

MODERATORS OF PANEL CONDITIONING IN SENSITIVE QUESTIONS. A META-ANALYSIS.

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DEFINITION AND RELEVANCE OF PANEL CONDITIONING

An example:

Veroff, Hatchett and Douvan (1992) randomly assigned newlywed couples to one of two groups: one that participated in frequent and intensive interviews (the study group) about marital satisfaction [..] and another that participated in minimal and infrequent interviews [...]. The authors concluded that “[b]y the fourth year . . . The marriages of the study group couples appeared to be better adjusted on several dimensions of marital quality” (p. 315).

Warren, Halpern-Manners (2012): Panel Conditioning in Longitudinal Social Science Surveys. *Sociological Methods and Research* 41(4): 491-534.

- Panels are necessary to answer longitudinal research questions, but dangers to validity: panel mortality and panel conditioning
- Panel Conditioning = Learning effect in panel studies
- Problem: Due to the conditioning of respondents in former survey waves, they are no longer representative for non-respondents in later waves.
- Examples: Avoidance of follow-up questions, cristallizing of attitudes, increased attention for survey topics, knowledge changes

SENSITIVITY AND ITS RELEVANCE FOR PANEL CONDITIONING

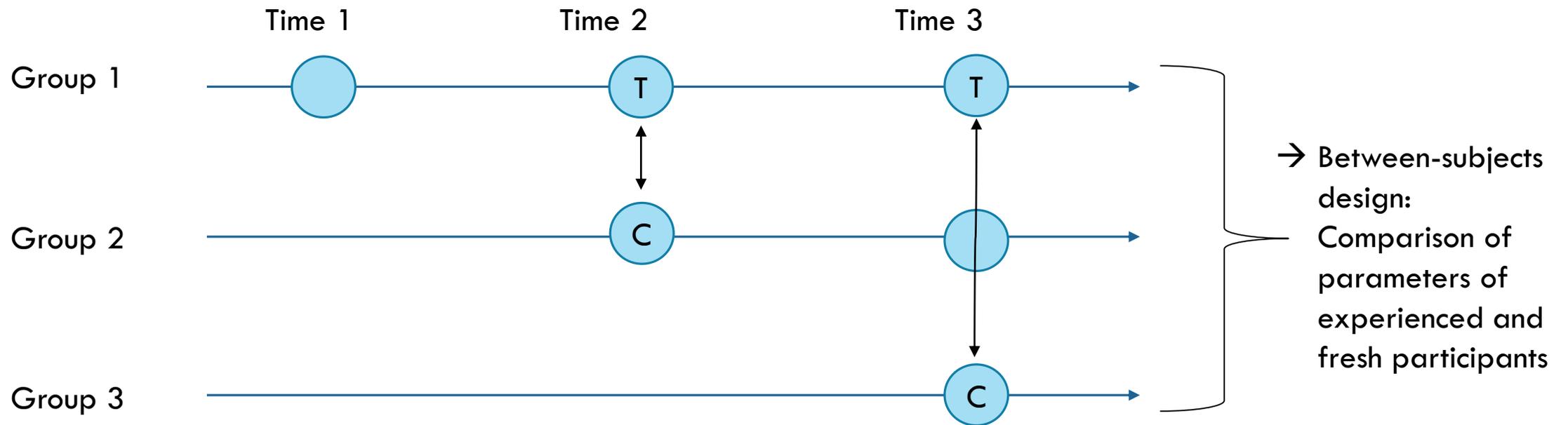
Three characteristics of sensitive questions (Tourangeau & al., 2000):

- Answer calls for socially unaccepted answer
- Intrusive and private, taboo in everyday conversation (religion, income, sexuality)
- Concern for data privacy, data security and use of data

Two possible effects of panel conditioning in case of sensitive questions:

- Desirable: More trust in survey situation
→ More honest answers, less social desirability effects for attitude questions
- Not desirable: Consistency effect on behavior or self-reporting
→ Adjustment of actual or reported behavior to greater conformity in case of deviant behavior

MEASUREMENT OF PANEL CONDITIONING



HYPOTHESES

H1: The answers of experienced respondents differ from the answers of fresh respondents in case of sensitive questions.

