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Instant Interactive Feedback in Grid Questions: Reminding Web Survey Respondents of Speeding and Nondifferentiation

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Interactive Feedback

Background



- Grid questions are especially prone to various satisficing behaviors (e.g., nondifferentiation, speeding).
- Interactive feedback may prevent satisficing behaviors in Web surveys:
 - speed prompts (Conrad et al., 2011; Hudson et al., 2013):
longer response times; mixed findings on straight-lining and survey breakoff
 - speed & nondifferentiation prompts in grid questions (Zhang, 2013):
 - ➔ each of the two prompts reduced speeding and nondifferentiation
 - ➔ Suggestions: both prompts lead to more thoughtful responding

Instant Interactive Feedback

Basic Idea



- Interactive feedback is most useful (Conrad et al., 2005):
 - ➔ when it is provided immediately after the relevant action, and
 - ➔ when no additional effort is required to obtain the feedback.

- Interactive feedback can be provided either
 - (1) after a respondent has already submitted the entire grid ('delayed feedback'), or
 - (2) while a respondent is still in the process of answering the grid items ('instant feedback').

Instant Interactive Feedback

Graphical Layout



How important or unimportant were the following skills and competencies in your previous educational or professional career?

	very important	quite important	partly/ partly	quite unimportant	very unimportant
broad general knowledge	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
foreign languages	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
organisational capability	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
computer literacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
writing skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please try to differentiate more among your answers.

With a view to the future, how important or unimportant are the following aims for you personally?

	very important	quite important	partly/ partly	quite unimportant	very unimportant
To yield outstanding exam achievements.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To always go to the limits of my skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not to feel helpless during my studies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To always meet the necessary requirements.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not to disgrace myself owing to poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please take some more time for your answer.

Research Questions



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1. Can speeding and nondifferentiation in grid questions be reduced by means of instant feedback?
 2. Are both satisficing behaviors affected by each feedback instruction equally?
 3. Does instant feedback increase the risk of missing data?
 4. How does instant feedback affect the processing of grid questions?

Methods

Web Survey



- Sample: university applicants (n=7.395)
- Field phase from July 24 to August 26, 2013
- Response rate (AAPOR RR6): 40.4%

- 4 grids with 8 or 14 items, answered on a 5-point importance scale
- Between-subjects design with random assignment

	Nondifferentiation	Speeding
Instruction	"Please try to differentiate more among your answers."	"Please take some more time for your answer."
Experimental conditions	CG: no feedback EG: nondiff (click_i) < .50	CG: no feedback EG1: time span ($\text{click}_i - \text{click}_{i-1}$) < 1000ms EG2: time span ($\text{click}_i - \text{click}_{i-1}$) < 2000ms

Results

Nondifferentiation (McCarty & Shrum Index, Mean)



	Feedback Instruction			
	Nondifferentiation		Speeding	
	Grid 1	Grid 2	Grid 1	Grid 2
<i>n</i>	6,442	6,632	6,854	6,937
a) CG	.619	.551	.599 ^c	.513 ^{b,c}
b) EG1	.646	.596	.601	.525 ^a
c) EG2	-	-	.607 ^a	.532 ^a
<i>Sig.</i>	.001	.001	.05	.001

Note. ^{a, b, c} significant difference between any two of the three feedback conditions ($p < .05$ or less based on Bonferroni post-hoc tests).

➔ Both feedback instructions reduced nondifferentiation.

Results

Response Time (Seconds, Mean)



	Feedback Instruction			
	Nondifferentiation		Speeding	
	Grid 1	Grid 2	Grid 1	Grid 2
<i>n</i>	6,343	6,568	6,854	6,937
a) CG	66.7	39.6	80.8 ^c	44.4 ^{b,c}
b) EG1	76.5	47.9	82.0 ^c	48.3 ^{a,c}
c) EG2	-	-	90.1 ^{a,b}	50.8 ^{a,b}
<i>Sig.</i>	.001	.001	.001	.001

Note. Cases excluded with mean response times +2 standard deviations. ^{a, b, c} significant difference between any two of the three feedback conditions ($p < .05$ or less based on Bonferroni post-hoc tests).

➡ Both feedback instructions reduced speeding.

Results

Item Nonresponse (# of Missing Items, Percent)



	Feedback Instruction			
	Nondifferentiation		Speeding	
	Grid 1	Grid 2	Grid 1	Grid 2
<i>n</i>	376	254	336	193
a) CG	1.4	1.1	1.3	1.2
b) EG1	1.5	1.1	1.5	1.4
c) EG2	-	-	1.6	1.3
<i>Sig.</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>

Note. Cases excluded who did not receive the treatment in the experimental conditions (because they either fully completed the grid or answered none of the grid items).

➡ Both feedback instructions did not affect item nonresponse.

