

# RESEARCH METHODS

For Business and Marketing

GEORGE SELF

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## FOREWORD

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I have taught BASV 316, *Introductory Methods of Analysis*, online for the University of Arizona in Sierra Vista since 2010 and enjoy working with students on research methodology. I wanted a textbook that presented research in a practical way so students could use the lessons learned in their own research projects. I found an excellent book but over the years the cost of that book increased to the point that I felt like it was an unfair burden on students.

I began by looking for an acceptable “open source” book since authors make those available to students free of charge and I could modify the book to meet my own objectives. I could not find any that were focused on business research though I tried for several years—and keep looking to this day. I did, though, find a few open source books about research in the social and psychological sciences that were reasonably close to what I needed. So, I modified those books to emphasize business research and then provided my work to students free of charge.

The following books were the major sources for this book. They are all open source and published under a Creative Commons license that permitted me to copy and modify them.

- Bhattacharjee, Anol, *Social Science Research: Principles, Methods, and Practices*, found at [http://scholarcommons.usf.edu/oa\\_textbooks/3/](http://scholarcommons.usf.edu/oa_textbooks/3/)
- Blackstone, Amy, *Principles of Sociological Inquiry: Qualitative and Quantitative Methods*, found at <https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=139>
- Price, Paul, *Research Methods in Psychology*, found at <http://open.lib.umn.edu/psychologyresearchmethods/>. Note: this book was later updated by Price and posted in HTML format at <https://github.com/CrumpLab/ResearchMethods>

Three goals shaped the choices made about the topics covered by the text and how those topics are presented.

- The topics must have relevance for business students.
- Both qualitative and quantitative research methods are given roughly equal attention since both types of research are used in business.
- The text is engaging and readable.

While the book is useful in its current form, I will continually update it based on emerging trends in research.

This book is published under a Creative Commons **Attribution-NonCommercial-ShareAlike** license, just like the books that provided its foundation. The source is available at my GitHub account: <http://bit.ly/2xIjzXL>. It is my hope that students can use this book to learn about business research and other instructors can modify and use it for their own classes.

— George Self

## BRIEF CONTENTS

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I	BACKGROUND	1
II	QUANTITATIVE METHODS	3
1	SURVEY RESEARCH	5
III	QUALITATIVE METHODS	37
IV	MIXED METHODS	39
V	REPORTING	41
VI	APPENDIX	43
2	APPENDIX	45



# CONTENTS

---

<b>I</b>	<b>BACKGROUND</b>	<b>1</b>
<b>II</b>	<b>QUANTITATIVE METHODS</b>	<b>3</b>
<b>1</b>	<b>SURVEY RESEARCH</b>	<b>5</b>
1.1	Introduction	5
1.2	Types of Surveys	7
1.2.1	Time	7
1.2.2	Administration	11
1.3	Designing Effective Questionnaires	14
1.3.1	Anol: Questionnaire Surveys	14
1.3.2	Asking Effective Questions	15
1.3.3	Anol: Question Wording	19
1.3.4	Response Options	21
1.3.5	Anol: Response Formats	23
1.3.6	Designing Questionnaires	24
1.3.7	Anol: Question Sequencing	26
1.3.8	Anol: Other Golden Rules	27
1.4	Analysis of Survey Data	28
1.4.1	From Completed Questionnaires to Data	28
1.4.2	Identifying Patterns	31
1.4.3	Anol: Biases in Survey Research	33
1.5	Summary	36
<b>III</b>	<b>QUALITATIVE METHODS</b>	<b>37</b>
<b>IV</b>	<b>MIXED METHODS</b>	<b>39</b>
<b>V</b>	<b>REPORTING</b>	<b>41</b>
<b>VI</b>	<b>APPENDIX</b>	<b>43</b>
<b>2</b>	<b>APPENDIX</b>	<b>45</b>

## LIST OF FIGURES

---

Figure 1	5
----------	---

## LIST OF TABLES

---

Table 1	Compare the Three Longitudinal Survey Types	10
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## LISTINGS

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## ACRONYMS

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## Part I

### BACKGROUND

Research methods are grounded in philosophy, statistics, sociology, and many other disciplines. The chapters in this section introduce these background concepts.



## Part II

### QUANTITATIVE METHODS

Quantitative methods are based in the measurement of concepts and the statistical analysis of those measures. Quantitative methods include activities like sampling, surveys, and experimental research.



## SURVEY RESEARCH

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How do retailers know what sorts of products their customers are likely to purchase? They ask questions and this chapter is all about asking questions and analyzing the answers. SurveyMonkey, an on-line survey tool, posted these seven most commonly-used survey questions from surveys hosted on their site<sup>1</sup>:



Figure 1

- What changes would most improve <our new service | specify new service>?
- What do you like <most | least> about <our new service | specify new service>?
- What changes would most improve <our new product | specify new product>?
- What do you like <most | least> about <our new product | specify new product>?
- Overall, are you satisfied with your experience using <our new product | specify new product>, neither satisfied or dissatisfied with it, or dissatisfied with it?
- Which category below includes your age?
- Are you male or female?

Most of these questions concern the customer's satisfaction, but the last two are common demographic questions.

### 1.1 INTRODUCTION

Survey research is a method involving the use of standardized questionnaires or interviews to collect data about people and their preferences, thoughts, and behaviors in a systematic manner. Although census surveys were conducted as early as Ancient Egypt, survey as a formal research method was pioneered in the 1930-40s by sociologist Paul Lazarsfeld to examine the effects of the radio on political opinion formation of the United States. This method has since become a very popular method for quantitative research in business and social sciences. Because most students have completed many surveys, they often underestimate the skill and effort needed to create a valid sur-

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Figure 1 photo by Joshua Rawson-Harris on Unsplash

<sup>1</sup> Found at <https://www.surveymonkey.com/curiosity/the-top-7-most-used-survey-questions/> on August 17, 2018

vey. The process is time-consuming and tedious and requires many revisions.

The survey method is best suited for studies that have individual people as the unit of analysis. Although other units of analysis, such as groups, organizations or dyads (pairs of organizations, such as buyers and sellers), are also studied using surveys, such studies often use a specific person from each unit as a “key informant” or a “proxy” for that unit, and such surveys may be subject to respondent bias if the informant chosen does not have adequate knowledge or has a biased opinion about the phenomenon of interest. For instance, Chief Executive Officers may not adequately know employee’s perceptions or teamwork in their own companies, and may therefore be the wrong informant for studies of team dynamics or employee self-esteem.

Survey research has several inherent strengths compared to other research methods.

1. Surveys are an excellent vehicle for measuring a wide variety of unobservable data, such as people’s preferences (e.g., political orientation), traits (e.g., self-esteem), attitudes (e.g., toward immigrants), beliefs (e.g., about a new law), behaviors (e.g., smoking or drinking behavior), or factual information (e.g., income).
2. Survey research is also ideally suited for remotely collecting data about a population that is too large to observe directly. A large area, such as an entire country, can be covered using mail-in, electronic mail, or telephone surveys using meticulous sampling to ensure that the population is adequately represented in a small sample.
3. Due to their unobtrusive nature and the ability to respond at one’s convenience, questionnaire surveys are preferred by some respondents.
4. Surveys are more easily generalized than other research techniques since data can be collected from very large samples at a relatively low cost.
5. Because surveys are standardized in that the same questions, phrased in exactly the same way, are posed to all participants they are more reliable than other methods of gathering data.
6. Interviews may be the only way of reaching certain population groups such as the homeless or illegal immigrants for which there is no sampling frame available.
7. Large sample surveys may allow detection of small effects even while analyzing multiple variables, and depending on the survey design, may also allow comparative analysis of population subgroups (i.e., within-group and between-group analysis).

8. Survey research is economical in terms of researcher time, effort and cost than most other methods such as experimental research and case research.

At the same time, survey research also has some disadvantages.

1. It is subject to a large number of biases such as non-response bias, sampling bias, social desirability bias, and recall bias.
2. While surveys are flexible in the sense that any number of questions on any number of topics may be asked, the researcher is also stuck with that instrument even if it is later shown to contain confusing items.
3. Survey questions must be written such that a broad range of people will understand each of them. Because of this, survey results may suffer from validity concerns not found in methods that are more flexible.

## 1.2 TYPES OF SURVEYS

There is much variety when it comes to surveys. This variety comes both in terms of time, that is, when or how frequently a survey is administered, and in terms of administration, that is, how a survey is delivered to respondents. This section develops both types of concepts.

