



Testing Dependent Interviewing on a Self-Administered Survey

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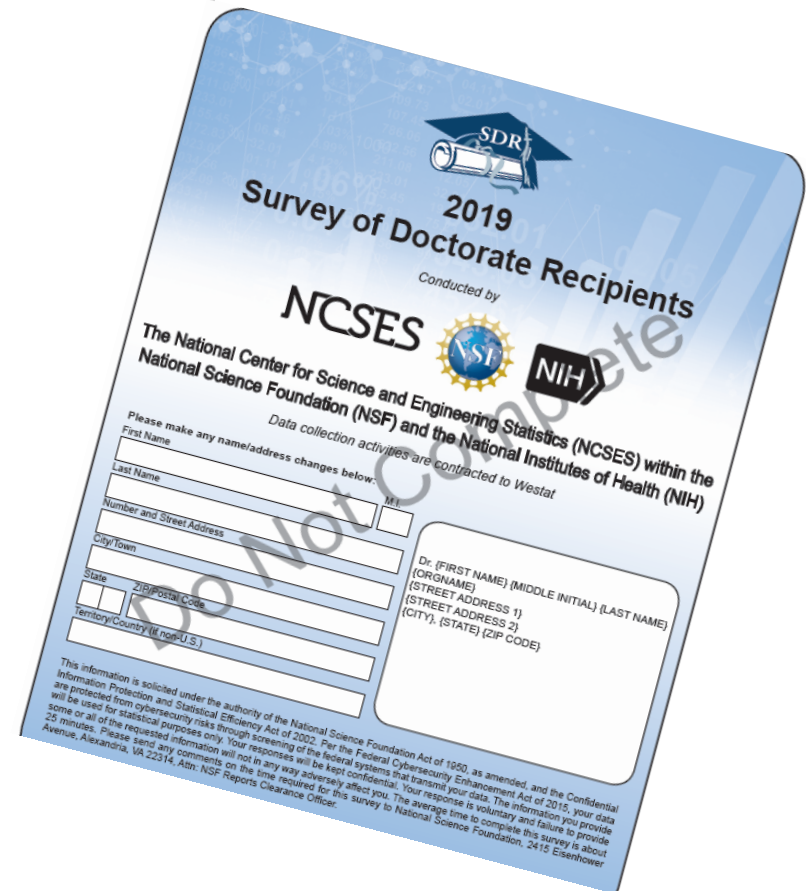
Overview

- Dependent Interviewing (DI) Experiment
 - Control group + 2 DI treatments
 - Respondent Experience questions
- Results: Did it seem to work?
 - Time/burden, measurement error, enjoyment

Background

Our Goal

- Explicitly treat survey as longitudinal
- Make better use of prior responses
 - More efficient
 - More consistent
 - Better experience for respondents



The image shows a survey form titled "Survey of Doctorate Recipients 2019". The form is blue and white with a watermark that says "Do Not Copy". At the top, it features the SDR logo (a graduation cap with a scroll) and the text "2019 Survey of Doctorate Recipients". Below this, it says "Conducted by NCSSES The National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation (NSF) and the National Institutes of Health (NIH)". There is also a logo for the National Science Foundation (NSF) and the National Institutes of Health (NIH). The form includes a section for contact information: "Please make any name/address changes below:" followed by fields for "First Name", "Last Name", "MI", "Number and Street Address", "City/Town", "State", "ZIP/Postal Code", and "Territory/Country (if non-U.S.)". There is also a section for a direct address: "Dr. (FIRST NAME) (MIDDLE INITIAL) (LAST NAME) (ORGNAME) (STREET ADDRESS 1) (STREET ADDRESS 2) (CITY), (STATE) (ZIP CODE)". At the bottom, there is a disclaimer: "This information is solicited under the authority of the National Science Foundation Act of 1950, as amended, and the Confidential Information Protection and Statistical Efficiency Act of 2002. Per the Federal Cybersecurity Enhancement Act of 2015, your data are protected from cybersecurity risks through screening of the federal systems that transmit your data. The information you provide will be used for statistical purposes only. Your responses will be kept confidential. Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you. The average time to complete this survey is about 25 minutes. Please send any comments on the time required for this survey to National Science Foundation, 2415 Eisenhower Avenue, Alexandria, VA 22314, Attn: NSF Reports Clearance Officer."

The Proposed Solution

- “Proactive” Dependent Interviewing (DI) for some questions
 - Shorter questionnaire
 - More consistency across information that hasn’t changed^
 - More pleasant respondent experience
- Try out 2 different formats of DI
 - 1-step (DI1) and 2-step (DI2)
- Total of 3 versions of the questionnaire

Analysis: Research Questions

- Does DI reduce time to administer?
- Does DI appear to affect measurement error?
- Are respondents receptive to DI?
 - We need to ask follow-up questions → Respondent Experience Questions
- Overall, is one DI version superior?

What's Novel about this?

