

Survey Questionnaire Design

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A survey is a means of gathering information about a particular population by sampling some of its members, usually through a system of standardized questions. Surveys can be conducted by mail, telephone, personal interview, or Internet. They can be administered either to individuals or groups. The primary purpose of a survey is to elicit information which, after evaluation, results in a profile or statistical characterization of the population sampled. Questions may be related to behaviors, beliefs, attitudes, and/or characteristics of those who are surveyed.

Preliminary Considerations

Need for a Survey—Since almost all surveys can be costly, it is critical to discern whether or not the study needs to be done. Begin by contacting persons knowledgeable in the field and by performing an environmental scan of other studies conducted on the topics of interest. This work should provide the answers to the following questions:

1. Have studies of this subject been done previously?
2. Is there literature enough on the subject to answer the question (i.e., books, periodicals, reports)?
3. Have other county organizations investigated this area, and do they have information available on the subject?



4. Can the desired information actually be collected by a survey or would another form of research be more appropriate?
5. Is there adequate time and resources available to conduct a survey without skipping steps in the process?

Once the need for a survey is determined, a problem statement and objective must be developed for the survey.

Types of Questions:

- *Attitudes*—Respondents' views, perceptions, or feelings. How they feel (usually judgmental).
- *Beliefs*—What respondents think is true; their perception of reality (assessment oriented, taps what they know).
- *Behaviors*—What respondents do (present, past, and future).
- *Attributes*—Personal or demographic characteristics (age, income, occupation).

Problem Statement—A clear, concise statement of the problem to be studied and/or the information desired should be put into writing. It is helpful to list possible causes of the problem, as well as possible solutions. This will help clarify the survey objectives.

Survey Objectives—Survey objectives will be concerned with the following issues:

1. What information is needed in order to understand the problem, its causes, and possible solutions?
2. How will the information be used and by whom?
3. What/who is the population to be studied and can all members of the population

be located?

4. Does the information collected need to be statistically valid and does it need to be generalized to a larger population?
5. What kinds of analyses would be useful for understanding the survey results?
6. Will the statistics resulting from the analysis of the survey data be appropriate for the sampling plan used as well as the questions to be answered?

Survey Budget—When conducting a survey, an adequate budget must be developed to cover all phases of work. This should be done

early in the planning process so that expectations for what the survey can accomplish remain realistic in light of financial constraints.

Survey Mode—The next step in the process is to determine which survey mode to use. The survey mode is the type of survey that will be conducted. The most frequently used modes include face-to-face or personal interviews, telephone interviews, and written interviews which are usually conducted by mail or Internet. The factors that will determine which mode to choose include financial constraints; resource constraints; and question length, complexity, and sensitivity.

Survey Modes or Types

A. Face-to-Face Interview

Face-to-face interviews or personal interviews are surveys conducted in person by an interviewer who usually travels to the person being surveyed.

- **Pros**—High response rates; can clarify questions, if necessary; control over respondent selection; can use longer, more complex questionnaire; and easier to motivate the respondent.
- **Cons**—High costs, time-consuming, and more administrative requirements (i.e., selecting



and training interviewers, contacting respondents, travel arrangements). Also, there is a tendency for respondents to give socially acceptable answers.

B. Telephone Interviews

Telephone interviews are usually conducted from a central office that places telephone calls to selected households or businesses.

- *Pros*—Good response rates, fast, some anonymity for respondents in answering questions, and control over respondent selection. If a comprehensive list of the target population is available, the likelihood of obtaining a representative sample is high.
- *Cons*—Questions must be short and not complex; cannot control interruption by others in household/office; hard to find persons at home, and those that are at home may resent intrusion; there is mounting displeasure among households receiving unsolicited telephone calls; requires training and quality control monitoring of the interviewers; and is usually difficult to target a specific geographical location.



low costs, can cover a wide geographical area, and more manageable for handling large samples.

- *Cons*—Questionnaire may be given to someone else to fill out or may not reach the desired respondent; most difficult type of questionnaire to design; hard to interpret open-ended questions; cannot control sequence in which respondents answer questions; and time-consuming, given periodic mail-out requirements.

D. Internet Questionnaire

An Internet questionnaire is a form of a written survey. Respondents may be invited to participate in the survey through email or because they visit a particular web page.

- *Pros*—Fast to conduct and tabulate, some software products allow questionnaires to be customized depending on the respondent's answers, avoids interviewer bias and distortion, answers unlikely to be socially influenced, easy to administer, and relatively low costs.
- *Cons*—Information transferred via the Internet may not be confidential; poor control over respondent selection; follow-up difficult to conduct; difficult to obtain probability sample; and, like mail surveys, this is the most difficult type of questionnaire to design.