H2: Social desirability effects in sensitive questions differ depending on the type of question.

- H2.1: Experienced respondents answer less socially desirable in case of attitude questions.
- H2.2: Experienced respondents answer more socially desirable in case of behavior questions.

Dosage effects

- H3: The more often the treatment group was interviewed, the greater the difference between groups.
- H4: The greater the time-lag between waves, the smaller the difference between groups.

H5: The kind of sensitivity interacts with the type of question

- H5.1: Questions that call for social desirable answers increase PC effects in case of behavior questions.
- H5.2: Intrusive and private questions decrease PC effects in case of attitude questions.

INFORMATION SEARCH AND SELECTION

First literature search:

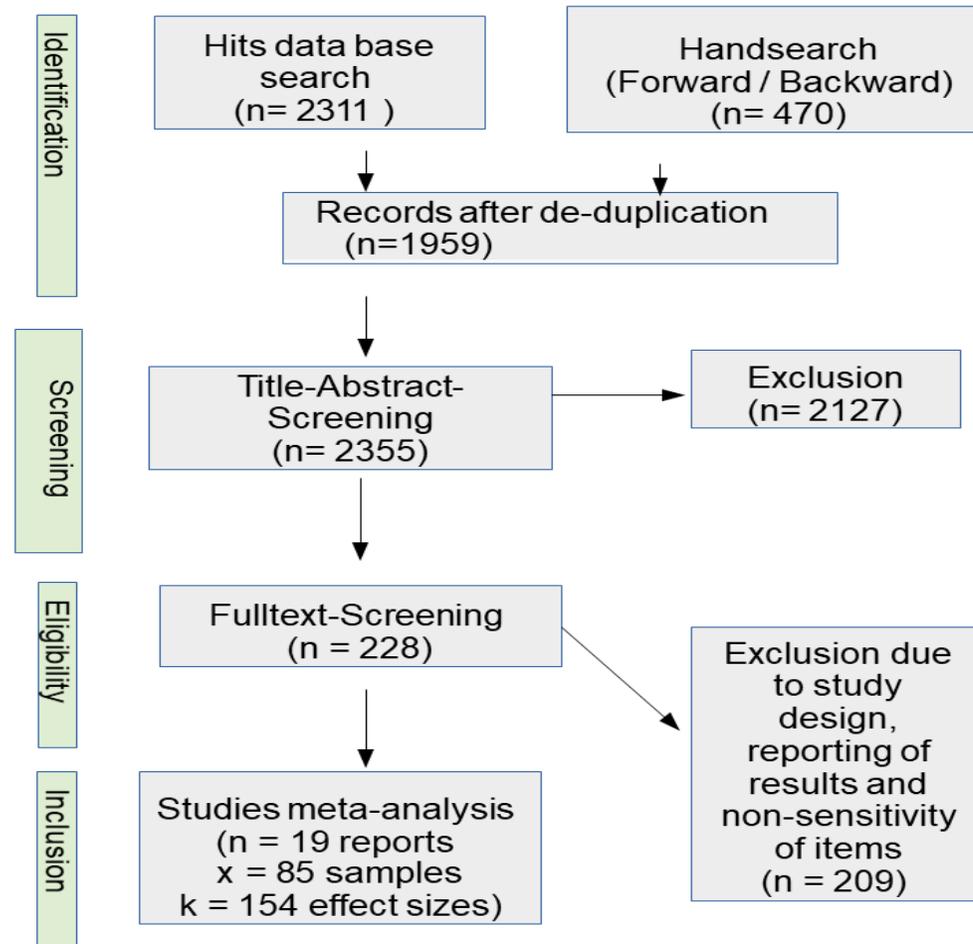
- CLICsearch (broad search interface containing for example PsycInfo, PsycArticles, PubMed, Sociological Abstracts)
- Search terms: „panel conditioning“, „survey conditioning“, „time in sample“, „rotation group bias“ and 10 more related synonyms

