Innovating web probing: comparing text and voice answers to open probing questions in a smartphone survey

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**4th Mobile Apps and Sensors in Surveys (MASS) Workshop**
Manchester (UK) – 22 to 23 June 2023
Digitalization and Research Potential

- Global digitalization tendency
  - *Increase in Internet use* (Pew Research Center 2016, 2019a)
  - *Increase in smartphone ownership* (Pew Research Center 2019b)

- New opportunities for researching (social) reality
  - *People leave traces and produce data in digital spheres* (Struminskaya et al. 2020)

- Transformation of social and behavioral sciences
  - New conferences: „BigSurv“ and „Mobile Apps and Sensors in Surveys“
  - New journals: „Frontiers in Big Data“ and „Journal of Computational Social Science“
Web Probing

- Rise of web probing studies in last decade
  - Combining of lab-based cognitive interviews with text-based web surveys (Behr et al. 2012; Behr et al. 2017)
  - Benefits: Fast and less expensive, large sample sizes, and no interviewer effects
  - Drawbacks: Probe nonresponse and short/uninterpretable answers

- Voice answers to probing questions
  - Closeness to daily conversation (Tourangeau et al. 2000)
  - Rich information due to narrations (Gavras & Höhne 2020; Gravras et al. 2022)

- New communication channels because of smartphones
  - Linking established methods with technological innovations
  - Exploiting the increase of smartphone use in web surveys (Gummer et al. 2023; Peterson et al. 2017; Revilla et al. 2016)
Devices in Web Surveys

Research Questions

▪ RQ1: Does the communication mode affect answer quality?
▪ RQ2: Does the communication mode affect the number of themes?
▪ RQ3: Does the communication mode affect survey evaluations?
Method: Study Design

- Cross-quota sample
  - Age, gender, and education
  - Forsa Omninet Panel (Nov 21)

- Between-subject design
  - Group 1: Voice \((n = 500)\)
  - Group 2: Text \((n = 501)\)

- 2 Questions + probes
  - Relationship between citizens and state (ISSP 2013, 2014)
  - Advanced replication (Lenzner & Neuert 2017)
Collecting Voice Data

- SurveyVoice (SVoice) tool (Höhne et al. 2021)
- Open-source
  - Apache 2.0 License
- JavaScript, CSS, HTML, and PHP
- Implementable in browser-based smartphone surveys

https://github.com/JKHoehne/SVoice/tree/v1.0.0
Results: Research Question 1

Probe nonresponse

Voice 40%  *  Text 10%

Uninterpretable answers

Voice 20%  *  Text 10%

*p < 0.05. Z-Test.

*p < 0.05. T-Test.
Results: Research Questions 1 and 2

*p < 0.05. T-Test.
Results: Research Question 3

Survey evaluations

* \( p < 0.05 \). T-Test.
Discussion and Conclusion

- Higher share of missing data in voice answers
  - Respondents may not be able and/or willing to provide voice answers
  - Reduction through (higher) incentivization and/or choice of answer format

- Less uninterpretable voice answers and higher number of words
  - Pointing to narrations, more information, and different cognitive answer processes

- Some differences regarding survey evaluations
  - The voice group evaluates the survey as less lengthy

- Voice and text answers do not differ in number of themes
  - Both formats produce similar respondent outcomes

- Take home message
  - Share of missing data in voice answers must be reduced
  - Voice answers potentially help to tailor web probing to some respondents
Many thanks for your attention!

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Literature I


- Höhne, J.K., & Gavras, K. (under review). Typing or speaking? Comparing text and voice answers to open questions on sensitive topics in smartphone surveys. Social Science Computer Review.

Literature II


- PEW Research Center (2019b). Smartphone ownership is growing rapidly around the world, but not always equally. Available at https://www.pewresearch.org/global/2019/02/05/smartphone-ownership-is-growing-rapidly-around-the-world-but-not-always-equally/