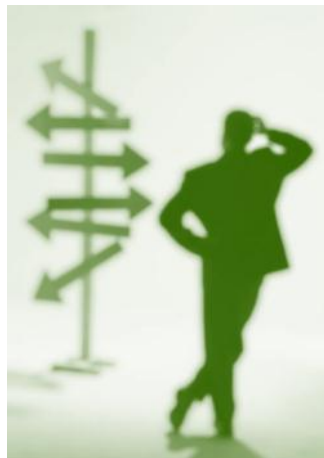
Survey Questionnaire Design

The survey questionnaire should be designed to include elements which make the survey pertinent and relevant to the population to be sampled, thereby maximizing response rates and minimizing error or bias.

A. Components

The following sections normally comprise a questionnaire:

1. *Request for Cooperation*—This might be a brief introductory paragraph (or speech) at the beginning or could be a comprehensive cover letter. It should highlight the reason for the survey, voluntary participation, confidentiality, and willingness to provide a copy of results to respondents if desired.
2. *Instructions*—Always simple, clear, and repetitive where necessary. Keep to a minimum and make sure they are easy to administer if given by an interviewer.
3. *Actual Questions*—See Sections on Question Content and Question Formats.
4. *Classification Data*—Normally these are demographic information and respondent characteristics to ensure the target population has been sampled adequately.
5. *Identification Data*—This may include names, addresses, and telephone numbers and/or identification numbers of participants to keep track of respondents and to facilitate follow-up procedures.



B. General Layout

The layout of a written questionnaire can have as much to do with response and error rates as do the actual questions. Therefore, the following factors need to be carefully addressed:

1. *Length*—All surveys should be as brief as possible. Mail and telephone surveys should be no longer than 10 to 15 minutes. Personal interviews should not extend beyond 30 minutes.
2. *Appearance*—Mail and Internet surveys should give the appearance that they will be easy to complete. Neat, orderly written questionnaires with a lot of white space will increase response rates.
3. *Instructions*—Clear, unambiguous, and easily readable instructions work best. In mail and Internet surveys, it helps to offset instructions from the rest of the text.
4. *Vertical Flow*—Logical question and section sequencing is critical. Avoid jumping from topic to topic. Cluster similar types of questions either by subject, type of response, and/or instruction.
5. *Numbering Sequence*—Precoding every item on the questionnaire allows for ease of data entry. However, coding must be done discretely if it is to appear on all but the master copy of a written survey to avoid confusing respondents.
6. *Transition Statements*—When shifting topics and/or sections in the questionnaire, clear and understandable transition elements or statements are important.

Question Content

The following factors must be considered when constructing the questions to be used in the survey instrument:

1. Will the question elicit the type of response desired? For example, "How long have you lived in your current home?" An open-ended question of this type may elicit answers such as "all my life," instead of number of years.
2. Use words which are simple, familiar, and unambiguous to the target population. Do not use colloquialisms or slang. A fifth grade reading level should be used when constructing questions. The question "Which detrimental attributes impact on our transportation system?" contains words that are too difficult. The question "What do kids in your neighborhood do for fun?" is vague and contains slang. Kids does not define a specific age group and can refer to young goats.
3. Avoid double-barrel questions. The question "Do you support smoking policies in private industry, but not in governmental offices?" is two separate questions.
4. Determine whether respondents will be able to answer accurately; are they likely to know, understand, and/or remember items relating to the desired information? Respondent recall becomes unreliable quickly. Structure questions to assist memory by measuring a discrete and recent time period rather than a vague reference to the past.
6. Avoid questions containing double negatives or phrases such as, "would you agree or disagree that..." These types of questions confuse respondents who may not correctly interpret the intended meaning.
7. Is the person answering the question the appropriate person? Often times one member of a household has more knowledge than others about the household's finances.
8. Will the respondent be willing to answer certain types of questions truthfully? Some topics regularly elicit biased responses or higher item nonresponse. These topics include information relating to income, or criminal and other kinds of personal behaviors.
9. Does the question bias the respondent's answer? "The president believes Social Security should be privatized to protect the funds. Do you agree?" If this appeared on a survey, the answers might reflect feelings about the president rather than what should be done with Social Security.
10. Questions which appear to be "off the wall" and unrelated to the subject matter being explored should be avoided. The questions should provide the information needed as defined in the survey objectives and purpose.
11. The first question is important and should be short, simple, and relevant. More complex



issues can come later in the questionnaire. This will ensure higher response rates.

- In multiple-choice or close-ended questions, make sure all possible response choices are included and are mutually exclusive. When asking the number of times something has occurred, it is not unusual for the answer choice “none” or “0” to be missing.