Eligibility criteria:

- (Quasi-) experiments
- Population: Experienced and fresh panel respondents (treatment and control group)
- Treatment: Former conditioning by sensitive survey question
- Time of comparison: Both groups are asked for the same, sensitive question
- Outcome: Reported behavior or attitudes of both groups → SMD

Forward and backward search with records from the first search meeting eligibility criteria

PRISMA FLOW CHART



DATA COLLECTION AND OUTCOME

Coding

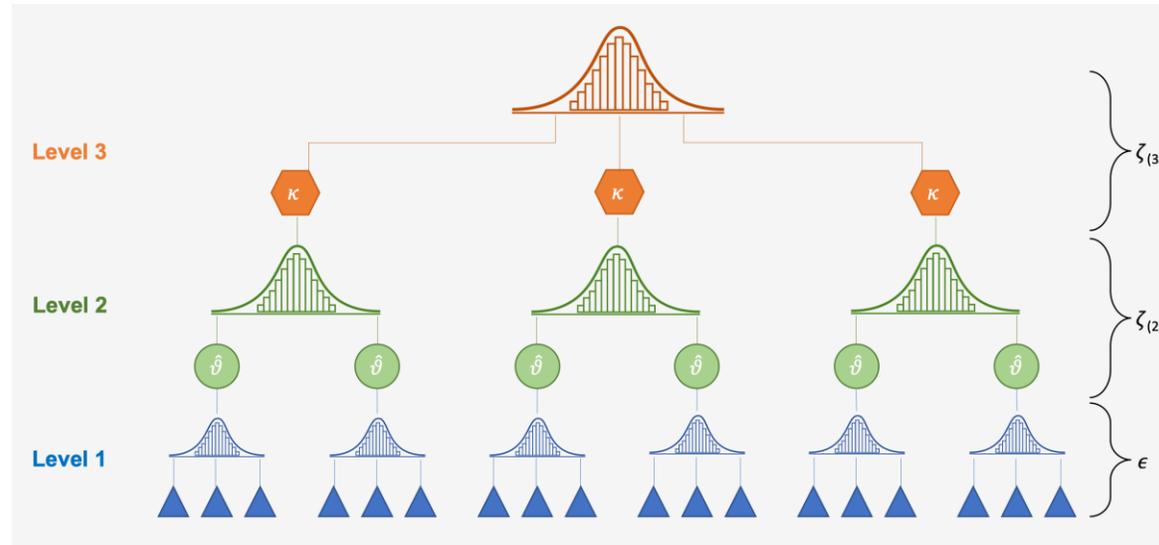
- Information on the report: Author, Year of publication, funding
- Intervention: Dataset, survey mode, year of comparison, country of conduction, incentives, Type of question, topic, conditioning frequency, interval between waves
- Results: Outcomes of both groups, Odds Ratios, test statistics

Effect size measure: Standardized mean differences

- $SMD > 0$: Experienced panelists respond less socially desirable
- $SMD < 0$: Experienced panelists respond more socially desirable

ANALYSIS METHOD

- To account for the hierarchical data structure, a three-level meta-analysis is used



Level	Unit	Variance
3	Studies	Between studies
2	Out-comes	Within studies
1	Partici- pants	Sampling

Source: Harrer, M. & Ebert, D. D. (2018). Doing Meta-Analysis in R: A practical Guide. PROTECT Lab Friedrich-Alexander University Erlangen-Nuremberg. https://bookdown.org/MathiasHarrer/Doing_Meta_Analysis_in_R/

- R package used: metafor 2.0-0

OVERALL EFFECT (H1) AND VARIANCE DISTRIBUTION

$k = 154$ effect sizes, $x = 85$ samples, $n = 19$ reports

Mean effect of panel conditioning: $-0,028^{***}$ $[-0,042; -0,013]$

→ Overall, experienced panelists respond more socially desirable than fresh panelists → H1 ✓

Distribution of heterogeneity:

- Sampling variance: 5,26 %
- Within studies: 80,40 %
- Between studies: 14,33 %



True heterogeneity, that may be explained with moderators

MODERATING EFFECT OF TYPE OF OUTCOME (H2)

- H2.1: Experienced respondents answer less socially desirable in case of attitude questions.
- H2.2: Experienced respondents answer more socially desirable in case of behavior questions.

