

**Doing Real Research:
A Relentlessly Practical Guide to Social Research**

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Chapter 7 - How to do Survey Research

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Chapter 1: How to do Survey Research.....	1
1.1 Introduction.....	2
1.1.1 Plan your survey project step-by-step	6
1.2 Survey Research Design.....	7
1.2.1 Should you use surveys for your project?.....	7
1.2.2 Designing a good survey	10
1.2.3 Making survey design decisions – forks in the road.....	15
1.3 Question Design.....	21
1.3.1 Designing good survey questions and forms	21
1.3.2 Avoid survey bias	33
1.3.3 Pilot test your survey	37
1.3.4 Design robust data collection plans and procedures.....	39
1.4 Conclusion	46

This chapter covers the following topics:

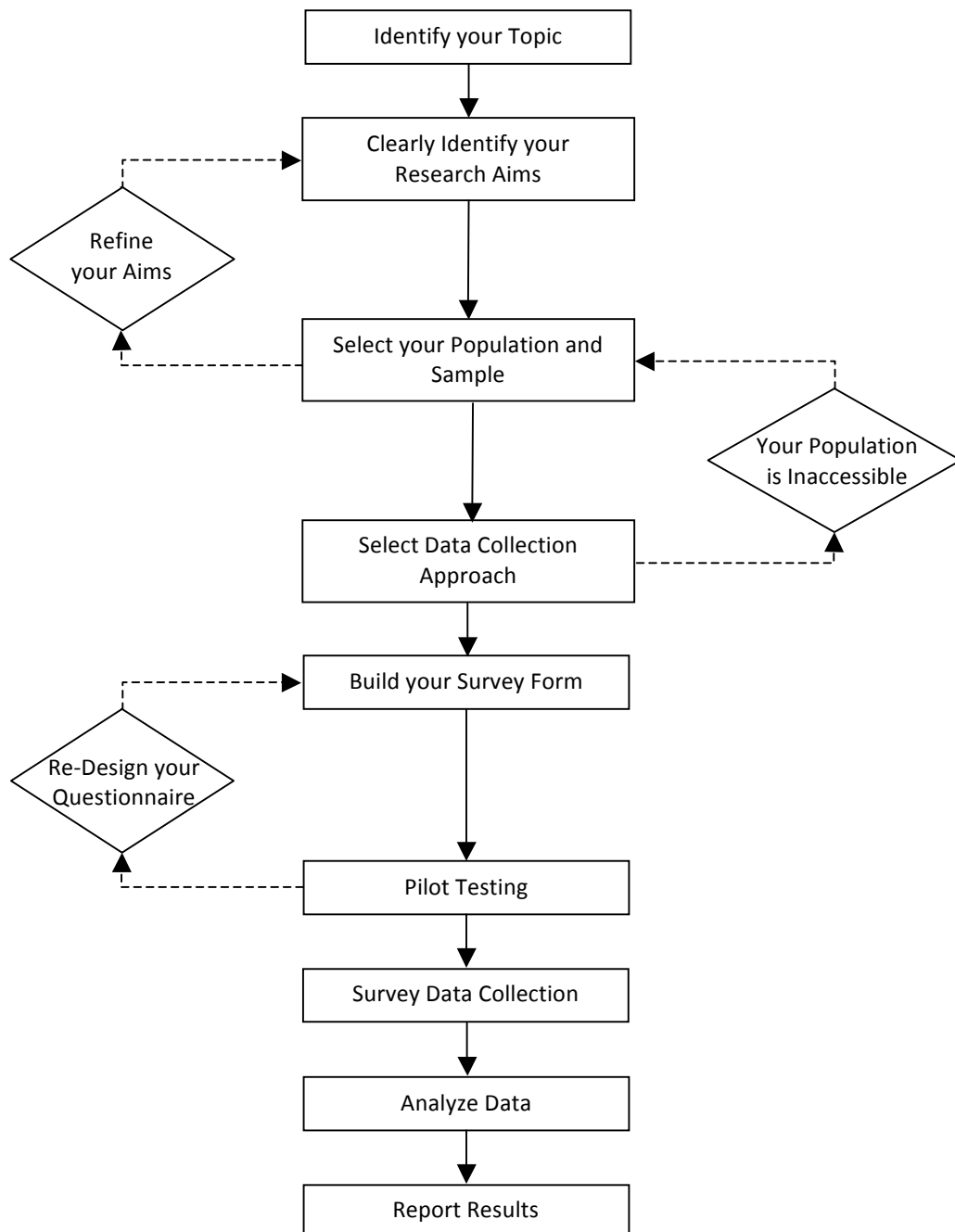
- How to develop a well-designed survey plan.
- How to design survey questions that can validly collect information about people's thoughts, feelings, attitudes and behaviours.
- How sources of survey bias can be avoided.
- How to test your survey questions in advance to save resources in the long-term.

1.1 Introduction

This chapter is a guide to the process of designing and conducting survey research. It will show you how to efficiently gather valid survey data, even under tight budget and time constraints, in order to help you steer a course through the survey research process. Equipped with an understanding of the principles of good survey practice discussed in this chapter, you will find that the many challenges of survey design can be overcome with good planning and critical thinking.

The Figure below provides a visual overview of the survey process from start to finish. Note how this process involves constant refinement and adjustment in order to be as efficient and robust as possible.

Figure 0.1 Overview of survey process



Surveys (also called questionnaires) offer a standardized method of collecting both quantitative and qualitative data from individuals (not groups or institutions). A survey can be an excellent tool for gathering information about memories, knowledge, personal experiences, attitudes and behaviour, as long as the survey measures are both *reliable* and *valid* (quality criteria we'll return to later on). Surveys are particularly good for research topics focusing on the details of a person's recent

actions and experiences or their current thoughts, opinions, interests, intentions or values. Survey data can be used to address research goals such as describing patterns in a large population (e.g., national public opinion or customer satisfaction across an entire business) or determining individuals' characteristics within a population (e.g., How much do people earn? How healthy do they feel? Are there variations across different cities, institutions or ethnicities?). Survey data is also useful for assessing current social and political conditions from individuals' perspectives within a population (e.g., Is the nation moving in a positive direction? What are the consequences of unemployment? What are the dimensions of current anti-immigrant sentiment?) and comparing the perspectives of different groups of individuals within a population (e.g., How do people in differing economic classes feel about their healthcare provision? How do individuals from different ethnicities living in the same community view crime?).

However, if your research question requires data collection during an event, activity or social practice (e.g., a religious ritual), surveys *can* limit the validity and depth of the data collected in such settings. This may occur either by breaking the normal flow of the activity (on the spot surveys) or by requiring respondents to reconstruct the activity in their memory at a later point. Therefore, surveys may not be the right choice if your goal is to directly measure or observe people's practices as they develop. For such topics, instead consider ethnographic methods (Chapter 10).

As surveys often require respondents to reflect on and self-report their knowledge, attitudes or behaviour, they should sometimes be avoided (see Table 0.1):

Table 0.1 When a survey is an inappropriate method

Research Focus	Research Example	Why a Survey is Inappropriate	Alternative Method
Causal factors and events beyond the scope of respondents' knowledge or experiences	Surveying the general public about what factors are negatively affecting the national economy	Most people are unlikely to be aware of many details about the national economy	Semi-structured interviews
Behaviour that respondents are unable to accurately recall	Researching public behaviour in a museum – the number of times someone stopped to look at a particular sculpture	It would be unreasonable to assume that most people could accurately recall details of a one-time abstract event	Systematic observation – counting the number of times someone stopped to look at a particular sculpture
Behaviour that people are unlikely to disclose	Consumption of illegal substances (e.g., cocaine)	Respondents may be unwilling to accurately report behaviour within a survey due to concerns over legality, disclosing socially undesirable behaviour, and protecting their own privacy	Ethnography of a particular group/persons of interest

This chapter doesn't go into detail on every aspect of the survey process because the book covers some aspects in other chapters, such as ethics (Chapter 3) and analysis considerations (Chapters 11 and 12). This chapter pays particular attention to how to translate your research aims and constraints into workable survey designs, data collection plans and procedures.

This chapter takes you through the decision-making process for survey design and data collection, addressing key challenges along the way, such as:

1. **Define the goals for your survey.** What are you trying to discover? Do you simply want to be able to describe a population, or are you trying to discover causal factors? Sometimes these questions are harder to define than you might think.
2. **Prepare a data collection plan.** Where is the data coming from?
3. **Avoid the pitfalls of question design.** Do not make needless work for yourself later in the research process, or worse, generate unusable or biased data. Mistakes can easily arise that are harder to resolve at later stages.

4. **Test your survey in advance.** This chapter guides you through the process of piloting and survey re-design. This is a good way to save resources by avoiding wasted data collection effort.
5. **Develop strategies and procedures to effectively conduct the survey data collection.** Specific plans with clear procedures can make the data collection process more efficient. Describing these procedures in your report also reassures your readers that you have been systematic in your approach.
6. **Plan ahead for survey data analysis.** What resources and skills can you draw upon to make sense of the information you have collected? It is easy to feel overwhelmed by the amount of information a survey can generate. Therefore, it is important to ensure you can effectively analyze the data you collect. This chapter shows how you can take your later data analysis into account during the survey design process.

