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**Voice Recording in Mobile Web Surveys –
Evidence from an Experiment on Open-Ended
Responses to the "Final Comment"**

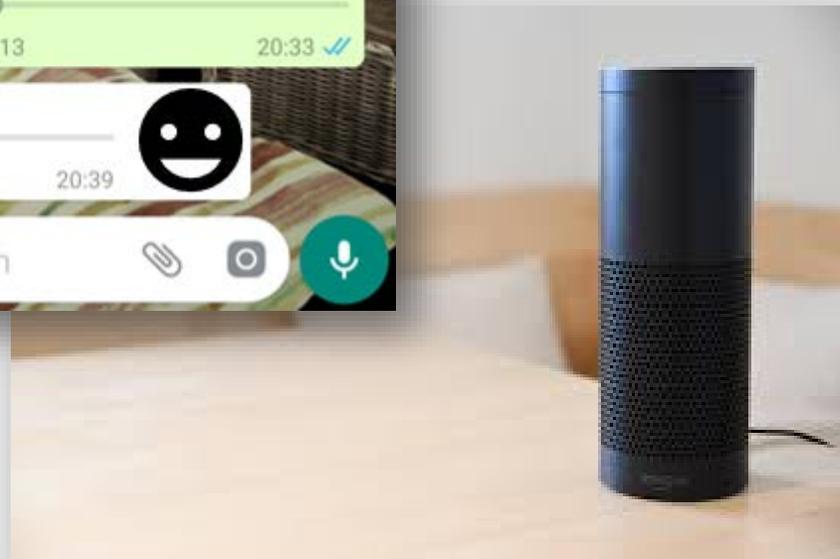Contact: konstantin.gavras@uni-mannheim.de

VOICE RECORDING IN MOBILE WEB SURVEYS

EVIDENCE FROM AN EXPERIMENT ON OPEN-ENDED RESPONSES TO THE "FINAL COMMENT"

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Motivation

Changing User Behavior on Mobile Devices

- IoT changes the way we interact with technical devices fundamentally

- People are getting used to verbally interact with electronic (mobile) devices

- 2014: Already 200 mio. voice messages via Whatsapp (Reuters 2018)

- Changes in user behavior not yet incorporated by survey research (Singer/Couper 2017)

- Full potential for mobile web surveys by far not yet exploited! (Mavletova 2013; Stapleton 2013)

- Online verbal interaction would enable surveying more complex concepts, attitudes and motivations for behavioral intent (Smyth et al. 2009)

Voice Recording in Mobile Web Surveys

■ Research idea: Respondents are allocated to two experimental groups, forcing them to either respond to open-ended question verbally or written

■ Research questions:

1. *Do users of the voice recording differ from those who provide written answers on socio-demographic features?*

2. *Are verbal responses systematically longer than written comments?*

3. *Are verbal responses more positive than written comments?*

Research Design

- ■ Experiment:
  - *German Longitudinal Election Study (GLES) Pre-Test 2018*
  - *Forced randomized mobile device usage*
  - *Randomization of Android users to either the voice recording or written comment condition – experiment unfortunately not possible on iOS*
  - *Voice recording group received additional text field on the next page to capture potential complaints*
  - *N = 1566*

- ■ Test of voice recording on the „final comment" of the survey:
  - *No ceiling effect: Allows analysis of differences between users*
  - *Social desirability: Being emotional on the final comment is widely accepted → Also when interacting less „anonymously"?*
  - *Dropout due to data security issues would not be critical*

Voice Recording Application

■ Small PHP-Script on a HTML homepage with JavaScript add-in

■ Using „File Upload" function with audio/*;capture=microphone restriction (not possible on iOS in August 2018)

■ Voice recording on internal dictation app with automatic redirect

■ JavaScript to check for correct upload and reviewing of answers by respondent

■ Several uploads possible

Kommentar

Abschließend möchten wir Ihnen die Gelegenheit geben, etwas zu unserer heutigen Umfrage zu sagen.

