Some Survey Design Best Practices in REDCap

This document will provide some general survey best practices, as well as best practices specific to fielding a survey in REDCap. This document is not exhaustive and cannot substitute for a course in research or survey methodology.

General Recommendations for Drafting Survey Instruments

1. As you design your survey instrument, **consider both the kind of data that you want to gather *and* the experience of your participants**.[1]
   a. Lauer et al. recommend asking yourself, "What data do I want to collect? What do I want to be able to do with my data?" before you begin building your survey.[2] Ultimately, the questions you ask your participants will determine the type of data you have to work with.
   b. Think about the experience your participants will be having as they complete your survey.[3] (See recommendations for improving your participants' experience below.)
   c. If a researcher or enumerator will aid the participant, ensure they have the appropriate training to use the technology and answer clarifying questions from participants.
2. **Test your survey frequently,** both within your research team and with test users.
   a. Testing your survey will help you notice and correct typos, make sure that your branching logic (also known as "conditional logic" or "skip logic") is working correctly, and give you a preview of what your data will look like.
   b. Test all features that you will use, such as automatic survey invitations and data export.
   c. Testing also allows you to gather feedback from users on your survey in advance, which will allow you to improve your users' experience.

Improving Your Participant Experience

Survey Length & Shape

1. Avoid survey fatigue as much as possible by **keeping your surveys short**. Generally, the shorter your survey is, the more likely participants are to complete the whole thing. There's a sharp drop-off in completion rates after the 20-minute mark.[4]

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[1] Claire Lauer, Michael McLeod, and Stuart Blythe, "Online Survey Design and Development: A Janus-Faced Approach," *Written Communication* 30, no. 3 (July 2013): 330–57, https://doi.org/10.1177/0741088313488075.
[2] Lauer, McLeod, and Blythe. p. 334.
[3] Lauer, McLeod, and Blythe, p. 337-338; Christa Teston et al., "Surveying Precarious Publics," *Rhetoric of Health & Medicine* 2, no. 3 (October 8, 2019): 321–51, https://doi.org/10.5744/rhm.2019.1015.
[4] Lauer, McLeod, and Blythe, "Online Survey Design and Development." p. 338.

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2. When possible, **organize your survey questions into clearly labeled sections,** grouping similar questions together.[5] Arranging questions in this way keeps the survey approachable and understandable for your participants.[6] Between these sections, **use section breaks** to split the survey into multiple pages and make it feel more manageable for your user. You can add section breaks within Online Designer in REDCap.
3. **Allow participants to see how far along in the survey they are** to reduce frustration and allow them to manage their time.[7] In REDCap, you can do this by either allowing participants to see what page number they are on in Survey Settings, or by using HTML to add a progress bar.
4. **Use branching logic** (also known as "conditional logic" or "skip logic") **to avoid displaying questions that aren't applicable to a particular participant**;[8] this keeps the survey shorter for each participant, avoids frustrating or confusing participants with questions that don't apply to them, and increases the accuracy of your responses.
5. **Use restricted, choice-based questions when possible instead of un-validated open-ended questions.**[9] This provides you with easier-to-use data that needs less coding and cleaning, while also reducing the mental load on your participants.
6. **Make questions required sparingly.**
   a. Too many required questions can add to survey fatigue and increase the chances that your participants will abandon your survey.[10]
   b. Allowing participants to skip less important questions and open-ended questions should improve your completion rate. For example, if you intend to communicate with participants through email, do not make the phone number field required in your survey.
   c. However, questions that direct branching logic should always be required so that the logic does not fail.

Writing Better Survey Questions

The following eight tips for writing survey questions come from Krosnick & Presser's list of **"Conventional Wisdom" recommendations in writing surveys**:[11]
1. "Use simple, familiar words (avoid technical terms, jargon, and slang);
2. "Use simple syntax;
3. "Avoid words with ambiguous meanings, i.e., aim for wording that all respondents will interpret in the same way;

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[5] Jon A. Krosnick and Stanley Presser, "Question and Questionnaire Design" (February 15, 2009). p. 3.

[6] Lauer, McLeod, and Blythe. p. 339.

[7] Lauer, McLeod, and Blythe, "Online Survey Design and Development." p. 342.

[8] Lauer, McLeod, and Blythe. p. 340-342.

[9] Lauer, McLeod, and Blythe. p. 344.

[10] Jean Décieux et al., "Implementation of the Forced Answering Option within Online Surveys: Do Higher Item Response Rates Come at the Expense of Participation and Answer Quality?," *Psihologija* 48, no. 4 (2015): 311–26, https://doi.org/10.2298/PSI1504311D.

[11] Krosnick and Presser, "Question and Questionnaire Design." p. 3.

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4. "Strive for wording that is specific and concrete (as opposed to general and abstract);
5. "Make response options exhaustive and mutually exclusive;
6. "Avoid leading or loaded questions that push respondents toward an answer;
7. "Ask about one thing at a time (avoid double-barreled questions); and
8. "Avoid questions with single or double negations."

