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The Basics of Question Design

In this chapter we will cover the basics of question design. How do you go from several blank pages to a series of questions that people can respond to and to which others will want to know the answers? First we'll start with structure—the form of the question. In particular, we'll describe the alternate types of questions you might use. Second, we'll talk about the content of the questions and how you can write a question that efficiently meets your question objectives.

TYPES OF QUESTIONS

In the world of survey design there are two broad classes of questions—open-ended questions and closed-ended questions. Open questions are ones that are asked with no specific categories of response given; instead the respondents answer in their own words. Closed-ended questions not only give the question but also present response alternatives; the respondent is encouraged to pick the answer that best represents his or her situation.

Open-Ended Questions

Let's start with open-ended questions. There are really two subcategories of open-ended questions—short, specific answer types and longer, narrative types. An example of a short, specific answer type is the question "What is your current age?" followed by a line on which to record one's age. These types of questions are used in circumstances where the list of all possible answers is so large that it is impractical to put a check box response for each one. They work reasonably well as long as the answer needed is relatively short. Other examples are "What college did you attend?" or "What state were you born in?" The only problems with collecting information this way are that legibility of handwriting sometimes interferes with using the information and misunderstandings sometimes result in useless answers. For instance, "How

do you get to work?" may result in an answer such as "I take the route down by the river" when instead you wanted to know the mode of transportation.

The other type of open-ended question is the narrative answer type. This is a question that requires a response that is more lengthy—a sentence or two or even a paragraph. These types of open-ended questions do not work very well in self-administered questionnaires. The big problem is that many respondents leave them blank; maybe only between 25% and 50% of the respondents will answer these questions. Among those that do answer, you may face additional problems with handwriting and answers that have inadequate detail. A response to the question "Why did you leave your old neighborhood?" may be "the people were getting to me." In order to actually use this answer you would need to know which people were being referred to and also in what way they were "getting to" the respondent.

These problems are so severe with narrative open questions that my recommendation is to avoid them. The only times I could see a use for them would be in circumstances where you wanted to be polite or at the end of a survey, as an "anything else" type of question. For instance, you might ask: "Have you received any awards in the past year?" with a yes/no check box. If the person answers yes, you should be polite and ask a follow-up question as to what the award was.

Closed-Ended Questions

There are several different types of closed-ended questions; I'll describe the most commonly used types.

Yes-No Questions

The simplest type of closed question is a "YES-NO" question. We get asked such questions dozens of times a day. The format is quite straightforward. Ask the question and provide two boxes to choose from—a "yes" and a "no." There is a variation on the "YES-NO" question that is a "CHECKLIST" with a box to check *only if* your answer is "yes." These are common when you have a long list of things within a group that you want people to easily go through. You've probably seen a list like this if you've ever filled out a medical history requesting "Check below all the diseases and conditions you had as a child."

The only concern I have about CHECKLISTS is that you can't distinguish a "no" response from an "accidentally skipped" response or

a "don't know" response. To be perfectly clear, I recommend even in a checklist format that you present *both* the "yes" and the "no" box. I also think that forcing respondents to answer either a "yes" or a "no" will make them consider their answer just a tiny bit longer, which is probably good.

Close cousins to the YES-NO question are the TRUE-FALSE and the AGREE-DISAGREE questions.

Multiple Choice Questions

Another familiar type of question is the MULTIPLE CHOICE format. Any student has experience with these. They are the staples of many midterm exams. The key to constructing a good multiple choice question is that the categories you offer should be mutually exclusive and should cover the range of alternatives that people would experience. The final section of this chapter will talk about ways that you can make sure that you meet these criteria. Probably with these types of questions it is a good idea to put a little reminder that says "CHECK ONE ANSWER." If it turns out that multiple answers are possible, you could allow multiple checks (again with an instruction that says so), or you could turn each alternative into a "YES-NO" question. Every once in a while you might include as one of the choices a category of "other." With luck this will not be a frequently used category because it would make one curious as to what ideas were being included in that response. Sometimes researchers put a line beside the "other" saying "explain" or "specify." Now this follow-up question uses an OPEN-ENDED question format and becomes subject to the concerns raised above.

Semantic Differential

Another type of question is the SEMANTIC DIFFERENTIAL format. In this format respondents are usually asked to describe an object (e.g., their doctor, their spouse, their boss, their own moods, etc.). The question involves a series of opposite adjectives and an instruction to select a number between 1 and 7 (for example) that best describes how you feel.

sharp	1 2 3 4 5 6 7	dull
warm	1 2 3 4 5 6 7	cold
smart	1 2 3 4 5 6 7	dumb

Sometimes researchers get more complex with this type of question and ask people to answer it twice: once for your "current" boss and once for your "ideal" boss. Then they compare the two ratings and calculate a difference (or differential). The bigger the difference the less "satisfied" one presumably is with the current situation. You can use variations of this two rating procedure if you want to assess how things are "now" and how they were "5 years ago."

