

Errors That Affect Accuracy

- Sample surveys yield accurate results when researchers succeed in avoiding four kinds of errors. The following four cases are examples of inaccurate estimates.

- **Case 1** In Las Vegas, Nevada, a crime prevention project used a telephone directory to obtain a sample of names and addresses for a mail survey. The survey did not produce accurate results because more than half of the residents of Las Vegas have unlisted telephone numbers. Also, the population turnover is so great that many who have listed numbers are not in the most recent directory.

- This survey had substantial **coverage error**. Coverage error occurs when the list-or-frame-from which a sample is drawn does not include all elements of the population that researchers wish to study.

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- To avoid coverage error, every member of the population that the researcher is trying to describe would have an equal or known chance of being selected from the sample.
- Up-to-date, accurate sampling lists are hard to develop.
- Lists might be incomplete, lists sometimes contain duplicate entries or entries that should be excluded because they aren't members of the target population.
- The level of coverage error depends on how different the missing, ineligible or duplicate entries are from the target population.

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- **Case 2** A planner in a small community decided to interview a sample of residents about the attitudes they had toward the local school system. He developed a relatively complete list of the population from utility companies and voter registration records. He then randomly chose 50 residents for his survey. A sample size of 50 was not big enough to allow the planner to confidently generalize from the sample to the entire community.
- This survey had too much **sampling error**. Sampling error occurs when researchers survey only a subset or sample of all people in the population instead of conducting a census.
- To avoid sampling error, enough people would be sampled randomly to achieve the needed level of precision. Sample error is something the researcher can control just by increasing the sample size.

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- **Case 3** A local council of ministries sponsored a survey of community residents to learn more about their participation in religious activities. Included in the survey was the following question: “How often do you attend church services?” The possible answers were:
 1. REGULARLY
 2. OCCASIONALLY
 3. RARELY
 4. NEVER
- One long-time church member who attended services two or three times each month, answered “occasionally.” Another person who attended services only at Christmas and Easter answered “occasionally.” The responses did not provide the council with useful information.



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- This question suffers from **measurement error**. Measurement error occurs when a respondent's answer to a given question is inaccurate, imprecise, or cannot be compared in any useful way to other respondent's answers.
- Measurement errors come from four sources-the survey method, the questionnaire, the interviewer, and the respondent.
- To avoid measurement error, clear unambiguous questions would be asked so that respondents are both capable of and motivated to answer correctly.
- Choose the most appropriate survey method and train your interviewers carefully.

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- **Case 4** The president of a professional association decided to survey members about their journal publications. She printed the questionnaire on sheets of colored paper, which she then folded and mailed with bulk rate postage and no follow-up contacts. Only 15 percent of the members who received the questionnaire responded.
- This survey suffered from potential **nonresponse error**. Nonresponse error occurs when a significant number of people in the survey sample do not respond to the questionnaire and are different from those who do in a way that is important to the study.
- To avoid nonresponse error, everyone in the sample responds to the survey, or nonrespondents are similar to respondents on characteristics of interest in the study.
- Anyone who does a survey should think in terms of all four sources at all times during design and implementation.

When Is There "Too Much" Error?

- There are general guidelines to follow during a survey so you reduce error.
- Make every reasonable effort to minimize coverage error by using the best sample frame. Always consider who might be excluded from the survey and how they might differ with respect to characteristics important to the study.
- The level of sampling error can be controlled by selecting a smaller or larger sample. The key decision is how much error you can tolerate.
- Avoid obviously biased or vague questions and other areas where measurement error might appear in the results.
- Design a questionnaire and implement the survey so as to get to the highest possible response rate. Nonresponse will most likely then be minimized.

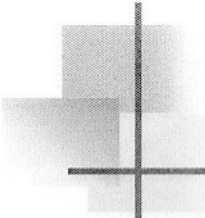


When Is There “Too Much” Error?

- The critical importance of this chapter is to establish that your survey is subject to four, very different sources of error.
- All four errors deserve careful attention.
- Use your best judgment during the design and implementation stages of your research.

Deciding What Information You Need

- The researcher needs to define the purpose of the study for a few reasons:
 - *** * ■ No amount of money or talent can create value out of a trivial question.
 - * x¹⁰ ■ Even the most accurate data cannot redeem an irrelevant study.
 - *²⁰ ■ If the study addresses an issue that does not matter to anyone or if the questions don't ask for useful information, the project will be a waste of time, money, and energy.



Be Specific

- Making sure the survey will provide useful information means raising two specific questions:
 - What problem are you trying to solve?
 - What new information do you need to solve it?
- The key is to be specific about the problem.
- Why do you believe it is important and what do you know about the problem.
- It is also important for your questions not to be vague, biased, and not really critical to solving the problem.

Think in Terms of Results

- We want information from our surveys.
- To zero in on details think in concrete terms about the numbers your survey will produce.
- A good way of doing so is to prepare hypothetical table results. *See text*
- Numbers in a table gives us survey results and shows us where we should target.
- Preparing hypothetical results helps separate “need to know” from “nice to know.”

Focus Groups Can Help

- Focus groups stimulate people's thinking and elicit ideas about a specific topic.
- Focus groups are organized discussions led by a moderator.
- Focus groups typically involve 8 to 10 people.
- Focus groups can provide a head start on knowing which questions to ask in a survey.
- Focus groups do not substitute for surveys because the participants are not randomly selected.

Summary

■ Despite its importance, there is no magic formula for making sure a survey serves a useful purpose. We can provide only guidelines and encourage you to be as diligent at this early stage as you are when you actually start collecting data (Salant & Dillman, 1994).