1.1.1 Plan your survey project step-by-step

Begin asking yourself questions to set the boundaries for your topic, aims, target population and survey design. What time and resources do you have available for data collection and analysis? Given your available time/resources and external support, how feasible is your ideal sample size? What is the scope of the research claim you want to be able to make using the survey results? (e.g., do you want to be able to generalize to your target population?). The answers to such practical questions feed into the process of designing survey research; this effectively balances the need for accurate measurement against your available resources and capabilities. Maintaining a tight focus on your research question, as well as only collecting survey data that helps you address it, can save you significant time and resources.

As discussed in Chapter 1, all social research involves compromises between ideal research procedures and what is actually possible in practice. Navigating the key survey challenges outlined above with limited resources often requires compromises. For example, you may need to limit your sample size and the quantity of survey

questions. Subsequent sections will help guide you through such options and highlight where in the survey process you may need to make practical decisions.

1.2 Develop your survey research design

1.2.1 Should you use surveys for your project?

This section guides you through the benefits and challenges of choosing different types of surveys as data collection methods. Surveys are often thought of as a quantitative method, but can be qualitative as well. **Qualitative surveys** enable you to collect data from a larger number of people than other qualitative methods in the same amount of time. Moreover, you can use surveys to collect qualitative data in settings that make other forms of qualitative data collection difficult (for example, where people are in a hurry or are unable to stop for an interview at that moment). In such cases, a small amount of contact information can be collected at the time. You can then follow up with an online or telephone-based survey to be completed at a more convenient time and location. In addition, a survey can be used to collect a combination of quantitative and qualitative data to simultaneously address different dimensions of your research topic.

From a practical perspective, surveys can be an especially useful option if you are going to need other people to administer some of your data collection for you. Most data collection methods require formal social research training to conduct. However, it is often possible to have novice researchers, that you train yourself, assist with data collection for surveys. Having novice helpers distribute and collect self-administered surveys for you is much simpler and cheaper than trying to prepare them to conduct in-depth, semi-structured interviews or focus groups (see Chapter 8 for details about these methods).

Real World Example: Large-scale survey research on a tight budget

A large festival wanted to know how satisfied its audience was with their festival experiences. To make the most of a small research budget, the festival recruited volunteers to conduct its audience satisfaction survey. The volunteers did not have any prior research skills. After a quick briefing, however, they were able to distribute, collect and enter data from survey forms prepared by a social scientist acting as an external research consultant. This approach meant the festival could limit its use of a (costly) social scientist consultant to only the survey design and analysis phases. Therefore, the festival got the information it wanted without compromising research quality or its budget.

Maintain efficiency in survey data processing and analysis. Surveys can be designed in ways that minimize the amount of time required to collect and analyze data. First, the type of survey questions you use affects the amount of time required for data analysis. The broadest way of distinguishing question types is *open-ended* (respondents generate their own responses) and *closed-ended* (respondents choose from a limited range of pre-specified response options).

Closed-ended survey questions produce quantitative data, which is faster to process and analyze. However, closed-ended quantitative survey research is particularly sensitive to mistakes in survey and question design that can undermine the accuracy of your data (thereby eliminating the value of any time savings). In contrast, qualitative data gathered with open-ended survey responses generally require a much slower and more in-depth analysis. Open-ended surveys also take significantly longer to administer and can be harder and more time-consuming to analyze, especially if only a handful of

respondents give a particular response (AAPOR, 2015b). The general rule is: the larger your sample size, the more time you save overall by using closed-ended questions.

Table 0.2 Strengths and weaknesses of closed- and open-ended questions

Survey Question Type	Response Type	Strengths	Weaknesses
Closed-ended survey questions	Choice of pre-selected options	<ul style="list-style-type: none"> • Easy to administer and complete • Easy to process and analyze • Enhance comparability of responses 	<ul style="list-style-type: none"> • Generate limited detail • Sensitive to design errors • Time-consuming to design • Can make respondents feel constrained if they can't give their preferred response
Open-ended survey questions	Respondents generate their own responses	<ul style="list-style-type: none"> • Respondents can answer in their own terms • Limited researcher bias • Useful for exploring areas of limited researcher knowledge 	<ul style="list-style-type: none"> • Time-consuming analysis (Chapters 11 and 12) • Require greater effort from respondents

Maintaining standardization. From a quantitative perspective, surveys offer the great advantage of ensuring that every respondent is asked the exact same questions in exactly the same way. Such standardization makes valid generalizations about your target research population possible. Without standardization, differences in question phrasing can make data from different respondents impossible to compare and combine statistically (Beatty, 1995).

The highest degree of standardization comes from survey forms that respondents complete by themselves. Self-completion is the norm online, but face-to-face survey data collection can require verbally administering your questions, depending on the context. If you're verbally administering your survey, you must ask the exact same question to each respondent in the same way. Try to anticipate any aspects of the survey respondents might find unclear and make sure you have a pre-

prepared standardized list of definitions or elaborated explanations (Conrad & Schober, 2000). You can include follow-up questions or ‘probes’ in your design of a verbally-administered survey to elicit more detailed responses, but this also requires advance planning to standardize your procedures. If anybody is going to help you conduct your survey data collection, they need to be at least minimally trained in following such procedures, reading questions verbatim and ensuring they don’t accidentally bias respondents’ answers (AAPOR, 2015a).

Once you have considered these issues and decided that survey methods are right for your topic, you will face the issue of what makes a ‘good’ survey.

1.2.2 Designing a good survey

Designing a good survey in terms of validity and reliability. When designing a survey, you must always consider the *validity* and *reliability* of your methods and measures. Validity refers to the extent to which the information you gather from your survey respondents accurately represents the concept you are studying. For example, you may be interested in whether intelligence predicts income. Often, researchers will use educational attainment as a substitute measure of intelligence, because it is easy to measure and often correlates well with ‘actual’ intelligence. While this is a valid substitute measure for many research questions, it would not be valid for predicting income because there are many things that influence educational attainment beyond simple intelligence. Instead, you may choose to use an IQ test, or something similar. While an IQ test only measures one ‘type’ of intelligence, it may still provide more validity than educational attainment because it more accurately reflects the underlying concept (i.e., intelligence).

Reliability is a quality criterion that refers to the extent to which the measures you use, and the data you collect, provide consistent results. A useful way to think about the distinction between validity and reliability is in terms of different kinds of *survey error*. Reliability, in these terms, would refer to *random error*, or the extent to which responses to a question randomly diverge from each other. This contrasts with validity, which can be seen as *systematic error*, or error that affects all responses to the question in a similar way. It is worth noting that it is impossible to have a valid measure that is not also reliable, although a reliable measure is not necessarily a valid measure.

A perfectly reliable survey would be completely free of random error, e.g., if you asked the same questions twice to the same person, in exactly the same way, the answers would be exactly the same. While it is impossible to remove all random error from a survey (and thus impossible for your survey to be perfectly reliable), you can usually increase the reliability of your survey findings by simply taking more measurements (e.g., increasing your sample size, or asking respondents numerous questions that are designed to measure the same concept; for more on creating valid and reliable measures, see (Chaffee, 1991).

The basics of survey preparation. Use surveys to access thoughts, feelings, attitudes and values that would normally be difficult to access systematically through external observation alone. Survey design involves multiple (and sometimes competing) goals. In your survey you are seeking to:

- Ask questions that allow you to shed as much light as possible on your area of research.
- Ask no more questions than you need to address your research question.
- Ask standardized, focused questions that are likely to be relevant and understandable for your respondents.

- Avoid the many possible forms of bias, such as leading questions.

Putting these and other goals into practice in your particular project typically requires a balance. When designing a survey form, you should ask enough questions to thoroughly address your research question. But if you take this too far and ask too many questions, then your respondents may feel inconvenienced or fatigued and become unwilling to finish your survey (Dillman, Sinclair, & Clark, 1993). In order to design a good survey, you must understand how surveys work from the perspective of respondents and prepare accordingly.

Survey preparation stage 1: Gaining your respondents' attention and understanding. Respondents must *pay attention* to your survey instructions and questions. They must also *understand* the survey questions' guidance or instructions, any terms or concepts embedded within the question, as well as *comprehend* what information the survey is seeking (Tourangeau, 1984). To achieve this, you must ensure your survey questions and instructions are clear, while avoiding jargon and complicated wording.

Survey preparation stage 2: Ensure that your questions are clear. In order to ensure that your respondents answer as accurately as possible, ensure that the framing and context of your questions do not give unintended cues. Respondents formulate opinions and thoughts – positive and negative – from a range of cues. Such cues include how the survey questions are written and framed (Tversky & Kahneman, 1974), the data collector's appearance and demeanour and the location in which the survey is being conducted (Godden & Baddeley, 1975), amongst many other factors. For example, it could be problematic for a uniformed shop employee to verbally survey customers about their experiences at a store. Respondents (customers) in this situation might give

answers the employee would *want to hear* rather than accurately reporting their actual experiences in order to avoid offending the employee (and thereby causing themselves psychological discomfort). Your survey design must account for such social norms (Holtgraves, 2004).