Ranking

Another format is the RANKING question. In this type of question you want the respondent to rank preferences among a group of alternatives, for example: "Among the reasons for choosing this college that are listed below, rank your reasons from most important to least important." You'll find that ranking questions work best if you don't give people too many things to rank order. A list of between 3 and 7 items seems to work best. If you give more than this, people have difficulty making distinctions.

One issue you'll have to deal with is "tie votes"—do you want to allow them or not? Most researchers do not like ties; they make statistical analyses more complicated. You will have to include instructions that make it clear that no ties are allowed. The other critical issue is leaving out an important reason. You definitely do not want people adding to the list because respondents would be ranking different lists, making it harder to compare across your sample.

When formatting this type of question, there is a temptation to use a variation of the open-ended question response format. You could list the seven things to be ranked and then put a line at the end of each with an instruction to "put a 1 by your most important, a 2 by your next most important reason. . . . " This might work all right, but again you are risking illegible handwriting. One way out is to list the possible rankings opposite each item and ask the respondent to circle their response.

Ranking
a. item A: 1st   2nd   3rd   4th   5th   6th   7th
b. item B: 1st   2nd   3rd   4th   5th   6th   7th

Rating Scales

RATING scales are a very common type of item used in questionnaires. The form of a rating scale is to include a list of alternatives that range from not much of a particular attribute to a great deal of that same

attribute, for example: Excellent, Very Good, Good, Fair, or Poor. One particular subset of rating scales is the LIKERT (lick-ert) scale. These include degrees of "agreement" and "disagreement."

| Strongly Agree | Agree | Unsure | Disagree | Strongly Disagree |

When one tries to construct a rating scale, there are several factors one must consider. We'll discuss each in turn.

Psychological Distance. Ideally, your scale points will be selected such that respondents interpret the "distance" between each pair of points to be equal. For the most part this is done subjectively, the key concern being that you do not want huge gaps in your scale or two adjacent points being almost synonymous. Below are some examples of scales that have problems.

Excellent   Very Good   ...   Fair   Poor   (big gap)
Excellent   ...   Good   Average   Fair   Poor   (points too close)
Excellent   Very Good   ...   ...   Poor   (big gap)

The Number of Response Alternatives. Commonly we see items with between 3 and 7 scale points. Sometimes we see 10 points or 100 points. Very infrequently we see something else. How do you choose between 3 and 7 points or something else? The answer will depend on your particular study and the analyses you want to do. In general, you want to give people enough categories so that they can represent their feelings or experiences, but not so many that you are asking them to make inconsequential distinctions. Other than avoiding too many categories, there is no overwhelming reason to pick a certain number of categories over another.

The Order of Presentation of Categories. The categories should be displayed in a way that is monotonically increasing or decreasing. This means the categories are typed in a horizontal row or are presented in a vertical list. They should not be typed in a way that is ambiguous as to the order. This circumstance can arise when you type the alternatives on two lines like this:

Excellent   Very Good
Good   Fair

It is probably good to mix up your presentation within the questionnaire such that sometimes you will have monotonically increasing items and sometimes decreasing. You should *not* do this within a group of items measuring a particular issue, but rather on different pages dealing with different issues. By doing this, you will present respondents with one format for a particular issue but keep them "on their toes" if you do some switching of formats from section to section.

Unipolar or Bipolar Scales. This issue relates to whether the choice of words for your categories ranges from "nothing" to "a great deal" (unipolar) *or* ranges from "a large negative rating" through "zero" and then to "a large positive rating" (bipolar). For example:

| Unipolar: | Excellent | Very Good | Good | Fair | Poor |
| Bipolar: | Strongly Disagree | Disagree | Unsure | Agree | Strongly Agree |

Again, there is really no reason to choose one format over another other than personal preference or the dictates of your analysis plans.

Odd Versus Even Numbers of Choices. There is only one aspect that makes a difference between choosing even numbers versus odd numbers of choices. If you choose an odd number you create a natural middle point; this is obvious in the bipolar example above; the "unsure" response is in the middle of agree and disagree. Even in the unipolar example the "good" category becomes the "middle." You could strengthen this association for that particular scale if you revised it to read:

Excellent   Very Good   Average   Fair   Poor.