### 1.2.1 *Time*

In terms of time, there are two main types of surveys: cross-sectional and longitudinal.

#### 1.2.1.1 *Cross-Sectional*

Cross-sectional surveys are those that are administered at just one point in time. These surveys offer researchers a snapshot in time and provides an idea about how things are at the particular point in time. These surveys are call “cross-sectional” since they will take a snapshot across multiple analytical units. For example, a survey may be administered to staff members in the human resources department of five different companies or customers of several different movie theaters on the same evening.

An example of a cross-sectional survey is a study of e-cigarette use among adolescents conducted by Dutra and Glantz. They used a cross-sectional survey of more than 40,000 students from more than 200 middle and high schools across the United States. They deter-

mined that the use of e-cigarettes was “...associated with higher odds of ever or current cigarette smoking...”<sup>2</sup>

Another example of a cross-sectional survey, Jørgensen, et. al., investigated if workplace health promotions depend on the work environment. They surveyed 10,605 Danish workers and determined that lower participation in health promotions is dependent on when they are offered (during or afterwork), the social support at work for the programs, and whether their work has high physical demands.<sup>3</sup>

One problem with cross-sectional surveys is that the events, opinions, behaviors, and other phenomena that such surveys are designed to assess are generally not stagnant. Thus, generalizing from a cross-sectional survey about the way things are can be tricky. Perhaps something can be concluded about the way things *were* in the moment that the survey was administered, but it is difficult to know whether things remained that way afterwards. For example, imagine how Americans might have responded to a survey about terrorism on September 10, 2001, compared to September 12, 2001. The point is not that cross-sectional surveys are useless, but researchers must remember that these surveys are a snapshot in time.

#### 1.2.1.2 *Longitudinal*

Longitudinal surveys are those that include observations made over some extended period of time. There are three types of longitudinal surveys: trend, panel, and cohort.

**TREND SURVEY** The first type of longitudinal survey is a trend survey, which focuses on trends. Researchers conducting trend surveys are interested in how people’s inclinations change over time. The Gallup opinion polls are an excellent example of trend surveys<sup>4</sup>. To learn how public opinion changes over time, Gallup administers the same questions to people at different points in time. For example, for several years Gallup has polled Americans to find out what they think about gas prices. One lesson learned from Gallup’s polling is that price increases in gasoline caused financial hardship for 67% of respondents in 2011, up from 40% in the year 2000. Gallup’s also discovered that 34% of the people surveyed in early 2000 thought the current rise in gas prices was permanent but 54% of people in 2011 that it is. It should be noted that in a trend survey, the same people are probably not answering the researcher’s questions each year. Because the interest here is in trends, not specific people, as long as the

<sup>2</sup> Dutra, L. M., & Glantz, S. A. (2014). Electronic cigarettes and conventional cigarette use among US adolescents: a cross-sectional study. *JAMA pediatrics*, 168(7), 610-617.

<sup>3</sup> Jørgensen, M. B., Villadsen, E., Burr, H., Punnett, L., & Holtermann, A. (2016). Does employee participation in workplace health promotion depend on the working environment? A cross-sectional study of Danish workers. *BMJ open*, 6(6), e010516.

<sup>4</sup> <http://www.gallup.com/Home.aspx>



researcher's sample is representative of whatever population is being investigated, it is not important that the same people participate each time.

**PANEL SURVEYS** Unlike a trend survey, a panel survey uses the same people each time it is administered. As you might imagine, panel studies can be difficult and costly. Imagine trying to administer a survey to the same 100 people every year for five years in a row. Keeping track of where people live, when they move, and when they die takes resources that researchers often do not have. Panel surveys, however, can be quite powerful. The Youth Development Study (YDS)<sup>5</sup>, administered by the University of Minnesota, is an excellent example of a panel study. Since 1988, YDS researchers have administered an annual survey to the same 1,000 people. Study participants were in ninth grade when it began and they are now in their thirties. Several hundred papers, articles, and books have been written using data from the YDS. One of the major lessons learned from this panel study is that work has a largely positive impact on young people<sup>6</sup>. Contrary to popular belief about the impact of work on adolescents' performance in school and transition to adulthood, work increases confidence, enhances academic success, and prepares students for success in their future careers. This panel study provided important information about the affect of work on young people.

**COHORT SURVEYS** In a cohort survey, a researcher identifies some category of people that are of interest and then regularly surveys the people who fall into that category. The same people do not necessarily participate from year to year, but all participants must meet whatever categorical criteria fulfill the researcher's primary interest. Common cohorts that may be of interest to researchers include people of particular generations or those who were born around the same time period, graduating classes, people who began work in a given industry at the same time, or perhaps people who have some specific life experience in common. An example of this sort of research can be seen in Christine Percheski's work on cohort differences in women's employment<sup>7</sup>. Percheski compared women's employment rates across seven different generational cohorts, from Progressives born between 1906 and 1915 to Generation Xers born between 1966 and 1975. She found, among other patterns, that professional women's labor force participation had increased across all cohorts. She also found that professional women with young children from Generation X had higher

<sup>5</sup> <http://www.soc.umn.edu/research/yds>

<sup>6</sup> Mortimer, J. T., Staff, J., & Oesterle, S. (2003). Adolescent work and the early socioeconomic career. In *Handbook of the life course* (pp. 437-459). Springer, Boston, MA.

<sup>7</sup> Percheski, C. (2008). Opting out? Cohort differences in professional women's employment rates from 1960 to 2005. *American sociological review*, 73(3), 497-517.

labor force participation rates than similar women from previous generations, concluding that mothers do not appear to be opting out of the workforce as some journalists have speculated.

All three types of longitudinal surveys share the strength that they permit a researcher to make observations over time. This means that if whatever behavior or other phenomenon the researcher is interested in changes, either because of some world event or because people age, the researcher will be able to capture those changes. Table 1 summarizes each of the three types of longitudinal survey.

Type	Description
Trend	Researcher examines changes in trends over time; the same people do not necessarily participate in the survey more than once.
Panel	Researcher surveys the exact same sample several times over a period of time.
Cohort	Researcher identifies some category of people that are of interest and then regularly surveys people who fall into that category.

Table 1: Compare the Three Longitudinal Survey Types

**RETROSPECTIVE SURVEYS** Retrospective surveys are similar to other longitudinal studies in that they deal with changes over time, but like a cross-sectional study, they are administered only once. In a retrospective survey, participants are asked to report events from the past. By having respondents report past behaviors, beliefs, or experiences, researchers are able to gather longitudinal-like data without actually incurring the time or expense of a longitudinal survey. Of course, this benefit must be weighed against the possibility that people's recollections of their pasts may be faulty. Imagine, for example, that people are asked in a survey to respond to questions about where, how, and with whom they spent last Valentine's Day. Since Valentine's Day cannot be more than 12 months ago, chances are good that they may be able to respond accurately. But if the question is to compare last Valentine's Day with the six previous Valentine's Days the result would be much different.

### 1.2.2 Administration

Surveys vary not just in terms of when they are administered but also in terms of how they are administered. One common way to administer surveys is in the form of self-administered questionnaires. This means that a research participant is given a set of questions, in writing, to which he or she is asked to respond. Self-administered ques-

tionnaires can be delivered in hard copy format, typically via mail, or increasingly more commonly, online. We'll consider both modes of delivery here.

Hard copy self-administered questionnaires may be delivered to participants in person or via snail mail. Perhaps you've take a survey that was given to you in person; on many college campuses it is not uncommon for researchers to administer surveys in large social science classes (as you might recall from the discussion in our chapter on sampling). In my own introduction to sociology courses, I've welcomed graduate students and professors doing research in areas that are relevant to my students, such as studies of campus life, to administer their surveys to the class. If you are ever asked to complete a survey in a similar setting, it might be interesting to note how your perspective on the survey and its questions could be shaped by the new knowledge you're gaining about survey research in this chapter. Researchers may also deliver surveys in person by going door-to-door and either asking people to fill them out right away or making arrangements for the researcher to return to pick up completed surveys. Though the advent of online survey tools has made door-to-door delivery of surveys less common, I still see an occasional survey researcher at my door, especially around election time. This mode of gathering data is apparently still used by political campaign workers, at least in some areas of the country.

