Using Iterative Quick Turnaround Cognitive Interviewing to Integrate Quality Into the
2022 U.S. Economic Census

Kristin Stettler
Melissa Cidade

United States Census Bureau

Cognitive Interviewing

- Qualitative methodology used to test and improve survey questions by asking respondents open-ended probes
- Ensures that respondent's answers to survey questions meet the original intent
- Goals of these cognitive interviews:
  - Determine whether respondents can understand questions and report correctly
  - Identify what, if any, changes are necessary to the proposed wording
  - Provide recommendations to address cognitive issues identified during testing

Overview of Cognitive Research for EC22

By the Numbers:

- 230 cognitive interviews
- 19 topics
- 65 questions
- 3 rounds of interviewing
- 6 interviewers
- 4 months (August – November 2021)

Outline of Presentation

- Methodology
- Components of high volume cognitive testing
  - Iterative design
  - Recruitment
  - Test instrument
  - Interviewing protocol
  - In-field support
  - Progress tracking
  - Analysis
- Examples
- Lessons learned

Methodology

- Respondents recruited over email and self-scheduled themselves
  - Generally, contacted respondents from 2017 Economic Census
  - Some targeted recruitment for specific industries
  - Most participants were in accounting, finance, management, etc. roles
  - Respondents came from both single- and multi-unit businesses, large and small
- Approximately 30-minute interviews over phone or virtual meeting software
- Intro/consent form/background information
- Respondents viewed a select set of questions relevant to their industry and some cross-sector questions (assigned randomly) via online data collection tool
- Interviewers viewed identical questions but were provided space to ask probing questions and take notes on responses

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Iterative Design

- User comments and verbalizations noted during cognitive interview sessions

- Analyzed comments across all participants

- Met with stakeholders after each round

- Revised questions tested in iterative rounds of cognitive interviews, as appropriate

- Some topics/questions removed from consideration

- Remaining questions included as tested or revised based on findings

Recruitment

- Very specific targets
  - Size
  - Location
  - Kinds of activities

Solution:
Training to pull cases directly from the Business Register.

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Recruitment (cont)

- Self-scheduler – respondents pick the interview day and time
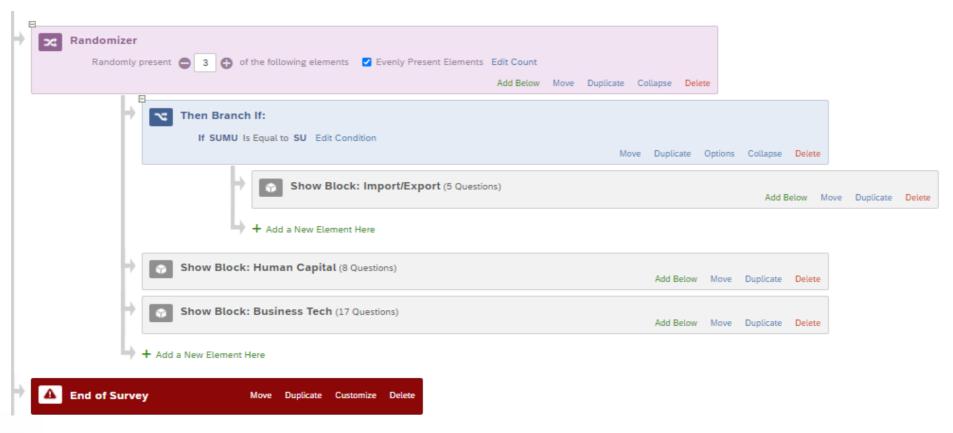

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Please select the day and time combination from below when you are available for a 30 – 45 minute interview with the U.S. Census Bureau. A researcher will send you confirmation of your selected appointment time. All appointments are Eastern (Washington, DC) time zone.

Thursday, July 1, 2020

○ Thursday, July 1 at 9:00 am, Eastern

○ Thursday, July 1 at 10:00 am, Eastern

○ Thursday, July 1 at 11:00 am, Eastern

○ Thursday, July 1 at 12:00 noon, Eastern

○ Thursday, July 1 at 1:00 pm, Eastern

○ Thursday, July 1 at 2:00 pm, Eastern

○ Thursday, July 1 at 3:00 pm, Eastern

○ Thursday, July 1 at 4:00 pm, Eastern
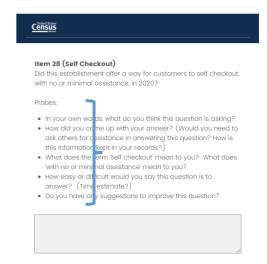
○ Thursday, July 1 at 5:00 pm, Eastern

