

## Best Practices in Survey Design

A survey's construct is strongly influenced by its substantive content and its audience, as well as the administrator's knowledge about the survey population and previous experiences administering similar surveys. That said, successful surveys often have certain design elements in common. A survey designer must decide not only which questions to ask, but in what order to ask them. She or he must determine which question formats are best suited to yield the information sought and how to balance comprehensiveness with conciseness and accuracy. This document highlights best practices in survey design as they pertain to survey content, structure, and style.

### Content

The content of surveys varies greatly. Some are laser-focused on a single subject, while others attempt to gather a wide range of information related to a general topic. Some surveys seek factual information that only the surveyed individuals can provide, while others encourage respondents to share their opinions on topics with which they may (or may not) be familiar. Regardless of their subject matter or objective, the content of the survey question should be structured in a way that facilitates a respondent's ability to properly comprehend and respond to the questions s/he is being asked to answer. A survey designer should aim to create a survey that is easy for the respondent to both understand and complete. Survey questions that are poorly worded, confusing, or contradictory are likely to generate unreliable data and suffer from low response rates, thus undermining the effort associated with designing and administering the survey. To that end, the respondent's perspective should always be preeminent in survey design.

#### *Demographic information*

In most cases, a survey designer should begin by gathering the information/input needed to create an initial draft of the substantive section of the survey. In addition, the survey designer should also consider whether the survey should include questions that gather demographic or other categorical information about respondents. While such information may not be needed for small-n surveys or in surveys where information regarding individual respondents has already been gathered and can be linked to individual responses, most surveys are interested in obtaining a firm understanding of who has completed the survey. The primary purpose behind the collection of information on respondents is to ensure the representativeness of the respondent population vis-à-vis the survey population (or general population) as a whole. Bias in the respondent population can help contextualize and verify the accuracy of the survey responses.

For example, if a university administers a survey about workplace sexual harassment to its employees, it would be important for survey administrators to know if a disproportionate number of the survey respondents were male, or in managerial positions, or over 50 years of age, since these populations may have different perspectives on sexual harassment than other segments of the employee population. In a survey about student's ice cream flavor preferences, it may not matter much from a substantive perspective if 80% of respondents are male. However, the disproportionate number of male respondents may indicate that the method used to promote the survey and encourage

participation did not target all prospective audiences equally. In either case, information on the composition of the respondent population is critical to properly contextualizing the results of the survey.

Therefore, it is advisable to carefully consider what demographic information should be captured from respondents and how this information will be used to ensure that the respondent population is representative. Information on the representativeness of the survey strengthens the survey administrator's ability to contextualize survey results and reinforces the validity of the survey methodology.

#### *Uncomfortable content*

It is not unusual for survey designers to be tasked with constructing a survey that asks individuals about uncomfortable topics. The anonymity associated with surveys often makes them a preferred vehicle for research on topics that would be otherwise difficult to discuss with a stranger. That said, the survey designer must take extra care in crafting surveys that address sensitive topics, in order to avoid undermining respondents' trust in and comfort with the survey instrument. Questions dealing with sensitive topics should be worded delicately and intentionally, in order to avoid offending respondents.

Survey designers are advised to openly state that the survey content contains questions of a sensitive nature, in order to prepare respondents for questions that might offend or distress them. It is also advisable to consider using a "proxy" in such questions. For example, in a survey on under-aged drinking, the questions may be framed as "Have you or a friend ever engaged in ....[illegal activity]?" The inclusion of the proxy allows respondents to preserve some anonymity in their response. Alternatively, a survey can ask respondents to discuss "past behavior", with the implication that respondents are not admitting to current practices, but behavior in which they (may) no longer engage. Obtaining honest and accurate responses to questions of sensitive subject matter can be facilitated by allowing the "I prefer not to respond" response option in multiple-choice questions. This can minimize question skipping.

In addition, survey designers should have a strong understanding of the difference between race and ethnicity – as well as between gender orientation and sexual orientation – when including such demographic questions in surveys. It is easy to inadvertently confuse or conflate these demographic categories or exclude relevant groups; such missteps may be offensive to some audiences.