- DI on self-administered questionnaire
- Motivation for doing DI is unique
- 2 styles of DI, 1 step approach (DI1) not typically used
- Literature:
 - Seam effect (e.g. Moore et al. 2006)
 - Web-based, Self-administered study
 - Lugtig and Lensvelt-Mulders 2014; Al Baghal 2017
 - Comparisons of Proactive vs. Reactive DI (e.g. Lynn & Jackle 2007)
 - 1 step approach (DI1) (Hoogendoorn 2004)

Examples of the Questions

The Two Forms of DI

- **DI 1: the 1-step approach**
 - Shows the question with the answer selected that R reported last time. Ask R to change it or indicate no change on the same screen.
- **DI 2: the 2-step approach**
 - Shows the question with the answer selected that R reported last time. Ask “Is this information correct?”.
 - If No, then 2nd screen asking standard question.

Example Dependent Interviewing Question- DI1

In your responses to the 2017 SDR, you reported the number of people who worked for your employer, as selected below.

Please update the information to indicate how many people worked for your principal employer during the week of September 1, 2020, counting all locations where this employer operates.

If the answer selected below was still correct during the week of September 1, 2020, please select the box “Information has not changed since 2017.”

- 10 or fewer employees
- 11 – 24 employees
- 25 – 99 employees
- 100 – 499 employees
- 500 – 999 employees
- 1,000 – 4,999 employees
- 5,000 – 24,999 employees
- 25,000 or more employees

Information has not changed since 2017



Example Dependent Interviewing Question- DI2

In your responses to the 2019 SDR, you reported the number of people who worked for your employer, counting all locations where this employer operated, as selected below.

10 or fewer employees

11-24 employees

25-99 employees

100-499 employees

500-999 employees

1,000-4,999 employees

5,000-24,999 employees

25,000 or more employees

Was this information still correct as of the week of September 1, 2020?

Yes

No

Example Question- Control

Counting all locations where this employer operates, how many people work for your principal employer? Your best estimate is fine.

- 10 or fewer employees
- 11 – 24 employees
- 25 – 99 employees
- 100 – 499 employees
- 500 – 999 employees
- 1,000 – 4,999 employees
- 5,000 – 24,999 employees
- 25,000 or more employees

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Respondent Experience Questions

- Topics: Perceived speed, enjoyment, question sensitivity
 - Ex: How confident are you that NCSES will protect your answers?
 - Ex: To what extent did you enjoy completing today's survey?
 - Ex: How sensitive did you think the questions on this survey were?
- Some questions worded the same for all 3 groups

To what extent did you enjoy completing today's survey?

Did not enjoy at all

Enjoyed a little

Enjoyed somewhat

Enjoyed a great deal

Respondent Experience Questions

- Different question wording for DI vs. Control
 - **DI:** Do you think pre-filling some of your answers from [prior cycle] and asking you to confirm or update them made this survey...
 - **Control:** If this survey had pre-filled your most recent answers and asked you to confirm or update them, would that have made this survey...
 - Much more burdensome
 - A little more burdensome
 - Neither more or less burdensome
 - A little less burdensome
 - Much less burdensome

Respondent Experience Questions

- Questions for DI only

Were there any questions in today's survey where you felt that the answer displayed from 2019 was "accurate enough" and you decided to leave it as-is, rather than updating it with potentially more accurate information?

- Yes for one question
- Yes for more than one question
- No

Data Collection

Data Collection

- Survey of Doctorate Recipients (SDR)
- Sample 3,900 cases, mostly 2019 Rs
 - Stratified, random assignment to DI1, DI2, Control
- 38 SDR questions, not including R verification questions
 - 13 DI questions
 - 9 closed-ended (7 single response, 2 forced choice)
 - 4 open-ended
- 20 Respondent Experience questions

Data Collection

- Field period: 13 Oct 2020 – 23 Nov 2020
- Reference date: 1 Sept 2020
- \$30 prepaid incentive
- AAPOR (unwtd) RR1: 65.6%
 - Across 3 groups: 64.2% - 66.7%
 - DI1 n = 832 | DI2 n = 863 | Control n= 879

Results

Research Question: Time to Administer

- Actual survey length (unweighted, trimmed)
 - DI1 15.0 min | DI2 14.0 min* | Control 15.4 min
- Could be influenced by format and number of Rs without changes

* 95% confidence level

Research Question: Time to Administer

- Actual survey length: **DI2** significantly faster
- Perceived survey length (wtd): **DI1** & **DI2** significantly “faster”

Response	DI1	DI2	Control**
How would you rate the speed at which you completed today's survey?			
Very slow	0.4%	1.4%	0.4%
Somewhat slow	7.6%	7.6%	16.4%
Somewhat fast	62.7%	59.3%	56.6%
Very fast	29.3%	31.7%	26.6%

*P<0.05, **P<0.01, ***P<0.001

Research Question: Measurement Error (1 of 6)

- Closed-ended questions: Overall Distributional Differences

Question	DI1 vs. DI2	DI1 vs. Control	DI2 vs. Control
Employer type	n.s.	n.s.	n.s.
Employer size	n.s.	n.s.	n.s.
Educational institution	n.s.	n.s.	n.s.
Type of educational institution	n.s.	**	*
Faculty rank	n.s.	n.s.	n.s.
Work activity (forced check all)	‡‡ (1/14)	n.s.	n.s.
Supervised others	n.s.	n.s.	n.s.