Test Instrument

Interviewer Protocol

- Respondent Screen

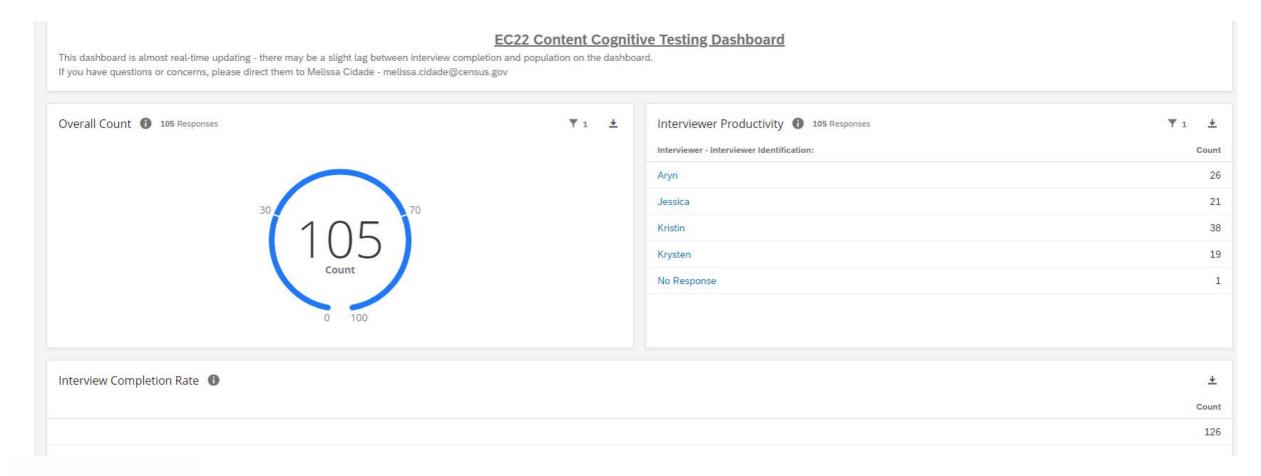- Interviewer Screen

In-field Support

- Protocol updates

In-field Support (cont)

- Specialization:
  - Dedicated project lead
  - Multiple interviewers
  - Dedicated programmer and data analyst
- Dedicated chat – communication between interviewers and support staff
- Real-time troubleshooting – could answer issues in real- or near-real-time

Progress Tracking

EC22 Content Cognitive Testing Dashboard

This dashboard is almost real-time updating - there may be a slight lag between interview completion and population on the dashboard.
If you have questions or concerns, please direct them to Melissa Cidade - melissa.cidade@census.gov

Overall Count ⓘ 105 Responses

30   70

105
Count

0   100

Interviewer Productivity ⓘ 105 Responses

Interviewer - Interviewer Identification:	Count
Aryn	26
Jessica	21
Kristin	38
Krysten	19
No Response	1

Interview Completion Rate ⓘ

	Count
	126

Progress Tracking (cont)

Critical Item Response Tracking

		N
GENERAL MANUFACTURING, QUESTION 1	Sum	3.00
M1 PATH	Sum	3.00
R1 PATH, QUESTION 1	Sum	11.00
R1 PATH, QUESTION 2	Sum	9.00
R1 PATH, QUESTION 4	Sum	9.00
R1 PATH, QUESTION 5	Sum	2.00
R1 PATH, QUESTION 6	Sum	1.00
S1 PATH, QUESTION 1	Sum	4.00
S2 PATH, QUESTION 1	Sum	5.00
S3 PATH, QUESTION 1	Sum	10.00
S4 PATH, QUESTION 1	Sum	12.00
S4 PATH, QUESTION 2	Sum	NONE
S5 PATH, QUESTION 1	Sum	1.00
S6 PATH, QUESTION 1	Sum	NONE
S7 PATH, QUESTION 1	Sum	22.00
S7 PATH, QUESTION 2	Sum	16.00
GW PATH, QUESTION 1	Sum	10.00
GW PATH, QUESTION 3	Sum	1.00
GW PATH, QUESTION 6	Sum	10.00
W1 PATH, QUESTION 1	Sum	5.00
W1 PATH, QUESTION 3	Sum	NONE
W1 PATH, QUESTION 6	Sum	5.00
W3 PATH, QUESTION 1	Sum	11.00
IA PATH	Sum	7.00

