2 THE SURVEY FORM
Questions, Scales, and Appearance

CHAPTER OBJECTIVES

After reading and studying this chapter's contents, you will be able to:

1. Identify whether given survey questions use categorical, ordinal, or continuous scales.

2. Prepare a self-administered questionnaire with these characteristics:

   a. It will have 10 or fewer questions.
   b. The questions will focus on satisfaction with the content of this chapter.
   c. It will have three questions—one each that produces categorical, ordinal, and numerical data.
   d. The choice of question and scale will be justified.

3. Create a self-administered or interview questionnaire for teens between 13 and 17 years of age that asks them about one or more of these topics: bullying at school, use of social media during class time, and lifestyle practices (alcohol use? other drugs? exercise? diet?).

4. Explain these terms: open-ended question, closed question, forced-choice question, rank order scale, comparative rating scale, Likert scale, drop-down menu, summative scale, and differential scale.

OVERVIEW

To decide on a survey's content, you must define the attitude, belief, value, or idea being measured. For example, what is meant by fear? By a liberal perspective? By self-efficacy? Also ask this: Which questions must be asked in a valid survey if I want to measure fear (or a liberal perspective or self-efficacy)? Can I get the information I need from a survey, or is some other data collection method a better way to go?

The responses to closed questions can take the form of yes-or-no answers, checklists, and rating scales. Checklists give respondents many choices (e.g., "check all that apply"). Rating scales require respondents to rank (e.g., "1 = *top*, 10 = *bottom*") or order (e.g., "1 = *definitely agree*, 2 = *agree*, 3 = *disagree*, 4 = *definitely disagree*") ideas. Respondents may also be asked to give a number for an answer (e.g., "What is your age?").

Responses to questions produce data that is called categorical (e.g., "yes or no"), ordinal (e.g., "big, bigger, biggest"), and numerical or continuous (e.g., "20, 21, 22

years old"). The surveyor must consider the type of data the survey produces to come up with an appropriate method of analyzing and interpreting its findings.

Surveyors are often interested in responses to individual items, such as the number of people who will vote for Candidate X or how often women between 65 and 80 years of age visit a doctor in a 3-month period. But sometimes they are concerned with a score on a group of items that collectively represent respondents' views, health status, or feelings.

Online surveys have many useful features such as drop-down menus and the ability to build on the answer to one question to create the next. You can also reach large numbers of people with one click.

THE CONTENT IS THE MESSAGE

Once you have decided that a survey is the method you want to use to gather data, you must consider the content or topics it will include.

Suppose you are evaluating a youth center's progress, and your main task is to find out whether the program's objectives have been achieved. Say that one of the objectives is to raise young people's self-esteem by providing them with education, jobs, financial help, and medical and mental health assistance. Suppose also that you decide to survey the young program participants to find out about their self-esteem. How would you determine which content to include?

To select the content of a survey, you must define your terms and clarify what you need and can get from asking people about their views.

DEFINE THE TERMS

Many human attitudes and feelings, such as self-esteem, are subject to a range of definitions. Does *self-esteem* mean feeling good about oneself, and if so, what does *feeling good* mean? Surveyors can answer questions such as this by reviewing the research (in this case, the literature on self-esteem) to find out what is known and theorized about a concept such as self-esteem, consulting with experts, or defining the concept for themselves. The problem with using your own definition is that others may not be convinced of its validity. When using a theoretical concept such as self-esteem, it is probably best to adopt a respected point of view and, if possible, an already existing and tested survey form.

Of course, for many surveys, you will not be measuring theoretical ideas, but even so you must define your terms. Suppose you are assessing a community's needs for health services. The terms *needs* and *health services* would certainly require definition because you can define them with respect to the type and nature of services required (outpatient clinics? hospitals? home visits?) and how convenient (time of day when doctors should be available) or how continuous they should be (must the same doctor always be available?).

SELECT YOUR INFORMATION NEEDS OR HYPOTHESES

Suppose two surveyors choose the same definition of self-esteem for their evaluation study of the youth center. Depending on the circumstances, Surveyor 1 might decide to focus on self-esteem in relation to feelings of general well-being, whereas Surveyor 2 may be concerned with feelings of self-esteem only as they manifest themselves in school or at work. Certainly Surveyors 1 and 2, with their different orientations, will ask different questions. The results will yield different kinds of information. Surveyor 1,

with a concern for general self-esteem, may not even cover work or school and will not be able to provide data on these topics. Surveyor 2, with special interests in school and work, probably will not provide information on participant self-esteem with respect to personal relationships. The messages revealed by each survey will clearly be different.

Say you are interested in whether participants in the youth center enhanced their general self-esteem after 2 years of participation in the program and that you have defined your terms to conform to an accepted theory of adolescent personality. To make sure you get all the data you need, you must ask this question: What information do I want and must therefore make certain I collect? Remember, if you do not ask for it, you cannot report it later!

Here are some typical questions that the evaluator of the youth center could ask:

- Is there a relationship between general feelings of self-esteem and whether the participant is a boy or girl?

- Does participants' self-esteem differ depending on how long they have been in the program?

The evaluator can also come up with hypotheses like these:

1. Boys and girls do not differ in their general feelings of self-esteem.

2. Participants who have been in the program less than 12 months will differ in their self-esteem from those who have been in the program 12 months or more.

These questions and hypotheses suggest that the survey must get data on three topics:

1. General feelings of self-esteem

2. Sex of participant

3. Length of participation in the program

If any of these topics is omitted, the surveyor of the youth center cannot answer the two evaluation questions.

MAKE SURE YOU CAN GET THE INFORMATION

In some cases, people may be reluctant to reveal their opinions. The evaluator of the youth center, for example, may discover that many young people are reluctant to answer questions about their feelings. In other cases, potential survey respondents may simply be unable to provide answers. Suppose you want to ask participants who have been attending the youth center for about 6 months about their attitudes toward school before entering the center's program. Many may have forgotten. An inability to answer questions is not unique and is a major problem with accurately predicting voters' preferences in national elections. It often takes time for people to settle on a candidate, and some people change their opinions several times over the course of a campaign. That is one reason that polls produce results that differ among themselves and from one point in time to another.

If you are not certain you can get the information you need from a survey, remove the topic, and find another data source, such as observations or reviews of records such as diaries and reports of school attendance or hospital admissions.

DO NOT ASK FOR INFORMATION UNLESS YOU CAN ACT ON IT

In a survey of a community's needs for health services, it would be unfair to have people rate their preference for a trauma center if the community is unable to support such a service. Remember that the content of a survey can affect respondents' views and expectations. Why raise hopes that you cannot or will not fulfill?

Once you have selected the content and set the survey's boundaries, your next task is to write the questions. Write more questions than you plan to use because several will probably be rejected as unsuitable. First drafts often have questions for which everyone gives the same answer or no one gives any answer at all. Before deciding on the number and sequence of questions, you must be sure that you cover the complete domain of content you have identified as important to the survey. You may want to keep a list such as that in Figure 2.1 used by the surveyor of participant satisfaction with the youth center. As you can see, this survey will not cover staff sensitivity but will focus instead on consideration, accessibility, and availability of services.