#### *Other content issues*

It is advisable to guard against the inclusion of inappropriate content. Sometimes survey designers are asked to include a few additional questions to a survey that are only marginally related to the survey content. The addition of unrelated questions should be avoided if at all possible. Keeping the survey content united and consistent in its focus is a critical element in ensuring high quality survey responses and a quality survey experience. Questions that are off-topic are not only disconcerting to respondents, they also breach the implicit agreement between the survey respondent and survey designer – namely, that in exchange for participation, the survey respondent expects the survey to be as efficient and time-effective as possible.

When reviewing survey content, it is advisable to ask the following questions:

- 1) Is the question specific enough? In order to generate the desired data, it may be necessary to augment the question with an example or limit the question to a particular timeframe, so that responses are consistent across respondents.
- 2) Can the question be answered by the intended audience? It is, for example, *not* reasonable to expect a student to know the dollar amount of their Estimated Family Contribution as calculated on the FAFSA form off the top of his/her head. Testing the survey with some members of the intended audience can help identify questions that the audience cannot readily answer.
- 3) Is the question biased? Questions (and response selections) that lead the respondents to answer in a specific way will generate poor quality data.

## Structure

Once the survey designer has determined both the substantive content of the survey and (if necessary) the type of information that s/he needs to know about the survey respondents, the survey structure should be evaluated. In particular, the order of the survey questions should be carefully considered. Generally speaking, survey questions should be grouped into logical categories that will make intuitive sense to respondents. On the most basic level, the substantive questions in the survey should be grouped together by theme, and questions gathering demographic or other information about respondents should be grouped separately from these substantive questions

Grouping questions in a way that facilitates respondent understanding can be done in a very explicit way. For example, each group of questions can be organized under a descriptive text header question that informs respondents about what they should expect in the next group of questions. An example might be, “In this section, we will be asking you about your daily routine. Please reflect on what your average weekday has been like this past month when answering these questions.” The benefit of this approach is two-fold: first, it helps respondents remain focused and on-topic as they proceed through the survey; second, it can be used to provide additional, section-specific instructions on what type of data the survey is interested in collecting (as in the example above). Telling respondents what to expect in the survey facilitates not only more accurate responses, but also higher completion rates, since this sort of sign-posting increases the respondents perceived control over their participation in the survey.

The survey designer must account for the fact that more individuals are likely to start the survey than finish it. Incomplete responses to the survey should be anticipated, and the survey should be designed so that partial responses capture as much information as possible. To that end, it is advisable to place multiple page breaks in a Qualtrics survey, since Qualtrics captures response data every time a respondent moves to the next page of the survey (and keeps that data, even if the survey is not completed). It is *not*, however, a best practice to place a page break after every question, as this both separates questions that should be viewed and answered together, and puts an unnecessary onus on the respondent – which may cause a higher percentage of respondents to quit the survey without completing it.

In this context, a key consideration in survey design is the placement of substantive questions (addressing the content of the survey) versus demographic questions (providing information about the character and general preferences of the respondent). Surveys tend to place respondent profile questions (demographic questions) at the end of the survey for three reasons: a) the completion of respondent profile questions is not as critical as the completion of the substantive survey questions, b) respondents may be dissuaded from starting a survey if they are asked to complete a number of demographic questions at the beginning, and c) the completion of demographic questions can inadvertently bias a respondent into thinking about aspects of their identity that are not related to the survey.

For these reasons, the substantive questions are usually prioritized in the survey and therefore placed ahead of demographic questions. This has two benefits: if the respondent quits the survey before completing it, it is possible that some useable data will be captured. Since demographic information is used to contextualize responses to the main survey questions, it is relatively useless without the corresponding responses to the substantive survey questions. For that reason, it is better to capture responses to the substantive questions first, and hope that the survey respondent completes the entire survey.

