is exactly what is needed for a sustainable future public role of academic research. In line with scientific practices, which are always in transition, so is this ‘working document’. Feel free to suggest changes or additions.

2. Preregistration of your study

Preregistration of our studies is an important step to increase the quality and controllability of our research. The traditional approach of writing up the hypothesis and statistical approach after data collection allows researchers immense elbowroom for flexibility in data analyses, increasing the type I error. With preregistration decisions about the hypothesis and statistical approach are made prior to the data collection. Currently, there are several online platforms that facilitate preregistration, such as

the Open Science Framework (OSF) and aspredicted.org. Some journals also have the option to publish 'registered reports' in which the introduction and method sections of a paper can be published before data collection. In the case of such registered reports in a journal, the results will later be published after peer review irrespective of its outcome. A preregistration on an online platform is a simplified approach with the same goal. A short outline, description of the hypotheses, data and statistical approaches are published online before (finishing) data collection, or before data analysis. When the final product is published or under review, the preregistration can be submitted together with the paper, so that reviewers can control whether the pre-registered plan was followed.

In our Institute, all research needs to be approved by our in-house Ethics review board, or a recognized committee, see [here](#) (or Medical Ethical Committee, depending on the study characteristics). To raise awareness about preregistration of studies, the ethics questionnaire now explicitly asks researchers if and where they will register their study. The Institute of Education and Child Studies recommends using [aspredicted](https://aspredicted.org), which is easy to use, and largely overlaps with the ethics form, making the effort to pre-register your study as small as possible. Although we recommend aspredicted.org, other platforms are available. But realize that some platforms, such as OSF, also allow open data storage, although this is in some cases is not legally supported for data collected in Europe due to AVG legislation (see below: 3. Storing your data).

To tackle some worries that researchers often have when deciding about preregistration, we would like to note the following. A preregistration is filed under embargo only to be accessed by the authors themselves so that your ideas cannot be scooped. You can also preregister when parts of the data has already been collected, for example when you work on data from a larger study or consortium, or when you obtain data from an external partner. [Aspredicted](https://aspredicted.org) also allows the registration of more exploratory work. Exploration of data analyses is still possible, and it is also useful to register your more exploratory studies, because that protects against inserting an a priori hypothesis in hindsight.

It is also possible (and recommended) to preregister your systematic reviews and meta-analyses. [PROSPERO](https://prospero.org/) is a useful platform for us, since it includes the fields of health and social care, welfare, public health, education, crime, justice, and international development, where there is a health related outcome. An advantage of preregistering reviews and meta-analyses is that accidental duplication is avoided as well as reporting bias. It is also a very useful database to consult when designing your systematic review or meta-analysis.

3. Storing your data

Regarding data the IECS wants to conform to the FAIR principles, meaning that data is Findable, Accessible, Interoperable and Reusable. Therefore, we want to work according to the following guidelines: [guidelines for archiving academic research](#) and [richtlijnen van de Universiteit Leiden](#). In order to conform to these guidelines, the following steps need to be taken by researchers:

Before starting your study, a Data Management Plan (DMP) is completed using the [most recent template](#) of Leiden University. This form guides the researcher in the steps towards FAIR data use.

After publication of a manuscript a publication package is uploaded in DataVerseNL. This package contains all the elements that are required for reanalysis, control and replication of the published work (manuscript, stimulus-material, questionnaires, raw data, analyzed data, syntax, etc.). Data packages

uploaded in DataVerseNL are [findable](#) for others and are stored with a [persistent identifier](#) that can be used in citations. The packages will be stored for 10 years conform UL guidelines. The datamanager will help you to upload the data package, so please contact the datamanager shortly after publishing your manuscript.

Furthermore, all new PhD students within the IECS follow a compulsory training on data management hosted by the [Centre for Digital Scholarship](#) (CDS). The IECS also has appointed a datamanager (currently Mitch van Geel) whose main responsibilities are: checking DMPs, monitoring, checking and assisting with uploading datapackages in DataVerseNL, advising researchers and the IECS board on the latest developments in FAIR data use and consultation on these topics.

4. Open Access publishing

An important aspect of making research available to the broader audience is publishing our papers open access (OA). Leiden University embraces the OA publication of academic work, and has placed information for employees [online](#). As Institute we therefore expect all employees to publish their academic work OA in Leiden Scholarly Publications (the Leiden Repository). Note that when research is funded by external funding agencies (e.g. NWO, ERC) these agencies often already demand OA publications (see [PLAN S](#)).