FIGURE 2.1 ■ Plan for Survey of Satisfaction With the Youth Center

Topics	Number of Questions
1. Staff sensitivity	
Counselor usually listens	0
Counselor is available when needed	0
Appointment staff courteous	0
2. Accessibility of services	
Hours are convenient	4
Public transportation is available	5
3. Consideration of participant's needs	
Translation assistance is provided	4
Appointments are easy to get	5
Waiting times are tolerable	4
4. Availability of needed services	
Medical services are provided	8
Educational programs are appropriate	9

WRITING QUESTIONS

Open-Ended and Closed Questions

Survey items may take the form of questions (see Figure 2.2).

Sometimes survey items are open-ended, meaning that the respondents agree to answer the question or respond to the statement in their own words. Question 1 is open-ended. At other times, survey items force the respondent to choose from preselected alternatives as in Question 2.

The overwhelming majority of surveys rely on multiple-choice questions because they are efficient and are often more reliable than other question types. Their efficiency comes from being easy to use and score. Also, their reliability is enhanced because of the uniform data they provide; everyone responds in terms of the same options (e.g., "agree or disagree" or "frequently or infrequently").

Open-ended questions can offer insight into why people believe the things they do, but interpreting them can be extremely difficult unless they are accompanied by an elaborate classification system and people are trained to categorize the data they get within the system.

Consider these two answers to a question from a survey of participants in an elementary school teaching program.

FIGURE 2.2 ■ **Open-Ended and Closed Survey Questions**

Open-Ended Question

1. How courteous are the people who make your appointments?

_____

_____

_____

Or they may be worded as statements.

Closed Question

Circle your agreement or disagreement with the following:

2. The people who make my appointments are courteous.

Mark (X) one choice:

Definitely agree	☐
Agree	☐
Disagree	☐
Definitely disagree	☐

EXAMPLE: OPEN-ENDED QUESTION FOR ELEMENTARY SCHOOL TEACHING PROGRAM

Question: What were the three most useful parts of the program?

_____

_____

_____

Answers:

Respondent A

    Instructor's lectures

    The field experience

    Textbook

Respondent B

    Instructor

    Teaching in the classroom

    The most useful part was the excellent atmosphere for learning provided by the program.

It is not easy to compare Respondent A's and Respondent B's responses. Respondent B lists the instructor as useful. Does this mean that the instructor is a useful resource in general, and how does this compare with Respondent A's view that the instructor's lectures were useful? In other words, are Respondents A and B giving the same answer? Respondent A says the textbook was useful. If only one text was used in the program, then Respondents A and B gave the same answer. But because the two recorded responses are different, some guessing or interpretation of what is meant is necessary.

Respondents A and B each mentioned something that the other did not: field experience and learning atmosphere. If these were equally important, then they could be analyzed individually. But suppose neither was particularly significant from the perspective of the survey's users. Would they then be assigned to a category labeled something like *miscellaneous*? Categories called *miscellaneous* usually are assigned all the difficult responses, and analysis and interpretation are quite complicated. Before you know it, *miscellaneous* can become the largest category of all.

Although it may be relatively easy for a respondent to answer an open-ended question, analysis and interpretation are complicated. The following closed question could have been used to obtain the same information with the added result of making the responses easy to interpret (see Figure 2.3).

Making the Decision: Open-Ended Versus Closed Questions

Choose open-ended questions when you want to give the respondents the opportunity to express opinions in their own words and you have the interest in and resources to interpret the findings. Open-ended questions tend to be relatively easy to compose.

FIGURE 2.3 ■ Closed Question for Elementary School Teaching Program

1. Please tell us if you are satisfied or dissatisfied with each of these components of our program.

	Dissatisfied	Satisfied	Not Sure
The textbook, *Teaching in the Classroom*	☐	☐	☐
The instructor's subject matter knowledge	☐	☐	☐
The practicality of lecture topics	☐	☐	☐
The field experience	☐	☐	☐

Choose closed questions for their relative ease of scoring, analysis, and interpretation. Closed questions can be difficult to prepare because they require that all respondents interpret them the same way and that all relevant choices are included, mutually exclusive, and sensible.

ORGANIZING RESPONSES TO OPEN-ENDED SURVEY ITEMS: DO YOU GET ANY SATISFACTION?

A common use of a survey is to find out whether people are satisfied with a new product, service, or program. Their opinions provide important insights into why new ideas or ways of doing things do or do not get used.

One open-ended set of questions that is particularly appropriate for getting at satisfaction requires collecting information about what people like best (LB) about the product or service and what they like least (LL).

Here is how the LB/LL technique works:

Step 1: Asking Respondents' Opinions

Ask respondents to list what is good and what is bad. Always set a limit on the number of responses; for example, "List at least one thing, but no more than three things, you liked best about the conference." If participants cannot come up with three responses, they can leave blank spaces or write "none." If they give more than three, you can keep or discard the extras depending on the information you need.

Instead of asking about the entire conference, you may want to focus on some particular aspect; for example, "List at least one thing, but no more than three things, you liked best about the workshops."

Step 2: Coding LB/LL Data

Once you have all the responses, the next step is to categorize and code them. To do this, you can create categories based on your review of the responses, or you can create categories based on past experience with similar programs.

Try to keep the categories as precise as possible—that is, more categories rather than fewer—because it is easier to combine them later if necessary than it is to break them up.

Suppose these are typical answers participants gave to the question on what they LL about the conference:

Some people did all the talking.

The instructor didn't always listen.

I couldn't say anything without being interrupted.

There was too much noise and confusion.

Some participants were ignored.

The instructor didn't take control.

I didn't get a chance to say anything.

Smith and Jones were the only ones who talked.

The instructor didn't seem to care.

I couldn't hear myself think.

You might categorize and code these answer as in Table 2.1.

Now match your codes and the responses as in Table 2.2):

To make sure you assigned the codes correctly, you may want to establish their reliability. Are they clear enough so that at least two raters would assign the same code for a given response?

Step 3: LB/LL Data

When you are satisfied about reliability, the next step is to count the number of responses for each code.

Here is how to do this step for 10 participants (see Table 2.3):

Look at the number of responses in each category. The 10 participants listed 30 things they liked least about the small group discussion. Seventeen of 30 (more than 50%) were assigned to the same category, Code 2, and the surveyor could justly argue that, based on the data, what the participants tended to LL about the workshops was that some people monopolized the discussions and others did not get a chance to say anything.

Next, count the *number of participants* whose answers were assigned to each code (see Table 2.4). For example, only Participants A and B gave answers that were coded 1.

Look at the number of participants whose responses fit each category. Because eight or nine of the 10 participants gave responses that fell into the same two categories (Codes 2 and 3), their opinions probably represent those of the entire group. It is safe to add that participants also disliked the disorderly atmosphere that prevailed during the workshops. They complained that the noise made it hard to think clearly and the instructor did not take control.