The second benefit is that placing the demographic questions at the end of the survey minimizes the potential for these questions to bias respondents. Questions intended to capture demographic data can sometimes inadvertently influence the respondent's mindset. For example, questions about socio-economic status are often structured with 'bucketed' response options – i.e., respondents are asked to select their income bracket from among 5 – 6 options. While the survey designer may intend this question to be neutral, the size and variance in these buckets have the potential to trigger an emotional response from a respondent (if, for example, they fall into the lowest bracket listed). Similarly, the brackets available for age can also trigger a response in respondents, if they fall into one of the buckets on either extreme of the options provided. A survey designer does not necessarily want respondents to be thinking about the fact that they are relatively poor or relatively old when they answer the substantive questions in the survey, as this may bias their responses. Therefore, from a methodological perspective, it is better to ask demographic questions *after* the respondent has provided their perspective on the substantive issues addressed in the survey.

There are, of course, important exceptions to this best practice. If a piece of demographic information is key to the survey – for example, if a respondent's answers to particular questions cannot be understood properly without knowing his/her college or major – then it is appropriate and advisable to ask this type of demographic question at the beginning of the survey, or in the section to which it applies. Since demographic questions have the potential to inadvertently bias respondent's mindsets when they are taking a survey, a survey designer should carefully consider how such questions are worded and where they are placed in each section of the survey.

## Question Formats

Survey software (including Qualtrics) offers many different question format options to survey designers, and designers should be encouraged to explore all viable format options when developing a

new survey. That said, survey design contributes to the successful administration of the survey by focusing on the *respondent experience*. While the concerns and preferences of those who will be analyzing the data gathered through the survey should not be ignored, the respondent experience should be the primary focus of the survey designer. Surveys that are easy for the respondent to understand and to complete will yield higher response rates as well as more robust and valid data.

To that end, unusual/novel question formats can present challenges. Since these formats may be unfamiliar to some potential respondents, they should be used with caution and only when they are truly the best means to capture data from respondents. For example, Qualtrics offers a heat-map question format option that may be particularly effective when asking a respondent to provide feedback on a visual image – such as determining the efficacy of an ad campaign poster. While these question formats may be very useful when applied correctly, they may also require the survey designer to provide respondents with detailed information on how to respond, which increases the onus on the respondent.<sup>1</sup>

The most common survey question format is multiple-choice questions or text entry boxes. Multiple-choice questions commonly take two forms: Likert-scale questions and categorical questions. In many cases, both types of multiple-choice questions can be used to obtain the same information; however, their effectiveness in doing so will depend on the nature of the question and the type of response being solicited. Generally speaking, Likert-scale questions are structured to solicit preferences and opinions from respondents, while categorical questions are structured to identify a respondent’s affiliations. However, a survey that is trying to determine popular ice cream flavors could use either type of question format to obtain this information, as illustrated by the examples below.

*Likert-scale:*

	YUCK	Not a fan	Okay	Pretty tasty	YUM
Chocolate	<input type="radio"/>				
Strawberry	<input type="radio"/>				
Vanilla	<input type="radio"/>				
Butter Pecan	<input type="radio"/>				
Peaches and Cream	<input type="radio"/>				
Cookies and Cream	<input type="radio"/>				

<sup>1</sup> It is also important to remember that unusual/novel question formats may be less user-friendly when a respondent is using a mobile device with a smaller screen than it is when a respondent is answering the survey via computer. To that end, unusual/novel question formats should be tested extensively before being deployed.

### Categorical (Option 1):



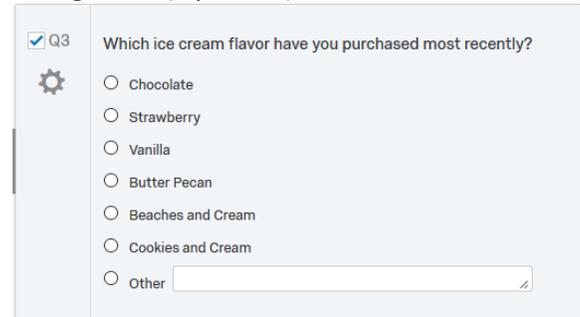
Q2 Please indicate your favorite ice cream flavors among these choices:

Chocolate  Butter Pecan

Strawberry  Peaches and Cream

Vanilla  Cookies and Cream

### Categorical (Option 2):



Q3 Which ice cream flavor have you purchased most recently?

