Designing a Survey

1. Selecting your sample (who, how, how many)
2. Designing good questions (question types, wording, response/measure types)
3. Developing the survey (layout, format, question order)

1. Selecting the Sample

The "survey population" is the larger population from whence the actual "sample" is selected. All samples are subject to sampling error, though this error can be minimized by accounting for two factors:

1. Larger samples produce smaller sampling errors than smaller samples
2. Homogenous samples produce smaller sampling errors than heterogeneous samples
3. Having too large of a sample inflates the results (everything becomes significant even if it really isn't).

Probability Sampling Designs

This type of sampling is purposefully random, guaranteeing that each person in the survey population has an equal chance of being selected (or not) for inclusion in the sample.

1. Simple Random Sampling (SRS): Each person in the survey population is assigned a random number, which is then randomly selected for inclusion in the sample. (This is rarely used in practice because it is inefficient and laborious if manually selected and coded.)

2. Systematic Sampling: The survey population is systematically numbered 1-X, and each nth person is selected. For example, each 10th person is selected for inclusion in the sample. This method differs little from SRS, though it is more accurate in many instances than SRS. One danger to consider is periodicity: if the survey population is coded cyclically (e.g. - by apartment number), the sample may be biased.

A second danger to be aware of is implicit stratification: if the persons in the survey population are arranged in a certain pattern (e.g. - alphabetically by last name), the sample may be biased.

3. Stratified Sampling: Instead of drawing the sample from the entire survey population, the survey population is broken down into categories that are then sampled appropriately (though not necessarily equally). For example, a community might be broken down by Race, Income Level, or Age before being sampled.

Stratified sampling produces a more representative sample from the survey population, markedly reducing sampling error.
4. **Multistage Cluster Sampling:** Cluster sampling is best used when the survey population is too large to list individually for sampling (e.g. – all homeowners in the United States). It involves listing possible data sources (or clusters) and either sampling or stratifying those clusters until a representative, usable sample is defined.

For example, you might list all states in the United States and then sample or stratify the states into one cluster; then you might list all counties in each selected state and sample or stratify the counties into another cluster; and so forth, until you arrive at a reasonable and representative sample.

5. **Probability Proportionate to Size (PPS):** In some instances of Multistage Cluster Sampling, very large populations stand a chance of being overrepresented, and very small populations stand a similar chance of being underrepresented. In such cases, combining several small populations into one larger cluster is common practice, as is pre-sampling larger populations to account for their overrepresentation.

**Non-probability Sampling Designs**

1. **Purposive Sampling:** Purposive sampling involves the selection of a sample based on the researcher’s knowledge of the larger community or sampling frame. Though this provides very well-articulated results, they often fall victim to biases of the researcher. As such, great care must be taken when selecting the sample and an objective arbiter judging the selections is often recommended.

2. **Quota Sampling:** For quota sampling, the researcher must have considerable demographic data about the sample population. The sample population is broken down into demographically-delineated groups which are then appropriately weighted according to their portion of the total population, resulting in a reasonable representation of the sample population.

3. **Available Subjects (Convenience) Sampling:** Surveys of students enrolled in particular courses only provides localized knowledge about select student populations. The data should not be used to describe students as a whole, as most universities employ uniquely selective methods for admitting and enrolling students.

**2. Designing Good Questions**

1. **Closed-ended questions:** Closed-ended questions force respondents to select an answer from a list of options provided by the researcher. This makes for data uniformity and easy coding after the surveys are collected.

Three things to remember when using closed-ended questions: 1) the list of responses should be **exhaustive** so as to include any possible answer from a respondent; 2) the options should be **mutually exclusive** so that respondents are not forced to choose between two similar responses; and 3) the question should be written so that **only one idea is being expressed** (i.e., Mr. and Mrs. Smith are good candidates for the job. ← This is bad because one of the two may be good and one bad, and thus it is unclear how
the respondent should answer and if the respondent does answer, it is unclear
what they mean.

2. **Open-ended questions:** Open-ended questions provide space for
respondents to write-in their own responses to questions. This gives the
respondent greater flexibility to answer question as they see fit, though
coding the data is usually more time-consuming and subjective for the
researcher.

Though open-ended questions usually provide richer data, they can also result
in answers that are irrelevant to the study's focus. In addition, open-ended
responses usually produce less useful data if the survey is self-administered.

3. Rather than simple yes/no questions, the use of scales is helpful in
determining variations in human opinions, attitudes, behavioral intentions,
and/or perceptions. Yes/no questions are often too extreme, and provide less
information.

   a. **Likert scales:** Questions about attitudes are often asked using Likert
      scales which force the respondent to place themselves on a continuum
      of responses that typically include "strongly agree," "agree," "neutral,"
      "disagree," and "strongly disagree." Other variations of these
      categories can easily be incorporated.

