Good Practices Guide for Web Questionnaires

This guide presents good practices as currently identified by experts in the field of web questionnaires. Good practices may change, however, as research in the field and technologies continue to evolve. In addition, while these are good practices for most situations, they are not universal rules. In each situation, your experience and judgment, as a questionnaire designer, should be used. The final decision about the content and appearance of any questionnaire remains with you and the team.

For good practices specific to Questionnaire Programming Language (QPL), please visit the following websites:

- QPL6 Reference - http://qpl.gao.gov/qpl6ref/
- Using QPL6 at GAO - https://qpldocs.gao.gov/wiki/index.php/Main_Page.

Good practices for web questionnaires include (1) response options, (2) visual and interactive enhancements, (3) general layout and design, and (4) question presentation.

(1) Response Options

Response options include radio buttons, check boxes, drop boxes, and text boxes.

Radio buttons

- Familiar to many respondents -- useful when you want a respondent to select only one answer.
- Don't pre-select a response. The final response option, such as "Don't know," will appear be to checked already if the questionnaire designer has not removed the default setting through the QPL command **.answer = 0**. Omitting this command may lead some respondents to believe that they have completed questions already or otherwise allow this answer to remain.
- Offer off-scale responses (for example, "No response" or "Don't know"), particularly for questions that might be perceived as sensitive or threatening to respondents. Such offered responses can help with the problem that radio buttons can only be checked, but not unchecked.
- Use a line to separate on-scale responses (for example, "Very frequently" to "Never") from off-scale responses (for example, "Don't know" or "Not applicable"). This is because respondents' responses may be affected by the appearance of off-scale responses on the single continuum, given that respondents visually associate middle as typical.
- Don't number the response options for fully-labeled scales. As a visual cue, numbering may have some effect on the responses by altering the perceived midpoint of the scale.

Check boxes

- Useful if the respondent can answer more than one item.

- Use sparingly. Survey research suggests that the quality of responses for a check-all-that-apply item begins to decline when you have more than four or five items. In this case, it is better to switch the question to a matrix table in which the respondent has to answer each item. However, check boxes may not be a problem when using a long list of well-known items, such as a list of the states.
- Add a "Don't know" check box to a question about a number or dollar figure.

Drop boxes (or drop-down lists)

- Use if you have a complete list, although you can include "Other" or "Not on the list" items.
- Use if the respondent knows the answer, such as the month of birth or name of DPM.
- Can be difficult or confusing if there are several possible variations on the item (for example, "Congo" could appear as "Democratic Republic of the Congo," formerly Zaire, or "Republic of the Congo," formerly Congo). More generally, it is helpful if there is a logical order to the list such as alphabetical (for example, green, red, yellow) or chronological (for example, January, February…). Otherwise, it would be a good idea to group the items (for example, Fruit– apple, banana, pear | Vegetable – broccoli, carrot, lettuce).
- Don't show one of the responses as having been selected already. The drop box should display something like "Select one" or "Click here."
- Use to save space on the screen. However, the entire list will not appear if the QPL questionnaire is printed in a PDF format.
- Mick Couper warns that this option is frequently overused by questionnaire designers. It can require more mouse clicks. The drop boxes should be used only for a long but logical list. If it is faster to type the response, then the drop box should not be used. Of course, the questionnaire designer will need to consider what is appropriate for the survey and the work that might be required for the data analyst.

Text boxes

- Useful for entering numeric or text data.
- For open-ended questions, consider the size of the box that you decide to use. Survey research suggests that larger boxes encourage longer responses to the question. Even with unlimited text options, a respondent will give a shorter answer if the box is smaller.
- Provide clear guidance about the type of response you would like. This is particularly so when it comes to dates. Respondents may have different preconceived notions about how the date should appear (for example, dd-mm-yy, ddmmyyyy, mmddyy, or mmddyyyy). For this reason, it is a good idea to use appropriate question wording (What month and year…? instead of "When…?") and symbols (MM YYYY instead of words "Month" and "Year"). You may want to consider using the calendar function or drop boxes.
- Balance data quality, respondent burden, and data processing and analysis efficiency. Requesting specific numbers or dates will produce data that can be easily analyzed. It may also produce the appearance of precision, or if the respondent skips the question, item nonresponse. There may be some instances in which it might be helpful to use a text string so that respondents can specify ranges or larger time units ("200-300 trips" and "sometime in the third quarter of FY2008") and thus capture some useful information. However, this approach may require the data analyst to impute midpoints

or discard vague answers. Yet another option may be a combination of the two if respondents were unable to provide an answer to the close-ended question using the column function in QPL. The respondent is offered a close-ended question along with open-ended one. This can be done either as (1) a follow-up question or (2) a text box to the right of the close-ended question. The data analyst, team, and you should discuss this thoroughly during the pretesting of the questionnaire.