Chocolate

Strawberry

Vanilla

Butter Pecan

Beaches and Cream

Cookies and Cream

Other

As these examples illustrate, the Likert-scale question is effective at gathering two types of information from respondents at the same time – which flavors they like/dislike and to what extent respondents like/dislike these flavors. However, Likert scale questions are more demanding on respondents than most categorical questions. It is easier for a respondent to check off the flavors they like best (as in Categorical Option 1) or to quickly indicate which flavor they most recently purchased (as in Categorical Option 2) than to rank each flavor listed. In some cases, it may be easier for a respondent to answer two questions (i.e. “which flavors do you love” and “which flavors do you hate”) than to rank flavors on a scale. It is important to reiterate that the survey designer should prioritize the respondent’s experience and select the question format that best balances the acquisition of information with the user experience.

### *Likert-scale questions*

Likert-scale questions most frequently ask respondents to indicate the extent to which they agree with one of several statements. This format is well-known, easy for respondents to understand, and easy for analysts to interpret, as the scale can be used to calculate mean responses to questions. When using a Likert-scale question, a survey designer must consider several design elements – particularly the number and orientation of the response elements. Likert-scales often contain an odd number of response categories, which allows respondents to take a ‘neutral’ position by selecting the option in the middle of the scale (i.e. sometimes labeled ‘neither agree nor disagree’). For many questions, one would expect that some respondents may not have any opinion, and in these cases, an odd number of response categories should definitely be used. However, an even number of response categories can be used to force respondents to ‘pick a side’ – and thus requiring respondents to engage more with the substantive issues addressed in the survey.

Naturally, the orientation of the Likert-scale is also important. It is most common to set up the Likert-scale with a left-side bias, in which responses are ordered from most negative to most positive. If a Likert-scale will be used more than once in a survey, it is important that survey designers use a *consistent* scale and that they orient the scale in the same way for all the questions in the survey (or at least in that section of the survey). Survey designers should not expect respondents to be attentive to minor adjustments to Likert-scales; unnecessary changes – such as adding additional categories or flipping the orientation of the responses – can lead less-than-attentive respondents to select responses that do not correspond with their preferences or experiences (and thus result in bad data).

For the same reason, it is important not to combine negatively and positively worded statements in the same question when using a Likert-scale. For example, a survey question on campus climate may ask respondents to indicate the extent to which they agree with several statements. If the majority of statements are positive, such as “I am treated fairly by faculty” and “I am a part of this campus community”, then negatively phrased statements – such as “I feel unsafe on this campus” should either be revised as a positive statement, or if necessary, used in a different question in which all of the statements have the same substantive orientation.

### *Categorical questions*

Categorical questions are most frequently used when there are several potential responses to a question.<sup>2</sup> Since numerous response options are possible in this question format, it is tempting to include more rather than fewer options. It should be remembered, however, that increasing the number of options from which a respondent must select increases the onus on the respondent to carefully read and consider all options. In the case where the survey designer anticipates that most respondents will select one of two or three options, and only a small minority of individuals would select a different option, it is best to only list the main options and to provide an “other” response category – either with or without the option of a text box response.

Whenever multiple response options are listed in a question, the survey designer must consider whether response options should be grouped logically or listed alphabetically (with some exceptions). For example, a survey question attempting to determine how often students visit the dining hall should list the frequency in either descending or ascending order; however, a survey question attempting to determine where students live on campus might determine that it is best to list options alphabetically rather than in terms of geographic proximity, if that is easier for a respondent to review and assess.

If a survey question contains a very long list of possible responses (e.g., nine or more), it is advisable to consider the extent to which the question might be revised into two smaller questions. For example, if a survey wants to know which of a long list of campus services students use on a monthly basis, a respondent may find it easier to answer two questions on this topic – one listing all of the academic services s/he uses and one listing all of the non-academic services s/he uses.

Categorical questions can take two functional forms. The most common form is a single response: respondents select one option from a list of options (see Option 2 above). Alternatively, categorical questions can allow respondents to select multiple options (see Option 1 above). It is important that the correct number of allowable answers is selected, depending on the substantive nature of the question. Allowing multiple responses, for example, increases the complexity of data analysis.