Here are some additional recommendations:

1. **Simpler language and syntax are more accessible for participants.[12]** Substitute difficult vocabulary, vague terms, figures of speech, imprecise language, and complex sentence structures when possible.[13] Defining terms, offering examples, and adding graphics to questions can increase accessibility for participants and reduce confusion.[14]

2. **Use language that is familiar to participants.**[15] For example, when Teston et al. created a survey about the Patient Protection and Affordable Care Act, often abbreviated to the ACA, participants did not always recognize the bill by its official name. Instead, the popularized name "Obamacare" was more likely to be recognized by patients.[16] Think about the language that your participants are most likely to use when drafting your questions.

3. **Use consistent terminology and language across questions.[17]** For example, if you ask participants to "choose all that apply" in one checkbox question, use the same phrase across all checkbox questions.

4. **Include "Prefer not to answer" or "I don't know" options in your questions** if a question is required. A required question without an "opt out" option means that a participant may enter inaccurate data, just to move on. Offering a "Prefer not to answer" or "I don't know" option improves the question's accuracy and reduces participant frustration. (See below for REDCap features that keep participants from selecting answers in addition to "Prefer not to answer" or "None of the above" in Checkbox questions.)

5. When using **multiple Likert scale questions or matrices** within the same survey**, don't switch the direction of these scales from question to question**. For example, if your first question starts with Strongly Agree on the left and Strongly Disagree on the right, do not flip the scale in the opposite direction for subsequent questions.

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[12] Erin Wilson et al., "An Accessible Survey Method: Increasing the Participation of People with a Disability in Large Sample Social Research," *Telecommunications Journal of Australia* 63, no. 2 (May 20, 2013), https://doi.org/10.7790/tja.v63i2.411.

[13] Christina Nicolaidis et al., "Creating Accessible Survey Instruments for Use with Autistic Adults and People with Intellectual Disability: Lessons Learned and Recommendations," *Autism in Adulthood* 2, no. 1 (March 1, 2020): 61–76, https://doi.org/10.1089/aut.2019.0074. p. 62.

[14] Nicolaidis et al. p. 62.

[15] Teston et al., "Surveying Precarious Publics."

[16] Teston et al. p. 340.

[17] Teston et al. p. 331-332.

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Best Uses of Different REDCap Question Types

1. **Multiple Choice Radio Buttons (Single Answer)**
   a. Best for multiple choice questions where answers are mutually exclusive.
   b. Most radio button questions have fewer than ten options to choose from.
   c. Example: "How many hours per week do you work?" with the following answer options: 0 hours, 1-9 hours, 10-19 hours, 20-29 hours, 30-39 hours, 40-49 hours per week, 50 hours per week or more.

2. **Multiple Choice Drop-Down List (Single Answer)**
   a. Best for multiple choice questions with many (usually with ten or more) options that are mutually exclusive.
   b. Drop-downs are especially helpful when answers are chosen from a common list (such as state of residence or birth month).
   c. Example: "What is your current country of residence?" with a list of countries provided.

3. **Checkboxes (Multiple Answers)**
   a. Best for multiple choice questions where it makes sense to be able to choose multiple answers.
   b. In REDCap, you can limit the number of checkboxes a participant can select through the @MAXCHECKED action tag.
   c. You can also use the @NONEOFTHEABOVE action tag to mark answers as exclusive. For example, you can use this action tag to ensure that participants can't select "None of the above" along with other options, or "Prefer not to say" in combination with other options.
   d. Examples: "What kind of tools do you use when writing a research paper?" with the following answer options: pencil and paper, pen and paper, typewriter and paper, tablet and stylus, tablet and keyboard, computer and keyboard, other.

4. **Yes – No or True – False**
   a. Best for questions that only have one of two possible answer options.
   b. If you need to include a third option (such as "Maybe" or "I'm not sure"), it's best to use Multiple Choice Radio Buttons instead.
   c. Examples
      i. "Are you currently enrolled at UIUC?" with the answer options yes or no.
      ii. "Under typical atmospheric conditions, water is a liquid at 75 degrees Fahrenheit" with the answer options true or false.

5. **Text Box (Short Text, Number, Date/Time, …)**
   a. Best for short answer responses typed in by the participant, especially basic information like one's name or email address.
   b. Text box responses can be validated for common answer types in REDCap. Using validation allows you to ensure that certain types of responses are entered, such as an email address, a date, a phone number, or a zip code.

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      c. Use the action tags @WORDLIMIT or @CHARLIMIT to limit the number of words or characters allowed in responses; set these limits according to the size of the expected responses. These limits can also speed up data export and analysis.

      d. Examples

          i. Date of birth

          ii. What is your email address?

6. **Notes Box (Paragraph Text)**

      a. Best for longer responses that are typed in by the participant and may be several sentences long.

      b. Notes boxes are best for collecting open-ended responses from participants. Open-ended responses can give researchers more robust data, but they also require additional time to code.

      c. It may be helpful to use the action tags @WORDLIMIT or @CHARLIMIT to limit the number of words or characters allowed in responses; set these limits according to the size of the expected responses. These limits can also speed up data export and analysis.

      d. Example: "Please tell us about your experience writing your research essay."

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