

Instructions in Self-Administered Questions: Do They Improve Data Quality or Just Make the Questionnaire Longer?

Cleo Redline, Andrew Zukerberg, Chelsea Owens, and Amy Ho
National Center for Education Statistics

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Disclaimer

This presentation is intended to promote ideas. The views expressed are part of ongoing research and do not necessarily reflect the position of the U.S. Department of Education.

Instructions Meant to Clarify Key Concepts Have Been Shown

- To make a difference when they
 - Counter the way people naturally think about a concept;
 - Exclude or include a prevalent subcategory;
 - Restrict or expand the perceived meaning of the key concept.

(Conrad & Schober, 2000; Metzler, Kunz, and Fuchs, 2015; Redline, 2013; Schober and Conrad, 1997)

However, They Have Also Been Shown

- Not to make a difference
 - Respondents whose situations map onto the questions in a straightforward way tend to answer questions accurately, with or without instructions (Conrad & Schober, 2000; Schober and Conrad, 1997).

Cognitive Interviewing

- Often results in the addition of instructions.
- Assumes problems will carry over to actual surveys; often no obvious way to verify that the problems are “real” (Beatty and Willis, 2007).
- Instructions lengthen the questionnaire, cost money to administer, and are potentially burdensome and confusing themselves.

Optimal Position of Instructions Meant to Clarify Key Concepts

- Evidence appears to be mixed
 - More effective when placed before a question than placed after (Redline, 2013; Kunz and Fuchs, 2012)
 - More effective when placed after a question than before (Metzler, Kunz, and Fuchs, 2015)
 - Potential confounds between studies: different formatting, prefaces, populations, sample sizes, etc.

Research Questions

- Are instructions that are added to questions as a result of cognitive interviewing effective?
- Are there other factors besides position that influence the effectiveness of instructions, such as the way the instructions are formatted or introduced?

Methods

- Selected 7 questions from the 2014-15 National Teacher and Principal Survey (NTPS) Pilot Study that had instructions proposed as a result of production cognitive interviewing.
 - Year started teaching
 - Number of schools taught
 - Number of years taught
 - Number of Individualized Education Program (IEP) students
 - Number of limited-English proficiency (LEP) learners
 - Contract hours
 - Instructional hours

Number of Schools Taught

In how many schools have you taught at the elementary, middle, or secondary level?

- *Report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute.*
- *If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught.*
- *Do NOT include summer school.*
- *Do NOT include time spent as a student teacher.*

Experimental Questions

- Intentionally created 5 experimental questions with instructions that were designed to counter teachers' natural conceptions of terms (refer to Holzberg, 2015).
 - Number of student assessments
 - Hours of professional development
 - Hours of parent communication
 - Number of classrooms in the school
 - Number of bathrooms in the school

Number of Student Assessments

On average, over the course of three months, how many times would you say that you give student assessments?

- *Pick the grade and the subject in which you tend to give the fewest number of student assessments in a three month period.*
- *Count tests and examinations as assessments.*
- *Do NOT count quizzes or homework.*
- *Do NOT count standardized tests that are administered by the state.*
- *If, on average, you do not give any assessments (as we have defined them), select the “None” box.*

Split Panel Test with Embedded 2x2x2 Factorial

- Split Panel: No Instructions vs. Instructions
- Embedded Factorial with Instructions
 - Position: Before vs. After
 - Format: Paragraph vs. List
 - Preface: “For the purposes of this question” vs. no preface

Treatment 1

Question and No Instructions

7. In how many schools have you taught at the elementary, middle, or secondary level?

Schools

NEXT

Treatments 2 and 3

- After, List, No Preface

7. In how many schools have you taught at the elementary, middle, or secondary level?

- Report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute.
- If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught.
- Do NOT include summer school.
- Do NOT include time spent as a student teacher.

Schools

NEXT

- After, List, Preface

7. In how many schools have you taught at the elementary, middle, or secondary level?

- For the purposes of this question, report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute.
- If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught.
- Do NOT include summer school.
- Do NOT include time spent as a student teacher.

