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**List-style open-ended questions in Web surveys:  
A comparison of three visual layouts**

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## List-style open-ended questions in Web surveys: A comparison of three visual layouts

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# Introduction

Long debate on pros and cons of narrative open-ended questions:

Advantages	Disadvantages
free of response category bias	labor-intensive, error-prone coding
non-restrictive collection of respondents' verbatim responses	more time and effort to complete
more respondent engagement	higher levels of item nonresponse

# Background I

- Verbal and visual answer-box manipulations in Web surveys:

	verbal	visual
static	motivational instructions (e.g., Smyth et al., 2009)	size of answer boxes (e.g., Smyth et al., 2009)
		number of list-style answer boxes (e.g., Smyth, Dillman, & Christian, 2007)
interactive	follow-up probes (e.g., Holland & Christian, 2009)	dynamically growing size of answer boxes (e.g., Fuchs, 2013)
		dynamically growing number of list-style answer boxes (e.g., Fuchs, 2013)
		insertion of counter (e.g., Emde & Fuchs, 2012)

- Previous findings on visual design of answer boxes:  
Response elaboration is encouraged by using list-style open-ended questions.

## Background II

- Verbal and visual answer-box manipulations in Web surveys:

	verbal	visual
static	motivational instructions (e.g., Smyth et al., 2009)	size of answer boxes (e.g., Smyth et al., 2009)
		number of list-style answer boxes (e.g., Smyth, Dillman, & Christian, 2007)
interactive	follow-up probes (e.g., Holland & Christian, 2009)	dynamically growing size of answer boxes (e.g., Fuchs, 2013)
		dynamically growing number of list-style answer boxes (e.g., Fuchs, 2013)
		insertion of counter (e.g., Emde & Fuchs, 2012)

- In the current study:  
Three different *list-style* designs were compared with respect to optimizing *response quality* without increasing *response burden*.

# Research Questions

- Does an *interactive* list-style design bring additional benefits compared to a *static* design in terms of ...
  - ▶ higher response elaboration?
  - ▶ lower response burden?
  
- What effects do respondent-related characteristics have on response elaboration and response burden?

# Methods

- Topic:** Web survey on  
“Politics and voting behavior“  
in Oct 2018
- N:** 4,371 completes  
non-probability based online panel
- Design:** Random assignment to
- one of three list-style designs
  - one of two experimental questions

# Experimental Design

- Q1: **What aspects did you have in mind when answering the question?** → **specific probe question**  
The question was: "How satisfied are you - all in all - with the way democracy works in Germany?"
- Q2: **In your opinion, what are currently the most important problems in Germany?** → **open-ended question**

(a) static design with 6 fixed list-style answer boxes (1 page)




A vertical stack of six empty rectangular text input boxes, representing a static design for a list-style answer.

(b) dynamic design with up to 6 interactive list-style answer boxes (1 page)



A vertical stack of two interactive list-style answer boxes. The first box contains a plus sign icon. Below the second box are four vertical ellipsis symbols, indicating that the number of boxes can increase dynamically.

(c) follow-up design with 3 fixed list-style answer boxes on the initial and 3 on the next screen (2 pages)



A vertical stack of three empty rectangular text input boxes. Below the third box is a "Continue" button. Below the button is a text prompt "Are there any other aspects ...?" followed by three more empty rectangular text input boxes.



# Results – Response Elaboration

	QUESTION 1			QUESTION 2		
	(a) static	(b) dynamic	(c) follow-up	(a) Static	(b) dynamic	(c) follow-up
<b>Number of characters (mean)</b>	56.5 <sup>c</sup>	48.2 <sup>c</sup> ↓	66.0 <sup>ab</sup> ↑	51.5 <sup>bc</sup>	42.2 <sup>ac</sup> ↓	60.7 <sup>ab</sup> ↑
	$F(2, 1,652) = 11.30, p < .001, \eta^2 = .013$			$F(2, 2,044) = 27.14, p < .001, \eta^2 = .026$		
<b>Number of themes (mean)</b>	2.4 <sup>b</sup>	1.8 <sup>ac</sup> ↓	2.6 <sup>b</sup> ↑	3.3 <sup>bc</sup>	2.6 <sup>ac</sup> ↓	3.8 <sup>ab</sup> ↑
	$F(2, 1,652) = 55.61, p < .001, \eta^2 = .063$			$F(2, 2,044) = 115.57, p < .001, \eta^2 = .102$		

Note. <sup>a,b,c</sup> significant difference between any two of the three list-style designs ( $p < .05$  or less based on Bonferroni post-hoc tests).