Question Formats

There are five basic formats from which to structure questions in a survey instrument:

- Open-ended*: “The job tasks I enjoy most are _____.”
- Modified open-ended*: “I was _____ years old when I began my current job.”
- Closed-ended with ordered response choices*: “How would you rate your preferences for the following job tasks?” (circle one answer for each item):

ANSWER CHOICES

Writing	Enjoy	Neutral	Dislike
Editing	Enjoy	Neutral	Dislike
Organizing	Enjoy	Neutral	Dislike



Questions Should Contain Simple Familiar Words

<u>Complex Term</u>	<u>Simplified Term</u>
proximity	closeness
exhausted	tired
leisure time	free time
candid	honest
priority	most important
employment	work
assistance	help
rectify	correct

- Closed-ended with unordered response choices*: “Which of the following job tasks do you like the most?” (circle one letter)
 - Writing
 - Editing
 - Organizing
- Partially close-ended*: “Which job task do you most enjoy doing?” (circle one letter)
 - Writing
 - Editing
 - Organizing
 - Other (please specify) _____

In general, close-ended with ordered or unordered response choices are the easiest to code for data processing. Open-ended are the most difficult. However, all question types can be useful depending upon what is being measured (behaviors, attitudes, et cetera) and the kinds of information needed.

Pretest

The last steps before actual distribution of the questionnaire include:

1. A review by colleagues and potential data users, and
2. A pretest of the survey instrument to be used.

For comprehensive pretesting, a mock copy should be submitted to a representative cross-sample of the population

to be surveyed. Some preliminary data analysis (even if hand calculated) should be attempted to check both design and coding procedures. It often is useful to run two or more versions of the questionnaire to determine which version will do the best job. This may include variations on questions.

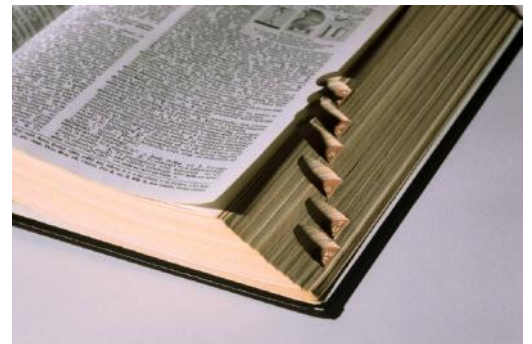
In general, a pretest is

administered to ensure:

1. Ease of administration of the survey,
2. Field processes to be employed work smoothly,
3. Questions are easily understood,
4. All important questions have been asked, and
5. Instructions are understood.

Glossary

- *Bias (error)*: Distortion or unreliability in survey results. All surveys contain some bias. Bias is increased when the respondents (persons answering the survey) are not representative of the population being questioned, when questions are poorly written or misunderstood, and when the researcher uses inappropriate techniques to analyze the data.
- *Census*: A study using all available elements (members) of a population.
- *Coding*: The assignment of numerical (or other) values to individual questions and answers on a survey instrument (questionnaire) to facilitate statistical analysis of the information.
- *Data*: The collection of observations and information resulting from the survey process.
- *Element*: The basic unit about which survey information is sought (i.e., person, business, household, car, dog, et cetera)
- *Instrument*: The tool or device used for survey measurement, usually a questionnaire.
- *Nonresponse*: Unit nonresponse refers to the refusal of persons selected to be sampled to participate in a survey (i.e., person does not return the mail questionnaire). Item nonresponse refers to selected questions left unanswered by the person responding.
- *Population*: The universe or collection of all elements



(persons, business, et cetera) being described or measured by a sample.

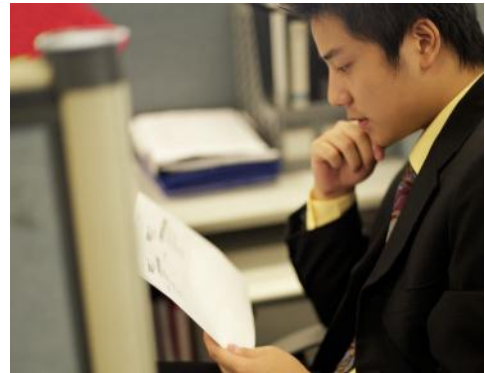
- **Pretest:** An initial evaluation of the survey design by using a small subsample of the intended population for preliminary information.
- **Questionnaire:** A measuring device used to query a population/sample in order to obtain information for analysis.
- **Response Items:** The various answer choices provided on a survey instrument.
- **Response Rates:** The percentage of surveys/questionnaires completed from the total sample queried. Typically response rates are calculated as:

$$\text{Response Rate} = \left(\frac{\text{Surveys Completed}}{\text{Number Sampled} - \text{Ineligible Elements}} \right) \times 100$$

- **Respondent:** An element or member of the

population selected to be sampled.

- **Sample:** Any portion of the population, less than the total.
- **Survey:** A process of inquiry for the purpose of data collection and analysis using observation, polls, questionnaires, and/or interviews.
- **Statistics:** Descriptive measures based upon a probability sample.



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