Schools

NEXT

Treatments 4 and 5

- After, Paragraph, No Preface

7. **In how many schools have you taught at the elementary, middle, or secondary level?** Report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute. If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught. Do NOT include summer school. Do NOT include time spent as a student teacher.

Schools

NEXT

- After, Paragraph, Preface

7. **In how many schools have you taught at the elementary, middle, or secondary level?** For the purposes of this question, report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute. If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught. Do NOT include summer school. Do NOT include time spent as a student teacher.

Schools

NEXT

Treatments 6 and 7

- Before, List, No Preface

7. • Report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute.
• If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught.
• Do NOT include summer school.
• Do NOT include time spent as a student teacher.

In how many schools have you taught at the elementary, middle, or secondary level?

Schools

NEXT

- Before, List, Preface

7. • For the purposes of this question, report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute.
• If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught.
• Do NOT include summer school.
• Do NOT include time spent as a student teacher.

In how many schools have you taught at the elementary, middle, or secondary level?

Schools

NEXT

Treatments 8 and 9

- Before, Paragraph, No Preface

7. Report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute. If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught. Do NOT include summer school. Do NOT include time spent as a student teacher. **In how many schools have you taught at the elementary, middle, or secondary level?**

Schools

NEXT

- Before, Paragraph, Preface

7. For the purposes of this question, report the number of schools in which you taught as a full-time or part-time teacher, or long-term substitute. If you are an itinerant teacher, report the number of districts, not schools within districts, in which you have taught. Do NOT include summer school. Do NOT include time spent as a student teacher. **In how many schools have you taught at the elementary, middle, or secondary level?**

