Using Web Paradata to Assess Question Wording Revisions

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Motivation

- Prior to survey pretesting, the survey sponsor provides a list of new or problematic questions

- Iterative pretesting is conducted to address any issues with the questions

- Recommendations are made, and the sponsor decides which ones to accept for future survey cycles

- How do we know whether the revised questions that were fielded were an improvement?
  - One method is to examine web paradata before and after a question wording change

Web Paradata

- Web paradata is automated data that is collected while respondents are completing a survey online (Couper 2000)
  - Examples include question completion time, previous clicks that led to a changed answer, item breakoff rates, error message rates
- Web paradata can inform which survey questions are problematic on online surveys (Stern 2008)
- Limited research on the uses of paradata in conjunction with the conducting of questionnaire pretesting
  - Kreuter (2015) suggests that paradata can supplement qualitative pretesting

Survey Evaluation Testing Life Cycle

Focus of Presentation

- History of changes for screens with high rates of previous clicks resulting in changed answers

  - Paradata from 2 survey cycles for the National Teacher and Principal Survey (NTPS)

- Discuss usability findings for the screen and how best to incorporate paradata findings

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NTPS Teacher Web Instrument Development

- 2015-16 cycle: web option was included for a subsample of teachers
- 2017-18 cycle: full web implementation
  - Analysis of 15/16 web paradata revealed problematic screens based on completion time, frequency of previous clicks and changed answers, error message rates, breakoff rates
  - Changes made to problematic screens through expert review and consultation only (no time for usability testing)
- 2020-2021 cycle: two rounds of usability testing (during fielding of 2017-18 instrument)
  - Focus of testing based on expert review, 2015/16 web paradata, and edit and imputation rates
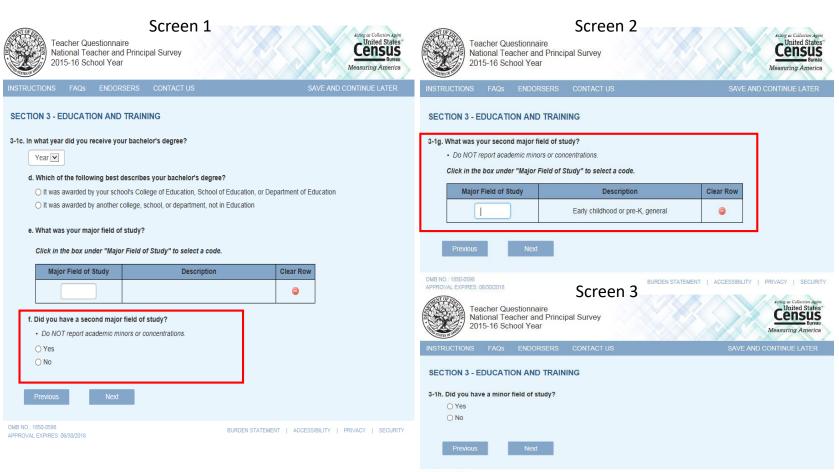
Question 3-1

- 9-part question asking about teacher's bachelor's degree

Question parts
a) Do you have a bachelor's degree?
b) What is the name of the college or university where you earned this degree? In what city and state is it located?
c) In what year did you receive your bachelors' degree?
d) Which of the following best describes your bachelors degree?
e) What was your major field of study?
f) Did you have a second major field of study?
g) What was your second major field of study?
h) Did you have a minor field of study?
i) What was your minor field of study?

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Screen 1

Teacher Questionnaire
National Teacher and Principal Survey
2015-16 School Year

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INSTRUCTIONS   FAQs   ENDORSERS   CONTACT US   SAVE AND CONTINUE LATER

SECTION 3 - EDUCATION AND TRAINING

3-1c. In what year did you receive your bachelor's degree?

Year ▾

d. Which of the following best describes your bachelor's degree?

○ It was awarded by your school's College of Education, School of Education, or Department of Education

○ It was awarded by another college, school, or department, not in Education

e. What was your major field of study?

Click in the box under "Major Field of Study" to select a code.

Major Field of Study	Description	Clear Row
		⊖

f. Did you have a second major field of study?

• *Do NOT report academic minors or concentrations.*

○ Yes

○ No

Previous   Next

Screen 2

Teacher Questionnaire
National Teacher and Principal Survey
2015-16 School Year

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Measuring America

INSTRUCTIONS   FAQs   ENDORSERS   CONTACT US   SAVE AND CONTINUE LATER

SECTION 3 - EDUCATION AND TRAINING

3-1g. What was your second major field of study?

• *Do NOT report academic minors or concentrations.*

Click in the box under "Major Field of Study" to select a code.

Major Field of Study	Description	Clear Row
	Early childhood or pre-K, general	⊖

Previous   Next

Screen 3

Teacher Questionnaire
National Teacher and Principal Survey
2015-16 School Year

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INSTRUCTIONS   FAQs   ENDORSERS   CONTACT US   SAVE AND CONTINUE LATER

SECTION 3 - EDUCATION AND TRAINING

3-1h. Did you have a minor field of study?

