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## Documentation of online surveys (Version 1.0)

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## **Documentation of online surveys**

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## Abstract

This guideline on documentation of online surveys should provide guidance to researchers that aim at documenting the process of an online survey data collection. The collection of empirical data is an essential part of the scientific process. It is, therefore, important to comprehensively document how scientific data was collected. The information included in such a description will enable others to critically evaluate the data collection procedure and make replication studies possible. The guideline at hand attempts to provide a comprehensive list of aspects important for the documentation of an online survey: General aspects, details of the data collection preparation, the data collection phase, and the data processing are included in the guideline.

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The documentation of empirical studies is a central aspect to enable researchers to critically assess research and replicate a study. The purpose of this guideline is to provide a reporting guideline for online data collection and give orientation for researchers in the process of online data collection documentation. Many scientific articles do not report all details of the data collection procedure (Collins, 1985; Gieryn, Gilbert, & Mulkay, 1985; Orozco et al., 2018). If details about an online data collection procedure are not communicated, a replication attempt might be unsuccessful because the procedure could not be reproduced. Additionally, a critical assessment of an empirical study might be difficult - or even impossible - when details are not communicated. The American Association of Public Opinion Research (AAPOR) also calls for transparency in research and has formulated general rules and guidelines in the AAPOR Code of Ethics (American Association for Public Opinion Research, 2015).

A written report on an online study should, therefore, contain all information necessary to assess the scientific quality of the study and enable the reader to assess all limitations of the results. In the following, a list of details is given, that is ordered by the logic of the survey lifecycle, focusing on the process of data collection. It starts with the “general information” part, which includes all information that are central to the understanding of the methodology of the study. It is followed by the part “preparation” focusing on all conceptual aspects that were considered beforehand and the part “data collection”. In addition, key issues of “data processing” are listed which can optionally be included in the online documentation.

The order of all details listed here does not necessarily represent the priority of the aspects. All points are – in our eyes – important details that should be documented and made publicly available. We advise reporting all listed details, if applicable, even when one does not deem them important for the study. Aspects that might not seem important at the time of reporting, might, nevertheless, turn out to be crucial to replicate the study at a later point in time. The details could be reported in the written report (e.g., as part of the method section of a scientific article), in (online) supplementary material or as part of the documentation of the published data. Researchers need to decide for themselves where to report each detail. We generally advise to include details that are central for the reported study in the written report (e.g., a paper in a scientific journal). Additional details should then be included in (online) supplementary materials or other means of documentation. In this guideline, we focus on the documentation of the online data collection process and not on the preparation of the data. For more general considerations on data documentation and archiving please refer to the survey guideline on survey data documentation (Struminskaya, Gauly, Daikeler, Khorshed, & Jedinger, 2018).

Please note, that this supplement does not represent a survey guideline on the design and implementation of online surveys. For an overview on online survey design please refer to the book *Designing Effective Web Surveys* (Couper, 2008). A comprehensive overview on all practical aspects of online surveys is given by the books *Web Survey Methodology* (Callegaro, Lozar Manfreda, & Vehovar, 2015) and *Doing Surveys Online* (Toepoel, 2016).

## 1. General information

In this part, we list all the general information that is crucial for the understanding of the online survey project. This is the minimum information that we suggest to include in all publications and documentations.

### **Study topic, objectives, and description of research**

- What were the overall aim and objectives of the study?
- Is the study part of a larger project?
- Which overarching research questions guided the design of the study?
- Which topics were included in the questionnaire?
- Does the study have a specific title?

### **Researchers and their affiliation (Principal investigators, Project team members)**

- Who are the principle investigator(s) of the project?
- Which project team members were actively involved?
- Who is the contact person?

### **Study funding**

- How was the study funded? Is there a contracting authority for the study?

### **Survey organization**

- Who was responsible for the implementation of the survey? Did the project team conduct the survey by themselves or was an external agency contracted? If applicable, provide the name of the agency.
- Were there other subcontractors? Provide the names and the services they provided.

### **Fieldwork time**

- Start and end date of the survey/ total duration in days or weeks.
- If there were several waves, what was the time interval between the waves?
- Are there any peculiarities that are additionally worth mentioning, e.g., softlaunch of the survey or longer breaks?

### **Target population**

- What was the target population (e.g., German adult population, students at a particular university)?

### **Sampling design, sample source, and provider**

- How were the respondents sampled? Were they reached by a non-probability approach (e.g., quota sampling, snowballing) or a probability-based approach (e.g., random sample based on a population or employees register)? Or was it a Census survey? For further examples of online panel sampling please see Baker et al., 2010, p. 719ff.
- How was the sampling frame defined?  
This could be, for instance, all members of a specific online panel that use a mobile device and are between 18 and 60 years old, or all students of a certain university that are reachable via email address.