Schools

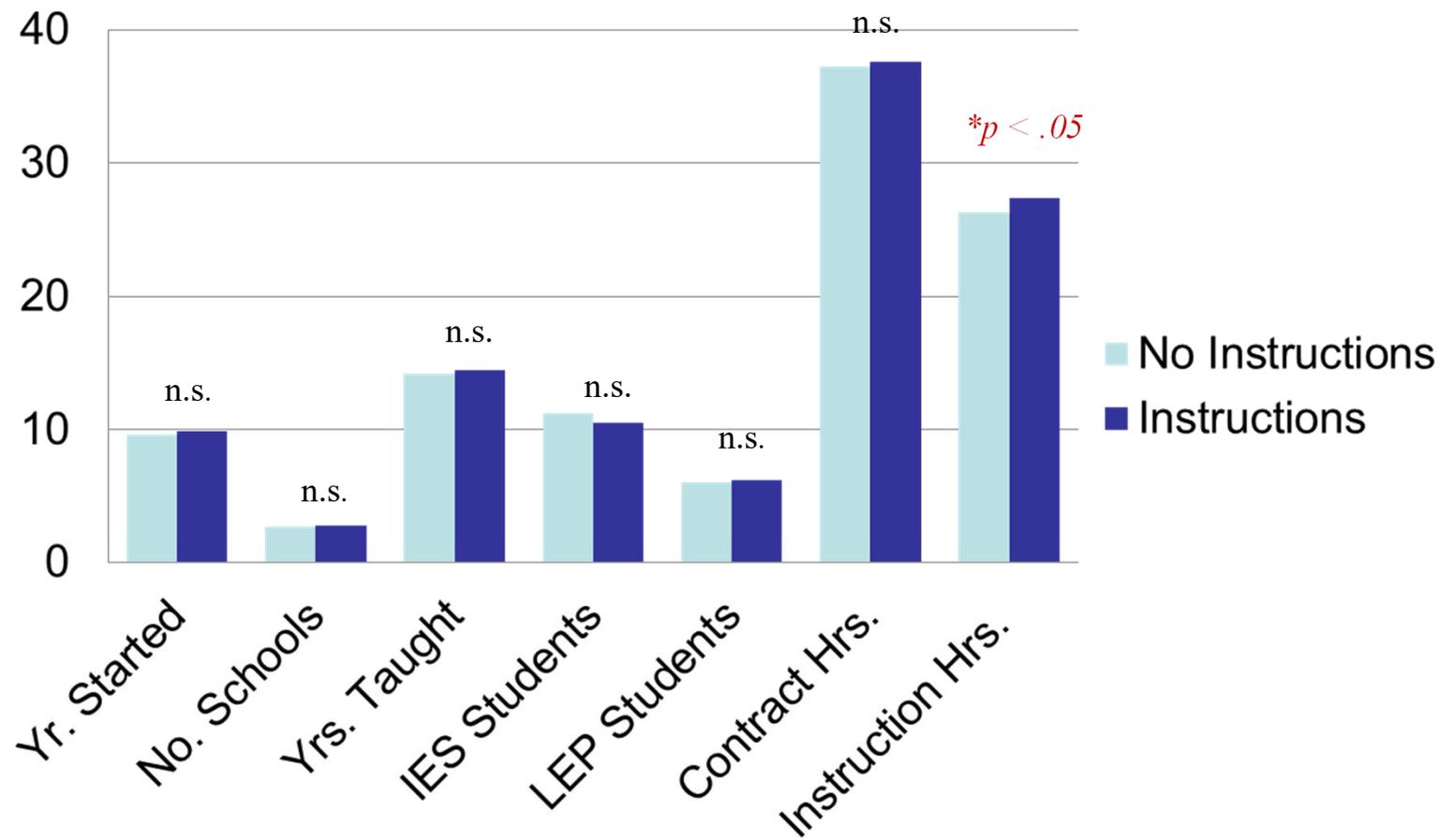
NEXT

Data Collection & Sample

- Collection ran from February 18 to May 11, 2015
- National probability sample of public school teachers with email capability
- 4,000 public school teachers were randomly selected from a purchased mail list and randomly assigned to 1 of the 9 treatments (excluding teachers that had been selected for the 2014-15 NTPS Pilot Test)
- Teachers were sent a series of paper invitation letters and corresponding emails inviting them to take the survey online
- The response rate was 41.7% (AAPOR RR2)

The Effect of Adding Instructions on Mean Responses, by NTPS question

Mean Response



The Effect of Adding Instructions on Mean Responses for the Vector of 7 NTPS Questions