At the same time, it is also important to remember that the single response option implies mutual exclusivity – i.e. that each individual will only be able to affiliate themselves with one response option. However, there are many situations in which this might not be the case – i.e. a person might not have a single or even predominant ethnic identity. When using the single response option, therefore, it is very

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<sup>2</sup> That said, binary questions also fall into this category (i.e. questions asking for yes/no responses).

important that all likely/probable options are listed and/or an “Other” or “Not otherwise indicated” category is included.

In the case of the multiple response option, the survey designer is implicitly indicating that the selection is equivalent to confirmation and failure to select is equivalent to denial – i.e. click = YES and no click = NO. As a result, this type of question can cause a non-response bias problem, because there is no explicit choice of “no” that can be distinguished from a choice of “none of the above but something else”. A careful survey designer can configure such questions to take this non-response bias problem into account, either through an option that explicitly indicates denial, or one that allows for other (non-listed) options to be indicated. Alternatively, the survey designer can ask respondents for their “predominant” opinion on a question, or to select the “best option” among those listed. Categorical question formats benefit greatly from extensive pre-launch testing with various populations, in order to identify questions that do not contain all of the expected response options.

### *Ranking questions*

It should also be noted that neither single or multiple response categorical question formats are designed to measure intensity. If understanding preference intensity is important, then a survey designer is well-advised to utilize a question format that is designed to measure intensity. These include not only the Likert-scale questions but also ranking questions. The ranking question format usually consists of a list of alternatives, which respondents are asked to order according to their preferences. In some cases, ranking questions are fairly straight-forward, especially if the list is relatively small. Ranking a large number of items, however, can be confusing for a respondent – as a best practice, it is advisable to ask individuals to rank the smallest number of items possible, given the nature of the question, and ideally less than nine or ten items in any single question.

There are two additional types of problems inherent with ranking questions related to structural and technological limitations. The first deals with the problem of individuals who want to rank two items in the list as having the same value. This is not as much a problem for the respondent on paper surveys (although it does complicate data interpretation for the analyst). However, electronic surveys are not designed to allow multiple items in the list to have the same value, which forces the respondent to rank one item higher than the other, despite his/her actual preferences. The lack of flexibility in this question format can result in the survey not capturing the true preferences of the survey respondent.

The second problem with the ranking question format is purely technological – survey designers may be tempted to use ranking question format with fancier functionality – such as drag-and-drop options. Depending on the survey audience, respondents may find answer questions with such functionality unduly challenging, or less viable on a mobile device. If a question format type requires extensive use instructions, it is a good sign that the format may impede respondent participation. In such cases, it is advisable to select a different question format.

### *Numeric questions*

In some cases, a survey designer may have questions that require a specific numeric response. There are several scenarios in which asking respondents for a specific number (rather than to select among a variety of binned options) is preferable. However, this depends in part on whether the number about

which the respondent is being asked is sensitive. Survey designers often assume that respondents are sensitive about their age and income – however, sensitivity depends on the survey population. Most college-age students are not sensitive about providing their exact age on a survey (unless the survey deals with under-age drinking, for example).

However, in cases where the respondent may not know an exact number, asking for one would be counter-productive. For example, a survey asking students to report their parents' annual income should provide binned response categories rather than request a specific number, as students are more likely to have a general idea of what their parents earn than to know an exact number. Survey designers should know with certainty that it is within a respondent's ability to provide a specific number, when an exact number is requested. Otherwise, providing binned categorical response options is preferable, so long as these bins are appropriate and do not inadvertently bias responses because of their construction (see discussion above).

This question format is very useful when determining percentages – for example, a survey may ask: "How much time do you spend on a typical day engaging in the following activities:" and then provides a list of activities, requesting the respondent to indicate a percentage. In such cases, it is important that the list of activities is mutually exclusive (i.e. exercise vs. sleep). Survey designers may be tempted to force respondents to ensure that their percentages in each category add up to 100%<sup>3</sup>; however, this can be challenging for respondents if they feel uncertain or if their response depends on factors not accounted for in the survey.