Type of outcome	k	Estimated PC-effect	Conf. Interval	Hypothesis
Attitudes	38	0,027	[-0,006; 0,061]	2.1 
Behavior	116	-0,038***	[-0,053; -0,023]	2.2 

- 13,6 % of the variance of SMD's within studies and 37,5 % of the variance between studies is explained by the type of outcome

DOSAGE EFFECTS (H3 / H4)

	Overall	Attitudes	Behavior
Number outcomes	k=154	k=38	k=116
Estimated effect frequency (H3) [CI]	0.001 [-0.009; 0.010], p = 0.842 	0.028 [-0.015; 0.071], p = 0.206 	-0.013 [-0.024; -0.001], p = 0.027 
Estimated effect interval (H4) [CI]	0.004 [-0.003; 0.011], p = 0.285 	0.006 [-0.002; 0.014], p = 0.172 	-0.016 [-0.022; -0.010], p < 0.001 

KIND OF SENSITIVITY AND TYPE OF QUESTION (H5)

H5.1: In case of questions that call for social desirable answers, PC effects for behavior questions are stronger.

H5.2: In case of intrusive and private questions, PC effects for attitude questions are smaller.

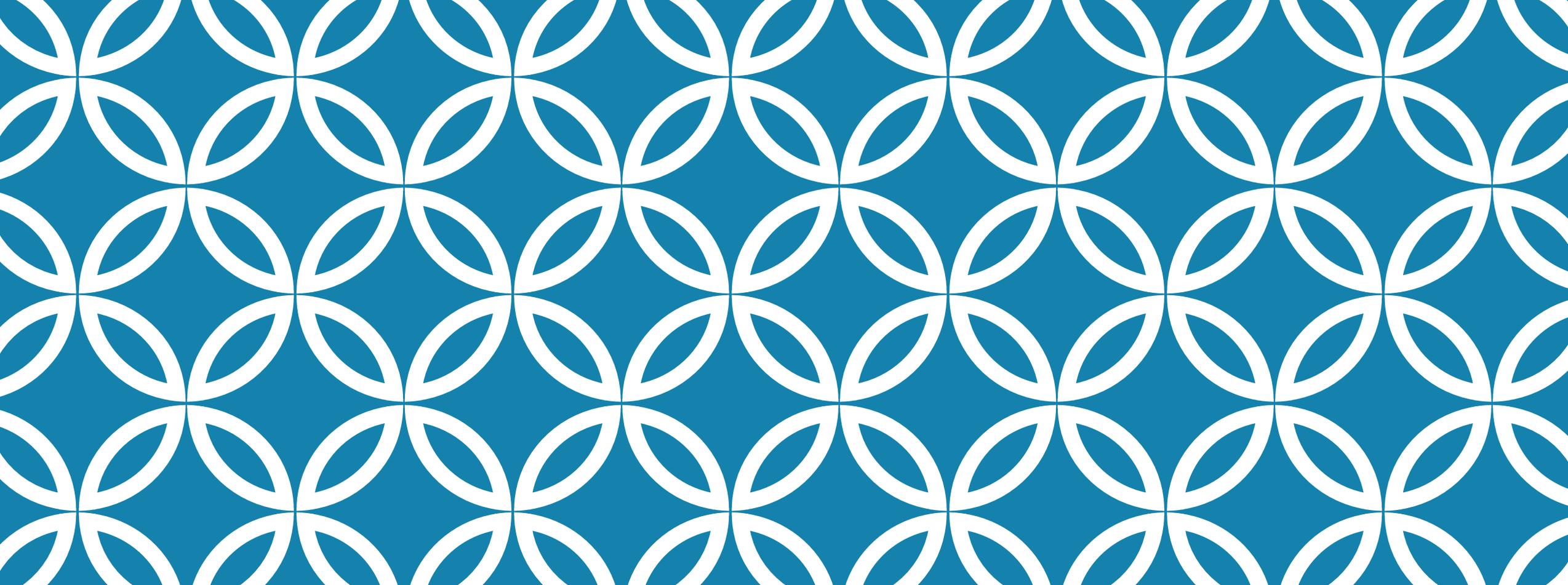
Type of sensitivity	Attitudes, k=38	Behavior, k=116
Social desirability (H5.1), k = 126		-0.041 [-0.056; -0.025], p <.001 
Private (H5.2), k= 41	0.062 [-0.013; 0.138], p = 0.106 	