TABLE 2.1 ■ LB/LL: Response Categories	
	Code
Instructor didn't listen (ignored participants; didn't seem to care)	1
Some people monopolized discussion (did all the talking; couldn't say anything; Smith and Jones were the only ones who talked)	2
Disorderly environment (too much noise; instructor didn't take control; couldn't hear myself think)	3

TABLE 2.2 ■ LB/LL: Participant Responses	
	Code
Participant A	
The instructor didn't always listen.	1
I couldn't hear myself think.	3
I couldn't say anything without being interrupted.	2
Participant B	
The instructor didn't always listen.	1
The instructor didn't take control when things got noisy.	3
The instructor ignored some students.	3
Participant C	
I didn't get a chance to say anything.	2

TABLE 2.3 ■ LB/LL: Number of Responses for Each Code				
	Codes			
Participant	1	2	3	Total
A	1	1	1	3
B	1		2	3
C		2	1	3
D		1	2	3
E		3		3
F		2	1	3
G		2	1	3
H		2	1	3
I		3	2	5
J		1		1
	2	17	11	30

TABLE 2.4 ■ LB/LL: Participants' Response Pattern		
Code	No. of Participants Listing a Response Assigned to This Code	Which Participants?
1	2	A, B
2	9	All but B
3	8	All but E and J

When respondents agree with one another, there will be only a few answer categories, and these will be listed by many people. If respondents disagree, many categories will turn up on their lists, and only a few people (fewer than 10%) will be associated with each type.

Interpreting LB/LL data gets more complex when you have many participants and responses to categorize. Suppose, for example, you ask 100 participants to indicate which aspects of a health education program they LB.

First, you must decide on your response categories and assign each one a code. Then try this:

1. Put the codes in rank order. That is, if the largest number of participants chose responses that are assigned to Code 3, list Code 3 first.

2. Calculate the percentage of students assigned to each code. If 40 of 100 students made responses that were assigned to Code 3, then the calculation would be 40%.

3. Count the number of responses assigned to each code.

4. Calculate the percentage of responses assigned to each code. If 117 responses from 400 were assigned to Code 3, then 29.25% or 117/400 of responses were for Code 3.

5. Calculate the cumulative percentage of responses by adding the percentages together: 29.25% + 20.25% = 49.50%.

Figure 2.4 summarizes these steps with some hypothetical data. The table is then translated into a line graph using standard software. The graph is shown after the table.

As you can see in Figure 2.5, the response categories are ranked along the x axis according to the number of participants assigned to each code. The y axis represents percentages.

For each response category, you should look for two points on the x axis: the percentage of participants and the cumulative percentage of responses. First, the cumulative percentages of responses are joined with a square (□). Next, some of the points representing percentages of participants are joined with a diamond (◊). The graph shows that responses coded as 3, 4, and 7 seem to be close in response frequency. They are the categories to be emphasized because the highest percentages of participants were assigned to these codes, and they account for 69% of all responses.

Items 1, 8, and 10, form a second intuitive grouping that represents 23.5% of all responses. Taken together, responses coded as 1, 3, 4, 7, 8, and 10 account for 92.5% of the total.

RULES FOR WRITING CLOSED SURVEY QUESTIONS

Multiple-choice, closed survey questions consist of a stem, which presents a problem (typically in the form of a statement, question, brief case history, or situation), followed by several alternative choices or solutions. Here are rules for their construction.

1. *Each question should be meaningful to respondents.* In a survey of political views, the questions should be about the political process, parties, candidates, and so on. If you introduce other questions that have no readily obvious purpose, such

FIGURE 2.4 ■ **LB/LL: Summary of Responses**

Response Categories (With Codes in Rank Order)	Percentage of Participants Assigned to Each Code (100 Participants)	Number of Responses Assigned to Each Code (100 Participants)	Percentage of Responses Assigned to Each Code	Cumulative Percentage of Responses Assigned to Each Code
3	40	117	29.25	29.25
4	34	81	20.25	49.50
7	32	78	19.50	69.00
8	20	35	8.75	77.25
10	17	30	7.50	85.25
1	15	29	7.25	92.50
6	10	14	3.50	96.00
2	5	10	2.50	98.50
9	3	5	1.25	99.75
5	1	1	0.25	100.00

Response Categories (With Codes in Rank Order)	3	4	7	8	10	1	6	2	9	5
% Responses per Code	40	34	32	20	17	15	10	5	3	1
Cumulative % Responses per Code	29.25	49.5	69	77.25	85.25	92.5	96	98.5	99.75	100

FIGURE 2.5 ■ **Ranking Response Categories Alone the X-Axis**

Summary of Responses
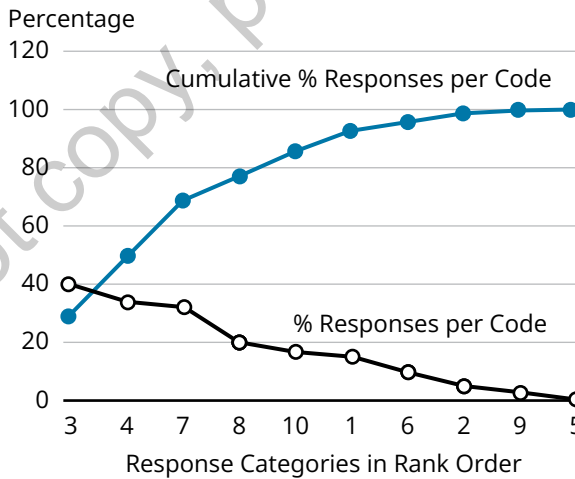
as those about age or gender, you might want to explain why they are being asked; for example, "We are asking some personal questions so that we can look for connections between people's backgrounds and their views."

2. *Use standard language rules.* Because you want an accurate answer to each survey item, you must use conventional grammar, spelling, and syntax. Avoid specialized words (unless you are testing people's knowledge of them) and abbreviations, and make sure that your items are not so lengthy that you are testing reading or vocabulary.

EXAMPLE: ITEM-WRITING SKILLS—LENGTH, CLARITY, ABBREVIATIONS, AND JARGON

Length

Poor: The paucity of psychometric scales with high degrees of stability and construct validity is most bothersome to surveyors when measuring people's

1. economic characteristics
2. feelings
3. knowledge
4. health

Better: The lack of reliable and valid methods causes surveyors the most problems when measuring people's

1. economic characteristics
2. feelings
3. knowledge
4. health

Clarity

Poor: What remedy do you usually use for stomachaches?

Better: Which brand of medicine do you usually use for stomachaches?

Abbreviations

Poor: Which political party is responsible for the expanding size of the gross domestic product (GDP)?

1. Republican
2. Democratic

   Better: Which political party is responsible for the diminishing size of the GDP?

1. Republican
2. Democratic

Jargon

Poor: In your view, which dyad is most responsible for feelings of trust in early childhood?

1. Mother and father
2. Father and sibling
3. Mother and sibling

   Better: In your view, which family combination is most responsible for feelings of trust in early childhood?