○ Yes

○ No

Previous   Next

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2015-16 Results – Percentage of changes by question

Question	Percentage (n=851)
Did you have a second major field of study?	86.4%
What was your major field of study?	60.5%
In what year did you receive your bachelors' degree?	57.1%
Which of the following best describes your bachelors degree?	41.5%

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Changes Made for 2017-18 Instrument

- The sponsors decided to put the questions on if teacher had second major and what their second major was on the same screen, because the questions are related.

- The question about the teacher's actual second major was to be grayed out unless they reported having a second major on the first question.

Screen 1

3-1b. What is the name of the college or university where you earned this degree?

Name of college or university

[   ]

In what city and state is it located?

City   State

[   ]   [Select One ▼]

☐ Located outside the United States

3-1c. In what year did you receive your bachelor's degree?

[Year ▼]

d. Which of the following best describes your bachelor's degree?

○ It was awarded by your school's College of Education, School of Education, or Department of Education

○ It was awarded by another college, school, or department, not in education

e. What was your major field of study?

Click in the box under "Major Field of Study" to select a subject.

Major Field of Study	Clear Row
[ ]	⊖

[Previous]   [Next]

Screen 2

SECTION 3. EDUCATION AND TRAINING

3-1f. Did you have a second major field of study?

- *Do NOT report academic minors or concentrations.*

○ Yes
○ No

g. What was your second major field of study?

- *Do NOT report academic minors or concentrations.*

Click in the box under "Major Field of Study" to select a subject.

Major Field of Study	Clear Row
[ ]	⊖

2017-18 Results – Percentage of changes by question

Question	Percentage
Screen 1 (n=1965)	
What was your major field of study?	75.2%
In what year did you receive your bachelors' degree?	45.1%
Which of the following best describes your bachelors degree?	43.5%
What is the name of the college or university…? College Name	24.9%
In what city and state is it located? College City College State	14.5% 12.2%
Screen 2 (n=2368)	
Did you have a second major field of study?	88.3%

Percentage of changes made in 2015-16 and 2017-18 by question

Question	2017-18 Percentage	2015-16 Percentage
Screen 1		
What was your major field of study?	75.2%	60.5%
In what year did you receive your bachelors' degree?	45.1%	57.1%
Which of the following best describes your bachelors degree?	43.5%	41.7%
What is the name of the college or university…? College Name	24.9%	n/a
In what city and state is it located? College City College State	14.5% 12.2%	n/a n/a
Screen 2		
Did you have a second major field of study?	88.3%	86.7%

Percentage of changes made after clicking "previous" in 2015-16 and 2017-18

Screen	2015-16 Percentage (n=16,612)	2017-18 Percentage (n=48,417)
Screen 1	5.12%	4.06%
Screen 2	1.32%	4.89%

Modifications Recommended prior to 2020-21 Pretesting

- Place all questions about majors and minors onto the same screen

- Programming constraints related to the skip patterns made this suggestion impossible to implement.

- For testing, we split Q3-1 across 7 screens.

Question 3-1 on the 2020-21 Instrument

Screens	Question parts
Screen 1	a) Do you have a bachelor's degree?
Screen 2	b) What is the name of the college or university where you earned this degree? In what city and state is it located? c) In what year did you receive your bachelors' degree? d) Was your bachelor's degree awarded by the College of Education, School of Education, or Department of Education at the college or university you attended?
Screen 3	e) What was your major field of study?
Screen 4	f) Did you have a second major field of study?
Screen 5	g) What was your second major field of study?
Screen 6	h) Did you have a minor field of study?
Screen 7	i) What was your minor field of study?

Usability Testing Findings

- Participants answered this set of questions without having to navigate back to previous questions

- Participants with multiple majors had some trouble deciding what to report for their major field of study
  - Most participants asked what they should report
  - After selecting one of their majors, they were happy to be able to report their second major on the following screen

Possible Redesign

Screens	Question parts
Screen 1	a) Do you have a bachelor's degree?
Screen 2	b) What is the name of the college or university where you earned this degree? In what city and state is it located? c) In what year did you receive your bachelors' degree? d) Was your bachelor's degree awarded by the College of Education, School of Education, or Department of Education at the college or university you attended?
Screen 3	e) What was your major field of study? f) Did you have a second major field of study? g) Did you have a minor field of study?
Screen 4	h) What was your second major field of study? i) What was your minor field of study?

Conclusions

- Examining web paradata can help better understand what issues respondents are having when answering survey questions

- Incorporating paradata analysis both before and after pretesting can be a valuable method in determining whether changes to the survey question were an improvement

- The survey life cycle is the ideal model to follow when using web paradata to improve pretesting methodology.
  - Challenge: optimize the life cycle time frame to allow for the analysis of web paradata

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Thanks!

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Citations

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