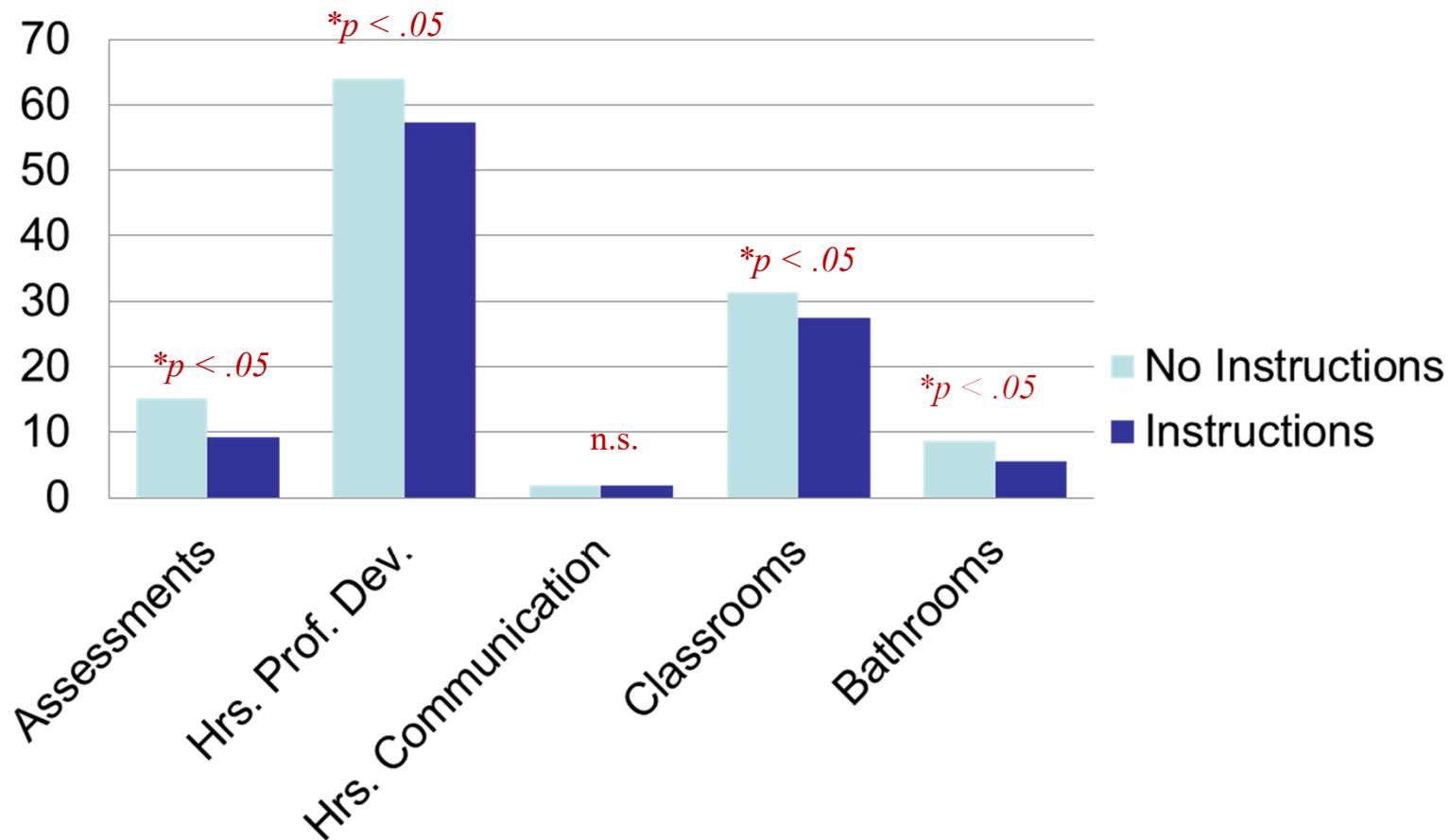
- Instructions that were added to the NTPS questions as a result of cognitive interviewing did not, on average, alter respondents' answers, according to MANOVA ($\lambda = .99$, $F(7,1287) = .9$, n.s.)

The Effect of Position, Format and Preface on Mean Responses for the Vector of 7 NTPS Questions with Instructions

- Measurable differences were not detected, according to a 2x2x2 MANOVA

The Effect of Adding Instructions on Mean Responses, by Experimental Question

Mean Response



The Effect of Adding Instructions on the Standardized Mean Responses of all 5 Experimental Questions with Instructions

- Instructions that were intentionally crafted to restrict respondents' understanding did, on average, lower respondents' answers, according to a repeated measures MANOVA on the standardized means ($F(1,1219) = 86.97, p < .05$)

The Effect of Position, Format, and Preface on the Standardized Mean Responses of all 5 Experimental Questions