1. Mother and father
2. Father and brother or sister
3. Mother and brother or sister

3. *Make questions concrete.* Questions should be close to the respondent's personal experience.

EXAMPLE: ITEM-WRITING SKILLS—CONCRETE QUESTIONS

Less concrete: Do you think other people would enjoy the book?

More concrete: Have you recommended the book to anyone else?

Asking respondents whether they think others would enjoy a book is more abstract than asking whether they recommended it to others. Who are the others? Can you be sure the respondent knows about other people's enjoyment with respect to the book? The further you remove a question from the respondent's direct experience, the closer you come to the problems associated with remembering.

Consider this:

EXAMPLE: ITEM-WRITING SKILLS— SPECIFICITY OF QUESTIONS

Five companies in a small city were surveyed to find out about their attitudes toward hiring women for managerial positions. One survey question asked, "Do you think women have as good a chance as men for managerial positions?" A friend of the surveyor pointed out that a better way of asking the question was "At (fill in name of company), do women have as good a chance as men for managerial positions?"

Be careful not to err on the concrete side. If you ask people how many hours of TV they watched each day for the past week, you should be sure that no reason exists for believing that the past week was unusual so that the data would not be representative of a true week's worth of TV viewing. Among the factors that might affect viewers' habits are TV specials such as the Olympics and cataclysms such as plane crashes, earthquakes, floods, and fires.

4. *Avoid biased words and phrases.* Certain names, places, and views are emotionally charged. When included in a survey, they unfairly influence people's responses. Words such as *president, abortion, terrorist*, and *alcoholic* are examples.

Suppose you are surveying people who had been through a diet program. Which words should you use: *thin* or *slender; portly, heavy*, or *fat*?

Remember this?
- I am firm.
- You are stubborn.
- He is a pig-headed fool.

Look at these questions.

- Would you vote for Roger Fields?
- Would you vote for Dr. Roger Fields?
- Would you vote for Roger Fields, a liberal?

Although Roger Fields appears to be the most neutral description of the candidate, it may be considered the least informative. Yet the introduction of *Dr.* or *liberal* may bias the responses.

5. *Check your own biases.* An additional source of bias is present when survey writers are unaware of their own position toward a topic. Look at this:

EXAMPLE: ITEM-WRITING SKILLS—HIDDEN BIASES

Poor: Do you think the liberals and conservatives will soon reach a greater degree of understanding?

Poor: Do you think the liberals and conservatives will continue their present poor level of understanding?

When you are asking questions that you suspect encourage strong views on either side, it is helpful to have them reviewed. Ask your reviewer whether the wording is unbiased and acceptable to persons holding contrary opinions. For a survey of people's views on the relationship between liberals and the conservatives, you might ask the following:

EXAMPLE: ITEM-WRITING SKILLS—HIDDEN BIASES

Better: In your opinion, in the next 4 years, how is the relationship between the liberals and the conservatives likely to change?

Much improvement

Some improvement

Some worsening

Much worsening

Impossible to predict

6. *Use caution when asking for personal information.* Another source of bias may result from questions that may intimidate the respondent. Questions such as "How much do you earn each year?" "Are you single or divorced?" and "How do you feel about your teacher, counselor, or doctor?" are personal and may

offend some people who might then refuse to give the true answers. When personal information is essential to the survey, you can ask questions in the least emotionally charged way if you provide categories of responses.

EXAMPLE: QUESTION-WRITING SKILLS— PERSONAL QUESTIONS

Poor: What was your annual income last year?

$_____

Better: In which category does your annual income last year fit best?

    Below $10,000

    Between $10,001 and $20,000

    Between $20,001 and $40,000

    Between $40,001 and $75,000

    Over $75,001

Categories of responses are generally preferred for sensitive questions because they do not specifically identify the respondent and appear less personal.

7. *Each question should have only one thought.* Do not use questions in which a respondent's truthful answer could be both yes and no at the same time or allow a respondent to agree and disagree at the same time.

EXAMPLE: QUESTION-WRITING SKILLS—ONE THOUGHT PER QUESTION

Poor: Should the United States cut its military or domestic spending?

    Yes

    No

    Don't know

Better: Should the United States substantially reduce its military spending?

    Yes

    No

    Don't know

                        or

Should the United States allocate more money to domestic programs?

    Yes

    No

    Don't know

> or
>
> If the United States reduced its military spending, should it use the funds for domestic programs?
>
> Yes
>
> No
>
> Don't know

RESPONSES FOR CLOSED QUESTIONS

Yes and No

The responses in a survey with closed questions can take several forms.

EXAMPLE: YES-AND-NO RESPONSES

Have you graduated from college?

Yes

No

Does your car have four-wheel drive?

Yes

No

Don't know

Yes-and-no responses are simple to use and score. But, asking for an absolutely negative (no) or an absolutely positive response may result in the participants' refusal to answer if they are not absolutely sure. This, in turn produces a large and possibly inflated number of "don't knows."

RATING SCALES

Categorical or Continuous? What About Ordinal?

A rating scale requires the respondent to place the item being rated in any one of an ordered series of categories or at some point along a continuum. A numerical value is assigned to the ordered categories or points. There are three types of rating or measurement scales.

1. *Categorical.* These are sometimes called nominal response scales. They require people to affirm or name the groups to which they belong: gender, religious affiliation, school, or college last attended (see Table 2.5).

2. *Ordinal.* These scales require that respondents place answers in order of importance. A person's economic status (high, medium, or low) would provide an ordinal measurement (see Table 2.6).

3. *Numerical scales.* Numerical scales take two forms: discrete and continuous. A discrete scale produces a precise number (see Figure 2.6), whereas a continuous scale produces a number that falls on a continuum.

Here is a discrete scale:

On days that you drank alcohol during the past 12 months, how many drinks of alcohol (beer, wine, and/or hard liquor) did you usually drink?

TABLE 2.5 ■ Categorical Rating Scale	
	Circle One
Male	1
Female	2

What is the newborn's sex?

TABLE 2.6 ■ Ordinal Rating Scale	
	Circle One
Elementary school	1
Some high school	2
High school graduate	3
Some college	4
College graduate	5
Postgraduate	6

What is the highest level of education that you achieved?

FIGURE 2.6 ■ Numerical Scale

Five or more	☐
Four	☐
Three	☐
Two	☐
One	☐

The answer is discrete because you get an actual number. Contrast this to a numerical scale that produces a number on a continuum:

What is your blood pressure? ____/____mm/Hg

How tall are you (in centimeters)? _____cm

Continuous data can have almost any numeric value and can be meaningfully subdivided into finer increments depending on the precision of the measurement system.

You can also use graphic scales to get continuous data. Graphic scales are a kind of rating scale in which the continuum of responses is visual. Perhaps the most well-known graphic scale is used to describe pain. A person is shown six face emojis and asked to mark the one that t best illustrates their current pain. The graphics vary in complexity but range from no pain 😊 to severe pain 🙁.

