

Instant versus Delayed Interactive Feedback on Speeding and Nondifferentiation in Grid Questions

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

Instant 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 type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
foreign languages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
organisational capability	<input type="radio"/>	<input 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"/>
speaking skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please try to differentiate more among your answers.

Delayed Feedback

Graphical Layout

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

Please try to differentiate more among your answers. If you want to return to the question, press OK.

OK Cancel

broad general knowledge

foreign languages

organisational capabilities

computer literacy

writing skills

speaking skills

important

Interactive Feedback

Previous Findings



→ Delayed feedback

- 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):
reduction of speeding and nondifferentiation by either prompt

→ Instant feedback

- speed & nondifferentiation prompts in grid questions (Kunz & Fuchs, 2014a, 2014b):
 - a. both prompts induce higher attention to item content and respondent's answers (eye tracking data),
 - b. both prompts reliably reduce speeding and nondifferentiation,
 - c. substantive responses remain unaffected, and
 - d. no increase of item nonresponse or survey breakoff was found.

Research Questions



1. Can speeding and nondifferentiation in grid questions be reduced by means of *instant* and *delayed* feedback?

2. Is *instant* feedback more effective than *delayed* feedback
 - a. in reducing speeding and nondifferentiation?
 - b. in encouraging reconsideration of previous answers?
 - c. in leaving the risk of missing data unaffected?

Design

Experimental Conditions



Design	<ul style="list-style-type: none"> • Between-subjects design with random assignment • Sample: university freshmen (n=1.696) • Field phase: Feb/ March 2014 • Response rate (AAPOR RR6): 25.9% 			
Feedback Instructions	nondifferentiation feedback: "Please try to differentiate more among your answers."		speeding feedback: "Please take some more time for your answers."	
Experimental Questions	short grid (8 items, #2)	long grid (13 items, #4)	short grid (8 items, #1)	long grid (13 items, #3)
Experimental Conditions				
CG: no Feedback	-		-	
EG1: instant feedback	McCarty&Shrum, 2010: nondiff (item ₁ – item _i) < .50		time span (click _i – click _{i-1}) < 2000ms	
EG2: delayed feedback	nondiff (grid _{total}) < .50		time span (click _i – click _{i-1}) < 2000ms at least once	

Results

Item Nonresponse (1 or more items missing, %)



	Feedback Instruction			
	Nondifferentiation		Speeding	
grid	short	long	short	long
<i>n</i>	1,688	1,638	1,696	1,656
a) no feedback	3.3	4.1	6.0 ^{b,c}	4.0
b) instant	3.7	5.5	2.8 ^a	6.2
c) delayed	3.0	4.5	2.2 ^a	3.6
<i>Sig.</i>	<i>ns</i>	<i>ns</i>	.001	<i>ns</i>

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

➔ Item nonresponse remains unaffected.

Results

Survey Breakoff (%)

	Feedback Instruction			
	Nondifferentiation		Speeding	
grid	short	long	short	long
<i>n</i>	15	14	32	16
a) no feedback	0.5	0.9	1.7	0.9
b) instant	1.5	0.9	1.8	1.1
c) delayed	0.7	0.7	2.0	0.9
<i>Sig.</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>

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

➔ Survey breakoff remains unaffected.

Results

Substantive Responses (Mean Index)

	Feedback Instruction			
	Nondifferentiation		Speeding	
grid	short	long	short	long
<i>n</i>	1,632	1,561	1,557	1,510
a) no feedback	2.34	2.07	2.11	3.33
b) instant	2.35	2.08	2.18 ^c	3.33
c) delayed	2.39	2.07	2.06 ^b	3.33
<i>Sig.</i>	<i>ns</i>	<i>ns</i>	.05	<i>ns</i>

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

➔ Substantive responses remain (largely) unaffected.

Results

Feedback Instruction: Nondifferentiation



grid	Nondifferentiation (McCarty & Shrum, Mean)		Response Time (Seconds, Mean)	
	short	long	short	long
<i>n</i>	1,632	1,561	1,568	1,494
a) no feedback	.598 ^{b,c}	.609 ^b	42.2 ^b	52.7 ^b
b) instant	.631 ^a	.632 ^{a,c}	47.1 ^a	59.7 ^{a,c}
c) delayed	.621 ^a	.615 ^b	44.9	53.4 ^b
<i>Sig.</i>	.001	.01	.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). Cases excluded with longer interruption on page and with mean response times +2 standard deviations.