Haben Sie Kommentare oder Anregungen zu der Befragung oder zu einzelnen Fragen? Wir möchten Sie bitten, dass Sie uns Ihre Antwort sagen. Wählen Sie hierfür bitte das Feld "Aufzeichnung". Daraufhin wird die Diktiergerät-App auf Ihrem Smartphone geöffnet. Bitte sprechen Sie Ihre Antwort auf und beenden Sie die Aufzeichnung. Sie werden daraufhin direkt zu der Umfrage zurückgeleitet. Sie können mit dem Feld "Überprüfung" testen, ob eine Datei hochgeladen wurde.

Aufzeichnung   Überprüfung

Antwort hochladen

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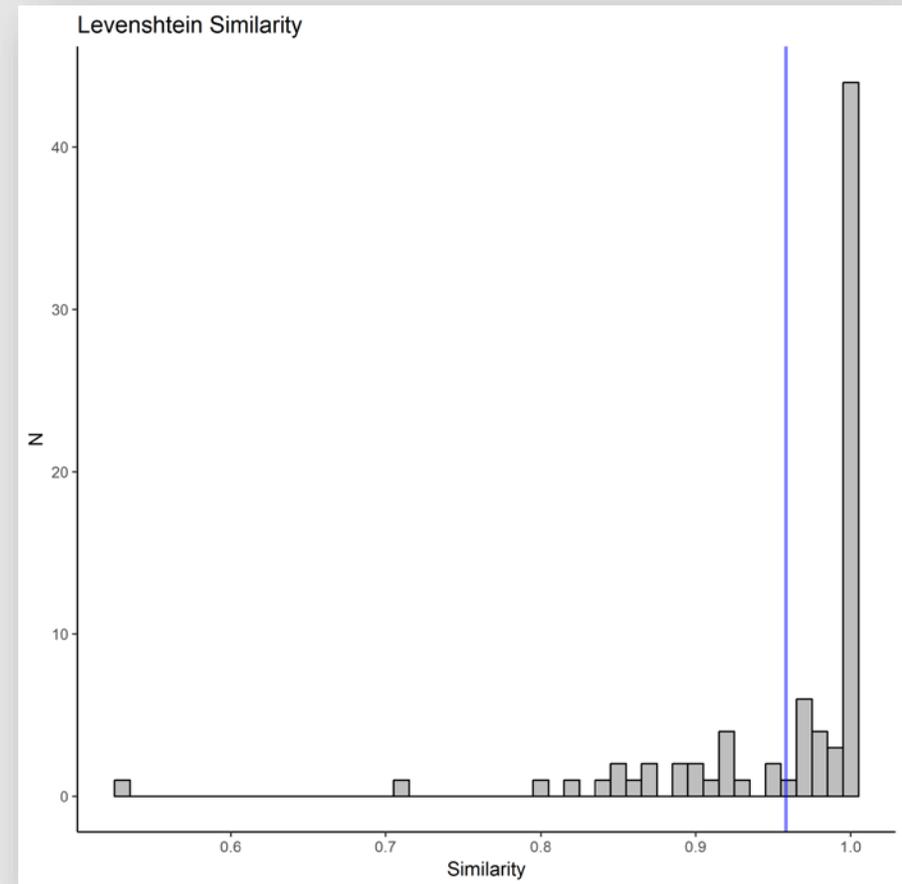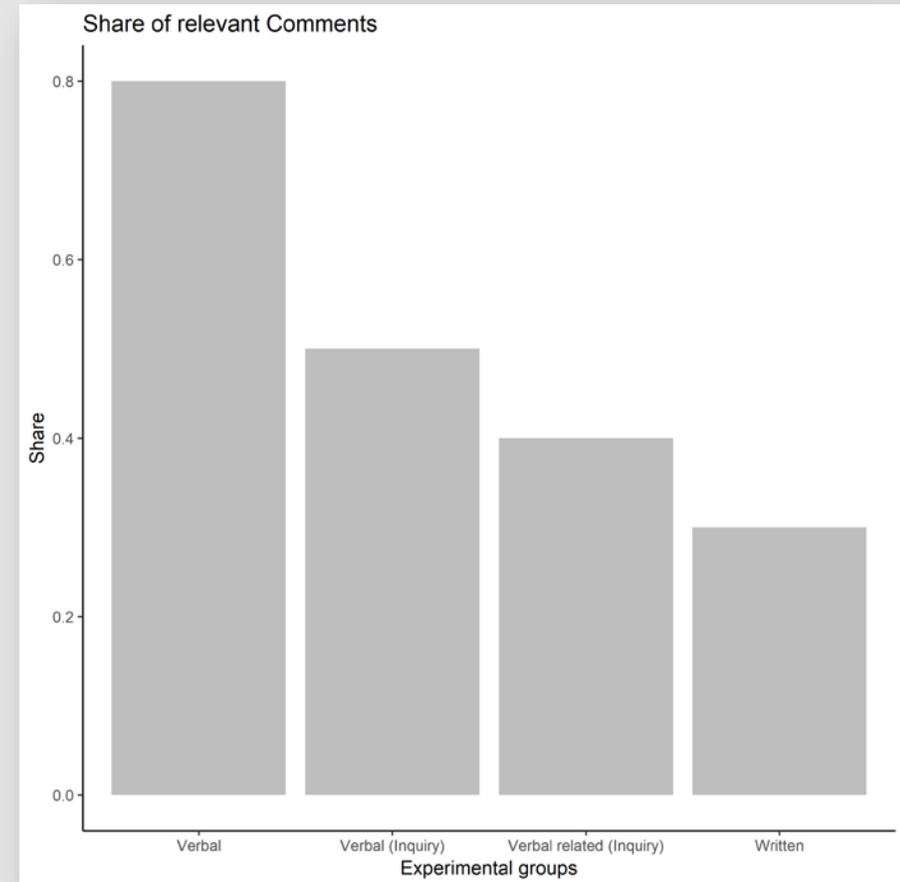
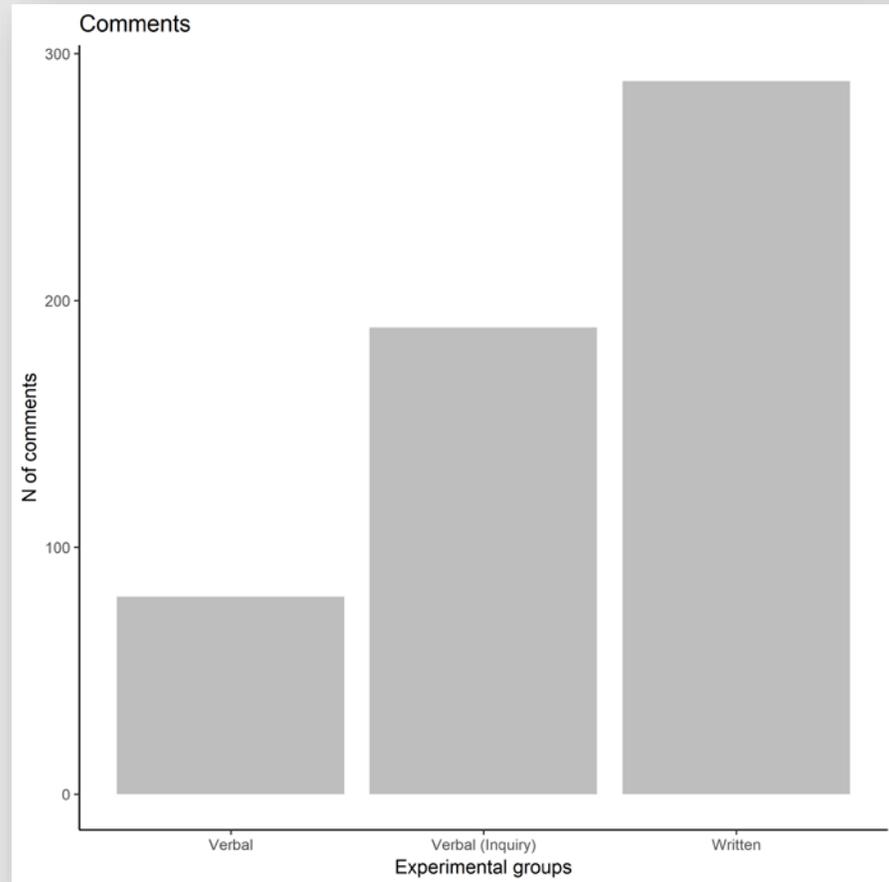Aufzeichnung   Überprüfung