Also think about how your questions might be misinterpreted and phrase questions so that respondents do not feel compelled to guess. We'll discuss this issue later on in this chapter in the sections on writing survey questions and piloting surveys. However, it's worth pausing here to think about the complexity of answering a survey question. If respondents can only partially recall their memories, they may fill in the gaps with inaccurate guesses or assumptions to provide a survey response (Menon, 1993). For example, a recent global survey asking zoo visitors to indicate how many times they had been to the zoo in the last 12 months yielded responses including '50' and '300' (Jensen, 2014). Such large round numbers are immediately recognizable as estimates (or guesses) rather than precise reporting of past behaviour.

Survey preparation stage 3: Align your survey response options to cultural norms. It is important that response options align with respondents' normal language and information they are likely to know to the greatest extent possible. For example, if you were researching the use of computer technology by IT professionals, it would make sense to refer to equipment by the terms IT professionals would use (e.g., perhaps use 'laptop' instead of 'portable computer'). If the response options do not closely match the respondent's existing knowledge, such as if they are too technical, respondents may do the following: (1) make a guess, (2) select a neutral or 'don't know' response option or (3) leave the question unanswered. In all of these cases,

respondents are likely to experience a degree of frustration and this may affect the accuracy of your data (AAPOR, 2015a, 2015b).

Even with a carefully considered survey design, you can only make reasonable guesses about what kinds of responses your survey questions will elicit. For example, if you are asking patrons at a restaurant about how much they enjoyed their meal, you may feel that it is perfectly clear that you are asking about the food. However, some respondents may think you are also asking about the quality of table service, décor in the restaurant and a host of other variables. This kind of confusion can lead to poor quality survey data (Suessbrick, Schober, & Conrad, 2000).

This means you will need to 'pilot test' to refine your survey design. Pilot testing involves trialling your test survey on a group of people from a similar demographic background to your intended respondents. A first step is to have your supervisor or someone else experienced in survey design review your questions and give feedback; do your questions make sense? Are they phrased appropriately? Are they grouped in a logical manner?

Then ask your test respondents to actually do the survey. Make this a process of open dialogue where you not only review the answers they give to ensure that responses match your questions, but also you ask the test respondents how they felt and what they thought when completing it. Did they find the questions clear? What was confusing and why? Take this feedback seriously and refine your questions. You may decide that you need to do another round of pilot testing if you needed to make a lot of changes. Remember – it is much easier to find and eliminate errors in pilot testing than down the road!

Therefore, the survey process involves a cycle of writing draft instructions, survey questions and survey responses for respondents, critically evaluating what you have written, revising those questions, pilot testing and continued revision and so on.

The process of refining your survey could go on indefinitely. However, time is always limited and, ultimately, you have to make the judgement about when a survey design is 'good enough'. Ideally you make this judgment in consultation with others who can offer you advice and feedback, such as a tutor, colleague or supervisor. Our advice is that some pilot testing is better than none. So go ahead and collect whatever feedback you can get (even if that means resorting to using friends and family). Plan your survey design phase carefully, so as to leave enough time for pilot testing and revision of your survey questions (for more information, see Oksenberg, Cannell, & Kalton, 1991).

1.2.3 Making survey design decisions – forks in the road

As you develop your survey design, you will come across a number of forks in the road (see Figure 0.1). This section guides you through these crossroads, highlighting the implications of the different survey design decisions you will have to make.

Combine methods or use a survey only? As you consider your survey design, you will need to decide on appropriate questions to ask, how to phrase them, and what sort of response options are appropriate. You can obtain this information from published research on your topic (if it is available), informal conversations with members of your target population or colleagues familiar with the topic, or by drawing upon your own informal experience with your research context and target population. If these sources of information are unavailable or inadequate, you should strongly consider employing an additional data collection method to fill in the knowledge gap.

Combining surveys with another method, such as a preliminary small-scale ethnography or small focus group study, can give you crucial insights about the context or conditions for your research topic. Hypotheses, variables and contextual knowledge about the target population developed from preliminary small-scale qualitative research can feed directly into survey design, enhancing research quality and validity. You can also follow-up on survey results using a depth-oriented qualitative method.

Real World Example: Combining surveys and other research methods

Eric conducted a combined qualitative and quantitative pre- and post-visit survey investigating whether zoo visits promoted children's learning about animals. His research showed that children who attended a zoo-delivered presentation during their visits learned much more than children guided only by their regular schoolteachers. However, the survey didn't reveal *why* the schoolteacher-guided zoo visits resulted in significantly less learning. To address this key question and explain the survey findings, Eric conducted a small-scale follow-up ethnographic study of schoolteacher-guided zoo visits. The follow-up study revealed that these schoolteachers had relatively poor knowledge about zoo animals, which they passed along to their school pupils (rather than looking up correct answers or admitting they didn't know an answer). Therefore, the combined survey and ethnographic study were able to provide a more complete result than either single method could achieve on its own.

Qualitative, quantitative or mixed methods? Within your survey research, you can use any combination of closed-ended or open-ended questions. Both types of question can complement each other within a single survey. You can use the quantitative data generated by closed-ended survey questions to identify general

patterns. These patterns can then be further explored and deeper explanations identified using the qualitative data generated by open-ended questions. Closed-ended survey questions require the least time and resources to analyze, and tend to be the most reliable if designed well. The great advantage of open-ended survey questions is that they can gather data on emotions, interests and attitudes that you were not able to anticipate when first designing the study, and tend to be more valid. A mixed methods survey enables both kinds of questions to be used together to support and reinforce each other.

Cross-sectional or longitudinal design? You will need to decide whether to run your survey at a single point in time (cross-sectional survey) or to conduct multiple linked surveys focused on investigating change over time (longitudinal survey). Researchers choose cross-sectional surveys because they are the simplest and lowest cost option. Often, survey researchers use cross-sectional survey data to measure change over time (e.g., by asking about attitudes, interests or behaviour in the past, in the present and projected into the future). While these data can provide interesting insights, there is substantial risk of bias stemming from the reporting of distant memories (Menon, 1993; Sánchez, Koskinen, & Plewis, 2014). This risk of bias (and therefore inaccuracy) is also present when respondents are being asked to speculate about their future behaviour. Therefore, it is important to be cautious when using data collected at a single point in time to make claims about events in people's past or future, or any changes that might have occurred over time.

Depending on your research question and your available time and resources, you may want to consider the option of longitudinal survey research. A longitudinal survey involves at least two separate data collection points, separated by a period of

time (which could be as little as a couple hours to as much as 10 or more years, depending on the research topic). While the limitations of self-report still apply, such data can provide unique and valid insights about change in a phenomenon over a period of hours, days, weeks, months or even years.

In practice, the challenging logistics and high costs involved in conducting longitudinal survey research make it an impractical research choice for many people. In addition, the analysis of longitudinal data (known as 'Time Series Analysis') is much more advanced than anything covered in this book (For an accessible overview of Time Series Analysis, and for a list of additional resources for conducting Time Series Analysis, see Williams & Monge, 2001). However, if your research topic focuses on change over time, it may be worth facing the downsides in order to conduct a small sample longitudinal study, perhaps using an online survey to lower costs.

Self-administered or verbally administered surveys? *Self-administered* survey forms require respondents to read the survey instructions and questions for themselves and respond on paper or screen without a researcher's active participation. If there is verbal interaction between respondent and researcher in this mode, it is generally limited to an initial invitation to join the study. Once respondents agree to participate, they may also be verbally advised of the survey's purpose, ethical conditions (e.g., "you can withdraw from this study at any time"), and any standard instructions.

For online surveys, self-completion is the norm. It is also common however for self-administered surveys to be distributed face-to-face, either by researchers, a gatekeeper or volunteers on the researchers' behalf. Respondents given survey forms in face-to-face research encounters can either complete the survey immediately or later at a time and place that is more convenient. Locations for distributing self-administered

surveys are typically selected based on where the target population can be most easily accessed. This kind of data collection can occur in public places, businesses, people's homes and anywhere else; potential respondents can be reached by mail, email or online surveys.

Self-administered survey instructions and questions require the highest level of clarity. If respondents become frustrated with confusing instructions, they may decide to stop completing the survey and you might never know why. Moreover, securing an adequate response rate can be more challenging with self-administered surveys. Statistically, anything less than a 100% response rate could technically be considered problematic. In practice however, if 50% or more of those you select for your sample actually complete surveys, this is usually viewed as a satisfactory response rate. With online surveys or hard-to-reach populations, even this level of response rate is very difficult, if not impossible, to achieve in many cases. The important thing is to be transparent about your sample selection procedures and to be sure to send reminder messages for any survey forms distributed online or by post (AAPOR, 2015a).

The other option you have at this fork in the road is to *verbally administer* your survey. In this option, you (or trained assistants) talk through all aspects of the survey. Respondents give their answers verbally or by pointing to a survey response option. Verbally administered surveys can be done over the phone (with or without a computerized survey form) or face-to-face. As with self-administered forms, verbal data collection can occur in a wide range of locations.