➔ Instant feedback is more effective in reducing nondifferentiation than delayed feedback.

Results

Feedback Instruction: Speeding



grid	Response Time (Seconds, Mean)		Nondifferentiation (McCarty & Shrum, Mean)	
	short	long	short	long
<i>n</i>	1,557	1,510	1,557	1,510
a) no feedback	41.5 ^{b,c}	60.5 ^{b,c}	.505	.695
b) instant	46.3 ^{a,c}	66.4 ^a	.529 ^c	.691
c) delayed	50.9 ^{a,b}	69.6 ^a	.497 ^b	.693
<i>Sig.</i>	.001	.001	.01	<i>ns</i>

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

➔ Instant and delayed feedback are comparably effective in reducing speeding.

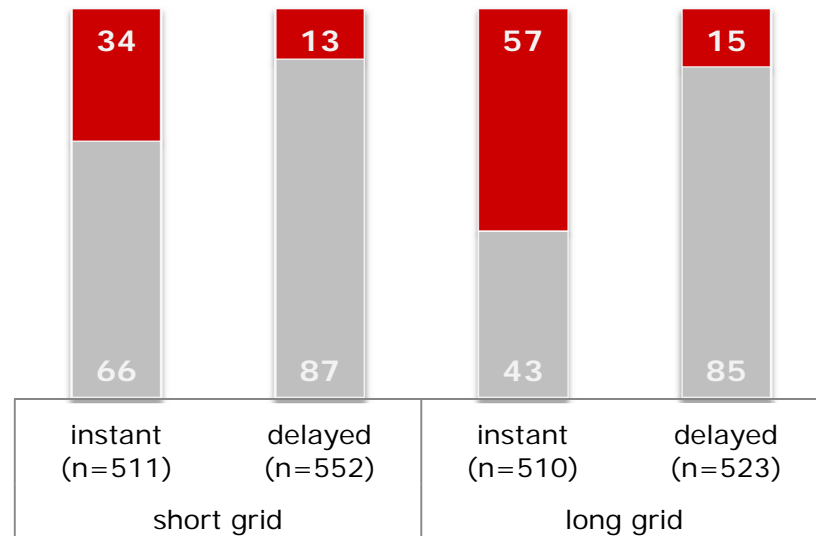
Results

Incidence of Instant and Delayed Prompts (%)