      It is often assumed that a Likert scale should include a "neutral" or
      "don't know" response on the scale, but if the purposes of the study
      are to force a respondent to take a stand, it is entirely justifiable to not
      include such a middle-of-the-road response.

   b. **Semantic differential scales:** Semantic differentials measure
      attitudes and/or opinions on one topic. They are usually written as
      follows:

      A. Quantitative Research methods are:

      |                  | 1 | 2 | 3 | 4 | 5 |
      |------------------|---|---|---|---|---|
      | Difficult        |   |   |   |   | Easy
      | Complicated      |   |   |   |   | Simple
      | Boring           |   |   |   |   | Interesting

   c. Scale items can be combined to create measures. A measure is the
      operational definition of a variable. Composite scales (measures) are
      created using factor analysis and reliabilities.

4. **Avoid negative items:** When asking questions, avoid the use of negatives as
   they often confuse respondents into answering a question in a manner they
do not intend to.

   For example, when asked to agree or disagree with the statement, "The
   United States should not reduce its funding of bilingual education programs,"
many respondents will either read over the word not, or will be confused by
the double negative in the question and their response.
5. **Be conscientious of the Halo Effect:** When questions are written, they often reference a person, group, or belief that inherently biases the question and subsequent response in relation to the respondent’s feelings about the person, group, or belief. Basically, the wording of the question leads respondents to answer in a certain way. In some cases, even use of one particular word can bias responses to a question. The following represent questions biased by the Halo Effect:

   "Don’t you agree with the President that...?"
   "Do you agree with the recent Supreme Court decision that...?"
   "Do you disagree that welfare is a problem?"

6. **Contingency questions should be clearly marked:** Researchers often use contingency questions to ask follow-up questions to respondents who answered a question a particular way (e.g. - if you answered "Yes" to this question, go to question 8).

   Contingency questions are a good way to get more targeted information from a select group of respondents, but the answer path must be clear to the respondents. Visually drawing out the contingency question using an indented box is the most effective means of doing this.

7. **Avoid double-barreled questions:** Researchers often ask respondents for a single answer to a combination of questions. This forces the respondent to agree or disagree with all the questions, instead of giving them the opportunity to independently assess each question. The inclusion of the word "and" is often a red flag for a double-barreled question. The following is an example of a double-barreled question:

   "Do you agree that the United States should abandon its military programs and spend the money on educational programs?"

8. **Use adequate wording:** Ask questions in complete sentence to avoid any possible misunderstandings.

   For example, instead of asking "Income?" you might ask "In the last tax year, what was your total personal income, not including that of your spouse/partner?"

9. **Ensure consistent interpretation to all respondents:** Be sure to minimize any ambiguity in the question so that all respondents read the question the same way.

   For instance, asking the question, "How many times in the past year have you talked with a local school board member?" could be read several ways. Do phone or email discussions count? Does attendance at a school board meeting count?

10. **The "Don’t Know" option:** Providing "Don't Know" as a response gives respondents an easy way out from thinking about and answering a difficult question. However, if the nature of the question could reasonably elicit a "Don’t Know" response, it should be provided as a response alternative.
3. Tips for Formatting the Survey

1. **Include demographic questions at the end of the survey:** The most important questions of the survey should be asked first when the respondents are most enthusiastic about participating in the survey. Demographic questions take little thought, are often indicative of a dull form, and are best included at the end of a survey when respondents are most tired. All survey should ask age, ethnicity, and gender (at a minimum).

2. **Maximize your use of "white space":** There is a ill-founded fear that respondents react negatively to longer surveys. It is rather the case that short surveys, in which the questions are packed into a few pages, are often more imposing, confusing, and demoralizing than longer surveys in which only a few questions are asked on each page.

   This is especially important when using open-ended questions in which longer responses are both desired and expected.

3. **Use boxes for multiple choice questions:** Boxes that respondents are expected to fill in completely are the most reliable method for gathering responses to multiple choice questions because there is little ambiguity as to which answer was chosen.

   Open spaces for checkmarks are generally considered the least reliable method of collecting multiple choice data, as respondents tend to make large checkmarks that make it difficult to determine which answer they chose.

4. **Question order is important:** For example, asking a question about a person’s religion will bias their answers to subsequent questions (priming).

   Controlling for this is difficult, though acknowledging that there is a question order bias is a helpful first step when designing the survey and analyzing the resultant data.

5. **Provide adequate instructions:** This seems like a fundamental concept, but many surveys lack adequate instructions, leading respondents to answer questions incorrectly or without the desired depth.

   Instructions are especially important when the question type changes - respondents should be appraised of any new expectations of the researcher.

6. **Field test your survey before implementation:** Time and money permitting, surveys should be field tested to account for any bias, problematic wording, or confusing structure. This ensures more reliable and valid data and limits the financial loss if significant problems are overlooked during the initial design.