If you are conducting a relatively brief survey with closed-ended questions, a verbally administered survey can make participation easy for respondents. This is especially true in a busy setting where your potential respondents are walking around.

However, a verbally administered survey has downsides, especially when you ask open-ended questions. If you are *not* recording the interaction, you then risk missing some of your respondents' words when you attempt to write down their answers. If you *do* record, then the amount of time and effort required to process and transcribe the responses can be substantial if you have a medium to large sample size.

Table 0.3 Self-administered vs. verbally administered surveys

Type	Strengths	Weaknesses
Self-Administered	<ul style="list-style-type: none"> • Allows for data collection from multiple individuals in different locations simultaneously. • Can offer respondents full anonymity. • Respondents may be more likely to provide honest answers on sensitive topics. • Allows survey to be completed in the respondent's own time (useful for lengthy open-ended questions). • Saves researcher time and resources. 	<ul style="list-style-type: none"> • No opportunity to clarify any unclear phrasing from the survey instructions or questions. • Achieving adequate response rates can be challenging (especially with postal and web surveys). • Can't probe for further details about a respondent's answer • Requires extra up front time investment to refine survey design.
Verbally Administered	<ul style="list-style-type: none"> • Opportunity to clarify aspects of the survey for respondent. • Easy for respondents to complete (little effort on their part). • Possible to gain further depth by asking 'probe' questions (e.g., "could you tell me more about that?"). 	<ul style="list-style-type: none"> • More expensive and time consuming; requires data collectors to conduct. • Risk of misquoting respondents when writing down responses. • If survey is recorded; lengthy transcription process for open-ended questions required.

Real World Example: Using response cards for verbally administered surveys to reduce bias

If you are asking any potentially sensitive questions (e.g., anything a person might not want to state about themselves out loud: personal income, sexual orientation, drug or alcohol use) in a verbally administered survey, it is good practice to use response cards with the different response options for a given question so respondents can point rather than verbalizing their answer. Alternatively, you can designate the response options with numbers or letters.

For example, Safia was conducting research on sexual minorities in Nigeria. She knew that homosexuality was a taboo subject in the country and had to find a way to allow her respondents to answer honestly. She decided to ask, “Which of the following most closely matches your sexual orientation?”, but held up a set of response options on cards: A – Heterosexual, B – Homosexual, C – Bi-sexual, D – Other. The respondent would answer by saying ‘A’, ‘B’, ‘C’ or ‘D’ (or pointing), thereby avoiding the need to state their sexual orientation verbally and increasing the likelihood that they would be truthful.

Plan a few steps ahead: Consider available time for data analysis. At this stage of the survey design process, you should also consider your data analysis. How much time do you have available for the analysis? Do you have the skills to analyze qualitative and/or quantitative data? These factors need to be taken into account at the level of overall survey design as well as the selection of particular questions. For example, you may need to use closed-ended response options if you do not have the time or skills to do the qualitative data analysis. Indeed, question design is the next stage in the survey process.

1.3 Develop your question design

1.3.1 Designing good survey questions and forms

Developing good survey questions requires a degree of ingenuity and knowledge about your topic. As you begin to fill in the details of your survey form, you will have to make a number of key decisions about the:

1. Focus of your questions (i.e., what variables you are going to measure).
2. Type of question response (e.g., Likert, multiple choice, open-ended).

3. Content and phrasing of your questions.
4. Sequence of questions and overall layout of the survey form.

Before starting any survey data collection, consult the existing research literature on your topic to see if there are relevant survey questions that have been used in previous published studies. There may even be an entire set of survey questions that you could re-use as published or with some adaptation. It is entirely consistent with good practice in survey research to use and adapt previously published questions for your research project as long as you cite the author(s) of the original study.

You can also turn to web services that compile the questions and results from large scale social surveys. Two in particular stand out: SDA and iPOLL. SDA is a service based out of the University of California, Berkeley, that provides detailed documentation for a vast set of surveys, including the General Social Survey (GSS) and the American National Election Study (ANES), and programs for Web-based analysis of survey data. You can find out more by visiting their website: sda.berkeley.edu

iPOLL, a service of the Roper Center at the University of Connecticut, provides a comprehensive and easily searchable database that includes over 650,000 survey questions (and answers) dating back all the way to 1935. Updated every week, iPoll is a key survey archive for every major polling organization in America. You can find out more by visiting www.ropercenter.uconn.edu

Structuring the survey form. Regardless of the topic, survey forms require a number of standard features. To begin building your survey form, you need to complete the tasks in Table 0.4.

Table 0.4 Structuring your survey form

Task	Strengths
Title your survey form	Give your survey form a <i>title</i> at the top of the first page (e.g.,

	'Cheltenham Festivals Visitor Survey').
Note the version number	Include the <i>version number</i> (e.g., 'v.3') on the survey form in the headnote or footnote. This will help you track drafts and prevent you sending the incorrect version to respondents.
Provide a brief introduction	Include a research project description (usually from one sentence to one paragraph in length), summary of research aims, researcher identification and sources of funding.
Number individual questions	To speed up the data entry and analysis process later on, you should number individual questions, with subquestions indicated as follows: 12a, 12b, etc.
Include contact information	Provide contact and address information, as well as your email address. It is preferable to use your institutional email address (if you have one) rather than a personal email account in order to identify your institution and to give you more credibility.
Offer thanks for participation	Finish with a concluding statement thanking respondents for participating and, if appropriate, ask for permission to contact them again in future.

In addition to these basic structural features, there are principles of good survey design that apply widely:

- **Be consistent in phrasing.** For example, don't use 'job', 'employment' and 'work' if just one of these terms would function just as well.
- **Avoid using too many different question types** (e.g., Likert scale, multiple choice response, ranked response). It takes time and effort to get used to a question type; you don't want to make your respondent expend this extra effort unnecessarily.
- **Ensure questions are as brief as possible.** This avoids tiring out or confusing your respondents.
- **Use plain language.** Avoid jargon and assumptions of specialist knowledge unless surveying a specialist population. Try to account for the likely language capabilities, age and vocabulary of your target population. If respondents read words they don't understand or come across unusual terms, they may lose interest in participating or provide invalid or irrelevant responses.
- **Minimize ambiguity** in the questions and response options.
- **Use a clear, legible font**, such as *Times New Roman* or *Arial* that is no smaller than 11-point in size but preferably 12-point.
- **Format your survey consistently**, such as the use of *italics* and **bold** (e.g., for instructions and for the question or category headings).

Survey form layout. Effective layout of your survey form also helps to keep the survey data collection process as simple and straightforward as possible for your respondents.

- **Don't put too many questions on any one survey page.** Avoid overloading respondents by making the page appear like 'too much work' or too intimidating.
- **Don't let your survey get too long.** Ideally, you should keep a survey form down to two or three pages while still addressing your research question to avoid hurting your response rate. You may be able to get away with a slighter longer survey form online, particularly if you separate the survey form into separate pages focusing on different aspects of the topic.

Question sequence. The order in which the respondent encounters your survey questions can affect the readability and effectiveness of a survey. Keep these general principles in mind:

- **Structure your survey to go from general to specific questions, and from easy/simple to more difficult/complicated questions.** This way the reader can be gradually introduced to your research area and their thinking will be 'warmed up' before more challenging questions arise.
- **Save the demographic questions for the end** so that the respondent does not become fatigued early in the survey from the questions they can answer most easily.

These principles help to pave the way for your substantive survey questions, by making the process as easy as possible for respondents. Continue to consider the flow of your survey form as you select your question types. For example, you don't want closed-ended response options too early in a survey form to bias answers to open-ended questions.

Question types. As you build your survey form, you will need to choose from a range of well-established question types. You should make this selection based on what you are trying to discover from a particular question and what kind of analysis you are able to complete. The list in Table 0.5 offers advice on when to use the most common survey question types.

Table 0.5 Common survey question types with examples

Question Type	Example
Open-ended	'What interested you in visiting the store today?'
Classification or demographic	'Please select the category below that matches your household's income'.
Ranked response	'Rank your preference from amongst the following options'.
Multiple-choice ('select one')	'Select the best answer among the following statements which matches your opinion'.
Multiple-choice ('tick all that apply')	'How did you hear about this event? Tick all that apply'.
Likert scale	'Please indicate your level of agreement with the following statement'.

Open-ended questions allow respondents to tell you about their experiences, thoughts, attitudes and values without the constraint of a limited number of response options. However, many respondents find it burdensome to have to answer too many open-ended items. Also, beware of the much larger challenge that open-ended survey data impose at the data entry (if using a paper survey) and data analysis stages.

Classification or demographic questions about the objective characteristics of respondents (e.g., gender, ethnicity, religious affiliation) can take different forms. For example, a question about the respondent's age, could either request the individual's exact age, date of birth or an age category to be selected from a list provided by the researcher. Exact age keeps more statistical analysis options open, date of birth provides very precise information, but a respondent may feel age category is a less intrusive question than exact age (thereby making it more likely that they give an answer).