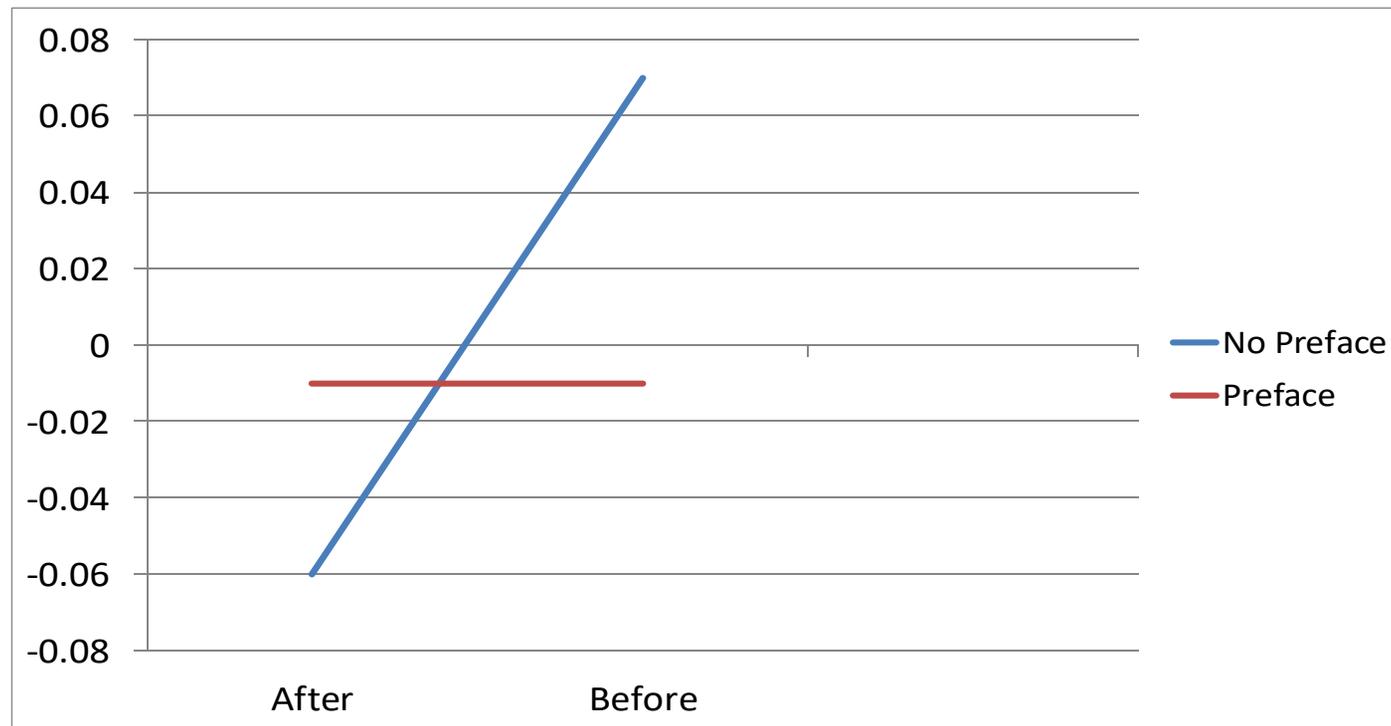
- Two interaction effects were detected in a repeated measures 2x2x2 MANOVA on the standardized means