Antwort hochladen

Implemented by Kai Böge

Transcription of Oral Responses

- Manual (gold standard) & automated Transcription of answers

- Automated transcription by Google Transcribe API (Cost: < 1.00 €)

- Verification of quality using Levenshtein Similarity Score
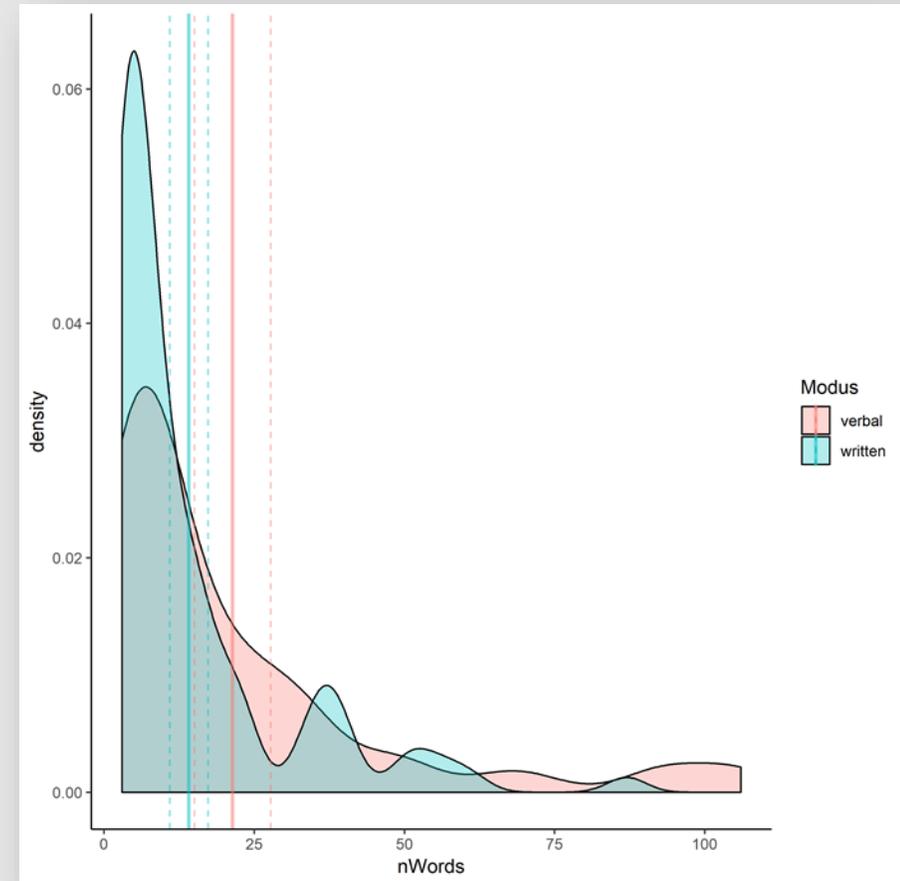
Descriptive Results

