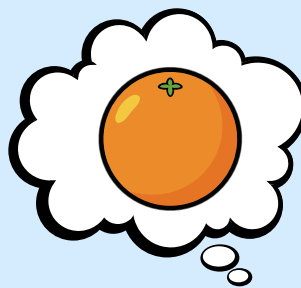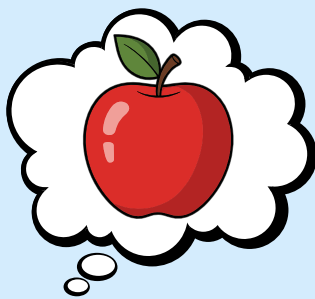# The Devil is in the Details

Cognitive interviewing to strengthen quantitative surveys

What is cognitive interviewing?

- Cognitive interviewing is a qualitative research method used primarily to improve the design of quantitative surveys.

- The goal is to understand how respondents interpret draft survey questions and revise the questions as needed to ensure questions convey the intended meaning.

- Without cognitive interviews, gaps between question intent and respondent interpretation can persist, severely compromising the validity and reliability of data generated from surveys.

Steps in undertaking cognitive interviews

1 Define the scope of cognitive interviews

- Prioritize which questions to test
- Testing one survey question takes around 3 minutes so a 90 minute cognitive interview can test about 30 questions
- Consider multiple cognitive interview guides for large surveys

2 Select and train researchers

- Experienced qualitative researchers are essential
- They must be proficient in both the target and original language when surveys are being translated
- Training must teach the researchers to switch between "quantitative enumerator mode" and "qualitative prober" mode
- Ensure researchers understand the underlying intent of each question
- Role play and practice interviews build skill and confidence

(continued)

3. Select sample participants

- Draw from the same or a very similar population to the intended survey respondents
- Prioritize those whose experiences and identities are most different from the researchers who drafted the survey questions
  - Usually the least educated and most marginalized people
  - These individuals are most likely to reveal problems with the draft survey questions

4. Collect data iteratively with frequent debriefs

- After four to eight cognitive interviews, block four to eight hours for team debrief
- Debrief in detail on how each question was interpreted by the respondents
- Revise draft questions
- Conduct additional rounds of cognitive interviews with new respondents to assess revised questions
- Continue until a final version of questions has been developed

5. Support quantitative survey training

- Researchers who conducted cognitive interviews can share firsthand insights with quantitative survey enumerators, including to:
  - Anticipate common misunderstandings
  - Address difficult or atypical responses
  - Handle culturally sensitive topics
  - Reinforce the importance of adhering to tested question format

Inside a cognitive interview

Ask the quantitative survey question exactly as written → Elicit and record an answer according to the quantitative survey response options → Ask a series of qualitative probes (such as: "Why did you reply X?")

Where does cognitive interviewing fit into the survey tool-development process?

Item generation
- Qualitative research
- Literature review
- Existing tools
- Expert judgment

→ Translation if required

Decide scope of cognitive interviewing → Select and train researchers → Sample participants → Interviews → Research team debrief

More data needed?
- Yes → Sample participants
- No → Pilot testing → Final revision → Survey implementation

For more information or permission to adapt this resource, please contact:

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🌐 www.evidence-digital.org

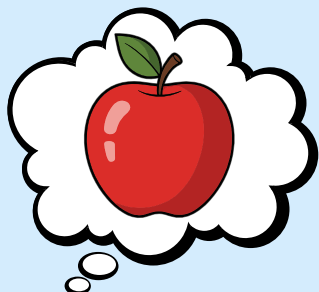# Components of survey tools assessed by cognitive interviews

Survey tool component	Explanation	Mobile skills example
Word choice	Technical terms may not be understood	**Original question**: "*Have you ever used the internet from any location and any device?*" **Issue**: Some respondents did not link using WhatsApp or YouTube to using the internet. Mentioning "any location and any device" led some respondents to focus on clarifying that they do not use many different devices and but instead use their own device. **Revised question**: "*Have you ever used the internet? For example, WhatsApp, Facebook, YouTube, Google, etc. {add other locally relevant examples of internet}*"
Syntax	Long, complex sentences confuse respondents; questions with multiple sub-components are difficult to answer or analyze	**Original question**: "*Have you ever used a mobile phone? This could be any type of mobile phone, including a smartphone*" **Issue**: Respondents focused on the type of phone, with some discussing the different types of phones they have seen, rather than their use of phones, and others focusing on whether they had used a smartphone (i.e., replying "no" but later revealing that they used a basic phone) **Revised version**: "*Have you ever used a mobile phone?*"
Question structure	When verbally administered, questions that expect the respondent to retain directions throughout a series of sub-questions place a high cognitive burden on respondents	**Original question**: *I will now ask you about activities that you may have done on a computer or phone during the last 3 months. Did you...* *A) Use a copy and paste tool to duplicate or move data, information, and content in digital environments, for example within a document, between devices, or on the cloud?* *B) Send a message, for example by e-mail, messaging service, or SMS, with an attached file, for example a document, picture, or video?* *C) ...* *D) ...* **Issue**: Stem-and-leaf style questions place a high cognitive burden on respondents; most did not retain key information from the "stem". **Revised question**: Separate each into a stand-alone question.