- Who provided the sample? Was it an online (access) panel provider, were the addresses collected at first hand, or did the sample come from another source?
- In case of online (access) panel: Add some key information on the panel size, panel structure, panel recruitment, panel maintenance, panel usage, and panel management if available. Also mention the name of the panel (provider).

### **Sample size and response metrics**

This section should provide an overview of the key numbers that describe the characteristics and the success of the survey. Not all of the numbers are available for all kinds of settings. We propose to report as much information as possible and anticipate before data collection which information is central and list them in a potential contract with the panel provider. The following information is central to judge the quality of a study:

- Number of invited participants
- Number of started surveys
- Number of break-off (if applicable: by relevant subgroups)
- Number of completed surveys
- The numbers above are the basis for calculating response metrics that inform about the study's success. For samples that are based on probabilistic sampling methods, the calculation of response rates based on the AAPOR standards is possible (American Association for Public Opinion Research, 2016; DiSogra & Callegaro, 2016). For samples that are not based on a probability sample, at least the completion rate can be reported (Callegaro & DiSogra, 2008). The completion rate is calculated as the share of those who completed the online survey among all the eligible panel members who were invited to the survey.
- If a sample from an online access panel provider has been used, it should be ensured in advance that all numbers required to calculate the response metrics are provided by the panel provider. Especially the information about the number of invited panelists and the number and dates of reminder e-mails is often not provided by default (see also section 3).

### **Survey mode**

- Was online the only mode or was it a mixed-mode study? If yes, the specifics of a mixed-mode study should be considered and reported (e.g., share of the different modes, mode-specific response rates).

### **Survey design**

- Was the survey designed as a cross-sectional survey or as a longitudinal survey (trend or panel)?
- Specify the number of waves, if more than one was conducted.

### **Sample characteristics**

- In addition to the response metrics, some basic information about the characteristics of the final sample can be provided. This could be information about the distribution of basic socio-demographics, the proportion of smartphone respondents, and key variables of interest.

- Are statements about the representation of the target population in terms of undercoverage and overcoverage possible? If possible, report bias measures (see for example Biemer, 2010).

### **Data access for project participants and third parties for replication purposes**

- Are the data accessible for third parties, e.g., in a data archive, downloadable on a website, or will they be provided on request?

## **2. Preparation**

### **Questionnaire characteristics**

One should give a comprehensive overview of all relevant aspects of the content and structure of the questionnaire. Potential aspects are:

- (Various) topics of the questionnaire
- Sections/ modules of the questionnaire
- The sequence of the topics
- Overall number of questions
- Routing information and information on major branches
- The anticipated completion time and the actual average completion time
- Language versions, translation
- Number of questionnaire versions and the differences between the versions
- Multimedia elements that were included

### **Questionnaire implementation**

This part focuses on all the aspects with regard to the technical implementation of the online survey project.

- Was the survey implemented browser-based or app-based?
- Which survey software solution was used? In case of commercial survey software: Which software provider was used? In case of an in-house developed survey software: Which programming language was used?
- Who was responsible for the survey programming and where was the questionnaire hosted?
- Were any measures implemented to account for multiple devices and various display sizes? Was a responsive layout implemented that adapts to the screen size? If so, what was the rationale for different layouts (e.g., type of device, screen size)?
- Were there any technical requirements for respondents' devices (e.g., specific mobile phone type) in order to participate?
- Were any paradata about the survey data collection process gathered? If yes, by server-side or client-side scripting?
- Were any additional scripts for special purposes included (e.g., JavaScript)?

- Was it allowed to skip answers or were forced answers implemented? Were any soft-prompts implemented that inform about incomplete answering and that are ignorable?
- Was a back-button included?
- Was a progress indicator included?
- Were any plausibility and consistency checks implemented?
- Was there an option to suspend the survey and resume later?
- Were any additional configurations applied that are worth mentioning (e.g., time out, automated forwarding)?
- Was any randomization implemented? This applies to the randomized order of answer categories, items, or question blocks

### **Questionnaire documentation (metadata)**

All details that are needed to get a sound impression of the exact content and the look-and-feel of the questionnaire should be included in the documentation. Potential aspects are:

- Screenshots of the survey (if applicable, different versions for different devices)
- A codebook export from the online survey software which provides information about question texts, answer categories, and filter information, as well as variable names, type, and labels of the variables. If applicable, name respective survey from which questions were taken.
- Export of the survey project, that enables others to import the questions in the respective online survey software.
- If the survey includes interactive features, the provision of a short video with screen capture is an additional option (see Heycke and Spitzer, 2019).

### **Pretest**

- Was a pretest conducted beforehand?
- Which pretesting technique was applied (e.g., usability testing, field pilot study, expert review, cognitive interviewing, eyetracking)?
- What was the aim of the pretest (e.g., testing all field procedures including questionnaire instrument, filtering and branching, advance materials, respondent selection procedures, invitation of participants; questionnaire development)?
- At a minimum, information about field time and sample size of the pretest should be provided.
- In addition, results of the pretest and possible consequences and/or changes for the main study can be reported.