If you are not able to visit each member of your sample personally to deliver a survey, you might consider sending your survey through the mail. While this mode of delivery may not be ideal (imagine how much less likely you'd probably be to return a survey that didn't come with the researcher standing on your doorstep waiting to take it from you), sometimes it is the only available or the most practical option. As I've said, this may not be the most ideal way of administering a survey because it can be difficult to convince people to take the time to complete and return your survey.

Often survey researchers who deliver their surveys via snail mail may provide some advance notice to respondents about the survey to get people thinking about and preparing to complete it. They may also follow up with their sample a few weeks after their survey has been sent out. This can be done not only to remind those who have not yet completed the survey to please do so but also to thank those who have already returned the survey. Most survey researchers agree that this sort of follow-up is essential for improving mailed surveys' return rates (Babbie, 2010). [7]

In my own study of older workers' harassment experiences, people in the sample were notified in advance of the survey mailing via an article describing the research in a newsletter they received from the agency with whom I had partnered to conduct the survey. When I mailed the survey, a \$1 bill was included with each in order to pro-

vide some incentive and an advance token of thanks to participants for returning the surveys. Two months after the initial mailing went out, those who were sent a survey were contacted by phone. While returned surveys did not contain any identifying information about respondents, my research assistants contacted individuals to whom a survey had been mailed to remind them that it was not too late to return their survey and to say thank to those who may have already done so. Four months after the initial mailing went out, everyone on the original mailing list received a letter thanking those who had returned the survey and once again reminding those who had not that it was not too late to do so. The letter included a return postcard for respondents to complete should they wish to receive another copy of the survey. Respondents were also provided a telephone number to call and were provided the option of completing the survey by phone. As you can see, administering a survey by mail typically involves much more than simply arranging a single mailing; participants may be notified in advance of the mailing, they then receive the mailing, and then several follow-up contacts will likely be made after the survey has been mailed.

Earlier I mentioned online delivery as another way to administer a survey. This delivery mechanism is becoming increasingly common, no doubt because it is easy to use, relatively cheap, and may be quicker than knocking on doors or waiting for mailed surveys to be returned. To deliver a survey online, a researcher may subscribe to a service that offers online delivery or use some delivery mechanism that is available for free. SurveyMonkey offers both free and paid online survey services (<http://www.surveymonkey.com>). One advantage to using a service like SurveyMonkey, aside from the advantages of online delivery already mentioned, is that results can be provided to you in formats that are readable by data analysis programs such as SPSS, Systat, and Excel. This saves you, the researcher, the step of having to manually enter data into your analysis program, as you would if you administered your survey in hard copy format.

Many of the suggestions provided for improving the response rate on a hard copy questionnaire apply to online questionnaires as well. One difference of course is that the sort of incentives one can provide in an online format differ from those that can be given in person or sent through the mail. But this doesn't mean that online survey researchers cannot offer completion incentives to their respondents. I've taken a number of online surveys; many of these did not come with an incentive other than the joy of knowing that I'd helped a fellow social scientist do his or her job, but on one I was given a printable \$5 coupon to my university's campus dining services on completion, and another time I was given a coupon code to use for \$10 off any order on Amazon.com. I've taken other online surveys where on completion I could provide my name and contact information if I wished

to be entered into a drawing together with other study participants to win a larger gift, such as a \$50 gift card or an iPad.

Sometimes surveys are administered by having a researcher actually pose questions directly to respondents rather than having respondents read the questions on their own. These types of surveys are a form of interviews. We discuss interviews in Chapter 9 "Interviews: Qualitative and Quantitative Approaches", where we'll examine interviews of the survey (or quantitative) type and qualitative interviews as well. Interview methodology differs from survey research in that data are collected via a personal interaction. Because asking people questions in person comes with a set of guidelines and concerns that differ from those associated with asking questions on paper or online, we'll reserve our discussion of those guidelines and concerns for Chapter 9 "Interviews: Qualitative and Quantitative Approaches".

Whatever delivery mechanism you choose, keep in mind that there are pros and cons to each of the options described here. While online surveys may be faster and cheaper than mailed surveys, can you be certain that every person in your sample will have the necessary computer hardware, software, and Internet access in order to complete your online survey? On the other hand, perhaps mailed surveys are more likely to reach your entire sample but also more likely to be lost and not returned. The choice of which delivery mechanism is best depends on a number of factors including your resources, the resources of your study participants, and the time you have available to distribute surveys and wait for responses. In my own survey of older workers, I would have much preferred to administer my survey online, but because so few people in my sample were likely to have computers, and even fewer would have Internet access, I chose instead to mail paper copies of the survey to respondents' homes. Understanding the characteristics of your study's population is key to identifying the appropriate mechanism for delivering your survey.

### 1.3 DESIGNING EFFECTIVE QUESTIONNAIRES

To this point we've considered several general points about surveys including when to use them, some of their pros and cons, and how often and in what ways to administer surveys. In this section we'll get more specific and take a look at how to pose understandable questions that will yield useable data and how to present those questions on your questionnaire.

#### 1.3.1 *Anol: Questionnaire Surveys*

Invented by Sir Francis Galton, a questionnaire is a research instrument consisting of a set of questions (items) intended to capture responses from respondents in a standardized manner. Questions may

be unstructured or structured. Unstructured questions ask respondents to provide a response in their own words, while structured questions ask respondents to select an answer from a given set of choices. Subjects' responses to individual questions (items) on a structured questionnaire may be aggregated into a composite scale or index for statistical analysis. Questions should be designed such that respondents are able to read, understand, and respond to them in a meaningful way, and hence the survey method may not be appropriate or practical for certain demographic groups such as children or the illiterate.

Most questionnaire surveys tend to be self-administered mail surveys, where the same questionnaire is mailed to a large number of people, and willing respondents can complete the survey at their convenience and return it in postage-prepaid envelopes. Mail surveys are advantageous in that they are unobtrusive, and they are inexpensive to administer, since bulk postage is cheap in most countries. However, response rates from mail surveys tend to be quite low since most people tend to ignore survey requests. There may also be long delays (several months) in respondents' completing and returning the survey (or they may simply lose it). Hence, the researcher must continuously monitor responses as they are being returned, track and send reminders to non-respondents repeated reminders (two or three reminders at intervals of one to 1.5 months is ideal). Questionnaire surveys are also not well suited for issues that require clarification on the part of the respondent or those that require detailed written responses. Longitudinal designs can be used to survey the same set of respondents at different times, but response rates tend to fall precipitously from one survey to the next.

A second type of survey is group-administered questionnaire. A sample of respondents is brought together at a common place and time, and each respondent is asked to complete the survey questionnaire while in that room. Respondents enter their responses independently without interacting with each other. This format is convenient for the researcher, and high response rate is assured. If respondents do not understand any specific question, they can ask for clarification. In many organizations, it is relatively easy to assemble a group of employees in a conference room or lunch room, especially if the survey is approved by corporate executives.

A more recent type of questionnaire survey is an online or web survey. These surveys are administered over the Internet using interactive forms. Respondents may receive an electronic mail request for participation in the survey with a link to an online website where the survey may be completed. Alternatively, the survey may be embedded into an e-mail, and can be completed and returned via e-mail. These surveys are very inexpensive to administer, results are instantly recorded in an online database, and the survey can be easily

modified if needed. However, if the survey website is not password-protected or designed to prevent multiple submissions, the responses can be easily compromised. Furthermore, sampling bias may be a significant issue since the survey cannot reach people that do not have computer or Internet access, such as many of the poor, senior, and minority groups, and the respondent sample is skewed toward a younger demographic who are online much of the time and have the time and ability to complete such surveys. Computing the response rate may be problematic, if the survey link is posted on listservs or bulletin boards instead of being e-mailed directly to targeted respondents. For these reasons, many researchers prefer dual-media surveys (e.g., mail survey and online survey), allowing respondents to select their preferred method of response.

Constructing a survey questionnaire is an art. Numerous decisions must be made about the content of questions, their wording, format, and sequencing, all of which can have important consequences for the survey responses.

### 1.3.2 *Asking Effective Questions*

The first thing you need to do in order to write effective survey questions is identify what exactly it is that you wish to know. As silly as it sounds to state what seems so completely obvious, I can't stress enough how easy it is to forget to include important questions when designing a survey. Let's say you want to understand how students at your school made the transition from high school to college. Perhaps you wish to identify which students were comparatively more or less successful in this transition and which factors contributed to students' success or lack thereof. To understand which factors shaped successful students' transitions to college, you'll need to include questions in your survey about all the possible factors that could contribute. Consulting the literature on the topic will certainly help, but you should also take the time to do some brainstorming on your own and to talk with others about what they think may be important in the transition to college. Perhaps time or space limitations won't allow you to include every single item you've come up with, so you'll also need to think about ranking your questions so that you can be sure to include those that you view as most important.