Most survey software allows the survey designer to force respondents to provide a numeric response that contains a certain number of digits. Using this technology is fine if all possible responses have the same number of digits. For example, if the survey asks: "please indicate your year of birth" it is helpful to indicate '(4-digit) year of birth' if the survey is set up to only accept 4 digits, since respondents born in the last century may be conditioned to provide a two-digit response.

In addition, respondents can be particularly frustrated when the survey only accepts a numeric response to a question where respondents could logically provide an approximate response. In other words, when using a numeric question format, the survey designer should be certain that the response to the question is *always* finite and discrete. For example, a survey that asks: "how many children do you have" can expect respondents to provide a whole number response; a survey that asks "how many children do you plan to have" should use a question format that allows for the provision of an inexact or provisional range of numbers (i.e. "3 – 4 children").

#### *Open-ended questions*

Open-ended questions often take the form of a text response box. These boxes are very useful if the survey is soliciting opinions or information on topics that are under-researched or difficult to study. Text boxes also allow survey participants to 'speak their minds' and provide information that was not otherwise solicited in the survey, but which the respondent believes to be important. The inclusion of such questions can lead to higher respondent satisfaction with the survey.

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<sup>3</sup> This is a feature that is available in some electronic survey software.

That said, open-ended questions are time-consuming for both the respondent and the analyst. It may, in fact, require specialized software for proper analysis of text submissions. As a result, open-ended questions should be used sparingly and only when other question types are inadequate for obtaining the information needed. In addition, open-ended questions should also only be used if the analysts are committed to reviewing and using the data collected, as it is unethical to collect data that the survey designer does not plan to review and utilize.

Thus, open-ended questions should be used very judiciously, and only when other question formats are inadequate to capture the information needed from respondents. Surveys that contain primarily open-ended questions are likely to suffer from low-response rates as well as lower response quality (especially toward the end of the survey) as respondents are often frustrated when asked to provide extensive written comments.

## Structure and Functionality

Online surveys have several functional advantages over paper surveys. The advantages and disadvantages of these special online survey tool options are discussed below.

### *Validation Options*

Unlike paper surveys, online surveys often contain optional settings that trigger actions when a respondent selects a particular response to a particular question in the survey. Forced responses is a setting available in Qualtrics that allows the survey designer to prohibit a respondent from proceeding to the next question in a survey, if they fail to provide a response to a question. The ‘forced response’ option is very helpful for questions that gather critical information from survey respondents – information without which the remaining responses provided by a respondent are not useful. This can be, for example, a gateway question, such as “Are you 18 years of age or older?” If a survey has received IRB approval for administration only among students who have reached legal majority, then determining the age of the respondent constitutes an ethical responsibility. Using a forced response in these cases is both appropriate and effective.

That said, some survey designers are tempted to use the ‘force response’ setting on all questions in the survey. This is (generally speaking) both inappropriate and counter-productive. Most questions in most surveys are soliciting opinions or information about participant habits, experiences, etc. The failure to answer one question in a multi-question survey will certainly not invalidate all other responses. The use of the force response setting can also sabotage a survey containing questions that fail to take into account the fact that all possible responses to a question are not included among the response options. It is very annoying to survey respondents to be prohibited from proceeding in a survey – if they are prohibited from proceeding because they cannot answer a question appropriately, they are likely to quit the survey altogether.

There are several ways of addressing this issue. First, the use of the forced response setting should only be applied to absolutely critical questions. If the forced response setting is used in any question where there is even the smallest possibility that a respondent may not be able to answer the question given

the options provided, the questions responses should include the option “I prefer not to respond” as well as “Other”. If your survey collects information that is highly desirable but not critical, the use of the ‘request response’ option in Qualtrics is much more conducive to a successful survey. This option reminds respondents that they have not completed a question one time, before allowing respondents to proceed (even if they do not respond to that question). Generally speaking, the use of forced and requested response options should be limited to a small minority of questions in a well-designed survey, if they are used at all.

