

My experiences with reproducible research

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Defining reproducibility

- Technically not really possible since every data collection is unique to a certain extent
- Data collection that is geared towards comparing the results with previous research
- Data collection is only reproducible if enough parameters of the previous research are known

- In social scientific research reproducibility does not seek to reproduce the exact same result but to compare different situations with the same methodological approach

Failure and success with reproducibility

- Example of long term monitoring in the Swiss National Park
 - Early pioneers did remarkable research and went to great lengths to make it reproducible
 - But still there are many uncertainties as to the exact locations and methods they used
 - Or, places and methods are known, but not deemed adequate for contemporary research
 - Such things often only show after a long time
- Social scientific research: example of value generation in the Swiss National Park region
 - 1998 by Irene Küpfer, 2012 repetition (see below)
 - Both failure and success

Efforts to make our research reproducible



- In general with social scientific research
 - Making methodological approach as clear as possible
 - Not only provide questionnaire or interview guidelines but also critically assess what went well and what not
- With qualitative research
 - State the researchers' positionality because it can influence the way responses are given
 - State the special context in which the data collection is embedded
 - Potentially remark what kind of reproduction would be interesting in the future

Which aspects are not reproducible?

- Both with quantitative and qualitative research
 - People change and cannot be questioned the same way
 - With panel surveys people (probably) remember the earlier questions
 - Positionality can be stated but almost not reproduced (even if it is the same person that conducts interviews)
- With qualitative research
 - In most cases interview transcripts should not be handed over to other persons (data protection)
 - Hence, even with the same data reproducibility is difficult if not possible

Reproducing others' research

- We reproduced Küpfer's 1998 study on value generation in the Swiss National Park and also Knaus' 2011 study on the same topic in the Biosphere reserve Entlebuch
- Both authors gave us good information about their methods in their writings (and orally)
- Nevertheless an exact replication was not possible
 - Küpfer did not provide the exact locations where she collected data
 - For resource reasons we could not adapt the same kind of data collection
 - We had less people but more time
 - We asked for people's expenditures from the past day rather than from the last week
 - We had different notions about what is a NP visitor and what not
 - Knaus' questionnaire could be used well, however the context was different

Measures to make research reproducible

- Transparency regarding context, positionality and questions asked
 - Not always possible in journals
 - Clean up data sheets from quantitative surveys (excel, SPSS)
 - Find a place to store these data sheets (still uncommon to attach them to papers)
- Bear in mind the limits imposed through data protection
 - Anonymity and people's right to their own data
 - Be careful about which kind of data can be stored
- State what would be interesting to be reproduced and what not