

Open Science Policy

Open Science means opening the scientific process for more exchange and transparency within and outside the university context. It assumes a collaborative understanding of research and education, focusing on openness, collaboration and exchange of ideas and the further development of knowledge, thus helping to accelerate scientific innovation processes and improve the visibility of research results. This supports scientists in their research and publication processes and maximizes the benefits of publicly funded research.

As a member of the Leibniz Association, the Leibniz Institute for Science and Mathematics Education (IPN) is committed to Open Science. In its mission to further develop and promote science and mathematics education through research in the field of learning and instruction, the IPN has a special interest in making its results freely available. Thus it adheres to the "Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities"¹, the "Guidelines on Open Access in the Leibniz Association"², the UNESCO Recommendation on Open Educational Resources (OER)³ and the FAIR principles⁴, according to which scientific data, educational materials and publications should be searchable, accessible, interoperable and reusable worldwide.

Within this Open Science Policy, Open Science is understood as a generic term for any opening of access to scientific results in the sense of these guidelines and declarations. This applies in particular to the three sub-areas Open Access (unlimited access to scientific literature), Open Data (disclosure of scientific data and materials for secondary use and quality assurance) as well as Open Education (establishing educational equity through open access to educational content and materials).

Open Access

Open Access stands for worldwide unrestricted and free access to peer reviewed scientific publications in digital form. Wherever possible, the IPN advises its scientists to publish their research results in accordance with the Open Access principle. At the IPN this is carried out as quickly as possible via publications in Open Access publication media and – within legal limitations – by making the publications accessible via document servers (repositories) either in parallel with the publication or retroactively. For immediate Open Access publications, the institute recommends publishing under a public copyright license (currently e.g. the CC-BY-license)⁵.

For a parallel or retroactive publication, the IPN scientists are asked not to grant exclusive rights of use to publishing companies when concluding a contract, but instead to – as far as possible – secure their own permanent right of use and to transfer non-exclusive rights of use to the IPN for the institutional and/or a subject-specific repository.. This can guarantee open access, in addition to any commercial use by publishers. The IPN expects its scientists to ask for third-party funding for Open Access publications when applying for projects.

¹ Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. http://openaccess.mpg.de/3515/Berliner_Erklaerung

² Open Access policy of the Leibniz Association 2016-2020. https://www.leibniz-gemeinschaft.de/fileadmin/user_upload/Bilder_und_Downloads/Forschung/Open_Science/Open_Access_Policy_web.pdf

³ UNESCO Recommendation on Open Educational Resources (OER). http://portal.unesco.org/en/ev.php-URL_ID=49556&URL_DO=DO_TOPIC&URL_SECTION=201.html

⁴ Wilkinson, M. D., et al. (2016). The FAIR guiding principles for scientific data management and stewardship. *Scientific Data*, 3. <https://doi.org/10.1038/sdata.2016.18>

⁵ The Creative Commons copyright licenses. <https://creativecommons.org/licenses/?lang=en>



Open Data

Similar to the results in research articles, the underlying data and materials should also be disclosed as much as possible. On the one hand, this enables subsequent use of the data by and cooperation with other scientists and, on the other hand, ensures the quality and traceability of the analyses carried out as well as the reputation of the scientists. Consistent with the standards of good scientific practice, as adapted by the IPN according to the standards of the DFG, publishing the data in scientific repositories such as those of the Research Data Centre (FDZ Bildung) as well as using procedures for pre-registration of research plans and hypotheses prior to the start of a study are explicitly encouraged.

At a minimum, data and materials including comprehensible documentation are expected to be made available to other IPN scientists on the IPN's own server. Further requirements will be regulated by the IPN's research data management plan.

Open Education

Open Education is based on the concept of making education freely accessible to all people, regardless of their origin, education or income, and thus to contribute to more educational justice. Open Educational Resources (OER) form a cornerstone of Open Education. These are freely accessible educational materials, whose subsequent use, i.e. their use, processing and further dissemination by others is permitted with no or only minor restrictions by using open licenses.⁶

OER provide the opportunity to communicate findings from learning and instruction research to teachers and students and to disseminate didactically developed materials. Thus, they not only have the potential to sustainably support the transfer of research into teaching practice as well as the cooperation between research and schools, but they also represent an opportunity to make the IPN's expertise in research and development of instruction visible beyond the scientific community.

The IPN therefore explicitly encourages its staff to make available findings from research on teaching and learning as well as teaching materials developed in the context of courses, projects, dissertations and master's theses as OER on the joint OER platform of the IPN and Kiel University. The IPN recommends using the Creative Commons licensing system for publication⁵. The rules of *Good Scientific Practice*⁷ as well as the copyright regulations and the requirements of open licenses naturally apply.

⁶ <https://www.unesco.de/bildung/open-educational-resources>

⁷ <https://www.ipn.uni-kiel.de/de/forschung/ipn-standards-gutewissenschaftlichepraxis.pdf>



Measures

The IPN promotes Open Science and supports its scientists in the implementation of Open Science activities by:

- establishing binding guidelines to facilitate the correct assignment of published research accomplishments, for the standards of *Good Scientific Practice*⁷ and for research data management,
- identifying open access publications of its scientists and providing them to the public via suitable repositories, as far as legally permissible,
- supplying the subject-specific document servers "peDOCS"⁸ and "Social Science Open Access Repository"⁹ and in individual cases other Open Access repositories,
- providing and documenting financing options for publication costs via a publication fund,
- informing and advising its scientists on Open Access and on secondary publication rights as well as on OER and supporting them in clarifying legal issues in connection with the Open Access publication of their research results and/or the publication of materials as OER,
- supporting its scientists in the preparation of materials as OER and creating and maintaining an OER platform,
- preparing a normative research data management plan, providing the necessary IT infrastructure at the IPN and advising on the disclosure of data in scientific repositories.

Contacts

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⁸ <https://www.pedocs.de/>

⁹ <https://www.gesis.org/en/ssoar/home>

¹⁰ <https://creativecommons.org/licenses/by/4.0/deed.en>