### *Skip and Display Logic*

Skip and display logic can increase the robustness of a survey by not forcing respondents to view or respond to questions that do not apply to them. These two functionalities are mirror opposites of each other and are often confused. Skip logic *hides* questions from respondents based on the selection of a particular response to an earlier question in the survey. Display logic *shows* questions to only those respondents that select a particular response to an earlier question in the survey. In both cases, the functionality relies on a trigger question that has two or more response options.

Both skip and display logic can be used to the same effect. For example, skip logic is useful when a respondent’s selection of a certain response option disqualifies him or her from the remaining questions in the survey. For example, if the survey can only be administered to individuals over 18 years of age, then the selection of the response “No” to the question “Are you 18 years of age or older” can trigger the survey to skip all subsequent questions in the survey and take the respondent directly to the thank you message at the end of the survey. Alternatively, a survey designer may set up the survey to only display the majority of questions to respondents who answer “Yes” to the qualifying age question.

That said, skip and display logic must be used with caution. A survey designer may inadvertently hide questions from respondents through the misapplication of skip or display logic. For that reason, it is vitally important that surveys that utilize skip or display logic undergo extensive beta testing with a wide variety of sample respondents to ensure that the correct questions are being displayed to the correct respondents.

An alternative to using skip and display logic is to use the Survey Flow function in Qualtrics, which uses branch logic to create various paths that respondents can take through the survey. This functionality is especially helpful if the survey designer has two very different sets of questions to ask respondents based on his or her response to a qualifying question.

Again, proper beta testing of this functionality is critical to ensure that the correct respondents are exposed to the correct questions in the survey, and in the correct order. Failure to review all of the consequences of the inclusion of skip logic, display logic, and branch logic can be catastrophic – especially if respondents never see key survey questions because the logic has been improperly applied.

## Style

While the substantive content of surveys can vary widely, successful surveys are crafted in ways that encourage participation and engagement while minimizing inconvenience and frustration for the respondents.

The tone of the language that is used in the survey is very important. When survey designers are conceptualizing a survey, they often think about the project in very technical terms. Faculty, for example, may be tempted to use very academic language in their surveys, or make references to theory. In most cases, however, the survey's audience will not be academics. The tone of the language used in the survey should be appropriate for the intended audience, rather than the survey analysts. To that end, it is advisable to use a *conversational tone* in a survey. The language should be approachable, and the vocabulary should be readily familiar to the intended audience. To that end, all acronyms should be spelled out, and jargon and slang terminology should be avoided.

It is also advisable to frame the survey questions as questions, rather than as statements to which the survey respondent should react. Properly framed questions give the impression of a comfortable conversation. In contrast, asking a respondent to describe their reaction to a series of statements can give the impression of an interrogation. Since survey participation is generally voluntary, survey designers must consider how their questions will be received by their potential respondents – not only in terms of substantive content, but also in terms of the emotional response they will elicit.

Regardless of the format of the questions, the information provided in the survey should be provided in simple, straightforward sentences. If possible, it is best to avoid long or complicated sentences or sentences written in the passive voice. To that end, survey designers should also avoid 'double-negatives' and other sentence structures that may confuse the respondent and therefore contribute to the creation of bad data through inaccurate responses.

When designing a survey, we often have an expected or even a desired response in mind. It is important to carefully consider both the way in which questions are framed as well as the way in which potential responses are listed, in order to avoid biasing the survey responses. Survey designers are advised to review each survey question in terms of its potential bias and to ask themselves: is the question framed in such a way that it suggests a preferred response? Leading or loaded questions undermine the veracity of the data collected, since the survey mechanism cannot distinguish between true responses and those that were influenced by a respondent's desire to please or respond 'appropriately'. Similarly, survey designers should consider the way in which possible responses are presented in multiple-choice question formats. If there is a 'preferred' response, it may be best not to list it first, for example.

It is also important to consider the unintended consequences of questions – this is particularly true when absolute questions (i.e. those that contain terms such as always or never, for example) are asked. The survey designer generally wants to create questions that respondents are able to answer truthfully. Absolute questions, however, can sometimes make it impossible for respondents to be completely honest. For example, if a survey asks, "Do you always wear a seat belt when driving or as a

passenger in a car?” and provides a yes/no response option, some respondents may feel unable to answer this question in an affirmative, even if they do wear a seatbelt 99% of the time. If the survey asks, “Do you wear a seat belt when driving or as a passenger in a car?”, most people will feel comfortable answering yes, even if they very occasionally fail to buckle up – because the word “always” is absent.