Publishing OA can be done in two forms: gold or green OA. Under gold OA a researcher publishes a paper with a journal that facilitates full OA publication. Depending on the journal, an Article Processing Charge (APC) needs to be paid. The other option is green OA publishing under which the author publishes his work behind a pay bar, but also uploads a version in an open access repository. The UBL offers such a [repository](#). You can [upload](#) your publication via LUCRIS. Applying the Taverne amendment, you can upload the published version under a 6 month embargo in the Leiden Repository, irrespective of the publishers terms and conditions. An additional option we encourage to make papers more available is to upload your paper on a preprint repository such as SocArXiv, arXiv, or bioRxiv at the time of submission. In this case, you upload the same version that was submitted to the journal. A guideline with more background information on preprints can be found [here](#).

We also encourage you to make conference papers, book chapters, and books openly accessible. Although practices for OA publishing for these outputs are less developed than for journal articles, OA publishing for articles and chapters is supported under Taverne. Examples on how to make books OA can be found [here](#).

Article Processing Charge (APC), journal quality and funding

There are two models for journals, hybrid and full OA. Hybrid journals publish standard behind a paywall, as users have to pay for access to content. However, these journals provide the option for an open content license (for example a creative commons license) and make reuse possible. In that case, they charge APCs (payment that a journal charges to cover the publication process). Full OA journals do not publish behind a paywall. The APCs vary, but can lead up to €9500 for a journal such as Nature. As such, the transition to OA publishing can be a costly endeavor, at the advantage of publishing companies.

However, the VSNU has negotiated several deals with publishing companies, making OA publishing available in thousands of (hybrid) journals at reduced or no APCs. Information on the deals, journals, terms and conditions can be found at www.openaccess.nl.

The IECS will pay the APCs of articles in journals not part of the VSNU agreement (with an annual maximum of €10,000¹). The following terms and conditions apply:

- 1) the conducted research has not been supported by external funding or the funders policy is not to fund OA fees;
- 2) the outlet is a full OA journal;
- 3) the journal is listed in the [independent database of OA journals](#) (DOAJ);
- 4) the journal is the best outlet for this specific scientific work;
- 5) the first or last author is employed at the IECS.

In choosing their outlet, authors should be careful of predatory journals: full OA journals that hold low standards against high profit margins (<https://www.openaccess.nl/nl/wat-is-open-access/kwaliteit>). See [here](#) for a list of predatory journals. We encourage publishing in journals that are owned by the scholarly community (e.g., through scholarly societies), that are non-profit and adopt responsible publishing practices. A substantiated request for funding taking into account all of the above terms and conditions can be sent to Esther Truijen (e.p.w.truijen@fsw.leidenuniv.nl) before submission of the paper.

*At the end of the second semester 2022 this amount will be evaluated.

5. Tips along the way

Writing a grant proposal

- Ensure budget for OA publications
- Make the data management plan part of the proposal

When submitting to the ethics committee

- Consider preregistration

Data analyses and writing up the paper

- Store your data package
- Archive a draft of your paper in a repository (preprint server)

Before you submit a paper

- Is the journal compliant with your funder requirements?
- Can I find an outlet that is part of a deal with VSNU (see www.openaccess.nl)?
- What is the APC, and is there funding for these cost? Can I ask for a waiver?
- In the case of full open access journal, check whether it is not a predatory journal: <https://www.openaccess.nl/nl/wat-is-open-access/kwaliteit> or contact openaccess@library.leidenuniv.nl

After acceptance of the paper

- Upload your paper in lucrisc. Use Taverne to make your paper accessible after the embargo period of 6 months if it was not published under gold OA.

6. Further reading and information

Chambers, C. (2019). *The seven deadly sins of psychology: A manifesto for reforming the culture of scientific practice*. Princeton University Press.

Miedema, F. (2010). *Wetenschap 3.0: van academisch naar postacademisch onderzoek*. Amsterdam University Press.

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, 349(6251).

<https://www.bibliotheek.universiteit leiden.nl/onderzoekers/open-access>

UBL: Advies publicatiebeleid en open access aan de Universiteit Leiden, 2 april 2020

Roisman, G. I. (2021). A Vision of a Fair and Efficient, Diverse and Inclusive, Cumulative Science of Child Development in the Best and Worst of Times. *Child Development*, 92(2), 451-465.