Guidelines on the Provision and Handling
of Research Data in Sociology[1]

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Preliminary Remarks

The Academy of Sociology expressly supports initiatives to make research data open, since re-usable data offer at least three advantages:

1. Re-usable data are essential for open and transparent research. In particular, they are a central prerequisite for making empirical results inter-subjectively comprehensible (for example by reproducing the analysis).
2. Secondary data usage – maybe on issues that could not have been foreseen at the time of the primary data collection – enables a resource-saving use of public funds, and optimal knowledge gain through cumulative research. In most cases, the potential of research data cannot be exhausted by primary researchers.
3. Data and documentation that are accessible for teaching purposes provide valuable training material for junior researchers.

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[1] This text is based on work by Katrin Auspurg and Josef Brüderl. Additions were made by Jan Göbel, Betina Hollstein, Stefan Liebig, and Christof Wolf.

General Recommendations

The Academy of Sociology therefore strongly recommends: **In sociology, research data and the associated meta-data (data documentation, materials, and code) are to be made available to other researchers, particularly for reproduction purposes (and if possible, also for secondary use and teaching)**. This recommendation applies in particular to research data that form the basis of publications, or that were produced in publicly funded research projects. The reproducibility of results as a core element of science is thus placed above the interest of data producers in treating research data as their intellectual property.

When providing research data, quality standards as laid down in the "FAIR" principles must be observed:

- *Findable:* Research data should be easy to find, e.g., by having a persistent identifier and meta-data (e.g., keywords) that researchers can access via search engines.
- *Accessible:* Research data should be accessible to researchers, if possible, without financial expenditure.
- *Interoperable:* Research and metadata should be stored in a common format so that they are accessible without the need for specific proprietary software.
- *Reusable:* Research data should be easily reusable through high-quality documentation.

The easiest way to comply with these principles is to provide the data in a quality-assured repository that operates according to the FAIR principles.

Projects should already describe how the four FAIR principles can be adhered to when applying for funding. The costs for adhering to the FAIR principles should be included in funding.

The interests of the data producers – who have usually invested a large amount of creativity and resources in the design, collection, processing, and documentation of the research data – must be taken into account. Therefore, data producers can claim temporary embargo periods during which they exclusively can use their data.

In addition, the personal rights of third parties must be protected ("data protection"), and further aspects of research ethics must be observed. For example, in sociology microdata containing personalised information is often used. More restrictive forms of access have to be chosen for such sensitive data.

As with primary research, secondary usage also requires the legally and ethically correct handling of data. Secondary users must also comply with data protection regulations. They must make their analyses transparent and they have to enable future reproductions. Data producers must be appropriately referenced, or even, if suitable, offered co-authorship.

The above-mentioned restrictions of open data provision do not necessarily prevent reproducibility. Even if open secondary use is not possible for justified reasons (e.g., proprietary data, data protection law, research ethics, etc.), data producers should take appropriate measures to ensure the reproducibility of their empirical findings as far as possible (e.g., by using secure data centres or trustee solutions where trustees check reproducibility; see Endnote no. 4 for more details).

Practical Implementation of the General Recommendations

The following refers to all forms of research data, i.e., standardized, non-standardized, process-produced and experimental data. The aim is – based on current knowledge – to achieve the best possible archiving and re-usability of these data.

1. Checking available data sources and submitting applications

1.1 In order to conserve research resources, before primary data collections are carried out, their necessity should be checked:

    a. Primary surveys reduce the pool of research funds that are available for all projects and often lead to considerable (time) burdens for third parties. They should only be carried out if the research objectives cannot be achieved through the reusage of research data that are already available.

    b. Where primary data collection is unavoidable, data producers should work cumulatively (for example by establishing comparability across studies, by adopting survey materials, or sampling plans).

1.2 In research proposals, researchers should explicitly comment on how the FAIR principles will be implemented:

    a. There should be detailed information (e.g., in the form of a data management plan) on:

        i. which resources will be used to process and document data and how this will be done,

        ii. where the data and meta-data will be archived,

        iii. for whom and how the data will be made available for re-use.

    b. The collection and processing of non-standardized data often poses particular challenges with regard to research data management. Nevertheless, researchers should also provide a data management plan when collecting such qualitative data.

    c. If data is collected in the context of projects funded by third parties, it is important to ensure that, when applying, sufficient resources are requested for the preparation and provision of the data.