The distinctions among categorical, ordinal, and continuous scales are important because they determine the kinds of statistical treatments you can use. Consider averages. If you want the average score for continuous data, you will use arithmetic average or mean. For ordinal data, you might consider calculating the median or the number separating the higher half of responses from the lower half (more on statistical approaches and survey data can be found in Chapter 6).

Ordinal Scales

When raters use ordinal scales, they select one of a limited number of categories that have some order to them:

EXAMPLE: ORDINAL SCALES

Frequently

Sometimes

Almost never

Very favorable

Favorable

Neither favorable nor unfavorable

Unfavorable

Very unfavorable

Strongly approve

Approve

Neither approve nor disapprove

Disapprove

Strongly disapprove

Definitely agree

Probably agree

Neither agree nor disagree

Probably disagree

Definitely disagree

Ordinal scales are easy to use and interpret. How many categories should there be? Some people use as many as nine categories and others as few as three (high, medium, and low). An even number of choices—say, four—forces the respondent away from the middle ground (neither agree nor disagree). But the needs of the survey and skills of the respondent must determine the number of categories. If precise information is needed, the respondents are willing and able to give it, and you have the resources to collect it, use many categories (between 7 and 9); otherwise, use fewer.

Consider these two situations:

EXAMPLE: SELECTING THE NUMBER OF CATEGORIES

1. A 4-minute phone interview was conducted to find out how often families with working mothers ate dinner in restaurants. The question was asked: "In a typical month, how often does your family eat dinner in a restaurant?" The response choices were *two or more times a week, once a week*, or *less than once a week*.
2. Physicians were asked to rate the appropriateness of a comprehensive list of reasons for performing selected surgical procedures such as coronary artery bypass graft surgery and gallbladder removal. An appropriate reason was defined as one for which benefits to patients outweighed risks. A scale of 1 to 9 was used, where 1 = *definitely inappropriate*, and 9 = *definitely appropriate.*

In Situation 1, the 4-minute interview dictated short responses. In Situation 2, physicians were asked to use their expertise to give refined ratings.

An often-used ordinal scale is the Likert-type scale in which respondents are asked to tell how closely they agree or disagree with a statement. The number at one end of the scale represents the least agreement, or *strongly disagree*, and the number at the other end of the scale represents the most agreement, or *strongly agree*. Likert scales typically have five points:

Strongly disagree

Disagree

Neither agree nor disagree

Agree

Strongly agree

Sometimes a four-point scale is used; this is a *forced-choice* method because the middle option of *neither agree nor disagree* or, by convention, *neutral* is not available. Depending on the survey's needs, the list can go from *strongly disagree* to *strongly agree* or the other way around. If the scale includes other words at either end to further clarify the meaning of the numbers, it is known as a Likert-style question (see Table 2.7).

Responses to Likert items are sometimes analyzed as ordinal data, particularly when the surveyor cannot assume that respondents perceive the difference between adjacent rating points as equidistant. When regarded as ordinal data, Likert responses can be collated into bar charts and summarized by the median or the mode (but not the mean) and variation summarized by the range (but not the standard deviation) or analyzed using nonparametric tests (e.g., c^2 test or Mann-Whitney test). If the surveyor decides to regard the scale as continuous, then means and standard deviations are appropriate statistics. Treating the data as continuous can occur if the surveyor decides to compare average ratings. Data from Likert scales is sometimes reduced to the categorical level by combining all *agree* and *disagree* responses into two categories of accept and reject. The c^2 and McNemar tests are common statistical procedures used after this transformation (see Chapter 6 for more on these techniques).

Forced-choice questions are often useful when you want to divert the respondent from taking the path of least resistance by choosing a middle category (somewhere between *agree* and *disagree*—*neutral*) or claiming uncertainty (*not sure, don't know*). But forcing respondents to choose may annoy them and may not uncover the truth about their views.

Some ordinal scales rely on relative judgments or ranks, as in Figure 2.7.

In Figure 2.7, the down arrows to the left of each name consist of the numbers 1 to 5. The respondent can select a response only once. If Fay Gross is ranked 5 in writing ability, then the others must be ranked 1, 2, 3, or 4.

Ranking involves comparing one factor to another. Another form that an ordinal scale can take is the comparative scale (see Figure 2.8). This one asks the respondent to contrast a single specific object in terms of a general situation.

To ensure that rank orders and comparative rating scales provide accurate information, you must be certain that the respondents are able to make comparisons. Do they have experience in judging writing skills? If not, how can they assign ranks? Are they fully acquainted with Thai restaurants in Los Angeles? If not, how can they make comparisons?

Checklist

A checklist provides respondents with a series of answers. They may choose one or more answers depending on the instructions (see Figure 2.9).

TABLE 2.7 ■ A Likert-Style Survey Question and Responses				
How important do you think standardized test scores are to a fifth grader's education?				
Not very important		Somewhere between important and not important		Extremely important
1	2	3	4	5

FIGURE 2.7 ■ Rank Order Scale

Source: SurveyMonkey®

FIGURE 2.8 ■ Comparative Rating Scale

Please compare the Imperial Thai
Restaurant to others in Los Angeles.

Check one:

_ It is better than most.
_ It is about the same as most.
_ It is not as good as most.

Checklists help remind respondents of some things they might have forgotten. If you simply asked people to list their medications, chances are that some would not know. Checklists also help with the spelling of difficult words. A problem is that respondents might think a choice looks familiar and check the wrong item. Did they take penicillin or ampicillin? Was it this month or last? Also, it is somewhat difficult to format and interpret responses to checklists where multiple answers can be given. Suppose in the first example that a person circles "2" for aspirin but fails to indicate whether the other medicines were taken. Can you assume that the others were not taken, or is it possible that they were, but the person did not bother to complete the item?

CHILDREN AND SURVEYS

What do the two questions in Figure 2.10 have in common?

These two questions were all created for children or teens. They are based on questions that are used in real surveys. They come from surveys led by the U.S. Office of Planning, Research and Evaluation, of the Administration for Children and Families.

Many good reasons exist for surveying children. As we all know, children and adolescents live in a different world, and we adults may not know or understand what they

FIGURE 2.9 ■ Two Example Checklist Questions

Checklist Responses in Which Respondents Must Choose One From a List of Several

Which of the following medicines do you prefer most for treating a headache? (One answer only)

	Circle One
I don't take medicine for headaches	1
Aspirin	2
Tylenol	3
Advil	4
Excedrin	5
Other, specify _____	6

Checklist Responses That Respondents Answer Yes, No, or Don't Know for Each Item in a List

Check (✓) one box on each line.