Components of survey tools assessed by cognitive interviews (continued)

Survey tool component	Explanation	Mobile skills example
Response options	4+ scaled Likert response options failed to resonate	**Original question**: "*I know how to make a phone call by dialing a number.*" (Response options: 1. *Not true for me*, 2. *A bit true for me*, 3. *Mostly true for me*, 4. *Very true for me*, 5. *I don't understand what you mean by that*) **Issue**: Likert options were frequently ignored, with respondents instead replying according to a binary yes/no. The difference between similar response options was not understood, i.e., "a bit true", "mostly true" and "very true" were collapsed into "yes" and "not true" was collapsed into "no". **Revised question**: "*Do you know how to make a phone call by dialing a number?*" (Response options: *Yes/No*)
Resonance with local realities	Examples may not match everyday use, particularly questions developed in high income, computer-centric contexts when applied to mobile first LMIC populations	**Original question**: "*Did you send a message, for example by e-mail, messaging service, or SMS, with an attached file, for example a document, picture, or video?*" **Issue**: In addition to this question being overly long and complex, the wording of 'attached file' in the above question is email-centric and may not resonate with mobile-first users who primarily use SMS or WhatsApp. **Revised question**: "*Have you ever added a picture, video, or document to an email, SMS, or WhatsApp message?*"
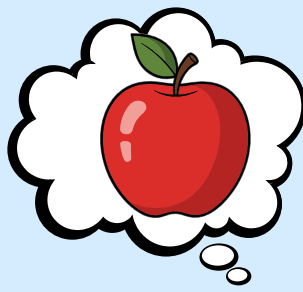
Cognitive interviewing:

Ensuring survey questions are understood by respondents as intended by researchers

Components of survey tools assessed by cognitive interviews (continued)

Survey tool component	Explanation	Mobile skills example
Cognitive mismatch	Concepts may not map to lived experience; respondents interpret questions in an unanticipated alternative manner	**Original question**: "*When using the internet on a mobile phone, have you experienced any of the following situations in the last 12 months?* *A) Having personal information or photos used, taken or shared without your consent when using the internet on a mobile phone* *B)…*" **Issue**: In addition to this question using a "stem and leaf" structure with too many clauses, the word 'personal information' was often understood as family secrets or private thoughts. We developed an explainer box to clarify the specific digital nature of personal information in this question. **Revised question**: Explainer box: Personal information Personal information means any details that can be used to identify you or find out more about you. This can include: • Your name (full name, nickname, or username) • Contact details like phone number, email address, or home address • Date of birth or age • Photos or videos of you or your family • Government ID numbers such as, national ID, passport, or driver's license • Bank details including account number, or PIN • Login details like passwords or PINs for your mobile device "*Has someone ever shared your personal information on the internet without your permission?*"

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Components of survey tools assessed by cognitive interviews (continued)

Survey tool component	Explanation	Mobile skills example
Memory	Detailed recall demands are too difficult	**Original question**: "*In the last 12 months, have you used the Internet?*" **Issue**: Questions framed with time-bound references such as "Within the last X months have you…?" imposed a high cognitive burden on respondents. Respondents often asked researchers to repeat these questions, or – most commonly – offered responses that were not related to the requested time limit. To process a question framed with time-bound referent periods respondents had to first determine when that period started, recall whether they had done the activity, and then determine whether it fell within the reference window. Rather than answer according to the response categories, many respondents preferred to speak in natural language ("I use it all through the day", "It broke a while back") rather than fit their experiences into predefined intervals. **Revised questions**: 1) "*Have you ever used the Internet?*" "*When was the last time you used the internet?*"

References

Scott, K., Ummer, O. & LeFevre, A.E. (2021). The devil is in the detail: Reflections on the value and application of cognitive interviewing to strengthen quantitative surveys in global health. Health Policy and Planning 36(6): 982–995. https://doi.org/10.1093/heapol/czab048

Scott K, Gharai D, Sharma M, Choudhury N, Mishra B, Chamberlain S, LeFevre AE (2020). Yes, no, maybe so: the importance of cognitive interviewing to enhance structured surveys on respectful maternity care in northern India. Health Policy and Planning 35(1): 67-77 https://doi.org/10.1093/heapol/czz141

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