- It is helpful to give additional visual cues to the respondent in the form of symbols ($, %) or text (units).
- When using text boxes in the form of a matrix table, you may want to try compiling the program in SAS or SPSS to see if the variables are all properly labeled. It is advisable to add labels to each box as part of your code (for example, .label = "Q3a - Key Performance Parameters (KPPs) - New"). This will make the analysis easier for the team to understand and later index.

(2) Visual and Interactive Enhancements

Web questionnaires have almost unlimited numbers of visual images that can be added to the questionnaire as part of the question (for example, an image from an ad campaign) or the response options (for example, smiling face to frowning face). However, more is not always better. You should carefully consider if the images are relevant to the question, if they supplement the question (for example, a graphic to help understand the question), or if they are incidental to the question (for example, an image of musical instruments when asking a question about music). In most cases, images should not be added to the questionnaire. There may also be issues associated with how the image will appear on different monitor sizes, resolutions, operating systems, and browser settings. If you decide to use an image, it will need to include a narrative so that the survey complies with 508 accessibility compliance.

(3) General Layout and Design

As noted by Don Dillman and Mick Couper, it is important that you establish visual rules and follow them consistently throughout the questionnaire. This will help train the respondent in how to appropriately move through the questionnaire in an effective and efficient manner. For example, it is good practice to bold all of the questions to help set them off visually from the response options and instructions. It may be helpful to use italics for all instructions.

General layout and design includes text and typography, background colors and patterns, layout of elements, matrix tables, and additional linked target questionnaires.

Text and Typography

- A sans serif font (for example, Arial, Verdana or Century Gothic) is a better typeface to use compared with a serif font (for example, Times New Roman). The typeface can affect the readability of the questionnaire. In QPL6, the default setting is serif font for the questionnaire, but this can easily be changed using the QPL command **.font=sansserif**.
    - Generally, a 12-point font size is considered standard for questionnaires. However, font sizes can vary by monitor size, resolution, operating systems, and browser settings.
- It is best to capitalize words according to normal convention rather than using all caps in questions. The use of all caps reduces the readability of the questionnaire.

- Emphasis (**bold**, *italics* or UPPERCASE) should be used selectively. If emphasis is used too often, it will lose its relevance. Emphasis should not include underlining because it will too closely resemble a hyperlink.

Background Colors and Patterns

- Colors in questionnaires should be used conservatively, consistently, sparingly, and appropriately. The questionnaire designer should use the color palate available through QPL 6.
- The use of color can be complicated because (1) some people are color blind (for example, avoid the color pairings of red-green, blue-yellow, red-blue and green-blue); (2) colors can convey meanings that may run counter to the text in the questionnaire (for example, red should be used for emergency messages or critical icons because it is associated with warnings or errors); and (3) the meaning of colors can differ across cultures.
- It is important to maintain sufficient color contrast between the background color, and questions and response options. If the contrast is minimal, it will affect the readability of the questionnaire. For example, imagine a dark blue background color with a lighter blue color for the questions. Due to minimal contrast, it will be difficult for the respondent to read and subsequently print the questions. Generally, it is best to leave the background color as white, which is the default setting in QPL 6.
- Patterns, including shading for matrix tables, can be particularly problematic for readability if they distract from the questionnaire text.

Layout of Elements

- Couper and Dillman have found few or no statistical differences between horizontal versus vertical orientation of response options for close-ended questions such as those with radio buttons. It is more important that the response options appear in a logical layout that is easy to read.
- Provide sufficient empty space on the screen. User performance (that is, readability and being able to efficiently move through the questionnaire) suffers when less than 25 percent of the screen is empty space.
- Use concise wording, minimize overall density on the screen, and organize the information on the screen.
- Shorten the text for the welcome or “hello” screen, and reduce or eliminate instructions and introduction screens through the use of pop-ups. Several external experts, including Couper and Dillman, noted that GAO should reduce the number of preamble screens to the extent possible.

Matrix Tables

- Avoid including many columns (for example, 7 or 9-point scales) so that the respondent is forced to scroll horizontally in order to see the entire table. This may vary depending upon the browser setting and screen size.
- Column headers should always be visible when scrolling vertically.
- Columns should be of equal width. Uneven spacing can result in a visual cue for respondents that affects their responses.
- Break up into smaller pieces if too complex. In his book, Mick Couper offers the example of two large matrix tables located side by side. More generally, consider if the respondent will

need to scroll left-to-right or up-and-down to answer the matrix table. This may indicate that the table should be shortened or broken up in some way.

- Be particularly careful not to overuse lines, shading, color, or other visual clutter.
- Use matrices to consolidate questions. However, matrix tables may be a burden for respondents resulting in their using strategies such as acquiescence or satisficing, which may provide less than optimal responses. You should carefully weigh these considerations and pay particular attention to matrix tables during pretests of the questionnaire.