Although I have stressed the importance of including questions on all topics you view as important to your overall research question, you don't want to take an everything-but-the-kitchen-sink approach by uncritically including every possible question that occurs to you. Doing so puts an unnecessary burden on your survey respondents. Remember that you have asked your respondents to give you their time and attention and to take care in responding to your questions;

show them your respect by only asking questions that you view as important.

Once you've identified all the topics about which you'd like to ask questions, you'll need to actually write those questions. Questions should be as clear and to the point as possible. This is not the time to show off your creative writing skills; a survey is a technical instrument and should be written in a way that is as direct and succinct as possible. As I've said, your survey respondents have agreed to give their time and attention to your survey. The best way to show your appreciation for their time is to not waste it. Ensuring that your questions are clear and not overly wordy will go a long way toward showing your respondents the gratitude they deserve.

Related to the point about not wasting respondents' time, make sure that every question you pose will be relevant to every person you ask to complete it. This means two things: first, that respondents have knowledge about whatever topic you are asking them about, and second, that respondents have experience with whatever events, behaviors, or feelings you are asking them to report. You probably wouldn't want to ask a sample of 18-year-old respondents, for example, how they would have advised President Reagan to proceed when news of the United States' sale of weapons to Iran broke in the mid-1980s. For one thing, few 18-year-olds are likely to have any clue about how to advise a president (nor does this 30-something-year-old). Furthermore, the 18-year-olds of today were not even alive during Reagan's presidency, so they have had no experience with the event about which they are being questioned. In our example of the transition to college, heeding the criterion of relevance would mean that respondents must understand what exactly you mean by "transition to college" if you are going to use that phrase in your survey and that respondents must have actually experienced the transition to college themselves.

If you decide that you do wish to pose some questions about matters with which only a portion of respondents will have had experience, it may be appropriate to introduce a filter question into your survey. A filter question is designed to identify some subset of survey respondents who are asked additional questions that are not relevant to the entire sample. Perhaps in your survey on the transition to college you want to know whether substance use plays any role in students' transitions. You may ask students how often they drank during their first semester of college. But this assumes that all students drank. Certainly some may have abstained, and it wouldn't make any sense to ask the nondrinkers how often they drank. Nevertheless, it seems reasonable that drinking frequency may have an impact on someone's transition to college, so it is probably worth asking this question even if doing so violates the rule of relevance for some respondents. This is just the sort of instance when a filter question would be appropri-



ate. You may pose the question as it is presented in Figure 8.8 "Filter Question".

There are some ways of asking questions that are bound to confuse a good many survey respondents. Survey researchers should take great care to avoid these kinds of questions. These include questions that pose double negatives, those that use confusing or culturally specific terms, and those that ask more than one question but are posed as a single question. Any time respondents are forced to decipher questions that utilize two forms of negation, confusion is bound to ensue. Taking the previous question about drinking as our example, what if we had instead asked, "Did you not drink during your first semester of college?" A response of no would mean that the respondent did actually drink—he or she did not not drink. This example is obvious, but hopefully it drives home the point to be careful about question wording so that respondents are not asked to decipher double negatives. In general, avoiding negative terms in your question wording will help to increase respondent understanding. [1]

You should also avoid using terms or phrases that may be regionally or culturally specific (unless you are absolutely certain all your respondents come from the region or culture whose terms you are using). When I first moved to Maine from Minnesota, I was totally confused every time I heard someone use the word wicked. This term has totally different meanings across different regions of the country. I'd come from an area that understood the term wicked to be associated with evil. In my new home, however, wicked is used simply to put emphasis on whatever it is that you're talking about. So if this chapter is extremely interesting to you, if you live in Maine you might say that it is "wicked interesting." If you hate this chapter and you live in Minnesota, perhaps you'd describe the chapter simply as wicked. I once overheard one student tell another that his new girlfriend was "wicked athletic." At the time I thought this meant he'd found a woman who used her athleticism for evil purposes. I've come to understand, however, that this woman is probably just exceptionally athletic. While wicked may not be a term you're likely to use in a survey, the point is to be thoughtful and cautious about whatever terminology you do use.

Asking multiple questions as though they are a single question can also be terribly confusing for survey respondents. There's a specific term for this sort of question; it is called a double-barreled question. Using our example of the transition to college, Figure 8.9 "Double-Barreled Question" shows a double-barreled question.

Figure 8.9 Double-Barreled Question

Do you see what makes the question double-barreled? How would someone respond if they felt their college classes were more demanding but also more boring than their high school classes? Or less demanding but more interesting? Because the question combines "de-

manding” and “interesting,” there is no way to respond yes to one criterion but no to the other.

Another thing to avoid when constructing survey questions is the problem of social desirability. We all want to look good, right? And we all probably know the politically correct response to a variety of questions whether we agree with the politically correct response or not. In survey research, social desirability refers to the idea that respondents will try to answer questions in a way that will present them in a favorable light. Perhaps we decide that to understand the transition to college, we need to know whether respondents ever cheated on an exam in high school or college. We all know that cheating on exams is generally frowned upon (at least I hope we all know this). So it may be difficult to get people to admit to cheating on a survey. But if you can guarantee respondents’ confidentiality, or even better, their anonymity, chances are much better that they will be honest about having engaged in this socially undesirable behavior. Another way to avoid problems of social desirability is to try to phrase difficult questions in the most benign way possible. Earl Babbie (2010) [2] offers a useful suggestion for helping you do this—simply imagine how you would feel responding to your survey questions. If you would be uncomfortable, chances are others would as well.

Finally, it is important to get feedback on your survey questions from as many people as possible, especially people who are like those in your sample. Now is not the time to be shy. Ask your friends for help, ask your mentors for feedback, ask your family to take a look at your survey as well. The more feedback you can get on your survey questions, the better the chances that you will come up with a set of questions that are understandable to a wide variety of people and, most importantly, to those in your sample.

In sum, in order to pose effective survey questions, researchers should do the following:

- Identify what it is they wish to know.
- Keep questions clear and succinct.
- Make questions relevant to respondents.
- Use filter questions when necessary.
- Avoid questions that are likely to confuse respondents such as those that use double negatives, use culturally specific terms, or pose more than one question in the form of a single question.
- Imagine how they would feel responding to questions.
- Get feedback, especially from people who resemble those in the researcher’s sample.

### 1.3.3 *Anol: Question Wording*

Question content and wording. Responses obtained in survey research are very sensitive to the types of questions asked. Poorly framed or ambiguous questions will likely result in meaningless responses with very little value. Dillman (1978) recommends several rules for creating good survey questions. Every single question in a survey should be carefully scrutinized for the following issues:

- Is the question clear and understandable: Survey questions should be stated in a very simple language, preferably in active voice, and without complicated words or jargon that may not be understood by a typical respondent. All questions in the questionnaire should be worded in a similar manner to make it easy for respondents to read and understand them. The only exception is if your survey is targeted at a specialized group of respondents, such as doctors, lawyers and researchers, who use such jargon in their everyday environment.
- Is the question worded in a negative manner: Negatively worded questions, such as should your local government not raise taxes, tend to confuse many responses and lead to inaccurate responses. Such questions should be avoided, and in all cases, avoid double-negatives.
- Is the question ambiguous: Survey questions should not words or expressions that may be interpreted differently by different respondents (e.g., words like “any” or “just”). For instance, if you ask a respondent, what is your annual income, it is unclear whether you referring to salary/wages, or also dividend, rental, and other income, whether you referring to personal income, family income (including spouse’s wages), or personal and business income? Different interpretation by different respondents will lead to incomparable responses that cannot be interpreted correctly.
- Does the question have biased or value-laden words: Bias refers to any property of a question that encourages subjects to answer in a certain way. Kenneth Rasinky (1989) examined several studies on people’s attitude toward government spending, and observed that respondents tend to indicate stronger support for “assistance to the poor” and less for “welfare”, even though both terms had the same meaning. In this study, more support was also observed for “halting rising crime rate” (and less for “law enforcement”), “solving problems of big cities” (and less for “assistance to big cities”), and “dealing with drug addiction” (and less for “drug rehabilitation”). A biased language or tone tends to skew observed responses. It is often difficult to

anticipate in advance the biasing wording, but to the greatest extent possible, survey questions should be carefully scrutinized to avoid biased language.