Oral vs. Written Responses

■ Nearly as many (substantial) responses on voice recording as written

■ Response on average not longer

■ Median differs by 2 Word:
  – 10 words verbal
  – 8 words written
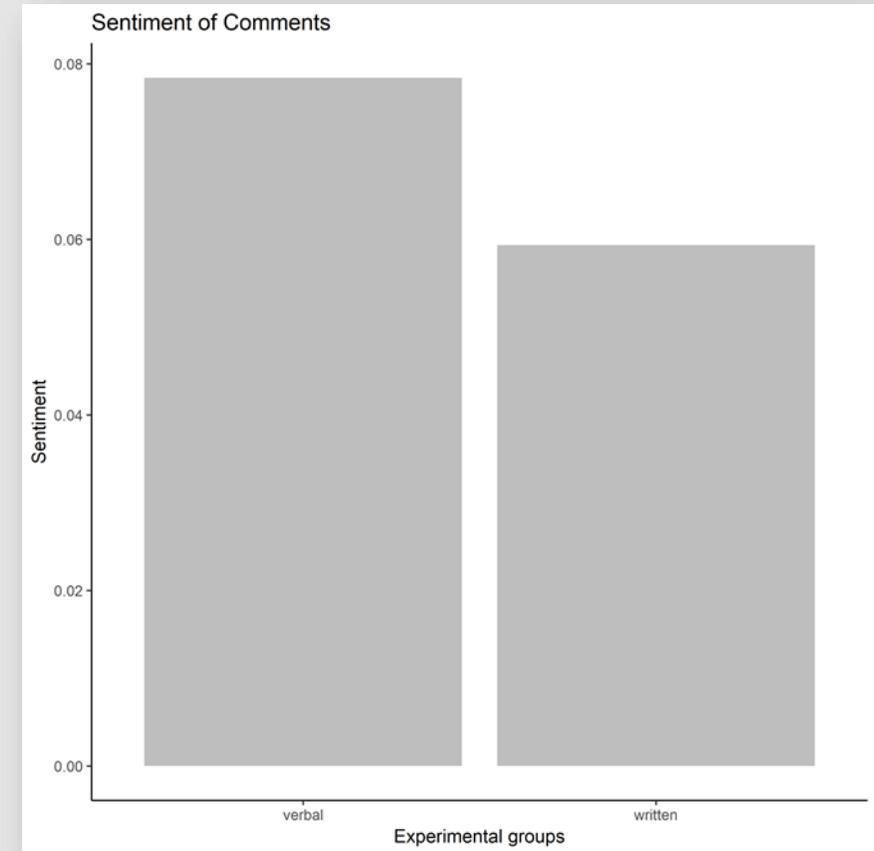
Main Users of Voice Recording

- Logit Regressions to identify likely users of voice recording (Model 1) and written comments (Model 2) + differences between respondents (Model 3, Verbal = 1)

- Older respondents more likely to use voice recording!

- Politically more interested respondents more likely to write down response

- Voice recording pushes under-covered groups (old, politically low interested and with low education) to respond to open-ended questions (Stoop 2005)

	Verbal	Written	Verbal vs. Written
Interested in survey	1.70*	0.92	1.08
	(0.75)	(0.61)	(0.92)
age	0.04***	0.01	0.03**
	(0.01)	(0.01)	(0.01)
Female	0.24	0.02	-0.16
	(0.28)	(0.23)	(0.38)
Medium education	-0.40	0.37	-1.06*
	(0.35)	(0.34)	(0.47)
High education	-0.20	-0.17	-0.25
	(0.38)	(0.38)	(0.53)
Political interest	-0.20	1.49**	-2.36*
	(0.65)	(0.56)	(0.92)
Constant	-5.59***	-4.32***	-0.84
	(0.83)	(0.68)	(1.01)
AIC	408.18	567.17	211.85
BIC	440.05	599.44	233.47
Log Likelihood	-197.09	-276.58	-98.93
Deviance	394.18	553.17	197.85
Num. obs.	702	743	162

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$

Sentiment of Responses to Final Comment

- Social desirability might pose problem for honest answers

- Sentiment Analysis using SentiWS by U of Leipzig

- Verbal comments are slightly more positive than written comments → perhaps conventions of farewell

Take Aways

- Large-scale experiment of voice recording on mobile devices

- Respondents seem to accept this new survey mode (although some critical comments were stated)

- Enables researchers to use two survey modes simultaneously for open-ended questions

- Possibility to survey complex concepts like levels of conceptualization (Converse 1964) or behavioral motivation (Young 1961) with extremely low costs!

- Higher coverage of under-represented groups in open-ended questions

- But:
  - *Improvement of user experience using Survey-Apps for online panels*
  - *Perhaps differences in sentiment and depth of responses between modes*

Thank you for your attention!

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