### **Experimental design**

- If applicable, what kind of experimental design was used (e.g., between-subjects vs. within-subjects design, quasi-experimental design, pretest vs. posttest design, counterbalancing, matched pairs design)?
- How were participants assigned to the experimental groups?



### 3. Data collection

#### Contact strategy

- How were potential respondents invited to the survey?  
Depending on the project type (i.e., personalized vs. anonymous survey), one can either send the survey link (w/o login data) by e-mail, text message, or postal mail to specific persons vs. publish the survey link or QR code, for instance, on a website, in a newsletter, via social media or in a pop-up window.

#### Reminder strategy

- What were the number of contacts and their scheduling?
- Has one or more reminders been sent to encourage participation in the survey?
- To whom (e.g., inactive respondents, dropouts, everybody) were reminders sent?
- At what time (e.g., 10 days after initial invitation) were reminders sent?

#### Documentation of invitation and reminder letters

- What was the wording of the invitation/ reminder letter? If possible, make documents available to the public.

#### Incentives

Were any benefits offered to potential respondents to encourage participation in the survey? Incentives can take different forms:

- Prepaid vs. post-paid incentives (i.e., provided before vs. after respondents completed the survey)
- Monetary vs. non-monetary incentives (i.e., cash, gift cards, and coupons or “points” that can be redeemed for cash or gift cards vs. small gifts such as a pen, USB stick or notebook or things like a brochure or a donation for charity)
- Sweepstakes and free prize draws vs. individual incentives

#### Additional data sources

- Were additional data collected (e.g., social media data, sensor data, pictures)?
- If yes, describe the implementation and provide sample material.

#### Informed consent, privacy information

- How was consent to the collection and use of survey data obtained?
- How were respondents informed about the use of the data and the essential elements of the research, including the risks and benefits of participation? If possible, make documents available to the public.
- If any other types of data were gathered (e.g., paradata, passive data) or planned to be linked (administrative data, geodata): how was consent obtained?

### **Fieldwork monitoring, fieldwork interventions**

- Was there a continuous evaluation of key performance indicators (KPIs) such as response rates, breakoff rates, risk of nonresponse bias, contact attempts, etc. during fieldwork?
- Have specific interventions been performed during fieldwork, for instance, additional reminders, contact mode switching, survey mode switching?

### **Documentation of potential problems**

- Were there any unforeseen problems during the data collection phase? If applicable, what problems occurred (e.g., errors in filtering, incorrect quota definition)?
- How were problems handled (e.g., correction of the filter and exclusion of the first k respondents)?

## **4. Data processing**

For the sake of completeness, we additionally included aspects of data processing, which goes beyond the data collection and might not be necessary to replicate the data collection process.

### **Post-collection edits/ quality checks**

- What checks were carried out? Document how the controls were performed and how errors or inconsistencies were handled (i.e., accepting, flagging, recoding variables, excluding cases). It can be distinguished between:
  - formal-logical errors (e.g., duplicates, filter errors, wild codes, multiple responses where only one answer is possible) vs.
  - inconsistent or implausible information (i.e., contradictions in the responses) vs.
  - other data quality issues (e.g., breakoffs, don't knows, speeding, straightlining)

### **Coding of open-ended responses, if applicable**

- How were the answers to open-ended questions coded?  
Provide information on coding scheme, coder training, verification of coding, error handling.

### **Generated/ derived variables**

- What was the purpose of generated variables and which generated variables were provided?

### **Post-hoc output harmonization**

- What type of harmonization strategy has been employed with the aim of achieving, or at least improving, the comparability of different surveys, waves, and measures collected (e.g., input vs. output harmonization, ex-ante vs. ex-post harmonization)?  
Explain the criteria for measuring the quality of the harmonization process.

### **Imputation**

- Were missing values in the data set compensated using algorithms, mean/median values, most frequent or zero/constant values?

## **Weighting**

- What weighting procedures were used?

When weighting survey samples, the mathematical and statistical methods used shall be appropriately described. Provide technical details on, for instance, design, calibration, and panel weighting, and models used to generate the weights (sources, targets/ quotas, and procedures). The variables used for the weighting matrices as well as the effectiveness of the weighted sample shall be documented.

## **Anonymization**

- Have variables on personal data been anonymized in the data set?

For data protection reasons, it may be necessary that some variables are only publicly accessible at a higher aggregate level such as regional information or family relationships in the household.

## **Analysis software**

- Which software has been used for data cleaning, preparation, and analysis, e.g., R, Stata, SAS, or SPSS (including version information)?

Detailing with some specificity what software was used to arrive at reported results and where it may be obtained.

## **Script/syntax used for cleaning, preparation, and analysis**

- In the case of author-originated code (e.g., in R, Stata, SAS, or SPSS), is it provided in an appendix, online supplement, or archive? If possible, make documents available to the public.

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