*P<0.05, **P<0.01, ***P<0.001 Based on Pearson Design-Based Chi2

‡P<0.05, ‡‡P<0.01, ‡‡‡P<0.001 Based on Adjusted Wald F-Test (Bivariate variables only)

Research Question: Measurement Error (2 of 6)

- Closed-ended questions: Differences by Response Option

Question	DI1 vs. DI2	DI1 vs. Control	DI2 vs. Control
Employer type	* (2/10)	* (3/10)	* (1/10)
Employer size	* (1/8)	* (1/8)	* (1/8)
Educational institution	n.s.	n.s.	n.s.
Type of educational institution	n.s.	* (2/6)	* (3/6)
Faculty rank	n.s.	n.s.	n.s.
Work activity (forced check all)	* (1/14)	n.s.	n.s.
Supervised others	n.s.	n.s.	n.s.

* 95% confidence level Based on the Adjusted Wald F-Test

Research Question: Measurement Error (3 of 6)

- Open-ended questions

Question	DI1 vs. DI2	DI1 vs. Control	DI2 vs. Control	DI1 vs. DI2	DI1 vs. Control	DI2 vs. Control
	Any Change			Meaningful Change		
Employer Name	N.S	***	***	N.S	**	**
Job Title	N.S	***	***	N.S	***	***
Job Duties	N.S	***	***	N.S	***	**

*P<0.05, **P<0.01, ***P<0.001, N.S = Not Significant

Research Question: Measurement Error (4 of 6)

- Open-ended questions: Percent meaningful changes, of those who made changes to open-ended questions

Question	DI1	DI2	Control***
Employer Name	90.4%	88.5%	47.1%
Job Title	89.5%	88.3%	53.6%
Job Duties	31.3%	51.1%	18.5%

DI1 vs. DI2*

*P<0.05, **P<0.01, ***P<0.001

Research Question: Measurement Error (5 of 6)

- Any questions where answer was accurate enough although could have updated it? (among DI conditions only)

Response	DI1	DI2
Yes, For 1 Question	11.4%	13.0%
Yes, for Multiple Questions	21.8%	21.9%
No	66.8%	65.1%

*P<0.05, **P<0.01, ***P<0.001 Based on Adjusted Wald F-Test

Research Question: Measurement Error (6 of 6)

- Any questions where the answer displayed was no longer true, and left as-is ? (among DI conditions only)

Response	DI1	DI2
Yes, For 1 Question	3.8%	5.2%
Yes, for Multiple Questions	3.3%	1.0%
No	92.9%	93.8%

*P<0.05, **P<0.01, ***P<0.001 Based on Adjusted Wald F-Test

Research Question: What do Rs think of DI? (1 of 3)

- How sensitive do you think the questions in this survey were?

Response	DI1	DI2	Control
How Sensitive?			
Not at all	34.2%	39.0%	35.7%
A Little	36.3%	37.2%	35.6%
Somewhat	24.1%	16.7%	24.1%
Very	5.3%	7.1%	4.7%

*P<0.05, **P<0.01, ***P<0.001

Research Question: What do Rs think of DI? (2 of 3)

- Do you think pre-filling some of your answers from 201X and asking you to confirm or update them (made/would make) this survey...?

Response	DI1	DI2	Control***
Pre-Filling Burdensome?			
Much More	0.1%	0.2%	0.9%
A Little More	1.6%	1.0%	6.0%
Neither	10.9%	11.2%	21.7%
A Little Less	24.3%	26.2%	42.2%
Much Less	63.1%	61.5%	29.2%

*P<0.05, **P<0.01, ***P<0.001

Research Question: What do Rs think of DI? (3 of 3)

- To what extent did you enjoy completing today's survey?

Response	DI1	DI2	Control
Extent of Enjoyment?			
Not at all	12.4%	13.7%	16.7%
A Little	33.7%	35.5%	35.0%
Somewhat	43.7%	40.6%	41.7%
A Great Deal	10.3%	10.2%	6.6%

*P<0.05, **P<0.01, ***P<0.001

Conclusion

Research Questions

- Does DI reduce time to administer? **Yes**
- Does DI appear to affect measurement error? **Small indications of both improvement and increase**
- Are respondents receptive to DI? **Not a strong positive or negative sentiment**
- Overall, is one DI version superior? **DI2 slightly preferred**

Conclusion: Not seeing dramatic results (+/-) which seems to indicate a smooth transition to DI.

Thank You!

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