In the past 12 months, has a doctor or other health worker told you that you have any of the following:

	No	**Yes**	**Don't Know**
Hepatitis	☐	☐	☐
Gastritis	☐	☐	☐
Ulcer of the stomach or small intestine	☐	☐	☐
Pancreatitis	☐	☐	☐
Depression, anxiety, or another emotional or mental problem	☐	☐	☐

FIGURE 2.10 ■ Checklist Questions for Children

1. In the past 12 months, how many times on school grounds have you been afraid of being beaten up? Would you say…

Never	☐
1 time	☐
2 to 3 times	☐
4 or more times	☐
Not sure	☐
Don't know	☐

2. Have you done any of these things in the last month?

	No	Yes	Not Sure	Don't Want to Tell
Been loud, rowdy, or unruly in a public place	☐	☐	☐	☐
Been drunk in a public place	☐	☐	☐	☐
Avoided paying for things such as movies, bus or subway rides, food, or clothing	☐	☐	☐	☐
Been involved in a gang fight	☐	☐	☐	☐
Carried a handgun	☐	☐	☐	☐
Purposely damaged or destroyed property that did not belong to you	☐	☐	☐	☐
Stolen something from a store or something that did not belong to you worth less than $50	☐	☐	☐	☐

think, believe, or value. Surveyors generally agree that if you want to learn about children, you should go to them directly. Also, many people agree that children are actors and participants in society, not only passive onlookers, so it makes sense to include them in surveys. Finally, surveying children and teens can be educational and fun for them and for the surveyor, too.

Here are some tips for creating written and online surveys for children and adolescents:

1. Keep questions short.

2. With young children be specific and avoid abstractions.

Poor: Do you usually like your school lunch?

Comment: "Usually" is an abstraction, and it may be a difficult concept for young children to grasp.

Poor: Do you like the food at your school?

Comment: A child may like the food at breakfast but dislike the food at lunch. The word "food" is too vague. Specify if you mean breakfast, snacks, or lunch. The question also needs to specify a period of time.

Better: Did you like your lunch at school today?

or

Did you like the apple you had as a snack today?

3. Try out all questions before you use them. A trial will tell you if you need to alter the sentence structure or vocabulary to make it more understandable to the participants. You may find that you need to revise the questions altogether. For example, suppose a trial of the survey shows that fewer than half of the children eat lunch at school. If so, the question "Did you like your lunch at school today?" will be left unanswered by half the children. If you want the information, you need to revise the survey so that you precede the question with "Did you eat lunch at school today?" If yes, "Did you like your lunch?"

4. Ask for responses to positive statements. It is difficult conceptually for anyone at any age to disagree with a negative statement (see Figure 2.11).

Suppose the child feels safe at home. The response "false" translates to: "It is false that I do not feel safe at home." If the child doesn't have a good time together with the family, the answer "false" translates to: "It is false that we don't have a good time together in my family."

5. Make certain that children understand that there are no wrong or right answers. Children and young people must be told well in advance why they are being surveyed (to help teachers know how you like to learn best, to find out

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FIGURE 2.11   ■   Contrasting Positive and Negative Statements

Good:

Are these true or false?	True	False
I feel safe at home.	☐	☐
We have a good time together in my family.	☐	☐

Poor:

Are these true or false?	True	False
I do not feel safe at home.	☐	☐
We don't have a good time together in my family.	☐	☐

---

what kids your age do after school) and how the information will be used (to see if we need to spend more class time working in small groups, to help us plan after-school activities).

6. Do not force children to answer a question if they do not want to. This means that you must ensure that in an online survey, if a child wants to skip Question 1, they can still move to Question 2. Testing the survey in advance will tell you if there are questions that offend or stump most potential respondents. If so, these questions can be eliminated from the survey or handled in another manner. During the survey's preliminary trial, you can ask respondents if they would answer the question if it were asked in different format (e.g., in a private interview).

7. Reinforce your respect for the respondent's privacy. Tell the child that you will never reveal individual responses to anyone without permission. All responses should be anonymous or, failing that, confidential. Older children may understand that all online data is probably traceable. They know that if you use commercial survey software, you are likely to have their IP addresses, so tell them how you plan on protecting their identity. If you conduct interviews, make certain that you do so in a private place.

ONLINE SURVEYS

Online surveys are almost always self-administered questionnaires, as you can see from the example in Figure 2.12.

The rules for creating online surveys and choosing questions are the same as for other self-administered questionnaires. The survey must be designed to get the information you

FIGURE 2.12 ■ Self-Administered Questionnaire
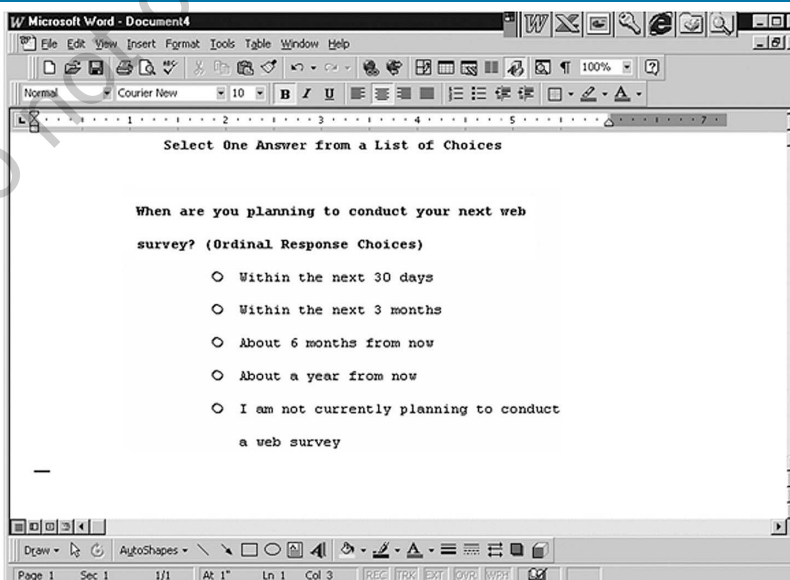
need from the people who are most likely to give the most accurate answers. The questions must be grammatically correct with a reasonable range of options for responses.

The drop-down list is a question format that is unique to online surveys. It is often used to save space when a long list of responses is possible. For instance, if you want to know the country in which the respondent lives, you can save a great deal of screen space by providing a drop-down list of countries rather than printing the list itself (see Figure 2.13).

Here is a question asking for the respondent's job title in a fictitious company with hundreds of employees. A drop-down list is often used to save respondents time and to ensure the standardization of responses (see Figure 2.13).

Online surveys often contain a progress bar. The bar tells the respondent the proportion of the survey they have completed. Here is an example.

EXAMPLE: SURVEY PROGRESS BAR

The progress bar gives respondents information on how much time they will realistically need to complete the survey. If respondents used 10 minutes to complete 20% of the survey, then they will need 50 minutes to complete 100%.

Some online surveys are programmed to allow respondents to log off and on at will. If respondents need 50 minutes to complete the survey, but they have only 30 minutes at this time, a log-on and-off feature may encourage them to return to the survey at some other time. Giving participants the ability to log on and off at will may be a good idea if there is a possibility that their internet connection may be disrupted. Be prepared to send email reminders to respondents who log off and then forget that they have not completed the survey.

Online survey questions can be tailor-made so that the response to one question dictates the response to the next, as illustrated in Figure 2.14.