Ranked response questions should be used when you need to know your respondents' relative preferences, when compared to a limited set of alternatives. This can be an effective question type for researching comparisons between different

commercial products, political candidates, preferred medical treatment options or other finite sets of choices in a particular domain.

Real World Example: Using the ranked response question type

When Melissa was conducting an employee survey for a company making cutbacks to avoid redundancies, she tried to determine employees' relative support for a range of possible undesirable actions: (1) reduced pay by 5% for everyone, (2) forced unpaid leave of an additional two weeks in every three month period, (3) reduced holiday leave entitlement, or (4) reduced employer contribution to employee retirement accounts. By asking for ranked responses, she was able to determine which of these unpleasant options would be resisted least by employees.

Multiple-choice questions require respondents to 'select one response' from a set of options that you devise. This question type can be used when there are established (from previous research) or obvious answers that different respondents might give. By pre-specifying these response options, you save yourself the time-consuming task of converting a wide diversity of open-ended responses into a smaller set of categories during the data analysis phase. When you are designing survey response options for multiple choice questions, the response options need to be:

- **Exhaustive:** everyone fits into at least one response category
- **Exclusive:** everyone fits into only one response category (unless specifically required to 'tick all that apply').
- **Unambiguous:** response categories hold the same meaning for everyone so that all responses are comparable.

In order to capture any unforeseen answers a respondent might wish to give, 'Other (please specify): _____' is often included as one of the multiple choice response options. An additional way to mitigate the risk of your multiple choice response options

failing to match a respondent's desired answer is to qualify the instruction within your question, saying 'select the best answer among the following statements' or 'the option that is closest to your view'. Finally, it is wise to provide a response option that allows respondents to get out of a question if they do not have an opinion, view or other relevant response to offer (e.g., 'don't know / no opinion'). For example, if your question related to views about becoming pregnant, the 'don't know / no opinion' option would allow male respondents to indicate a valid response. Forcing a response in such cases would increase non-response levels at best, and introduce bias at worst.

Multiple-choice questions that ask respondents to 'select all response options that apply' require extra time for you to process and analyze, when compared to single-response multiple-choice questions. However, this is sometimes the only viable question type (e.g., for the question 'How did you hear about this event', a 'tick all that apply' question listing a range of possible sources such as television broadcasts, newspaper and word of mouth would typically be the best choice). If you limit your analysis to descriptive statistics (e.g., identifying the percentages selecting each response option), then this question type should not substantially delay your data analysis.

Real World Example: Multiple-choice question

The following multiple-choice (select one) question was asked during an NBC News Poll (2014) on crime, values, religion, economics and equality.

"Whether you oppose the death penalty or not, which of the following do you feel is the strongest argument in opposition to the death penalty?..."

The researchers listed five common statements given by advocacy organizations and politicians in opposition to the death penalty. Importantly, the polling organization also

allowed respondents to say that all of options were equally strong (i.e., all of these), that all of the questions were equally weak (i.e., none of these), that they knew of a different reason that they thought was stronger than any that was listed (i.e., some other reason), or that they couldn't decide (i.e., not sure). In total, 10% of respondents gave one of those options, showing how important it is to cover all possible response options.

The poll found the following results:

- 35% - It carries the risk of killing someone who was wrongly convicted
- 18% - It is not applied fairly or uniformly across the country
- 13% - It is against my religious or moral beliefs
- 12% - It costs taxpayers more than life imprisonment
- 12% - It does not deter murder any more than long prison sentences
- 1% - Some other reason
- 2% - All of these
- 3% - None of these
- 4% - Not sure

Likert scale questions are best employed when the variable you are measuring has multiple levels (i.e., not a 'yes'/'no' variable). The response scales should normally be 1-5, 1-7 or 1-9. This allows for a neutral response to be included in the middle of the scale. The standard Likert scale options are (for a 5-point scale): Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree. These options can be stretched for 7-point scales by adding 'Somewhat' to the list, as follows: Strongly Disagree, Disagree, Somewhat Disagree, Neutral, Somewhat Agree, Agree, Strongly Agree.

You can also use 'Likert-type' scales, which use concepts other than 'agreement' to anchor the scale. For example, you might have a scale that captures 'Level of Concern' about different political or social issues or 'Level of Confidence' in different types of information or professions. Normally, you should simplify your Likert scale statement (level of agreement questions) by using positive phrasing (i.e., avoiding

negation). For example, “I enjoy learning about survey research” (Strongly Agree – Strongly Disagree) would be simpler for respondents to interpret and respond to than “I do not enjoy learning about survey research”. To cover the negative possibilities, you could use a framing such as: “I find survey research difficult to understand” (Strongly Agree – Strongly Disagree). There are some great online resources for finding well-tested Likert-type scale response anchors. We especially recommend Vagias (2006).

Real World Example: Likert type question

The following Likert Type question was asked during a Harvard Institute of Politics (2014) survey on Americans’ attitudes toward politics and public service (March, 2014).

How much do you agree or disagree with the following statement? ... ‘Religious values should play a more important role in government’.

The question was measured using a 5-point scale, ranging from 1 (strongly agree) to 5 (strongly disagree). Importantly, the survey did not give a “don’t know” response. The results are listed below:

08% – Strongly agree
13% – Somewhat agree
34% – Neither agree or disagree
13% – Somewhat disagree
31% – Strongly disagree
02% – Decline to answer

Over a third of respondents stated that they neither agreed nor disagreed, with only 13% somewhat agreeing, and 13% somewhat disagreeing. This is an unusually high number of respondents reporting that their opinion falls in-between agree and disagree. Because there was not a “don’t know” response, it’s impossible to know how

many of these individuals didn't have an opinion versus how many had an opinion that actually fell in the middle.

The big advantage to the closed-ended survey question types described above is that the data can be entered (paper form) or imported (online form or tablet) into a spreadsheet in a numerical format ready to be used in statistical analyses.

Table 0.6 Uses and benefits of survey question types

Question type	Uses and benefits	Possible issues
Open-ended	<ul style="list-style-type: none"> Allows the respondent to give any response they choose, without any constraints Great for exploratory research, where you don't know what the responses will be Allows you to capture 'rare' responses, i.e., things you may not expect to find 	<ul style="list-style-type: none"> Lengthy coding process Can be burdensome for survey respondents Can be more difficult to analyse and to interpret
Classification or demographic	<ul style="list-style-type: none"> Captures information about who the respondent is Can be used to validate the representativeness of your sample Allows you to check for any systematic differences between segments of the population 	<ul style="list-style-type: none"> Can feel invasive to the survey respondent Can significantly increase the overall length of the survey
Ranked response	<ul style="list-style-type: none"> Good for understanding relative preferences Especially useful when survey choices reflect real world choices (e.g., ranking political candidates, or vacuum cleaners) 	<ul style="list-style-type: none"> Impossible to know whether the difference between option 1 and option 2 is the same as the difference between option 2 and option 3. Can be frustrating when the respondent sees no difference between options
Multiple-choice ('select one')	<ul style="list-style-type: none"> Useful if you already know what the most common responses are going to be, either from prior research or experience Easier to code than open-ended Easier to analyse than multiple-choice ('tick all that apply') 	<ul style="list-style-type: none"> Not as much depth as open-ended questions Not as valid as multiple-choice ('tick all that apply'), especially if respondents see more than one option as their top choice
Multiple-choice ('tick all that apply')	<ul style="list-style-type: none"> Useful if you already know what the most common responses are going to be, either from prior research or experience More valid than multiple-choice ('select one'), especially if respondents see more than one 	<ul style="list-style-type: none"> Not as much depth as open-ended questions Not as easy to analyse as multiple-choice ('select one'), and may require complicated statistics

	<ul style="list-style-type: none"> option as their top choice Especially useful for sensitive demographic questions (e.g., race/ethnicity) 	
Likert scale	<ul style="list-style-type: none"> Allows you to capture multiple levels (i.e., not a 'yes'/'no' variable) Used to capture attitudes, beliefs, and/or perceptions Easily used with most inferential statistics Easy to analyse 	<ul style="list-style-type: none"> Not useful for capturing preferences, or classifications Impossible to know why an individual gave a certain response without follow-up questions Impossible to know how important the attitude, belief, etc. is without follow-up questions

Address errors in your survey questions when you spot them. What do you do when you realize part of the way through your data collection that there is an error in one or more of your questions? Whether or not you are stuck with your mistake until data collection finishes depends on what kind of error it is. If it is a typographical mistake (e.g., a gender response option: 'femele') or grammatical error that is irrelevant to the meaning of the question (e.g., 'Please select which of the following best describes, you're experience at the museum...'), then fix it immediately.

You might make a mistake (e.g., a grammatical error or an incorrectly named response option) that could affect the meaning of the question/response. For instance, if you were to ask: 'Regarding your pet's interaction with the veterinary surgeon, how do you feel she responded to him?', the pronouns 'she' and 'him' make it unclear what information the question is seeking. In this case, you have two possible pathways:

1. **Pathway 1:** If the flawed version is not useful for addressing your research questions (as in the case of the preceding example), you should make the change as soon as possible and exclude all the data you collected up to that point in time for that survey question. If you are throwing out a closed-ended response option for a multiple-choice question, you will need to exclude data for that entire question. This is because respondents' choices could have been affected by the flawed response option, meaning that the pre- and post-change data are not comparable.