Additional Linked Target Questionnaires (or Sub-form Questionnaires) and Display Questions[1]

- Provide the respondents with wording and visual cues to assist them in moving from a stem question (taken from the original or "source" questionnaire) that leads to a separate "target" (or sub-form) questionnaire. As with the rules of skip patterns, it is helpful to use instructions, arrows, and other cues to minimize potential response errors.
- To minimize confusion and maximize the likelihood of successfully returning to the source questionnaire, consider wording and visual cues that will best communicate to respondents that they are in the target questionnaire. For example, you may want to consider using a different color scheme.
- Use different variable labels for all target questionnaires. For example, the questions for the source questionnaire may be labeled as Q1, Q2, Q3. But the first target questionnaire may be labeled as A1, A2, A3 and the second target may be labeled as B1, B2, B3. If the source and target questionnaires do not have different variable labels, then the variables for the target questionnaires will overwrite the source questionnaire variables when the questionnaires are later merged together by the data analyst.
- Display questions do not appear on the web page until the respondent clicks on the preselected response in a screener question. For these questions, consider how you will number and label the questions. This can be a challenge when you have multiple imbedded questions. It is important to be consistent throughout the survey with your nomenclature for these questions. To assist with data analysis, it may be helpful to add labels to the variables.

(4) Questions Presentation

Presentation includes skip patterns, instructions, progress indicators, prepopulating data, definitions, and links.

Skip Patterns

- If using skips, make sure the instructions are clear and the stem (or source) question is well identified. This means that you should have instructions or visual cues for the skip instructions. If you can't have clear visual cues such as arrows, then you should include additional cues in the next question such as ***(If "Yes" to 10)*** and indent the question.
- For skip patterns, it can be helpful to have question numbering as part of the cues in the questionnaire. But this suggestion is specific to the scrolling survey design in QPL rather than the paging survey design used by other software packages.

[1] This subsection is more generally related to survey research rather than any research specifically about web questionnaires.

- Hyperlinks are a valuable tool in assisting the respondent in moving from stem to branching questions or target (or sub-form) questionnaires. Respondents may be less apt to click on the link unless it is emphasized through visual and verbal cues.
- As an alternative to the skip patterns using hyperlink, you may want to consider using display questions that are hidden until the respondent clicks on the appropriate response for the screener question. Display questions have the advantage of controlling the questions that the respondent receives depending upon his/her prior responses. However, they may not be appropriate given the complexity or structure of certain skip patterns.
- Thoroughly test all paths of the questionnaire, particularly if complex skips are used.

Instructions

- The decision about the length or extent of instructions in the questionnaire should be somewhat dependent on the population. Web-savvy respondents may find too many detailed instructions insulting. For instance, it is a good idea to convert the instructions for the web questionnaire into a popup because many respondents are familiar with web questionnaires.
- Design of answer fields should provide information on what is required and be consistent throughout the questionnaire.
- The instructions should not be visually prominent, meaning that they shouldn't distract or otherwise draw the eye away from the question.
- Provide minimal instructions (verb first, in the manner of a cookbook) on the type of response required such as "Select one answer" and "Check all that apply."
- Provide clearly marked help button or hyperlink for access to instructions if needed.

Progress Indicators

- Survey research suggests that it is best to avoid progress indicators on every screen, particularly for long questionnaires. This is because they can discourage respondents if the progress appears to be slower than expected. On a short questionnaire, a progress indicator on every screen may be helpful.
- Inform respondents from the outset of an approximate length of time required to complete the questionnaire.

Prepopulating Data

- Where possible, it is helpful to prepopulate information that you already have about the respondent. This can help in (1) eliminating some questions from the questionnaire if you already have that information and (2) reducing the need for the data analyst to match and merge data that the team would like analyzed with the survey data. However, you will need to weigh the options of prepopulating information versus asking the respondent these items in the questionnaire. It may be the case that you need to ask the respondent if certain prepopulation data are still correct (for example, number of employees).

Definitions

- Consider making the definition part of the question or change the question wording so that a definition is less necessary.
- Use definitions sparingly so that respondents will notice when they are presented. The pop-ups in QPL are helpful particularly for lengthy definitions. However, experts have warned

that respondents seldom look at popup definitions. If the definition is essential to answering the question correctly, it should be incorporated in the question or instructions. It should also be clear to the respondent where the popup or hyperlink will lead.

- Use visual design to draw respondents' attention to the definition.

Links

- Provide a link toward the beginning of the questionnaire such as the hello page to a PDF version of the questionnaire so that the respondent can print out the entire instrument. This will be particularly helpful for respondents who (1) need other individuals to complete portions of the questionnaire or (2) who will be asked to fill out a long or complex questionnaire.

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http://www.websm.org – This is another source of research on web surveys.