2. Open data, materials, and code

2.1 Data and meta-data to be provided:

    a. In principle, all data – including their documentation – should be made available to the scientific community on a long-term basis, with as few restrictions as possible, and in a user-friendly manner (*Open Research Data*).

        i. *Long-term* means at least ten years. But it should be aimed for a much longer provision, which can usually be guaranteed in quality-assured repositories.

ii. *Unrestricted* ideally means free access. However, in social research, free access is normally not possible. Then, scientific use files where user contracts impose reasonable obligations on researchers are perfectly appropriate.

iii. *User-friendly* means that all documentation is sufficiently clear and detailed to enable reproductions, as well as secondary analyses beyond that.

b. All material used for data collection (questionnaires, codebooks, sampling plans, observation protocols, etc.) must be made fully accessible to the scientific community (*open materials*).

c. All code concerning data preparation and data analysis must be provided. It should be perfectly transparent how the results derive from the original data (*open code*).

2.2. Additional guidelines for the required materials:

a. For secondary analyses – where the original data are openly available – it is sufficient to provide the code for data preparation and analysis (including references to the original data).

b. In order to counteract publication bias, all data from studies that did not produce the expected result ("zero results") must also be provided. All results should be reported in final project reports.

c. In order to avoid responsibility diffusion, the first author is responsible for the provision of the data and meta-data, except when otherwise agreed; for funded projects, it is the principal investigator.

2.3. Adequate form of archiving:

a. If possible, repositories are to be used with which the data can be easily found and which guarantee long-term access. These can e.g. take the form of quality-assured repositories financed by public funds.[1]

b. It is important to ensure that all single steps in data collection are documented in detail. This is essential for judging data quality. This includes information on the sampling procedure, response statistics, field reports and codebooks. The survey materials used must also be clearly documented.

c. Software that is as interoperable as possible should be used, which is accessible to a wide range of users and is designed for long-term use.

d. Ideally, information on planned projects is already made publicly available. Pre-registration of research hypotheses offers a particularly high degree of transparency. It can help researchers publicize the authorship of their research ideas.

3. Restrictions of open data provision

Justified reasons for restrictions of open data access are the following:

3.1. Right of first use:

    a.   Data producers have a legitimate right to use the data they have collected first. They can therefore set temporary embargo periods. This means that the data and meta-data are stored in a repository, but are not accessible to third parties for a certain waiting period. At the end of the embargo period, the data will be made available to the scientific community.

    b.   An embargo period of no longer than 3 years after completion of the data collection is considered appropriate. Longer embargo periods must be justified. In particular, unacceptable hardships for young scientists are recognized as such justification. The period should not exceed 5 years after completion of the data collection.

    c.   The publication of data-based work usually ends the embargo period for the data on which the publication is based.[2]

    d.   Some argue that researchers are actively involved in the production of the data material and that therefore data is their intellectual property (see e.g. RatSWD 2015). This is not considered to be sufficient justification for non-provision of the research data. In particular, once results have been published, the reproducibility of research has priority over such intellectual property rights.

3.2. Aspects of data protection law and research ethics:

    a.   The rights of third parties (copyrights, personal rights, trade secrets, etc.), as well as ethics guidelines must strictly be observed. Research relies on the informed consent of probands and respondents. The guarantee of confidentiality is important for participation decisions and an ethical must.

    b.   However, such guarantees of confidentiality, or reference to difficulties in building a relationship of trust with participants (see e.g., RatSWD 2015) are not sufficient reasons for refusal to provide data. Many restrictions can be overcome by acting with foresight. For example, respondents can be informed about the general use of the data for scientific purposes by means of declarations of consent.[3]

    c.   (Partial) anonymization or pseudonymization of data facilitate provision for other scientists. The time and financial expenditure required for primary researchers to do this should be taken into account when applying for funds.

    d.   Particularly sensitive data can be provided at specially protected guest workstations in accredited research data centres ("Secure Data Centres"). In this case there is usually no additional effort for primary researchers, such as for the anonymization of data.

    e.   In cases of doubt, ethics committees should be consulted.

f. If the provision of data is not legally or ethically possible, then meta-data (documentation, materials, code) should be archived nevertheless.[4]

3.3. Scientific benefit of data provision is too small

a. It is sometimes argued that the scientific benefit of providing data is too small to justify the effort. In qualitative social research in particular, it is argued that data cannot be meaningfully evaluated without knowledge of the data collection context, and that subsequent use would therefore not be worthwile (RatSWD 2015). Such a blanket justification is not convincing, since reproducibility is at the core of science. If the data collection context is so important it has to be recorded as well.

b. Only in a few exceptional cases – such as strongly exploratory research – this argumentation may apply. In such cases, at least partial documentation is useful and possible.

4. Guidelines for secondary data use

4.1. Data producers have the right to know who uses the data they collected and for what reason. The data access can therefore be designed in such a way that a download automatically provides this information to the data producers.

4.2. Secondary data users must recognize the achievements of the data producers, i.e., by proper citation (naming the authors of the data source, materials, and code). Most data producers now provide formats for data citation.