If, however, the flawed response option was on a ‘tick all that apply’ survey question that included a ‘Don’t know/Not Applicable/No opinion’ option, then you can still use that data with a ‘methodological limitations’ note describing the nature, timing and rationale for the change you made.

2. **Pathway 2:** If the flawed version is still meaningful for answering your research question (but not what you ideally wanted), then you may want to simply carry on with the flawed version so that you can still use all of the data you have collected up to that point.

If you have included unnecessary additional response options that you wish you had not, you will probably have to live with this mistake (and acknowledge it as a limitation in your write-up – see Chapter 15). If you have failed to include a response option (that you now realize you should have), you should consider two main criteria based on how essential the response is to answering your research question:

- If **it is not essential**, then make a note to yourself for future research purposes and move on.
- If **it is essential**, then ask yourself: how far into the data collection process are you? If this is a multiple-choice question, you will have to throw out any data you have already collected on this question. So the further you are into the data collection process, the more likely your best course of action is to keep the flawed question/response as it is. You would then acknowledge this limitation in the methods section of your research report.

For errors on qualitative survey questions, it is generally less problematic to make changes during the data collection process because qualitative research does not necessarily require standardization. If the change affects the question’s meaning, you may also need to analyze the data from the pre- and post-change versions of the question separately (at least initially) to assess whether the change has affected the data.

Finally, be careful about pre-categorizing your data (e.g., by asking for age ranges rather than current age or year of birth). This can limit your data analysis options. Categories can always be applied later, but pre-categorized data can’t later be

converted back into continuous data that would allow for a greater range of statistical analyses (For more information on designing an effective questionnaire, see Bradburn, Sudman, & Wansink, 2004).

1.3.2 Avoid survey bias

Reducing bias in its many forms improves the reliability and validity of your survey research. Designing survey forms that avoid or minimize bias can sometimes feel like running an obstacle course. It is easy to make a potentially hazardous mistake on your first attempt at designing a survey form. This risk of making mistakes is why it is so important to *edit, get feedback* from others and ideally *pilot test* your survey forms.

Table 0.7 Types of survey bias to avoid

Type of Bias	What is it?	Example
Researcher Expectancy Effect	Researchers unintentionally introduce bias by using survey questions and response options based on their existing assumptions about the topic they are researching, the person they are interviewing, or the 'treatment' (i.e., experimental condition) the respondent is in (Dutton, Fontaine, & Alcorn, 2015).	A business's customer service team expecting positive feedback might unintentionally bias their survey by asking leading questions. For example, the team might ask, 'What was the best part of your store visit' and not ask about the 'worst part' because it is assumed that customers would not have a 'worst part' of their experience.
Acquiescence Bias	All things being equal, respondents tend to agree with Likert scale (level of agreement) statements (Kam & Meyer, 2015).	If all such Likert scale statements ('I am fairly compensated for the work I do') are framed positively, the results may skew towards agreement purely due to acquiescence bias. Address this bias by reverse coding half of the questions. For example, 'I usually feel appreciated at work' could be reversed to, 'I sometimes feel unappreciated at work'.
Demand Characteristics	Respondents tend to alter their answers based on what they believe to be the expectations of the situation or the researcher's preferred result (Orne, 1962).	If respondents are asked by a uniformed hospital employee for their verbal feedback on their hospital stay while still in the hospital, they may give responses that are more positive than they really feel because of the implicit demands of the situation.
Social Desirability Bias	Respondents try to hide their true views or behaviours to make themselves look better (to both themselves and the researcher) by over-reporting views and behaviours that are widely praised in	Inaccurately reporting higher levels of recycling or charitable donations in order to appear more caring is typical of this bias. Likewise, people tend to under-report such socially undesirable

	the respondents culture and under-reporting those that are not (He, van de Vijver, & Dominguez Espinosa, 2015).	behaviours as overeating, pornography viewing and binge drinking.
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In addition to the common survey biases listed above, it is also important to only ask for information that respondents could reasonably be expected to know. For example, you could reasonably ask hospital patients to report their level of satisfaction with hospital services. However, posing the same question to randomly selected individuals on the street could be problematic, since many of them might have little or no experience with the hospital services that are the focus of the research.

Also, ensure you don't have *double-barrelled questions*, that is, two questions in one (see, e.g., Forth, Bewley, & Bryson, 2010). According to the American Association of Public Opinion Researchers, in this type of question, 'It is not possible to determine whether the respondent is indicating one response or the other, of both' (AAPOR, 2015b). For example, the question 'Do you support the death penalty and lifetime imprisonment as criminal punishments for rape?' is actually two separate questions (possibly with two completely different answers!).

Equally, you should avoid *leading questions* that reveal what the researcher is expecting the results to be, such as "Do you agree that Durrell Wildlife Conservation Trust is doing important work to save animals from extinction?". There are two forms of leading question: (1) by suggesting which position or stance is preferred (as in the example above), and (2) providing only information about one side of an issue. An example of the second type might be, 'If it would result in increased opportunities for education New Jersey citizens, would you favour or oppose building a new TV transmitter at liberty science center' (AAPOR, 2015b). Avoiding such possible sources of bias is the key to good survey question design.

Self-Report: A key potential source of bias. Many survey questions involve requests for respondents to ‘self-report’ information. For example:

1. How satisfied are you with the event you just attended?
2. Please indicate your level of agreement with the following statement: ‘Politically, I tend to identify with the Conservative party’.

These self-report questions are appropriate because a respondent could be expected to have existing views to report.

Self-report questions can also be problematic when they require respondents to be highly self-aware and undergo a complicated internal editing process. For example, questions asking ‘Did you learn anything during your visit to the museum today?’ (‘Yes’ or ‘No’) would require museum visitors to:

- Call up memories of the entire visit.
- Identify moments from that visit in which new information was acquired.
- Identify that acquired information as ‘learning’.

This may be an unrealistic expectation of the respondent, inflating the likelihood of deviation between what actually happened and its representation in survey data (Sánchez, et al., 2014). Similarly, you should avoid questions that ask respondents to predict their future behaviour (e.g., ‘How will your exercise routine change over the next five years?’) or go far into the past to recall details of behaviour or thinking (e.g., ‘How have your movie preferences changed over the last five years?’). Likewise, asking about how someone behaves in a ‘typical week’ is likely to introduce bias: How are they supposed to accurately assess what constitutes a ‘typical’ week? It is best to ask about specific recent periods of time, such as asking how someone behaved in the last 7 days.

Real World Example: Bad survey question design – Over-reaching with self-report
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To illustrate the challenges involved in using self-report, let’s consider a
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recent study that used a self-report measure as its main outcome variable:

“Respondent self-reported knowledge of science and technology was measured by asking ‘how much would you say that you know about science and technology.’ Answers were close-ended and contained four response options for respondents to self-report their knowledge levels: ‘nothing at all,’ ‘a little,’ ‘a moderate amount,’ and ‘a great deal’” (Falk & Needham, 2013, p. 436).

This survey question is problematic for a number of reasons. First, it is double-barrelled, requiring a single response from the respondent regarding two different general topics (science and technology). Secondly, the intervals between response options are not equal; that is, there is no reason to believe the space between ‘nothing at all’ and ‘a little’ is the same as between ‘a moderate amount’ and ‘a great deal’. Other important limitations affecting this question stem from the fact that it is using a self-report measure as a proxy for directly evaluating science knowledge:

- **Low in validity.** While this question does measure something (e.g., perhaps self-confidence relating to science and technology topics), it does not measure its intended concept of actual knowledge about science and technology.
- **Low in reliability.** Science and technology are multi-faceted domains, encompassing thousands of different sub-domains, fields of practice and particular technologies. When one person thinks of ‘science’, they might be thinking of human cloning or neuroscience. Another person’s mental representation of ‘science’ might focus on earthquake detection or climate change (or simply a man with white hair in a lab coat!). This means that respondents are each essentially answering different questions, depending on which aspects of science and technology are most prominent for them.
- **Risks overestimating knowledge.** Social desirability (and ego) may drive some respondents to overestimate their knowledge.
- **Risks underestimating knowledge.** Some respondents may not recognise their knowledge as “knowing something” (e.g., it may just be taken-for-granted as ‘the way it is’) or being about “science and

technology". For example, they might have in-depth knowledge about why and how their heating unit works at home, but not recognise such knowledge as relating to 'science and technology'.

The above limitations exemplify the risks of producing inaccurate data by using self-report when a direct measurement would be more appropriate.

A related, but worse, practice is to ask respondents to report on another person's knowledge, feelings or values. An even more problematic variant of the museum learning question above might be one aimed at parents saying, "Did your child learn anything during your visit to the museum today?" ('Yes' or 'No'). You can avoid such flaws by thinking through whether your respondents could reasonably be expected to have direct knowledge on the topics you are asking them about.