FIGURE 2.13   ■   Online Drop-Down List
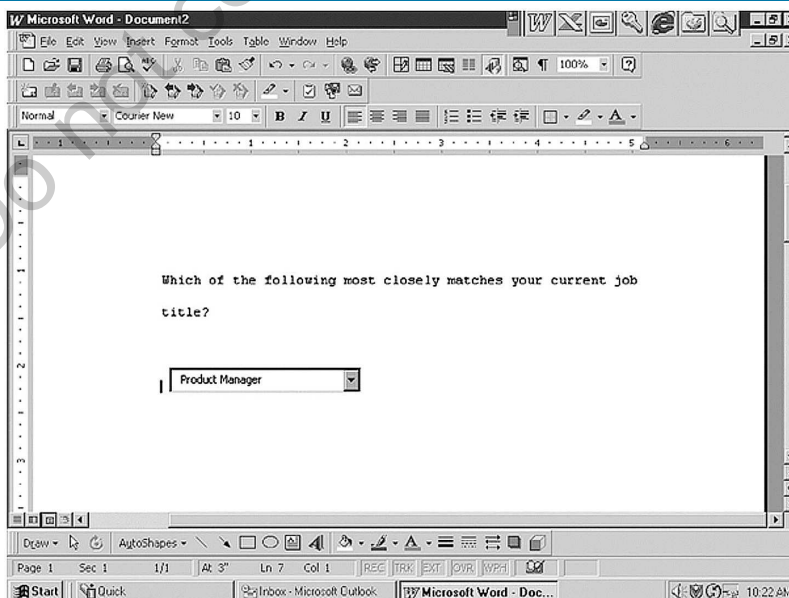
FIGURE 2.14 ■ Response to One Question Dictates the Response to the Next

Which ISP do you use?

☐	Partners			
☐	AT & W			
☐	Horizon			
☐	Spectacle			

Please rate the following aspects of Horizon:

	Excellent	Good	Average	Poor
Connectivity	☐	☐	☐	☐
Speed	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐
Overall Performance	☐	☐	☐	☐

Please rate the following aspects of Spectacle:

	Excellent	Good	Average	Poor
Connectivity	☐	☐	☐	☐
Speed	☐	☐	☐	☐
Customer Service	☐	☐	☐	☐
Overall Performance	☐	☐	☐	☐

Source: Thomson Reuters Web of Knowledge

Online surveys should explain how to go back to change answers and then move forward. Consider these instructions:

EXAMPLE: EXPLANATION FOR CHANGING ONLINE RESPONSES

Please read the following instructions before beginning this survey.

Moving Forward:

Click on the NEXT button located at the bottom of the page to save your responses and continue to the next page.

Moving Back:

Use the PREVIOUS button located at the bottom of the page to view your responses on a previous page. You may change your answers to previously entered responses. Do not use the BACK button of your browser to return to the previous page. Using your browser's BACK button may cause you to exit the survey. Should this occur, you will need to wait 10 minutes to reaccess the survey using the link provided in your email.

PLAIN AND SIMPLE SURVEY QUESTIONS AND RESPONSES

Survey questions and response choices should be written at a sixth- to eighth-grade reading level (based on the U.S. school grade system). Why? Studies show that the average

American is most comfortable reading at that level. In fact, the evidence suggests that most people prefer simple words and sentences in surveys.

There are many formulas available to help determine the approximate reading level of a document, and you can find a wealth of information about each of them on the internet. Most readability formulas provide a grade-level score and are based on the average number of syllables per word and words per sentence. The more syllables there are in a word, and the more words there are in a sentence, the harder it is to read and understand the text.

Among the most used methods to determine readability are the Fry and Flesch-Kincaid formulas. Each has its advantages and disadvantages, and experts do not agree on which is better. You can go online to learn how to use each. Use these key words to get started: "readability statistics."

The Flesch-Kincaid method is considered less accurate than the Fry, but the Fry is time-consuming. You can easily calculate the Flesch-Reading ease score by using the readability tool in Microsoft Word. Here are the instructions.

1. Go to the "Review" tab.

2. Go to the "Spelling & Grammar" tab, and click "Options."

3. Check "Show readability statistics" under the "Grammar" heading.

Each time you check spelling and grammar, you will be given several readability statistics, including the Flesch-Kincaid grade-level score.

SCALING

Additive Scales

Most surveys are designed so that each individual item counts. In a survey of people's attitudes toward living in a trailer park, you might ask 12 questions, each of which is designed to be used to analyze attitudes and therefore is scored separately. Suppose you collected information like this:

- Length of time living in this trailer park

- Whether the person ever lived in a trailer park before

- Satisfaction with park's accommodations

- Satisfaction with quality of lifestyle

- Amenities in trailer

- Age of trailer

- Age of car

- Type of car

- Age of respondent

- Gender of respondent

- Annual income

With this information, you could report on each fact individually, or you could look for relationships:

Between age of respondent and satisfaction with quality of lifestyle

Between gender and length of time living in the trailer park

Other surveys are different, however, in that the items do not count individually; they must be combined to get a score.

Consider this:

EXAMPLE: A SURVEY WITH AN ADDITIVE SCALE

Doctors at the University Medical Center observed that many of their ill patients appeared to function quite well in society. Despite their disabilities, they had friends and went to the movies, shopping, and so on. Other patients with similar problems remained at home, isolated from friends and family. The doctors hypothesized that the difference between the two groups of patients was in their psychological functioning and access to the resources that make life a little easier for everyone. As part of testing their hypothesis, they plan to give the two groups the Functional Status Inventory developed jointly by the Herbert Medical School and California University. After 5 years of study and validation, researchers at the two universities have prepared a survey on functioning for use with chronically ill patients. High scores mean good functioning; low scores mean poor functioning.

The methods used to produce an additive scale require sophisticated survey construction skills because you must prove conclusively that high scorers are different from low scorers with respect to each and every item.

Defining Additive Scales

Surveyors use the term *scale* in at least two ways. The first refers to the way the responses are organized:

1. Do you eat six or more servings of fruit or vegetables each day?
The response scale is the following:

Yes ☐
No ☐

2. How satisfied are you with the examples in this book?
The response scale is the following (see Table 2.8):

The second use of the term *scale* refers to one question or a collection of questions whose scores are meaningful. You have a quality-of-life scale when a survey with 10 questions can be scored so that a score of 1 means *low quality* and a score of 10 means *high quality*. Figure 2.15 aims to provide a score of fluency in foreign languages.

For each item—French, German, and so on—an ordinal rating scale is used to organize responses. By adding all five items together, a scale of language fluency can be

TABLE 2.8 ■ Organizing Survey Responses Using a Satisfaction Scale	
Very satisfied	4
Somewhat satisfied	3
Somewhat dissatisfied	2
Very dissatisfied	1

FIGURE 2.15 ■ A Survey of Foreign Language Skills

Circle the category that best describes your ability to speak each of the following languages.