- Is the question double-barreled: Double-barreled questions are those that can have multiple answers. For example, are you satisfied with the hardware and software provided for your work? In this example, how should a respondent answer if he/she is satisfied with the hardware but not with the software or vice versa? It is always advisable to separate double-barreled questions into separate questions: (1) are you satisfied with the hardware provided for your work, and (2) are you satisfied with the software provided for your work. Another example: does your family favor public television? Some people may favor public TV for themselves, but favor certain cable TV programs such as Sesame Street for their children.
- Is the question too general: Sometimes, questions that are too general may not accurately convey respondents' perceptions. If you asked someone how they liked a certain book and provide a response scale ranging from "not at all" to "extremely well", if that person selected "extremely well", what does he/she mean? Instead, ask more specific behavioral questions, such as will you recommend this book to others, or do you plan to read other books by the same author? Likewise, instead of asking how big is your firm (which may be interpreted differently by respondents), ask how many people work for your firm, and/or what is the annual revenues of your firm, which are both measures of firm size.
- Is the question too detailed: Avoid unnecessarily detailed questions that serve no specific research purpose. For instance, do you need the age of each child in a household or is just the number of children in the household acceptable? However, if unsure, it is better to err on the side of details than generality.
- Is the question presumptuous: If you ask, what do you see are the benefits of a tax cut, you are presuming that the respondent sees the tax cut as beneficial. But many people may not view tax cuts as being beneficial, because tax cuts generally lead to lesser funding for public schools, larger class sizes, and fewer public services such as police, ambulance, and fire service. Avoid questions with built-in presumptions.
- Is the question imaginary: A popular question in many television game shows is "if you won a million dollars on this show, how will you plan to spend it?" Most respondents have never been faced with such an amount of money and have never thought about it (most don't even know that after taxes, they

will get only about \$640,000 or so in the United States, and in many cases, that amount is spread over a 20-year period, so that their net present value is even less), and so their answers tend to be quite random, such as take a tour around the world, buy a restaurant or bar, spend on education, save for retirement, help parents or children, or have a lavish wedding. Imaginary questions have imaginary answers, which cannot be used for making scientific inferences.

- Do respondents have the information needed to correctly answer the question: Often times, we assume that subjects have the necessary information to answer a question, when in reality, they do not. Even if a response is obtained, in such case, the responses tend to be inaccurate, given their lack of knowledge about the question being asked. For instance, we should not ask the CEO of a company about day-to-day operational details that they may not be aware of, or asking teachers about how much their students are learning, or asking high-schoolers “Do you think the US Government acted appropriately in the Bay of Pigs crisis?”

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#### 1.3.4 *Response Options*

While posing clear and understandable questions in your survey is certainly important, so, too, is providing respondents with unambiguous response options. Response options are the answers that you provide to the people taking your survey. Generally respondents will be asked to choose a single (or best) response to each question you pose, though certainly it makes sense in some cases to instruct respondents to choose multiple response options. One caution to keep in mind when accepting multiple responses to a single question, however, is that doing so may add complexity when it comes to tallying and analyzing your survey results.

Offering response options assumes that your questions will be closed-ended questions. In a quantitative written survey, which is the type of survey we’ve been discussing here, chances are good that most if not all your questions will be closed ended. This means that you, the researcher, will provide respondents with a limited set of options for their responses. To write an effective closed-ended question, there are a couple of guidelines worth following. First, be sure that your response options are mutually exclusive. Look back at Figure 8.8 “Filter Question”, which contains questions about how often and how many drinks respondents consumed. Do you notice that there are no overlapping categories in the response options for these questions? This is another one of those points about question construction that seems

fairly obvious but that can be easily overlooked. Response options should also be exhaustive. In other words, every possible response should be covered in the set of response options that you provide. For example, note that in question 10a in Figure 8.8 "Filter Question" we have covered all possibilities—those who drank, say, an average of once per month can choose the first response option ("less than one time per week") while those who drank multiple times a day each day of the week can choose the last response option ("7+"). All the possibilities in between these two extremes are covered by the middle three response options.

Surveys need not be limited to closed-ended questions. Sometimes survey researchers include open-ended questions in their survey instruments as a way to gather additional details from respondents. An open-ended question does not include response options; instead, respondents are asked to reply to the question in their own way, using their own words. These questions are generally used to find out more about a survey participant's experiences or feelings about whatever they are being asked to report in the survey. If, for example, a survey includes closed-ended questions asking respondents to report on their involvement in extracurricular activities during college, an open-ended question could ask respondents why they participated in those activities or what they gained from their participation. While responses to such questions may also be captured using a closed-ended format, allowing participants to share some of their responses in their own words can make the experience of completing the survey more satisfying to respondents and can also reveal new motivations or explanations that had not occurred to the researcher.

In Section 8.4.1 "Asking Effective Questions" we discussed double-barreled questions, but response options can also be double barreled, and this should be avoided. Figure 8.10 "Double-Barreled Response Options" is an example of a question that uses double-barreled response options.

Other things to avoid when it comes to response options include fence-sitting and floating. Fence-sitters are respondents who choose neutral response options, even if they have an opinion. This can occur if respondents are given, say, five rank-ordered response options, such as strongly agree, agree, no opinion, disagree, and strongly disagree. Some people will be drawn to respond "no opinion" even if they have an opinion, particularly if their true opinion is the nonsocially desirable opinion. Floaters, on the other hand, are those that choose a substantive answer to a question when really they don't understand the question or don't have an opinion. If a respondent is only given four rank-ordered response options, such as strongly agree, agree, disagree, and strongly disagree, those who have no opinion have no choice but to select a response that suggests they have an opinion.

As you can see, floating is the flip side of fence-sitting. Thus the solution to one problem is often the cause of the other. How you decide which approach to take depends on the goals of your research. Sometimes researchers actually want to learn something about people who claim to have no opinion. In this case, allowing for fence-sitting would be necessary. Other times researchers feel confident their respondents will all be familiar with every topic in their survey. In this case, perhaps it is OK to force respondents to choose an opinion. There is no always-correct solution to either problem.

Finally, using a matrix is a nice way of streamlining response options. A matrix is a question type that lists a set of questions for which the answer categories are all the same. If you have a set of questions for which the response options are the same, it may make sense to create a matrix rather than posing each question and its response options individually. Not only will this save you some space in your survey but it will also help respondents progress through your survey more easily. A sample matrix can be seen in Figure 8.11 "Survey Questions Utilizing Matrix Format".

#### 1.3.5 *Anol: Response Formats*

Response formats. Survey questions may be structured or unstructured. Responses to structured questions are captured using one of the following response formats:

- Dichotomous response, where respondents are asked to select one of two possible choices, such as true/false, yes/no, or agree/disagree. An example of such a question is: Do you think that the death penalty is justified under some circumstances (circle one): yes / no.
- Nominal response, where respondents are presented with more than two unordered options, such as: What is your industry of employment: manufacturing / consumer services / retail / education / healthcare / tourism & hospitality / other.
- Ordinal response, where respondents have more than two ordered options, such as: what is your highest level of education: high school / college degree / graduate studies.
- Interval-level response, where respondents are presented with a 5-point or 7-point Likert scale, semantic differential scale, or Guttman scale. Each of these scale types were discussed in a previous chapter.
- Continuous response, where respondents enter a continuous (ratio-scaled) value with a meaningful zero point, such as their age or tenure in a firm. These responses generally tend to be of the fill-in-the blanks type.

### 1.3.6 *Designing Questionnaires*

In addition to constructing quality questions and posing clear response options, you'll also need to think about how to present your written questions and response options to survey respondents. Questions are presented on a questionnaire, the document (either hard copy or online) that contains all your survey questions that respondents read and mark their responses on. Designing questionnaires takes some thought, and in this section we'll discuss the sorts of things you should think about as you prepare to present your well-constructed survey questions on a questionnaire.

One of the first things to do once you've come up with a set of survey questions you feel confident about is to group those questions thematically. In our example of the transition to college, perhaps we'd have a few questions asking about study habits, others focused on friendships, and still others on exercise and eating habits. Those may be the themes around which we organize our questions. Or perhaps it would make more sense to present any questions we had about precollege life and habits and then present a series of questions about life after beginning college. The point here is to be deliberate about how you present your questions to respondents.