# Results – Response Burden

	QUESTION 1			QUESTION 2		
	(a) static	(b) dynamic	(c) follow-up	(a) static	(b) dynamic	(c) follow-up
<b>Response time overall (mean)</b>	67.5 <sup>bc</sup>	53.9 <sup>ac</sup>	81.4 <sup>ab</sup>	70.0 <sup>bc</sup>	52.5 <sup>ac</sup>	89.6 <sup>ab</sup>
	$F(2, 1,652) = 27.00, p < .001, \eta^2 = .032$			$F(2, 2,044) = 45.56, p < .001, \eta^2 = .043$		
<b>Response time per characters (mean)</b>	1.5 <sup>c</sup>	1.5 <sup>c</sup>	1.8 <sup>ab</sup>	1.7	1.5 <sup>c</sup>	1.9 <sup>b</sup>
	$F(2, 1,652) = 4.45, p < .05, \eta^2 = .005$			$F(2, 2,044) = 3.45, p < .05, \eta^2 = .003$		
<b>Response time per theme (mean)</b>	31.7 <sup>c</sup>	34.6	36.4 <sup>a</sup>	22.6	21.0	24.0
	$F(2, 1,652) = 3.04, p < .05, \eta^2 = .004$			$F(2, 2,044) = 2.51, ns$		
<b>Item nonresponse (%)</b>	21.6	18.7	21.8	7.8	7.7	6.9
	$Chi^2(2, n = 2,122) = 2.51, ns$			$Chi^2(2, n = 2,249) = .46, ns$		

Note. time outliers with  $\pm 2$  SD from group mean were excluded; <sup>a,b,c</sup> significant difference between any two of the three list-style designs ( $p < .05$  or less based on Bonferroni post-hoc tests).

# Results – Response Elaboration

	Number of characters						Number of themes					
	QUESTION 1			QUESTION 2			QUESTION 1			QUESTION 2		
	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$
<i>List-style design</i> Static (ref)												
Dynamic	-6.71	3.72	-0.05	-7.76 **	2.51	-0.07	-0.61 ***	0.08	-0.21	-0.66 ***	0.08	-0.19
Follow-up	10.52 **	3.70	0.08	10.61 ***	2.47	0.11	0.18 *	0.08	0.06	0.60 ***	0.08	0.18
<i>Interest in question topic</i> (ref: below average)	12.02 ***	3.24	0.09	12.46 ***	2.20	0.12	0.28 ***	0.07	0.10	0.62 ***	0.07	0.18
<i>Respondent effort</i> (1'low' 5'high')	8.89 ***	1.97	0.11	7.95 ***	1.27	0.14	0.21 ***	0.04	0.12	0.30 ***	0.04	0.15
<i>Device type</i> (ref: desktop/tablet)	3.43	3.51	0.02	-2.35	2.39	-0.02	-0.05	0.08	-0.02	-0.13	0.08	-0.04
(Constant)	11.22	9.31		12.26 *	5.92		1.38 ***	0.20		1.78 ***	0.20	
	<i>Model F = 11.85***, df = 5</i> N = 1,629; R <sup>2</sup> <sub>adj</sub> = .03			<i>Model F = 27.86***, df = 5</i> N = 2,003; R <sup>2</sup> <sub>adj</sub> = .06			<i>Model F = 31.42***, df = 5</i> N = 1,629; R <sup>2</sup> <sub>adj</sub> = .09			<i>Model F = 79.87***, df = 5</i> N = 2,003; R <sup>2</sup> <sub>adj</sub> = .16		

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

# Results – Response Burden

	Item nonresponse					
	QUESTION 1			QUESTION 2		
	B	SE B	$\beta$	B	SE B	$\beta$
<i>List-style design</i> Static (ref)						
Dynamic	-0.29 *	0.14	0.75	-0.12	0.20	0.89
Follow-up	-0.05	0.13	0.95	-0.17	0.21	0.85
<i>Interest in question topic</i> (ref: below average)	-0.77 ***	0.14	0.46	-0.65 **	0.21	0.52
<i>Respondent effort</i> (1'low' 5'high')	-0.59 ***	0.06	0.55	-0.59 ***	0.08	0.56
<i>Device type</i> (ref: desktop/tablet)	-0.00	0.13	1.00	-0.14	0.20	0.87
(Constant)	1.47 ***	0.28	4.33	0.16	0.36	1.18
	Model $\chi^2 = 139.09$ ***, <i>df</i> = 5 N = 4,371; Pseudo-R <sup>2</sup> = .10			Model $\chi^2 = 64.84$ ***, <i>df</i> = 5 N = 4,371; Pseudo-R <sup>2</sup> = .07		

Note. Dependent variable: 1 = no response, 0 = substantive response; \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

## Summary

- The *follow-up design* motivated respondents to provide longer and more extensive responses, but couldn't reduce the problem of item nonresponse.
- The *dynamic design* was least effective with regard to response elaboration (and response burden).
- Irrespective of the type of list-style design,
  - ▶ respondents with high interest and motivation were more likely to provide substantive and elaborated responses.

# Conclusions

- *Interactive* list-style designs can bring additional benefits compared to a *static* design – but
  - ▶ an *explicit verbal* “call to action” seems to be necessary, whereas an *implicit visual* prompt does not seem sufficient.
- Next steps to take:
  - ▶ examining a potential wear-out effect,
  - ▶ tailoring a request to specific groups of respondents,
  - ▶ assessing further indicators of response quality.

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Thank you!

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