It is easy to miss something important in your survey or just to make a mistake, so take every available opportunity to get feedback. Feedback from people who know your topic can be particularly good at pointing out variables or response options you may have forgotten to include. This is not a replacement for pilot testing, but it can be a useful tool later in the survey design process.

Once you are confident you have thought through the potential sources of bias for your survey, you can turn to pilot testing to evaluate whether your survey questions and formats need further development.

1.3.3 Pilot test your survey

No matter how experienced you are, there will always be small mistakes that creep into your survey forms. These mistakes can cause problems later on if they aren't identified and eliminated in the early phases of your survey design. Pilot tests can help

you to confirm that the intended meaning of your survey questions are clear to your respondents and that any directions you provide can be easily and accurately followed.

In this section, we go into detail about the different dimensions of the pilot testing process. Of course, in practice you may not have the time or the research budget to employ every pilot testing procedure described below. As we discuss these two main steps in pilot testing, keep in mind that any effort you can put towards pilot testing will improve your survey research.

There are two main steps to pilot testing: seeking up-front feedback as you develop your questions and then testing your near-final draft questions.

Formative pilot testing (step 1): Gaining up-front feedback as you craft your questions. It can be challenging to develop survey questions when you are not yet very familiar with the research topic. This means that during the survey design phase it makes a lot of sense to get feedback from the kinds of people who will ultimately take your survey. This way, you can be sure that you are adequately covering key issues, and that the questions you are asking are clear.

There are two main ways that you can go about developing your questions during this formative phase:

- **Ask open-ended survey questions to inform your closed-ended question design.** By asking open-ended questions on the points you would like to explore with your survey research, you allow your pilot-testing respondents to show you the range of responses you need to account for with your closed-ended questions. These answers may include responses you haven't yet thought of, and indications of how your question phrasing can be improved. They may also highlight when a single, general question should be asked as multiple, specific questions.
- **Engage your pilot testers in an open discussion.** Engaging in an open discussion about your questions and topic areas is particularly useful when you are not sure what questions to ask, what possible answers may be forthcoming, or how to phrase questions. This method is most

helpful when you are in the early stages of designing your survey and are 'exploring' questions and topic areas. If you are doing this at a later stage in the survey design process, you can also invite critical comments about whether your draft response options (for closed-ended questions) make sense and seem reasonable.

Once you receive this feedback, you then return to your draft questions and refine them before either engaging with pilot testers again to further improve the questions or moving on to test the near-final questions.

Summative pilot testing (step 2): Pilot testing near-final draft questions. Once you have refined your individual questions, phrasing and terminology, the survey in its entirety should be administered to respondents for pilot testing. You can then analyze responses to open-ended questions and respondents' feedback to refine all aspects of the survey form before committing to a set of final survey questions. For more information on pilot testing, see Oksenberg, et al. (1991).

1.3.4 Design robust data collection plans and procedures

After pilot testing, you need to develop a plan to put your survey into the field and begin collecting data using standardized procedures. For example, if a person is invited to participate in a study, they could either agree to participate, reject participation, or express uncertainty or some other response. You need pre-defined procedures in place for all of these outcomes. For example, in the case of rejection or expressions of uncertainty, you could either:

- Thank the individual for their consideration and note any of their visible demographic characteristics in your refusal log (see below).
- Provide additional information and request participation using different phrasing.

You should always carefully prepare for all possible reactions from potential respondents you approach.

Maintain a refusals log. Individuals declining to participate is a normal part of the survey data collection process. When it is possible to know something about the individuals who decline to participate (usually in face-to-face data collection), it is essential that you systematically capture such information. Refusals have to be captured systematically and reported in survey research because they can indicate the representativeness of your survey sample. Complete an entry into your refusal log immediately after each refusal. Each entry should note the date/time of refusal, any observable characteristics of the individual who refused (e.g., ethnicity, age, gender, accompanying individuals such as children) and any reasons they offer for refusal.

A high refusal rate raises the risk that your selected sample differs significantly from the target population. This means you must be more cautious in making any generalizations. However, you should not have unrealistic expectations of participation rates: The frequency of refusals is on a long-term increase worldwide as the total number of surveys people are exposed to continues to rise. Response rates as low as 30% are not unusual in published survey research. You can analyze the refusals log entries to see if there are any categories of individuals being systematically lost from the sample (e.g., disproportionately high numbers of women or ethnic minorities declining to participate).

While you want to capture refusal information, be sure you don't pressure respondents into giving reasons for refusing. Always treat your respondents with courtesy. If they don't want to give explanations for refusing, then just thank them for their time and move onto the next potential respondent. For more information on refusals and refusal logs, see (AAPOR, 2015a, 2015b).

Real World Example: Boosting response rates using a supplemental online survey

Eric often conducts research in the hustle and bustle of festivals, zoos or museums. From past experience, he knows that visitors in such settings frequently refuse participation because it keeps family members waiting or because they want to go to their next destination. Therefore, to increase the response rate he implemented a new system for responding to refusals. If respondents indicated that their refusals were due to such time-related reasons, then they were offered the secondary option of providing their email addresses so they could be sent an online version of the survey for completion when it was more convenient for them (e.g., at home). This additional procedure increased response rates by about 35%.

Introducing web-based surveys

Conducting your survey using an online system can offer great advantages, helping to make surveys possible on a limited budget. Web-based surveys also enhance efficiency in data transcription and management. Instead of entering data by hand from paper forms, online survey systems allow you to automatically download your data into Excel or .csv spreadsheets, ready for data cleansing and analysis.

Real World Example: Doing survey research with limited resources

Matthias wanted to do research during his undergraduate studies comparing the views of aid agency workers on the controversial topic of giving food aid to groups accused of war crimes. He had no assistance for the study (it was only him!) and financial resources were limited to exactly \$0.00. Conducting interviews was one possibility, but travelling around the world to meet each participant would have been expensive. Instead, he used a web-based survey and conducted interviews via Skype to

gather his data. This offered a no-cost means of collecting data, allowing him to complete the research within budget.

Assess appropriateness for your target population. Online surveys can open up new global research questions by allowing you to gather data from individuals around the world with no additional cost. Online surveys can be the most appropriate choice for data collection with certain populations, such as white collar professionals who tend to already have good computer access. University students are also a good population to survey online because in most parts of the world they have at least basic access to an email account and computers. Online surveys can be especially useful when your desired respondents are geographically dispersed. They can open up new global research questions by allowing you to gather data from individuals around the world with no additional cost.

At the same time, it is important to keep in mind that not everyone has access to the internet or the technical ability to participate online. If your target population is poor, under the age of 12, over the age of 65, or located in a developing nation, you will need to be cautious when choosing an online survey approach. For an in-depth discussion of the pros and cons of using online survey methods, see Baker, Blumberg and Brick (2010).

Choose a web-based survey system. Online survey data collection can be conducted using both paid and free of charge services. Some of the prominent free online survey options are:

1. **Google Docs/forms:** Not designed for survey use, so requires some effort to get the survey form into a suitable format. This option should only be used for internal surveys, as it is difficult to make it

look professional. However, this option is free, regardless of the number of forms or survey respondents you have.

2. **Lime Survey:** Requires technical proficiency, including knowledge of the Linux operating system and computer coding.

A number of online survey websites offer free use of their service for a small number of survey forms:

1. **Wufoo.com:** An easy-to-use website for creating web survey forms without any computer coding knowledge. It offers a small number of survey forms on a free account. Alternatively you can upgrade to a paid account for a monthly fee to allow you to create more survey forms and receive a larger number of survey responses.
2. **SurveyMonkey.com** A very popular website because of its simple set-up. It also does not require computer coding skills and allows you to start with a limited free account, or upgrade to a pay account for more capacity.
3. **Qualtrics.com** This service has become the go-to online survey platform for University researchers and major corporations alike. Qualtrics is great for both novices and experts, merging the ease of pre-formatted questions and survey designs with the ability to go 'under the hood' to change any aspect of the survey you want. Perhaps the best feature of Qualtrics is its incredible randomization features, allowing you to test for question order effects, question wording, etc.

The number of survey responses you are allowed with these websites is unlikely to be enough for most projects. Therefore, you will likely need at least a small amount of money and a credit or debit card available for the duration of the data collection if you use these services. However, the advantage of using specialised survey sites is their provision of the tools you need to conduct an effective online survey. Furthermore, because they are designed specifically for surveys they are more likely to connect to other applications that can allow you, for example, to conduct part or all of your data collection using a tablet. Moreover, surveys on wufoo.com can be synched with Android or Apple tablets or smartphones using a second service called 'Device Magic'. A number of other companies offer additional services that sync with both Wufoo and Survey Monkey.

Build your online survey form. When you design your online survey you can easily identify tools to enable you to ask a range of different question types. For example, for multiple choice questions, you use radio buttons so respondents can only choose one response option. For ‘tick all that apply’ survey questions, you would use check boxes so respondents could choose multiple response options. Be very careful about setting any questions so responses are ‘required’. Required fields can easily create problems for respondents, causing them to become frustrated and exit your survey prematurely. You should only require answers for those questions that are absolutely essential (e.g., you may need an email address from respondents to send them a follow-up survey later on).