Once you have grouped similar questions together, you'll need to think about the order in which to present those question groups. Most survey researchers agree that it is best to begin a survey with questions that will want to make respondents continue (Babbie, 2010; Dillman, 2000; Neuman, 2003). [3] In other words, don't bore respondents, but don't scare them away either. There's some disagreement over where on a survey to place demographic questions such as those about a person's age, gender, and race. On the one hand, placing them at the beginning of the questionnaire may lead respondents to think the survey is boring, unimportant, and not something they want to bother completing. On the other hand, if your survey deals with some very sensitive or difficult topic, such as child sexual abuse or other criminal activity, you don't want to scare respondents away or shock them by beginning with your most intrusive questions.

In truth, the order in which you present questions on a survey is best determined by the unique characteristics of your research—only you, the researcher, hopefully in consultation with people who are willing to provide you with feedback, can determine how best to order your questions. To do so, think about the unique characteristics of your topic, your questions, and most importantly, your sample. Keeping in mind the characteristics and needs of the people you will ask to complete your survey should help guide you as you determine the most appropriate order in which to present your questions.

You'll also need to consider the time it will take respondents to complete your questionnaire. Surveys vary in length, from just a page or



two to a dozen or more pages, which means they also vary in the time it takes to complete them. How long to make your survey depends on several factors. First, what is it that you wish to know? Wanting to understand how grades vary by gender and year in school certainly requires fewer questions than wanting to know how people's experiences in college are shaped by demographic characteristics, college attended, housing situation, family background, college major, friendship networks, and extracurricular activities. Keep in mind that even if your research question requires a good number of questions be included in your questionnaire, do your best to keep the questionnaire as brief as possible. Any hint that you've thrown in a bunch of useless questions just for the sake of throwing them in will turn off respondents and may make them not want to complete your survey. Second, and perhaps more important, how long are respondents likely to be willing to spend completing your questionnaire? If you are studying college students, asking them to use their precious fun time away from studying to complete your survey may mean they won't want to spend more than a few minutes on it. But if you have the endorsement of a professor who is willing to allow you to administer your survey in class, students may be willing to give you a little more time (though perhaps the professor will not). The time that survey researchers ask respondents to spend on questionnaires varies greatly. Some advise that surveys should not take longer than about 15 minutes to complete (cited in Babbie 2010), [4] others suggest that up to 20 minutes is acceptable (Hopper, 2010). [5] As with question order, there is no clear-cut, always-correct answer about questionnaire length. The unique characteristics of your study and your sample should be considered in order to determine how long to make your questionnaire.

A good way to estimate the time it will take respondents to complete your questionnaire is through pretesting. Pretesting allows you to get feedback on your questionnaire so you can improve it before you actually administer it. Pretesting can be quite expensive and time consuming if you wish to test your questionnaire on a large sample of people who very much resemble the sample to whom you will eventually administer the finalized version of your questionnaire. But you can learn a lot and make great improvements to your questionnaire simply by pretesting with a small number of people to whom you have easy access (perhaps you have a few friends who owe you a favor). By pretesting your questionnaire you can find out how understandable your questions are, get feedback on question wording and order, find out whether any of your questions are exceptionally boring or offensive, and learn whether there are places where you should have included filter questions, to name just a few of the benefits of pretesting. You can also time pretesters as they take your survey. Ask them to complete the survey as though they were actually members

of your sample. This will give you a good idea about what sort of time estimate to provide respondents when it comes time to actually administer your survey, and about whether you have some wiggle room to add additional items or need to cut a few items.

Perhaps this goes without saying, but your questionnaire should also be attractive. A messy presentation style can confuse respondents or, at the very least, annoy them. Be brief, to the point, and as clear as possible. Avoid cramming too much into a single page, make your font size readable (at least 12 point), leave a reasonable amount of space between items, and make sure all instructions are exceptionally clear. Think about books, documents, articles, or web pages that you have read yourself—which were relatively easy to read and easy on the eyes and why? Try to mimic those features in the presentation of your survey questions.

### 1.3.7 *Anol: Question Sequencing*

Question sequencing. In general, questions should flow logically from one to the next. To achieve the best response rates, questions should flow from the least sensitive to the most sensitive, from the factual and behavioral to the attitudinal, and from the more general to the more specific. Some general rules for question sequencing:

- Start with easy non-threatening questions that can be easily recalled. Good options are demographics (age, gender, education level) for individual-level surveys and firmographics (employee count, annual revenues, industry) for firm-level surveys.
- Never start with an open ended question.
- If following an historical sequence of events, follow a chronological order from earliest to latest.
- Ask about one topic at a time. When switching topics, use a transition, such as “The next section examines your opinions about ...”
- Use filter or contingency questions as needed, such as: “If you answered “yes” to question 5, please proceed to Section 2. If you answered “no” go to Section 3.”

### 1.3.8 *Anol: Other Golden Rules*

Other golden rules. Do unto your respondents what you would have them do unto you. Be attentive and appreciative of respondents’ time, attention, trust, and confidentiality of personal information. Always practice the following strategies for all survey research:

- People's time is valuable. Be respectful of their time. Keep your survey as short as possible and limit it to what is absolutely necessary. Respondents do not like spending more than 10-15 minutes on any survey, no matter how important it is. Longer surveys tend to dramatically lower response rates.
- Always assure respondents about the confidentiality of their responses, and how you will use their data (e.g., for academic research) and how the results will be reported (usually, in the aggregate).
- For organizational surveys, assure respondents that you will send them a copy of the final results, and make sure that you follow up with your promise.
- Thank your respondents for their participation in your study.
- Finally, always pretest your questionnaire, at least using a convenience sample, before administering it to respondents in a field setting. Such pretesting may uncover ambiguity, lack of clarity, or biases in question wording, which should be eliminated before administering to the intended sample.

#### KEY TAKEAWAYS

- Brainstorming and consulting the literature are two important early steps to take when preparing to write effective survey questions.
- Make sure that your survey questions will be relevant to all respondents and that you use filter questions when necessary.
- Getting feedback on your survey questions is a crucial step in the process of designing a survey.
- When it comes to creating response options, the solution to the problem of fence-sitting might cause floating, whereas the solution to the problem of floating might cause fence sitting.
- Pretesting is an important step for improving one's survey before actually administering it.

## 1.4 ANALYSIS OF SURVEY DATA

**Objectives**

- Define response rate, and discuss some of the current thinking about response rates.
- Describe what a codebook is and what purpose it serves.
- Define univariate, bivariate, and multivariate analysis.
- Describe each of the measures of central tendency.
- Describe what a contingency table displays.

This text is primarily focused on designing research, collecting data, and becoming a knowledgeable and responsible consumer of research. We won't spend as much time on data analysis, or what to do with our data once we've designed a study and collected it, but I will spend some time in each of our data-collection chapters describing some important basics of data analysis that are unique to each method. Entire textbooks could be (and have been) written entirely on data analysis. In fact, if you've ever taken a statistics class, you already know much about how to analyze quantitative survey data. Here we'll go over a few basics that can get you started as you begin to think about turning all those completed questionnaires into findings that you can share.

1.4.1 *From Completed Questionnaires to Data*

It can be very exciting to receive those first few completed surveys back from respondents. Hopefully you'll even get more than a few back, and once you have a handful of completed questionnaires, your feelings may go from initial euphoria to dread. Data are fun and can also be overwhelming. The goal with data analysis is to be able to condense large amounts of information into usable and understandable chunks. Here we'll describe just how that process works for survey researchers.

As mentioned, the hope is that you will receive a good portion of the questionnaires you distributed back in a completed and readable format. The number of completed questionnaires you receive divided by the number of questionnaires you distributed is your response rate. Let's say your sample included 100 people and you sent questionnaires to each of those people. It would be wonderful if all 100 returned completed questionnaires, but the chances of that hap-

pening are about zero. If you're lucky, perhaps 75 or so will return completed questionnaires. In this case, your response rate would be 75% (75 divided by 100). That's pretty darn good. Though response rates vary, and researchers don't always agree about what makes a good response rate, having three-quarters of your surveys returned would be considered good, even excellent, by most survey researchers. There has been lots of research done on how to improve a survey's response rate. We covered some of these previously, but suggestions include personalizing questionnaires by, for example, addressing them to specific respondents rather than to some generic recipient such as "madam" or "sir"; enhancing the questionnaire's credibility by providing details about the study, contact information for the researcher, and perhaps partnering with agencies likely to be respected by respondents such as universities, hospitals, or other relevant organizations; sending out prequestionnaire notices and postquestionnaire reminders; and including some token of appreciation with mailed questionnaires even if small, such as a \$1 bill.