Therefore, unless a question requires an absolute response, a question containing these types of qualifiers should be avoided. If unavoidable, it is advisable to consider providing more than a “yes/no” response selection. In addition, alternative question frameworks should also be considered. With regard to the example above, a better question might be “What percentages of the time would you estimate that you buckle up when you drive or ride in a car?” with a selection of responses ranging from “100% - every time I get in a car” to “less than 10% of the time”. Survey designers can often identify absolute questions through the use of the terms “only”, “always”, “never”, “ever” and “all”.

In addition to avoiding absolute questions, survey designers should review questions carefully to ensure that they are not compound questions – i.e. two questions in one. These questions are problematic because (like questions containing double negatives) they can confuse a respondent, since the focus of the question may not be clear to the respondent. These questions can also lead to bad data, because compound questions can put the respondent in the same untenable situation as absolute questions – namely, being asked to give one response to two questions when the respondent had contradictory responses to each element of the question. For example, if a survey asks: “In a normal week, will you have time to complete your homework and exercise?” and has a dichotomous response option (yes/no), the survey has not provided a response option for those individuals who find time to exercise but not get their homework done, or vice-versa. Compound questions can be readily identified by looking for conjunctions such as “and”, “but”, “or” and “however”.

## Survey Length and Availability

Once the survey has been drafted and tested, the survey designer must consider the administration period for the survey. It is advisable that non-critical surveys are open for approximately two weeks; for critical surveys, it is recommended that the survey is left open for three to four weeks, in order to ensure enough time for everyone to answer.

The length of the survey depends entirely on the substantive content of the survey. However, the length of the survey also must be weighed against the willingness of the respondents to participate. Once drafted, survey designers and administrators should review the survey extensively to determine to what extent the survey can be more precise and concise, specifically:

- Are all of the survey questions easily comprehensible? Can any of the survey questions be reworded to be more easily understandable to the target audience? Is it appropriate to disaggregate any questions in the survey in order to increase comprehension and the collection of accurate data?

- Are all of the questions in the survey absolutely necessary? Is it appropriate to combine any questions in the survey to decrease length? Are there any duplicate questions – i.e. questions that ask essentially for the same information at different parts of the survey?

Even when participation is assured, survey administrators should communicate how long it will take participants to complete the survey. Setting reasonable expectations for respondents is very helpful in ensuring a successful survey experience and high response rates. It is helpful to include this information to the potential respondent pool in the pre-survey notification as well as in the survey invitation itself.

Lastly, successful survey designers are likely to be asked to draft more surveys. It is therefore helpful to create a library of frequently used and well-vetted questions (especially related to the acquisition of demographic data) that may be useful in a variety of surveys.

### Next steps

Every survey, but especially those containing non-linear survey flows, skip and display logic, as well as complicated question formats, benefits from extensive beta testing. Testing during survey development serves two purposes: first, it helps the survey designer identify questions that are confusing, awkwardly worded, or otherwise difficult for respondents to understand. Second, it allows the survey designer to see how the data collected through the survey will be organized in the survey results. In some cases, a question may appear to be properly structured; however, when data from the question is collected, it can become clear that the structure is inhibiting proper data collection. Survey designers should ideally ask a group of testers who are similar in background to the survey pool to take the survey multiple times and then provide feedback on the survey. The test data collected in this process should then be reviewed to ensure that the proper audiences are viewing the correct questions and that data is populating the survey as expected.

While the survey designer is often not primarily responsible for obtaining Internal Review Board (IRB) approval for a survey that conducts social science research on human subjects, the survey design can be impacted by IRB requirements. These requirements may include the rewording of questions or the inclusion of information on informed consent at the beginning of the survey. It is advisable to consult with the survey administrator as to whether the information gathered through the survey will be used for scholarly research and if so, when IRB feedback on the survey will be available.

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