Survey data collection using tablets or smartphones

An app on your tablet or smartphone can sync with online survey forms, allowing you to collect data face-to-face, which automatically uploads to the online survey system. This option holds great advantages (see Table 0.8). However, if you are using tablets or smartphones as your main data collection mode, you should be prepared with back-up paper forms, just in case.

Table 0.8 Pros and cons of survey data collection using tablets or smartphones

Benefit	Downsides
<ul style="list-style-type: none"> • No need to pay someone to enter the data, which also reduces data entry errors. • Automatically captures certain information such as time, date and/or location of survey completion. • Data available for instant secure download, allowing data analysis to commence without delay. • In the case of larger sample sizes, avoids the logistical problem of transporting large volumes of paper. • Limits risk of transcription errors due to illegible handwriting or sloppy data entry. • No printing costs or risk of losing paper survey forms. 	<ul style="list-style-type: none"> • You need access to Wi-Fi at some point (or mobile data). • You may need to buy one or more tablets or other electronic devices. This can be a particularly important problem if you lack sufficient funding. • Some respondents may not be comfortable using the technology, thereby making them less likely to participate in your research. • Technology problems can cause major delays and be challenging to resolve • Dependence on having fully charged the battery of your data collection devices. • An extra layer of pilot testing is needed to ensure the technology works as intended.

Data collection using paper survey forms usually imposes greater pressure on time and resources. Consider your budget, level of comfort with (and access to) technology and your target population when deciding whether to use online or tablet-based surveys. The most obvious opportunity to use an online survey is when your research topic focuses on activity taking place online (e.g., political discourse in online news comment websites; use of Facebook profile pages for self-presentation and other purposes; online health advice websites as a replacement for doctor visits). Of course, there are times when paper-only or a hybrid of paper and electronic survey forms are the only viable option (e.g., self-completion survey of political views of low-income elderly citizens in care homes).

Top tips: Making the most of your survey design

- Keep focused on the outcome variables that are most important for your research. Avoid the temptation to stock your survey with extra questions ‘just in case’ you might need them.
- Once you have created a first version of your survey, critically review each question to ensure it has a clear connection to your research question.
- Keep your analysis firmly in mind when deciding on the type and quantity of questions. Avoid overloading yourself with data you won’t have time to process and analyze.
- Ensure your survey questions and response options are as clear and concise as possible. If possible, use pilot testing to check this.
- Use plain language. Avoid jargon and assumptions of specialist knowledge.
- Generally phrase questions / statements in positive to minimise any confusion

- Be careful about pre-categorizing your data (e.g. by asking for age ranges rather than current age or year of birth). This can limit your analysis options later in the research process. You can always convert the more detailed data to categories later, but pre-categorized data can't be turned back into continuous data.
- Ensure you don't have any double-barrelled questions (e.g., 'What interested you in visiting the festival this year and last year?').
- Finally, be realistic about what your respondents can reasonably be expected to know and to report to you. For example, ask about current views, rather than past or future views to limit the risk of error.

1.4 Conclusion

This chapter has addressed the key elements of the survey design and data collection process. We began with the question of whether surveys are the right choice for your research project. We then discussed the guiding principle for survey design: Balance a consistent focus on your research question with the practical constraints you are facing. Issues of sampling were taken up in an earlier chapter, but you may need to re-evaluate your sampling plans in light of your survey design choices (e.g., selecting open-ended versus closed-ended survey questions). Indeed, the chapter highlights the rule of thumb that closed-ended questions require more time and planning at the earlier design phase of the research process, whilst open-ended questions lead to much greater demands for time and resources in the data analysis phase. Moreover, this distinction becomes stronger as sample size increases.

We then described the survey process as a whole before going into detail about the principles of good practice in question selection and design. We showed how pilot

research is often necessary to effectively design survey questions, forms and procedures, and avoid unnecessary work in the long-term. Finally, we highlighted the importance of survey data collection plans and procedures, with a particular focus on the use of refusal logs.

This chapter has highlighted the detailed considerations involved in designing and conducting survey research while facing resource limitations. In sum, if survey design seems too easy, then you are probably doing something wrong! While there are straightforward rules for surveys that have been worked out through decades of methodological research, survey design does take careful thought, editing and (ideally) pilot testing. From surveys, we now turn to the more resource-intensive data collection methods of qualitative interviewing, focus groups and ethnography. These methods have very different strengths and weaknesses, which we will elaborate in the next two chapters. As you read on, continue to consider which method of data collection would be most beneficial for accurately addressing your research question.

Suggestions for Further Reading

- American Association for Public Opinion Research. (2015). Retrieved 4 July, 2015, from www.aapor.org The American Association for Public Opinion Research. www.aapor.org. As the leading association of public opinion and survey research professionals, the AAPOR provides a huge body of resources for both experts and lay public alike. In addition to providing links to the journals the organization sponsors, the AAPOR website has an entire section dedicated to survey education and resources. There are guides to reading surveys, fielding surveys, writing about surveys, and much more.
- de Leeuw, E. D., Hox, J., & Dillman, D. (Eds.) (2008) *International handbook of survey methodology*. New York: Lawrence Erlbaum. If you're wanting a more in-depth look at the entire survey process, this edited volume is a great resource. There are 25 chapters covering every step in the survey process, taking you from conception to data analysis.

- De Vaus, D. A. (2002). *Surveys in social research*. London: George Allen & Unwin. If you know that surveys are your chosen research method, this book offers a useful starting point. This readable book offers useful insights across the whole survey process, but the sections on survey data analysis and interpretation are especially helpful.
- Link, M. W., Murphy, J., Schober, M. F., Buskirk, T. D., Childs, J. H., & Tesfaye, C. L. (2014). Mobile technologies for conducting, augmenting and potentially replacing surveys: Executive summary of the AAPOR Task Force on Emerging Technologies in Public Opinion Research, *Public Opinion Quarterly* 78(4). The field of survey research is moving quickly, with a number of important cultural and economic factors quickly reshaping how surveys are done. This article gives an overview of how new and emerging technology may be able to fundamentally change (and hopefully improve) survey research of the future, while also giving guidance about how to embrace mobile technology in an ethical and effective way.
- Tourangeau, R., Rips, L. & Rasinski, K. (2000). *The psychology of survey response*. Cambridge: Cambridge University Press. This book is slightly dated, but draws together a clear and concise summary of key methodological research relevant to surveys. The book helpfully provides the details of studies that were used to test different kinds of survey bias. This allows you to draw your own conclusions about adjustments you should make to your survey designs in light of known survey response biases.

Glossary

- *Acquiescence bias* – All things being equal, respondents tend to agree with Likert scale (level of agreement) statements.
- *Close-ended question* – A survey question where respondents choose from a limited range of pre-specified response options.
- *Cross-sectional survey* – A survey that collects information reflecting a single point in time.
- *Demand characteristics* – Respondents tend to alter their answers based on what they believe to be the expectations of the situation or the researcher's preferred result.
- *Demographic question* – A question about the objective characteristics of the respondents (e.g., gender, ethnicity, religious affiliation).
- *Likert scale* – The sum of responses to several Likert type items, reflecting the direction and intensity of attitudes, beliefs, etc.

- *Likert type item* – A statement that a respondent is asked to evaluate on any subjective or objective dimension ranging from one extreme to another (e.g., from 1 - strongly disagree to 7 - strongly agree).
- *Longitudinal survey* – Multiple surveys with the same or similar questions; focused on investigating change over time.
- *Multiple choice ('select one') question* – A closed ended survey question that only allows for one response.
- *Multiple choice ('tick all that apply') question* – A closed ended survey question that allows for multiple responses.
- *Open-ended question* – A survey question where respondents generate their own responses.
- *Pilot testing* – The process of administering, and gaining feedback on, all or part of your survey prior, in order to confirm that the intended meaning of your survey questions are clear to your respondents and that any directions you provide can be easily and accurately followed.
- *Ranked response question* – A survey question where respondents are asked to rank a finite series of items according to some stated criteria, from highest to lowest.
- *Refusals logging* – The systematic capturing and reporting of information about who refused to participate in your survey and why.
- *Reliability* – A prerequisite to validity; refers to the extent to which the measures you use, and the data you collect, provide consistent results.
- *Researcher expectancy effect* – Researchers unintentionally introduce bias by using survey questions and response options based on their existing assumptions about the topic they are researching.
- *Self-administered survey* – A survey where respondents are required to read the survey instructions and questions for themselves and respond on paper or screen without a researcher's active participation.
- *Social desirability bias* – Respondents try to hide their true views or behaviours to make themselves look better (to both themselves and the researcher) by over-reporting views and behaviours that are widely praised in society and under-reporting those that are not.
- *Standardization, survey* – Every respondent is asked the exact same questions in exactly the same way
- *Validity* – The extent to which the information you gather from your survey respondents accurately represents the concept you are studying.
- *Verbally administered survey* – The individual administering the survey talk through all aspects of the survey, including both direction, questions and response choices.

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