The major concern with response rates is that a low rate of response may introduce nonresponse bias into a study's findings. What if only those who have strong opinions about your study topic return their questionnaires? If that is the case, we may well find that our findings don't at all represent how things really are or, at the very least, we are limited in the claims we can make about patterns found in our data. While high return rates are certainly ideal, a recent body of research shows that concern over response rates may be overblown (Langer, 2003). [1] Several studies have shown that low response rates did not make much difference in findings or in sample representativeness (Curtin, Presser, & Singer, 2000; Keeter, Kennedy, Dimock, Best, & Craighill, 2006; Merkle & Edelman, 2002). [2] For now, the jury may still be out on what makes an ideal response rate and on whether, or to what extent, researchers should be concerned about response rates. Nevertheless, certainly no harm can come from aiming for as high a response rate as possible.

Whatever your survey's response rate, the major concern of survey researchers once they have their nice, big stack of completed questionnaires is condensing their data into manageable, and analyzable, bits. One major advantage of quantitative methods such as survey research, as you may recall from Chapter 1 "Introduction", is that they enable researchers to describe large amounts of data because they can be represented by and condensed into numbers. In order to condense your completed surveys into analyzable numbers, you'll first need to create a codebook. A codebook is a document that outlines how a survey researcher has translated her or his data from words into numbers. An excerpt from the codebook I developed from my survey of older workers can be seen in Table 8.2 "Codebook Excerpt From Survey of Older Workers". The coded responses you see can be seen

in their original survey format in Chapter 6 "Defining and Measuring Concepts", Figure 6.12 "Example of an Index Measuring Financial Security". As you'll see in the table, in addition to converting response options into numerical values, a short variable name is given to each question. This shortened name comes in handy when entering data into a computer program for analysis.

If you've administered your questionnaire the old fashioned way, via snail mail, the next task after creating your codebook is data entry. If you've utilized an online tool such as SurveyMonkey to administer your survey, here's some good news—most online survey tools come with the capability of importing survey results directly into a data analysis program. Trust me—this is indeed most excellent news. (If you don't believe me, I highly recommend administering hard copies of your questionnaire next time around. You'll surely then appreciate the wonders of online survey administration.)

For those who will be conducting manual data entry, there probably isn't much I can say about this task that will make you want to perform it other than pointing out the reward of having a database of your very own analyzable data. We won't get into too many of the details of data entry, but I will mention a few programs that survey researchers may use to analyze data once it has been entered. The first is SPSS, or the Statistical Package for the Social Sciences (<http://www.spss.com>). SPSS is a statistical analysis computer program designed to analyze just the sort of data quantitative survey researchers collect. It can perform everything from very basic descriptive statistical analysis to more complex inferential statistical analysis. SPSS is touted by many for being highly accessible and relatively easy to navigate (with practice). Other programs that are known for their accessibility include MicroCase (<http://www.microcase.com/index.html>), which includes many of the same features as SPSS, and Excel (<http://office.microsoft.com/en-us/excel-help/about-statistical-analysis-tools-HP005203873.aspx>), which is far less sophisticated in its statistical capabilities but is relatively easy to use and suits some researchers' purposes just fine. Check out the web pages for each, which I've provided links to in the chapter's endnotes, for more information about what each package can do.

#### 1.4.2 *Identifying Patterns*

Data analysis is about identifying, describing, and explaining patterns. Univariate analysis is the most basic form of analysis that quantitative researchers conduct. In this form, researchers describe patterns across just one variable. Univariate analysis includes frequency distributions and measures of central tendency. A frequency distribution is a way of summarizing the distribution of responses on a

single survey question. Let's look at the frequency distribution for just one variable from my older worker survey. We'll analyze the item mentioned first in the codebook excerpt given earlier, on respondents' self-reported financial security.

As you can see in the frequency distribution on self-reported financial security, more respondents reported feeling "moderately secure" than any other response category. We also learn from this single frequency distribution that fewer than 10% of respondents reported being in one of the two most secure categories. Another form of univariate analysis that survey researchers can conduct on single variables is measures of central tendency. Measures of central tendency tell us what the most common, or average, response is on a question. Measures of central tendency can be taken for any level variable of those we learned about in Chapter 6 "Defining and Measuring Concepts", from nominal to ratio. There are three kinds of measures of central tendency: modes, medians, and means. Mode refers to the most common response given to a question. Modes are most appropriate for nominal-level variables. A median is the middle point in a distribution of responses. Median is the appropriate measure of central tendency for ordinal-level variables. Finally, the measure of central tendency used for interval- and ratio-level variables is the mean. To obtain a mean, one must add the value of all responses on a given variable and then divide that number of the total number of responses.

In the previous example of older workers' self-reported levels of financial security, the appropriate measure of central tendency would be the median, as this is an ordinal-level variable. If we were to list all responses to the financial security question in order and then choose the middle point in that list, we'd have our median. In Figure 8.12 "Distribution of Responses and Median Value on Workers' Financial Security", the value of each response to the financial security question is noted, and the middle point within that range of responses is highlighted. To find the middle point, we simply divide the number of valid cases by two. The number of valid cases, 180, divided by 2 is 90, so we're looking for the 90th value on our distribution to discover the median. As you'll see in Figure 8.12 "Distribution of Responses and Median Value on Workers' Financial Security", that value is 3, thus the median on our financial security question is 3, or "moderately secure."

Figure 8.12 Distribution of Responses and Median Value on Workers' Financial Security

As you can see, we can learn a lot about our respondents simply by conducting univariate analysis of measures on our survey. We can learn even more, of course, when we begin to examine relationships among variables. Either we can analyze the relationships between two variables, called bivariate analysis, or we can examine relationships

among more than two variables. This latter type of analysis is known as multivariate analysis.

Bivariate analysis allows us to assess covariation among two variables. This means we can find out whether changes in one variable occur together with changes in another. If two variables do not covary, they are said to have independence. This means simply that there is no relationship between the two variables in question. To learn whether a relationship exists between two variables, a researcher may cross-tabulate the two variables and present their relationship in a contingency table. A contingency table shows how variation on one variable may be contingent on variation on the other. Let's take a look at a contingency table. In Table 8.4 "Financial Security Among Men and Women Workers Age 62 and Up", I have cross-tabulated two questions from my older worker survey: respondents' reported gender and their self-rated financial security.

You'll see in Table 8.4 "Financial Security Among Men and Women Workers Age 62 and Up" that I collapsed a couple of the financial security response categories (recall that there were five categories presented in Table 8.3 "Frequency Distribution of Older Workers' Financial Security"; here there are just three). Researchers sometimes collapse response categories on items such as this in order to make it easier to read results in a table. You'll also see that I placed the variable "gender" in the table's columns and "financial security" in its rows. Typically, values that are contingent on other values are placed in rows (a.k.a. dependent variables), while independent variables are placed in columns. This makes comparing across categories of our independent variable pretty simple. Reading across the top row of our table, we can see that around 44% of men in the sample reported that they are not financially secure while almost 52% of women reported the same. In other words, more women than men reported that they are not financially secure. You'll also see in the table that I reported the total number of respondents for each category of the independent variable in the table's bottom row. This is also standard practice in a bivariate table, as is including a table heading describing what is presented in the table.

Researchers interested in simultaneously analyzing relationships among more than two variables conduct multivariate analysis. If I hypothesized that financial security declines for women as they age but increases for men as they age, I might consider adding age to the preceding analysis. To do so would require multivariate, rather than bivariate, analysis. We won't go into detail here about how to conduct multivariate analysis of quantitative survey items here, but we will return to multivariate analysis in Chapter 14 "Reading and Understanding Social Research", where we'll discuss strategies for reading and understanding tables that present multivariate statistics. If you are interested in learning more about the analysis of quantitative



survey data, I recommend checking out your campus's offerings in statistics classes. The quantitative data analysis skills you will gain in a statistics class could serve you quite well should you find yourself seeking employment one day.

#### 1.4.3 *Anol: Biases in Survey Research*

Despite all of its strengths and advantages, survey research is often tainted with systematic biases that may invalidate some of the inferences derived from such surveys. Five such biases are the non-response bias, sampling bias, social desirability bias, recall bias, and common method bias.