SUMMARIZED FINDINGS

Hypothesis	Results	Conclusions and comments
1 (Overall effect of PC)		Experienced panelists answer more socially desirable
2.1 (Less social des. Attitudes)		Significant difference between attitude and behavior questions
2.2 (More social des. Behavior)		
3 (Frequency increases PC)		Only for behavior questions
4 (Time lage decreases PC)		Time lage increases PC for behavior questions (against direction expected)
5.1 (For questions calling for social desirable answers, PC for behavior questions is stronger)		
5.2 (For private questions, PC for attitudes is weaker)		Few observations, but tendendy to expected effect

CONCLUSIONS

- As expected, PC effects differ significantly between attitude and behavior questions.
 - No evidence for PC effects in attitude questions
 - Experienced respondents report more socially desirable behavior
- Moderators of behavior questions
 - Frequency slightly increases the PC effect
 - Contradictory to expectations, time lags increase PC effect → plausible, as behavior is learned over time?
 - Questions calling for socially desirable answers increase PC effects in behavior questions
- What's next?
 - PC effects for other kinds of outcomes (demographics, wellbeing, knowledge)
 - Targeted experimental studies evaluating the effects of frequency and timing



THANK YOU FOR YOUR ATTENTION!

Questions?!?

MANIFESTATIONS OF PANEL CONDITIONING

Panel conditioning in the context of the answering process in surveys (Tourangeau et al. 2000):

Stage 1: Comprehension of the question

- [-] Change in attitudes or behavior due to reflection / increased attention (Sturgis et al 2009: Cognitive stimulus model)
- [+] Less „don't know“-answers

Stage 2: Information retrieval

- [+] More reliable answers due to better accessibility of relevant information (Bergmann, Bath 2017)

Stage 3: Assessment of available information

- [-] Freezing of attitudes to appear consistently (Waterton, Lievesley 1989)

Stage 4: Reporting / Selection of adequate answer

- [+] Reduction of social desirability bias → more honest answering (Waterton, Lievesley 1989)
- [-] Reduction of the cognitive burden of the survey by strategic answering / satisficing (Krosnick 1991):

- Negative answering of filter questions to avoid follow-up questions
- Selection of acceptable answers without processing the content

RELEVANCE AND PROBLEMS OF PANELS

Demand of the science council: Infrastructure in psychology for longitudinal data collection → Bruder et. al (2014): Nationally founded online lab

Existing panel-infrastructures: NEPS; GESIS Panel, LISS Panel (Blom et al 2016) → ZPID: Online-Lab

Relevance of panel infrastructures

- Improvement of research possibilities (available database for longitudinal research questions)
- Provision by infrastructure more efficient:
 - Recruitment and care for pool of participants
 - Methodological and technical expertise

Dangers of panels: panel mortality and panel conditioning

RATIONALE FOR THE EXPECTED TIME EFFECT OF PANEL CONDITIONING EFFECTS

Pluralism / less bindingness of social norms

- Social desirability less important for new respondents, too

Information overload and scarcity of attention

- Cognitive stimulus due to survey participation less pronounced
- Information of previous surveys are less accessible due to amount of information

Increase in surveys and scientific studies

- More familiarity with the rules of surveys
- Satisficing and strategic answering is more probable with new respondents, too

General tendency: Decrease of panel conditioning, because respondents are less affected by the survey participation and thus, differences between new and experienced respondents tend to level out