	Somewhat Fluent	Fluent	Not Fluent
French	2	1	0
German	2	1	0
Italian	2	1	0
Spanish	2	1	0
Swedish	2	1	0

derived. A respondent who is fluent in all languages would be at one end of the scale, and one who is not fluent in any languages would be at the other. Suppose you assigned two points for each language marked *fluent*, one point each for those marked *somewhat fluent*, and no points for *not fluent*. A person fluent in all five languages could get a maximum score of 10 points, whereas someone who was fluent in none would be assigned the minimum score of 0. In this book, this type of scale is called *additive* (because individual responses to items are added together, i.e., combined). Among the most commonly used additive scales are the differential, summated, and cumulative.

Differential Scales

Differential scales distinguish among people in terms of whether they agree or disagree with theory or research (see Figure 2.16). To create a differential scale for an idea such as equality of opportunity, for example, means assembling many statements (e.g., "qualified men and women should receive equal pay for equal work") and having experts rate each statement according to whether it was favorable to the idea. Next you compute the experts' average or median ratings for each statement. Then you ask respondents to agree or disagree with each statement. Their score is based on only those items with which the respondent agrees. To get the respondent's score, you look at the experts' average score for each statement chosen by the respondent, add the experts' averages, and compute the arithmetic mean.

Typically, the directions to users of differential scales go something like this:

Please check each statement with which you agree.

FIGURE 2.16 ■ A Differential Scale

Median Scores Assigned by Judges	
1. Physical fitness is an idea whose time has come.	3.2
2. Regular exercise such as walking or bicycling is probably necessary for everyone.	4.0

or

Please check the items that are closest to your position.

Scoring a differential scale might take this form.

SCORING A DIFFERENTIAL SCALE

Student A was administered the Physical Fitness Inventory and asked to select the two or three items with which they most closely agreed. These are the two items they chose and the judges' scores.

Student A's score was 3.6 (the average of 3.2 and 4.0), which was considered to be supportive of physical fitness. (The best possible score was 1.0, and the worst was 11.0.)

Are there disadvantages to differential scales? Perhaps the most obvious one is in the amount of work needed to construct them. Also, you must consider the attitudes and values of the judges whose ratings are used to anchor the scale and interpret the responses. The judges may be quite different from the people who might use the scale.

Summated Scales

A summated scale aligns people according to how their responses add up (see Figure 2.17). Suppose a self-esteem questionnaire has a series of items that use the same rating scale (*agree, neutral, disagree*).

How would you compute a summative scale for this questionnaire? First, decide which items are favorable (in this case, b, d, and e) and which are not (a and c). Next, assign a numerical weight to each response category. You might do something like this:

favorable = +1 point

in between or neutral = 0 points

unfavorable = –1 point

A person's score would be the algebraic sum of their responses to five items. The answers that Person X gave are shown in the example that follows (see Figure 2.18).

FIGURE 2.17 ■ Creating a Summated Scale for a Self-Esteem Survey

Directions: Check if you agree or disagree with each of the following statements.

Statements	Mark One Box for Each Statement		
	Agree	Neither Agree nor Disagree	Disagree
At times I think I am no good at all.	☐	☐	☐
On the whole I am satisfied with myself.	☐	☐	☐
I often feel very lonely.	☐	☐	☐
My social life is very complete.	☐	☐	☐
My friends admire my honesty.	☐	☐	☐

FIGURE 2.18 ■ Scoring a Summated Scale

Statements	Person X's Response			Is Item Favorable (+) or Unfavorable (−)?	Item Score
	Disagree	Neither Agree nor Disagree	Agree		
A. At times I think I am no good at all.	X			−	+1
B. On the whole I am satisfied with myself.		X		+	0
C. I often feel very lonely.			X	−	−1
D. My social life is very complete.			X	+	+1
E. My friends admire my honesty.		X		+	0

Person X disagreed with Item A, which is fundamentally unfavorable, and got a score of +1. For Item B, the person was neutral and so earned a score of 0. Item C produced agreement, but it was fundamentally unfavorable; Person X got a score of –1. There was agreement with Item D, resulting in a score of +1 and a neutral response to Item E, producing a score of 0. Person X's summated scale score was +1 out of a possible total of +5. (A perfect score of +5 would have come about if Person X answered: Item A = disagree; Item B = agree; Item C = disagree; Items D and E = agree.)

SUMMING UP

- The content of a survey depends on clear definitions of terms because human attitudes and feelings vary across theories.

- Be certain respondents are in a position to answer the questions. Are they informed about the topic?

- Do not ask for information that you will not use because that is a waste of respondents' and your time.

- Categorical rating scales ask for people to affirm their group affiliations, including sex, religious affiliation, school, or college last attended.

- Survey questions may be closed or open-ended. Closed questions with several choices are easier to score than open-ended questions.

- Open-ended questions give respondents an opportunity to state a position in their own words; unfortunately, these words may be difficult to interpret.

- When writing questions, use standard grammar and syntax. Keep questions concrete and close to the respondents' experience; become aware of words, names, and views that might automatically bias your results; check your own biases; do not get too personal; and use a single thought in each question. Consider using a readability formula.

- Numerical scales take two forms: discrete and continuous. A discrete scale produces a precise number, whereas a continuous scale produces a number that falls on a continuum.

- Ordinal scales require that respondents place answers in order of importance.

- An often-used ordinal scale is the Likert scale in which respondents are asked to tell how closely they agree or disagree with a statement.

- Online surveys offer special question-and-response formats such as drop-down menus. It is important to make sure that the respondent knows how to navigate through an online survey, especially how to move forward and back (to change answers or review).

- Follow these guidelines when surveying children: keep questions short; be concrete and avoid abstractions; try out the survey; keep response choices positive; ensure that children understand there are no right or wrong answers and that they do not have to answer questions; reinforce and prove your respect for their privacy.

THINK ABOUT THIS

1. Read the questions that follow (see Figure 2.19). Tell whether they use categorical, ordinal, or continuous scales.

2. Prepare a self-administered questionnaire with 10 or fewer questions asking students about their satisfaction with the content of this chapter. Use at least one question each that will yield categorical, ordinal, and numerical data. Justify the choice and clarity of each question.

3. Create a self-administered or interview questionnaire for teens between 13 and 17 years of age that asks them about one or more of these topics: bullying at school, use of social media during class time, and lifestyle practices (alcohol use? other drugs? exercise? diet?).

4. Explain these terms: open-ended question, closed question, forced-choice question, rank order scale, comparative rating scale, Likert scale, drop-down menu, summative scale, and differential scale.

FIGURE 2.19 ■ Questions using Categorical, Ordinal or Continuous Scales

A. Questions about internet use for health information:

About how many different websites did you go to when looking for health information?	
1	☐
2 or 3	☐
4 or 5	☐
6 or more	☐
Did you get to the sites by doing an Internet search, or did you find out about them some other way?	
Through an Internet search	☐
Some other way	☐
Not sure	☐
Have you ever heard about the website before?	
Yes	☐
No	☐
How would you rate the site's usability?	
Very usable	☐
Fairly usable	☐
Fairly unusable	☐
Very unusable	☐