4.3. Rules for reproductions and replications:

a. All reproductions and replications have to respectfully acknowledge the achievements of the original researchers – especially when errors are discovered.

b. Original researchers should ideally be involved in reproduction and replication attempts – in order to recognize their achievements and to ensure the most productive progress in knowledge through cooperative research.

c. Before publication, the original researchers should at least be informed about the results of the reproduction or replication.

Closing Remarks

With these guidelines, the Academy of Sociology seeks to promote the ideal of an open and transparent science. These guidelines should provide support for third-party fundraising and publication activities.[5] At the same time, the Academy of Sociology is concerned with promoting the careers of early career researchers, ensuring generally fair competition, and guaranteeing an ethically responsible handling of research data. Researchers who collect and provide original data contribute to scientific progress and, because of these achievements, should not suffer a career-related disadvantage compared to researchers who reuse the data. With the present recommendations, the Academy of Sociology strives for a balance of interests between these different requirements.

Finally, it should be emphasized that in rapidly changing (social) environments a perfect replication of results cannot be expected. The archiving of research data is nevertheless important, as it opens up new opportunities for advances in knowledge. Especially in sociology, observations of social change and the context dependence of social processes are important fields of research in their own.

The Academy of Sociology will regularly evaluate and further develop these recommendations with regard to their practicability. It recommends that journal editors, reviewers, and ethics committees abide by these principles in order to support the "cultural change" towards the establishment of an Open Sociology.

These guidelines were adopted on September 25th, 2019 at the general meeting of the Academy of Sociology in Constance.

SOURCES

These recommendations are inspired by guidelines from related professional societies (e.g. educational science, psychology, economics, linguistics, biodiversity research; a list of all these guidelines can be found [here](#)).

DFG (2019): [Leitlinien zur Sicherung guter wissenschaftlicher Praxis. Kodex.](#) Bonn: Deutsche Forschungsgemeinschaft.

RatSWD (2015): [Stellungnahme des RatSWD zur Archivierung und Sekundärnutzung von Daten der qualitativen Sozialforschung.](#)

OTHER RESOURCES

CESSDA [Data Management Expert Guide](#)

Christensen, Garret, Jeremy Freese und Edward Miguel (2019): Transparent and Reproducible Social Science Research. How To Do Open Science. Oakland (CA): University of California Press.

European Commission: [Open Science – Research and Innovation](#).

Jensen, Uwe, Sebastian Netscher und Katrin Weller (Ed.) (2019): Forschungsdatenmanagement sozialwissenschaftlicher Umfragedaten. Grundlagen und praktische Lösungen für den Umgang mit quantitativen Forschungsdaten. Verlag Barbara Budrich. [DOI 10.3224/84742233](#).

RatSWD (2018): [Orientierungshilfen für die Beantragung und Begutachtung datengenerierender und datennutzender Forschungsprojekte](#).

Struminskaya, Bella, Gauly, Britta, Daikeler, Jessica, Khorshed, Julia, Jedinger, Alexander (2018). Survey Data Documentation. Mannheim, GESIS – Leibniz-Institute for the Social Sciences (GESIS – Survey Guidelines). [DOI: 10.15465/gesis-sg_en_24](#)

ENDNOTES

[1] For example, in Germany there is the GESIS data archive/*datorium*; for qualitative data: *QualiService*; the *Zenodo* service, funded by the European Commission. These repositories are preferable to journal repositories; storage on personal websites (even if they are hosted by universities) is not recommended.

[2] Exceptions are only justified in a few cases, for example, when young scientists would have to make complex coding work public that they would like to use for further planned qualification work. As a rule, however, it should also be justifiable in such cases to disclose at least the central part of the data that is required for the reproduction of the published results.

[3] For example, consent can be requested as follows: "The results and data from this study will be published as a scientific publication. This is done in an anonymous form, i.e., without the data being assigned to a specific person. The anonymized data from this study will be accessible to researchers for long-term research in a data archive called XXX. This study thus follows the recommendations of the German Research Foundation (DFG) and the Academy of Sociology (AS) for quality assurance in research."

[4] In the case of very sensitive data that cannot be made open, it is also possible to ask individual "trustees" to check the quality of the data and of the analysis code. Another possibility would be the explicit willingness of third-party funders to allow funding proposals for follow-up projects, which use new data collection (replication) to check the results of the original project (RatSWD 2015).

[5] For example, applications to the "European Research Council" without a data management plan and statements on "data policy" are hardly possible anymore. With these recommendations, the AS wants to help sociologists to position themselves favourably, but at the same time ethically and fair in the competition for international, interdisciplinary research funds.