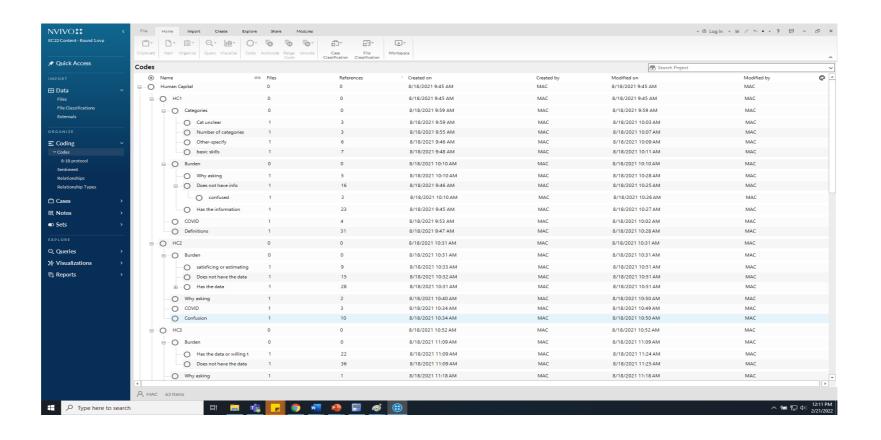Note: contains fictional data.

Analysis

Analysis (cont)

Example 1: Human Capital

- Goal was to capture information about formal training employees receive

  Types of formal training

  Expenditures for formal training

  Hours of formal training

- Cognitive interviews found that training records are inconsistent, the concepts were not easily understood, the questions were burdensome, and they caused privacy concerns

- Questions will not appear on the EC22

Example 2: Business Technologies

- Goal was to provide a new detail regarding which types of firms and subsectors are adopting business technologies

   In 2022, did this establishment use [business technology] in its own operations?

   How did this establishment acquire the [business technology] used in its own operations?

   Types of technologies: Touchscreens/kiosks, Additive manufacturing (3d printing), Radio-frequency identification (RFID), Industrial robots, Service robots, Automated guided vehicles (AGVs), Automated storage and retrieval systems, and Augmented reality

- Questions were asked of all industries, but many respondents felt they weren't relevant to them

- Difficult to create definitions that all respondents understood, if they weren't already familiar with the technology

- Revised questions will be on EC22 -- Reduced the number of questions from eight to six, re-ordered and clarified instructions

Example 3: Remanufacturing

- Goal was to provide new detail on remanufacturing

  What percent of the $,000.00 of Sales, Shipments, Receipts, or Revenue reported in Item 5 was from remanufactured goods produced at this establishment?

- Concept of "remanufacturing" and provided definition did not resonate with respondents in Round 1
- For Round 2, drafted a new version of a current question about products to evaluate whether respondents could report "new" vs. "remanufactured"
- Many respondents in Round 2 did not notice the breakout of "new" vs. "remanufactured" and some respondents still found definitions confusing
- Clarifications and revisions to the wording/instructions were recommended and accepted
- Selected products will be broken out into "New" and "Rebuilt or remanufactured" and will be collected in the products section on EC22

Example 4: Retail Health Clinic

- Goal was to provide new detail regarding Retail Health Clinics

  A retail health clinic is an in-store clinic with a health care professional who provides medical care (e.g., health screenings, treatment of minor injuries and illnesses, or management of chronic medical conditions).
  Exclude:

  - **Patient care services delivered only by pharmacists such as dispensing vaccines and medications.**

- Questions about Retail Health Clinics were tested for both Services and Retail industries

- This term did not resonate with respondents in either industry

- Most did not understand what types of establishments this definition referred to

- Questions will not be asked on EC22

Lessons Learned

- Multiple rounds of cognitive interviews (iterative design)
- Allowed for revisions to improve question wording
- Determined which questions should NOT be included on EC22

19 topics
- 12 included on EC22
- 7 not included on EC22

65 questions
- 37 included on EC22
- 28 not included on EC22

Lessons Learned (cont)

- Use of innovative technology supported completion of 230 cognitive interviews in a completely virtual environment (high volume testing)
  - Statistical analysis software
  - Online survey platform
  - Chat functionality
  - Qualitative data handling software
- Allowed us to keep project on target but also maintain flexibility
- Able to identify poorly performing questions and determine if they could be further refined or should be removed from testing
- Able to quickly change wording and pathing based on feedback from respondents and stakeholders

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Thank you!

Kristin Stettler

Kristin.J.Stettler@census.gov

Melissa Cidade

Melissa.Cidade@census.gov