Position x Preface $F(1,838) = 3.79, p < .05$

Format x Preface $F(1,838) = 6.20, p < .05$

Standardized Means, by Position and Preface

Standardized Grand Mean Response

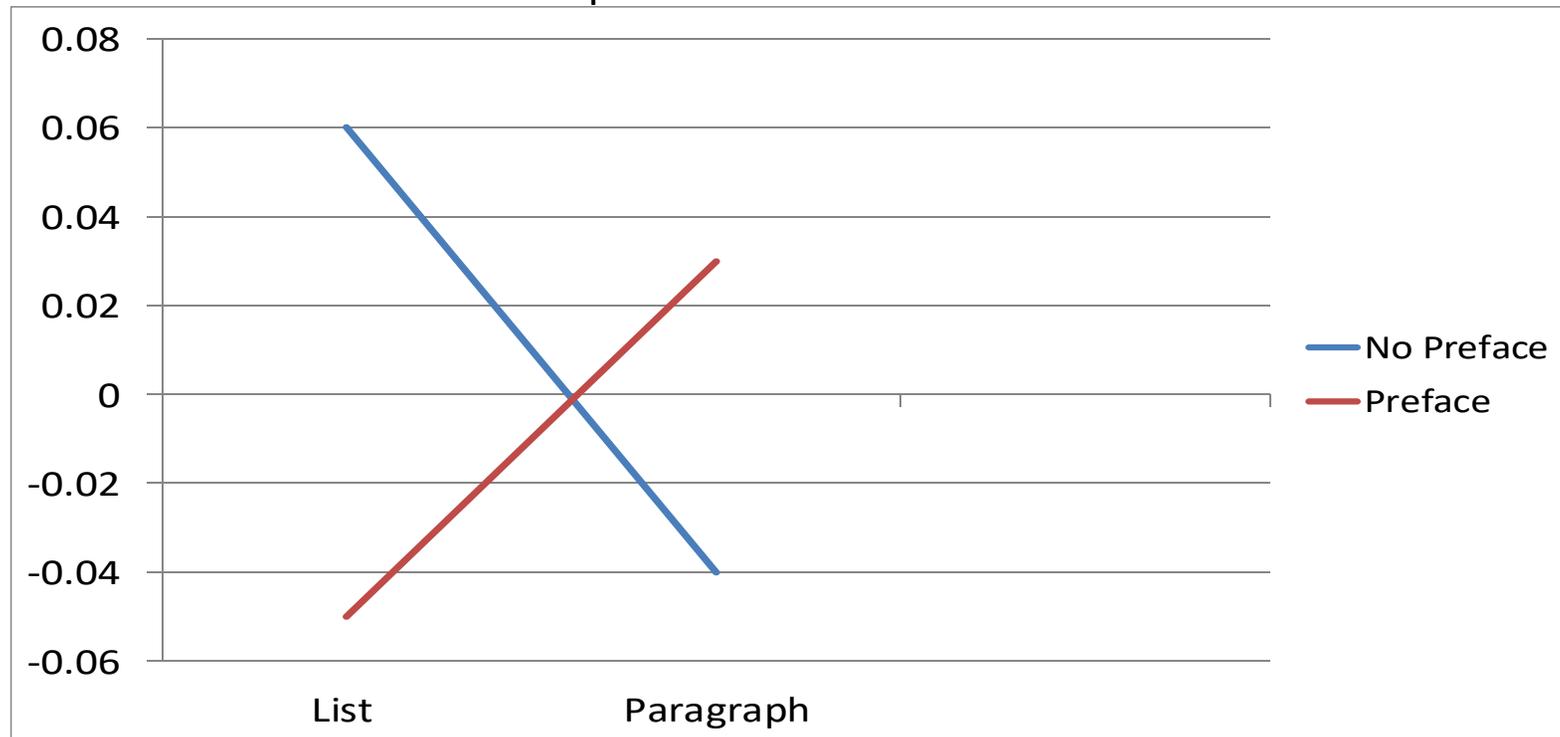


Position x Preface

- On average, instructions placed before a question are more effective if they are introduced with a preface.
- Those placed after a question are more effective if they are not introduced with a preface.

Standardized Means, by Format and Preface

Standardized Grand Mean Response



Format x Preface

- On average, lists of instructions are more effective if they are introduced with a preface.
- Paragraphs of instructions are more effective not being introduced with a preface.

Summary

- Do instructions improve data quality or just make the questionnaire longer? Depends on their content.
 - Content of the NTPS instructions appeared to make the questionnaire longer with no measurable improvement in data quality, whereas the experimental content improved data quality by changing responses in the expected direction.
 - Content that was added as a result of cognitive interviewing in the NTPS did not appear useful.

Summary

- ...no obvious way to verify that the problems found in cognitive interviews are “real” (Beatty and Willis, 2007). Could be that the problems are “real”:
 - **Just small**
 - E.g., the number of itinerant teachers is small
 - Explains why restricting prevalent subcategories in experimental questions showed an effect
 - **Superfluous**
 - E.g., respondents decide to exclude time spent as student teacher, regardless of instructions
 - Cancel each other out
 - Chances of this for 6 of 7 questions seems small

Summary

- If the instructions have NO effect, does not matter where they are placed or how they are designed.
- If the instructions have an effect, findings remain mixed regarding their design.
 - Unlike previous research, this study suggests that it is not exclusively position or format that matters, it is their interaction with preface that matters.
 - Might be due to a reduction in sample size. Repeated measure Manova requires full-case analysis.

Future Research

- Reflex is to add instruction when a participant in cognitive interviewing has a problem, should we do something else
 - E.g., restructure question, break question into multiple questions, or ignore issue?
- Can cognitive interviewing be modified to improve our understanding of instructions?

Thank you

cleo.redline@ed.gov