Results

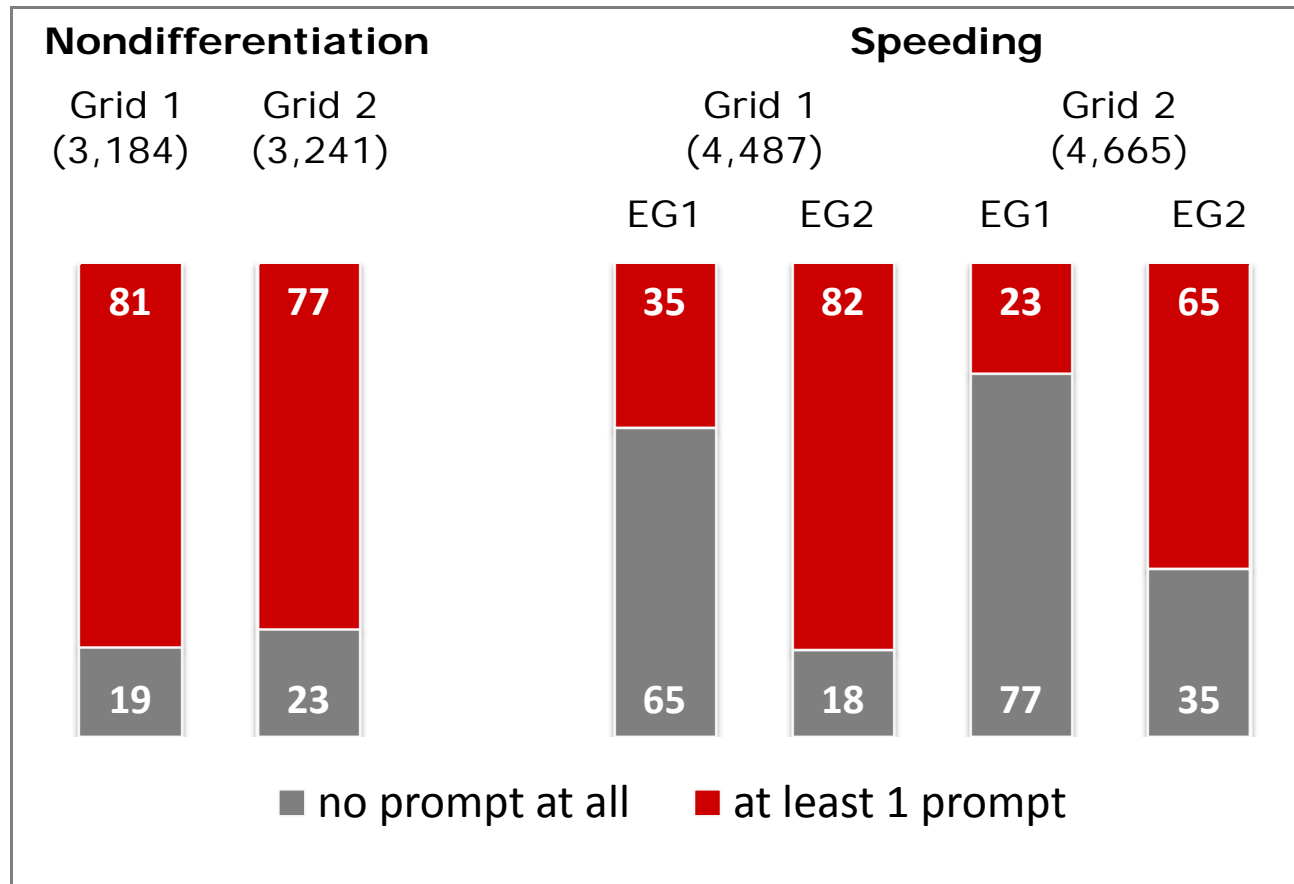
Survey Breakoff (# of Dropouts, Percent)

	Feedback Instruction			
	Nondifferentiation		Speeding	
	Grid 1	Grid 2	Grid 1	Grid 2
<i>n</i>	115	20	212	23
a) CG	1.5	0.2	2.6	0.3
b) EG1	1.5	0.3	2.9	0.4
c) EG2	-	-	2.3	0.2
<i>Sig.</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>

➔ Both feedback instructions did not affect survey breakoff.