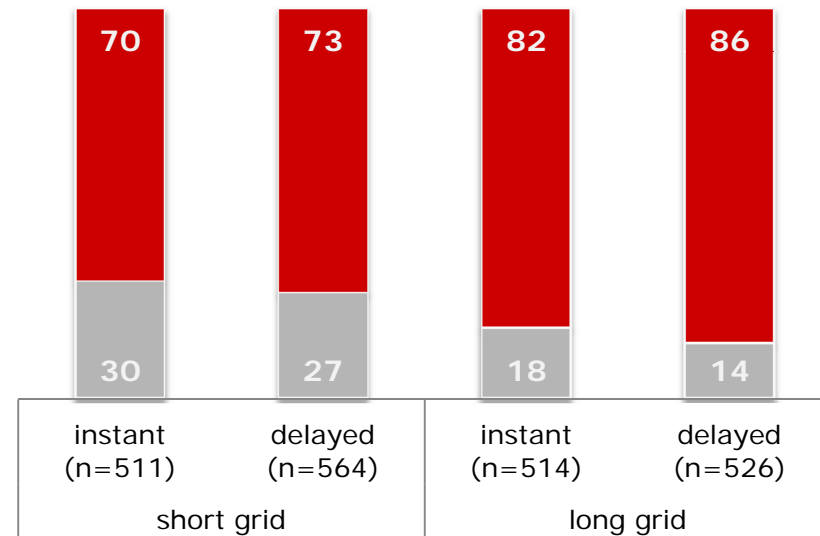
Nondifferentiation

■ no prompt ■ (at least 1) prompt



Speeding

■ no prompt ■ (at least 1) prompt



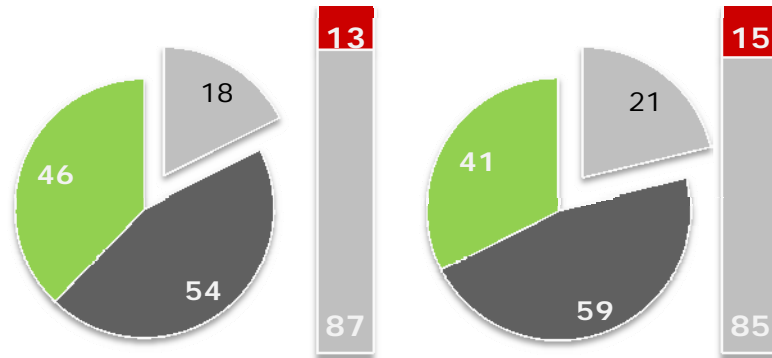
Results

Accepting or Rejecting Delayed Prompts (%)



Nondifferentiation

■ no prompt ■ prompt



■ reject
■ accept, no change
■ accept, change

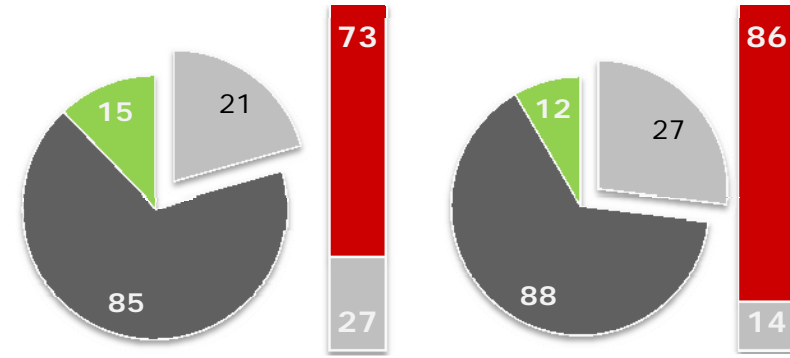
short grid

■ reject
■ accept, no change
■ accept, change

long grid

Speeding

■ no prompt ■ prompt



■ reject
■ accept, no change
■ accept, change

short grid

■ reject
■ accept, no change
■ accept, change

long grid

➔ Acceptance of delayed feedback on nondifferentiation and speeding is comparable – irrespective of scale length.

➔ However, nondifferentiation prompts elicit more item revisions than speed prompts.

Results

Number of Item Revisions (Mean)

	Feedback Instruction			
	Nondifferentiation		Speeding	
grid	short	long	short	long
<i>n</i>	1,614	1,543	1,616	1,560
a) no feedback	0.8 ^b	1.2 ^b	0.8 ^{b,c}	1.4
b) instant	1.1 ^a	1.5 ^a	1.1 ^a	1.5
c) delayed	0.9	1.2	1.0 ^a	1.5
<i>Sig.</i>	.001	.05	.01	<i>ns</i>

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

➡ Instant feedback on nondifferentiation induce more item revisions.

➡ Findings of instant and delayed feedback on speeding remain inconclusive.

Results - Overview



-
1. Substantive responses and the risk of missing data remained unaffected by either feedback condition.
 2. Results regarding nondifferentiation feedback:
 - a. Instant feedback reliably decreased the risk of nondifferentiation and speeding.
 - b. Delayed feedback partly decreased the risk of nondifferentiation, but not the risk of speeding.
 3. Results regarding speeding feedback:
 - a. Both instant and delayed feedback were comparably effective in reducing speeding.
 - b. Contrary to previous findings, longer response times did not imply higher differentiation.
 4. Nondifferentiation feedback induced more item revisions than speeding feedback, in particular in the instant feedback condition.

Conclusions



1. In line with previous findings, instant feedback proves to be a reliable measure to reduce nondifferentiation and speeding in grid questions.
2. Instant feedback is considered more effective in inducing behavioral changes (current and retrospective) than delayed feedback.
3. Presumably, temporal coincidence and low respondent burden of instant prompts actually promotes higher effectiveness of interactive feedback.



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Thank you.

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