**Non-response bias.** Survey research is generally notorious for its low response rates. A response rate of 15-20% is typical in a mail survey, even after two or three reminders. If the majority of the targeted respondents fail to respond to a survey, then a legitimate concern is whether non-respondents are not responding due to a systematic reason, which may raise questions about the validity of the study's results. For instance, dissatisfied customers tend to be more vocal about their experience than satisfied customers, and are therefore more likely to respond to questionnaire surveys or interview requests than satisfied customers. Hence, any respondent sample is likely to have a higher proportion of dissatisfied customers than the underlying population from which it is drawn. In this instance, not only will the results lack generalizability, but the observed outcomes may also be an artifact of the biased sample. Several strategies may be employed to improve response rates:

- **Advance notification:** A short letter sent in advance to the targeted respondents soliciting their participation in an upcoming survey can prepare them in advance and improve their propensity to respond. The letter should state the purpose and importance of the study, mode of data collection (e.g., via a phone call, a survey form in the mail, etc.), and appreciation for their cooperation. A variation of this technique may request the respondent to return a postage-paid postcard indicating whether or not they are willing to participate in the study.
- **Relevance of content:** If a survey examines issues of relevance or importance to respondents, then they are more likely to respond than to surveys that don't matter to them.
- **Respondent-friendly questionnaire:** Shorter survey questionnaires tend to elicit higher response rates than longer questionnaires. Furthermore, questions that are clear, nonoffensive, and easy to respond tend to attract higher response rates.

- Endorsement: For organizational surveys, it helps to gain endorsement from a senior executive attesting to the importance of the study to the organization. Such endorsement can be in the form of a cover letter or a letter of introduction, which can improve the researcher's credibility in the eyes of the respondents.
- Follow-up requests: Multiple follow-up requests may coax some non-respondents to respond, even if their responses are late.
- Interviewer training: Response rates for interviews can be improved with skilled interviewers trained on how to request interviews, use computerized dialing techniques to identify potential respondents, and schedule callbacks for respondents who could not be reached.
- Incentives: Response rates, at least with certain populations, may increase with the use of incentives in the form of cash or gift cards, giveaways such as pens or stress balls, entry into a lottery, draw or contest, discount coupons, promise of contribution to charity, and so forth.
- Non-monetary incentives: Businesses, in particular, are more prone to respond to nonmonetary incentives than financial incentives. An example of such a non-monetary incentive is a benchmarking report comparing the business's individual response against the aggregate of all responses to a survey.
- Confidentiality and privacy: Finally, assurances that respondents' private data or responses will not fall into the hands of any third party, may help improve response rates.

Sampling bias. Telephone surveys conducted by calling a random sample of publicly available telephone numbers will systematically exclude people with unlisted telephone numbers, mobile phone numbers, and people who are unable to answer the phone (for instance, they are at work) when the survey is being conducted, and will include a disproportionate number of respondents who have land-line telephone service with listed phone numbers and people who stay home during much of the day, such as the unemployed, the disabled, and the elderly. Likewise, online surveys tend to include a disproportionate number of students and younger people who are constantly on the Internet, and systematically exclude people with limited or no access to computers or the Internet, such as the poor and the elderly. Similarly, questionnaire surveys tend to exclude children and the illiterate, who are unable to read, understand, or meaningfully respond to the questionnaire. A different kind of sampling bias relate to sampling the wrong population, such as asking teachers (or parents) about academic learning of their students (or children), or

asking CEOs about operational details in their company. Such biases make the respondent sample unrepresentative of the intended population and hurt generalizability claims about inferences drawn from the biased sample.

**Social desirability bias.** Many respondents tend to avoid negative opinions or embarrassing comments about themselves, their employers, family, or friends. With negative questions such as do you think that your project team is dysfunctional, is there a lot of office politics in your workplace, or have you ever illegally downloaded music files from the Internet, the researcher may not get truthful responses. This tendency among respondents to “spin the truth” in order to portray themselves in a socially desirable manner is called the “social desirability bias”, which hurts the validity of response obtained from survey research. There is practically no way of overcoming the social desirability bias in a questionnaire survey, but in an interview setting, an astute interviewer may be able to spot inconsistent answers and ask probing questions or use personal observations to supplement respondents’ comments.

**Recall bias.** Responses to survey questions often depend on subjects’ motivation, memory, and ability to respond. Particularly when dealing with events that happened in the distant past, respondents may not adequately remember their own motivations or behaviors or perhaps their memory of such events may have evolved with time and no longer retrievable. For instance, if a respondent is asked to describe his/her utilization of computer technology one year ago or even memorable childhood events like birthdays, their response may not be accurate due to difficulties with recall. One possible way of overcoming the recall bias is by anchoring respondent’s memory in specific events as they happened, rather than asking them to recall their perceptions and motivations from memory.

**Common method bias.** Common method bias refers to the amount of spurious covariance shared between independent and dependent variables that are measured at the same point in time, such as in a cross-sectional survey, using the same instrument, such as a questionnaire. In such cases, the phenomenon under investigation may not be adequately separated from measurement artifacts. Standard statistical tests are available to test for common method bias, such as Harmon’s single-factor test (Podsakoff et al. 2003), Lindell and Whitney’s (2001) market variable technique, and so forth. This bias can be potentially avoided if the independent and dependent variables are measured at different points in time, using a longitudinal survey design, or if these variables are measured using different methods, such as computerized recording of dependent variable versus questionnaire-based self-rating of independent variables.

## 1.5 SUMMARY

- Sometimes researchers may make claims about populations other than those from whom their samples were drawn; other times they may make claims about a population based on a sample that is not representative. As consumers of research, we should be attentive to both possibilities.
- A researcher's findings need not be generalizable to be valuable; samples that allow for comparisons of theoretically important concepts or variables may yield findings that contribute to our social theories and our understandings of social processes.

## Part III

### QUALITATIVE METHODS

Qualitative methods are based in the evaluation of non-numeric data, like photographs and text documents. These methods include activities like field work, unobtrusive, and interpretive research methods.



## Part IV

### MIXED METHODS

All quantitative and qualitative research methods have certain strengths and weaknesses. Mixed methods are an attempt to use more than one research method on a given project to utilize the strengths of each method while mitigating their weaknesses.





## Part V

### REPORTING

After a research project is completed, the investigator must report the results of the project, often in both written and oral forms. This chapter concerns the reporting process.



Part VI

APPENDIX



## APPENDIX

## GLOSSARY

1. **Boundary Conditions** (Chapter 2)
2. **Constructivism** A philosophical stance that reality is a construct of the human mind and is, therefore, subjective. Normally, qualitative research methods are used by researchers who are constructivists. (Chapter 1)
3. **Constructs** (Chapter 2)
4. **Deductive Research** A research methodology that works from a general theory to specific observations. This is sometimes called the “theory-testing” form of research.
5. **Epistemology** A branch of philosophy that is concerned with the sources of knowledge. (Chapter 1)
6. **Falsifiability** To have credence, a hypothesis must be disapprovable; that is, there must be a way to prove it wrong.
7. **Grounded Theory** (Chapter 2)
8. **Idiographic** An explanation for an observed phenomenon that explains only a single case and is not applicable to a wider population. (Chapter 2)
9. **Inductive Research** A research methodology that works from specific observations to a general theory. This is sometimes called the “theory-building” form of research.
10. **Logic** (Chapter 2)
11. **Macro-Level Research** (Chapter 2)
12. **Meso-Level Research** (Chapter 2)
13. **Micro-Level Research** (Chapter 2)
14. **Nomothetic** An explanation for an observed phenomenon that is applicable across a wide population rather than a single example. (Chapter 2)
15. **Objectivism** A philosophical stance that there exists an objective reality can be studied and understood. (Chapter 1)

16. **Ontology** The branch of philosophy that is concerned with the nature of reality. (Chapter 1)
17. **Paradigm** A pattern or model of how things work in the world. (Chapter 1)
18. **Parsimony** A fundamental aspect of research that states if two or more competing explanations are considered then the simplest must be accepted. Thus, researcher would state that the pyramids were built by humans using known technology rather than aliens in spaceships. (Chapter 1)
19. **Positivism** (Chapter 2)
20. **Postmodernism** (Chapter 2)
21. **Precision** Research projects must precisely focus on one aspect of a problem or they will become so broad that their value will be diminished. (Chapter 1)
22. **Propositions** (Chapter 2)
23. **Replicability** A research project must be able to be replicated by other researchers or at other times in order to be considered sound. (Chapter 1)

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