Results

Incidence of Prompts (Percent)



Results

Number of Item Revisions (Mean)

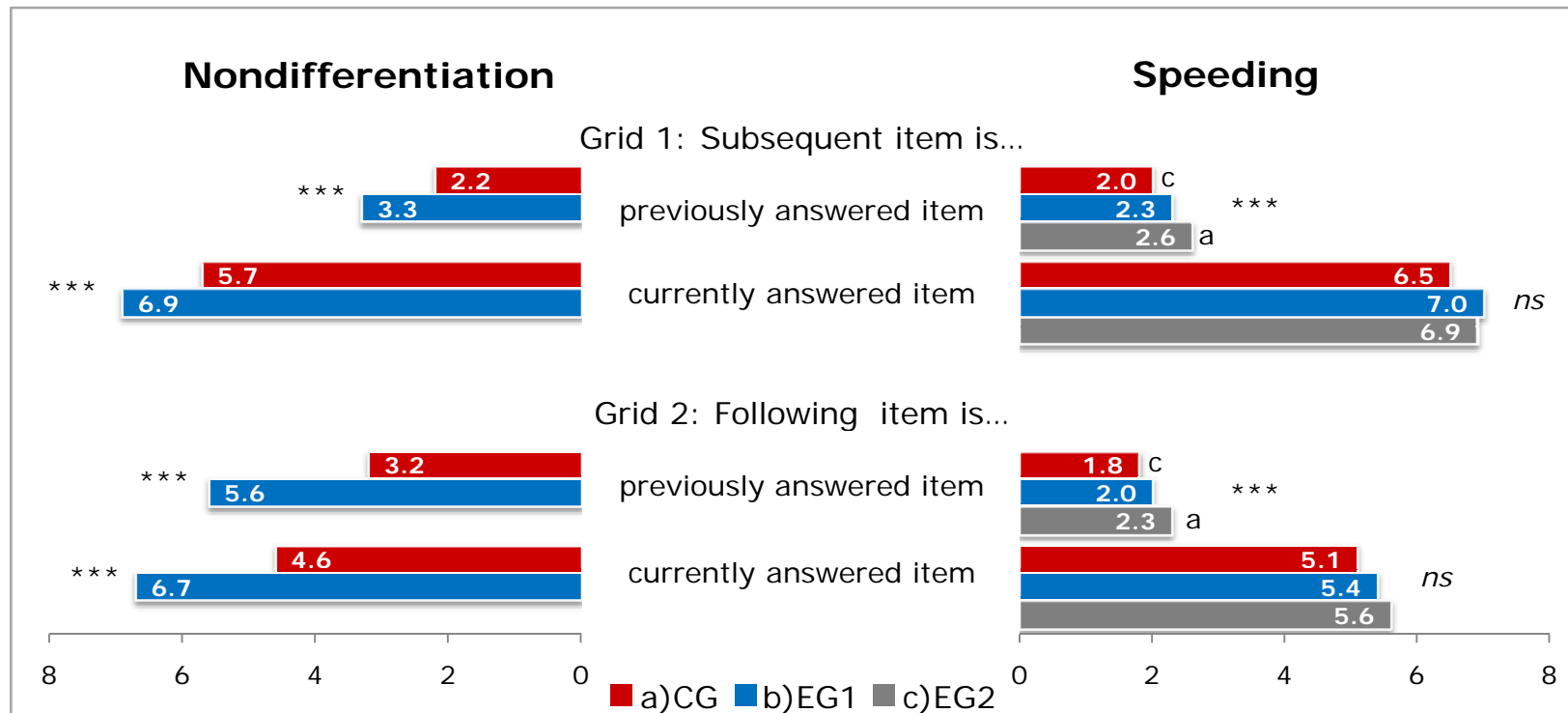
	Feedback Instruction			
	Nondifferentiation		Speeding	
	Grid 1	Grid 2	Grid 1	Grid 2
<i>n</i>	6,402	6,600	6,854	6,937
a) CG	1.4	0.8	1.5 ^{b,c}	0.7 ^c
b) EG1	1.9	1.5	1.7 ^a	0.8
c) EG2	-	-	1.7 ^a	0.9 ^a
<i>Sig.</i>	.001	.001	.001	.001

Note. ^{a, b, c} significant difference between any two of the three feedback conditions ($p < .05$ or less based on Bonferroni post-hoc tests).

➔ Both feedback instructions produced more item revisions.

Results

Type of Item Revisions (Percent)



⇒ Nondiff prompts promoted revision of the current item and previously answered items.

⇒ Speed prompts (2000 ms) promoted revision of previously answered items.

Results - Overview



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1. Providing instant feedback on either nondifferentiation or speeding prevented respondents from both nondifferentiation and speeding.
 2. Both feedback instructions had no effect on item nonresponse or survey breakoff.
 3. Both feedback instructions on either nondifferentiation or speeding (2000ms) increased the number of item revisions.

Conclusions



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1. Instant feedback encourages meaningful instead of superficial behavioral changes.
 2. Instant feedback on nondifferentiation is more effective in inducing behavioral changes than instant feedback on speeding.
 3. Instant feedback on speeding is more effective with increasing incidence of prompting.
 4. Instant feedback affects both future and previous response behaviors.
 5. Further research on:
 - a. the appropriate threshold for nondifferentiation or speeding prompts.
 - b. the appropriate number of nondifferentiation or speeding prompts.



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Thank you.

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