The question then becomes, do you want a middle point? On a unipolar scale it hardly matters either way—four versus five versus six points would not make a great difference in the form of the data. Use what you feel comfortable with and that which seems to fit your topic. On a bipolar scale the issue takes on more significance. The reason is that if you give people a middle choice they will use it. For the analysis of some questions this would be fine; in other instances you may want to "force" respondents to choose which side of the fence they are on. In that case you may not want to give respondents the option of selecting a middle point. If you are asking respondents to make tough choices by

agreeing or disagreeing with a complex, emotional issue you may want to help them make fine distinctions by using a six-point scale with the "middle two" categories being "close" to the middle. For example:

| Strongly Disagree | Disagree | Slightly Disagree | Slightly Agree | Agree | Strongly Agree |

Balanced Scales. One of the sure signs of a poorly designed survey is a question that has an unbalanced scale. An unbalanced scale is created when the number of points above and below the "middle" of the scale are uneven.

| Strongly Agree | Agree | Slightly Agree | (Unlabeled middle) | Disagree |

Why is this such a problem? Basically you are biasing your answers in one direction or the other. In the above example, respondents had three chances to "agree" and only one chance to "disagree." If a study used such a scale, it wouldn't be surprising to see results that said: "Nearly 80% of the city's population agrees that the mayor is doing a good job." It may be that they really feel that way; on the other hand it could merely be an artifact of the way the scale was constructed.

Presenting a "Don't Know" Category. Should you present a "don't know" category in your list of responses? If you present it, more respondents will use it than if you do not. On the other hand, respondents may be irritated if that is what they want to say, and there is no easy way to express this response. Certainly when you are asking knowledge type questions, you should provide a "don't know" response. It is useful to know how many "don't know." When you are asking attitudinal questions, the "don't know" sometimes is equivalent to no opinion, but sometimes it means "I've got mixed feelings about the issue." My experience is that when questions ask only do you "agree" or "disagree," people are reluctant to take such an all or nothing stand, and that is when they look for the "don't know." One solution is to offer more categories closer to the middle, so that it is easier to capture persons who are "leaning" one way or the other.

Converse and Presser (1986) suggest asking first whether people have an opinion, and then if they do to ask what it is. I think this is possible to do in a mail survey, but it is somewhat cumbersome and puts

additional instructions in the flow of the questions. You have to consider how many people really "don't know" and how useful it is for you to have this information explicitly.

Behaviorally Anchored Scales. There are two types of phrases that can be used to describe your scale points: You can use subjective terms (e.g., a lot, some, a few) or you can use behaviorally anchored terms (e.g., more than 5 times, 3 to 4 times, 1 to 2 times). The advantage in using behaviorally anchored scales is that you are more certain that people mean the same thing when they give the same answer. For instance, when asking two supervisors how often their employees come in late, both might say "a lot." However, in reality one may mean 10 times or more, whereas the other might mean 3 or 4 times. By using a behaviorally anchored scale, this difference in the real situation would become known.

Why, then, would anyone use subjectively worded terms? For some questions you really want to know how respondents evaluate an issue, not just have them report the objective reality. In these circumstances, a subjectively worded scale is better. In our example above with the two supervisors, although they have groups of employees who are late at different rates, both feel that it is "a lot," and this is an important piece of information. The choice of which type of scale is more appropriate for you must be based on the analytic goals of your questions.

GUIDELINES FOR THE CONTENT OF QUESTIONS

Obviously I cannot give you a cookbook recipe for wording each of your questions. Every study is different; each topic could be explored somewhat differently given your interests and the study's goals. What I can give you are some guidelines that will help you write high quality questions.

What is our basic goal in writing a question? We want to create a question that provides a standardized stimulus to all respondents and provides a systematic way of recording their answers. By paying attention to the guidelines outlined below, you will be able to write questions that will meet this overall question design objective.

Before we get into specifics, there are a few principles to keep in mind about the question writing process.

1. In order to write a question you need a *specific* goal for each item. The goal has to be so specific that any of your colleagues could write a question from this specified goal and you would recognize it as meeting your objective. (It might not be worded exactly as you would word it, but it should measure the same aspect.) For example, this is *not* a specific enough question goal: "I want to know how people feel about their jobs." This may be a goal for a study or a part of a questionnaire, but you cannot write a question from it because the goal is too abstract. We *could* write a question from this goal: "I want to know how satisfied people are with the financial rewards of their job."

   One of the best ways to develop these specific goals is to outline your questionnaire before you write any items. First, divide your survey into five or six broad topic areas (e.g., demographics, characteristics of the job, family responsibilities, personality measures, life satisfactions). Then break each of those areas down into specific issues you want to explore. Within each of these issues, specify the particular aspects you want to measure. When you have this outline completed, the most detailed part of the outline should correspond to an item in your survey. From this point it is only a matter of wrestling with the exact wording.

2. You also need a few guidelines and rules to follow as you create questions. These will be provided in the remainder of this chapter.

3. You need common sense. Unfortunately this is sometimes negatively correlated with education, and often a survey author has quite a bit of education. You need to design questions that make sense to the average person.

4. You need to develop the ability to get "outside the question" and "hear" it from a naive perspective. Unfortunately, this ability is negatively correlated with involvement in the authorship of the questions. However, to be a good critic, to assess whether the question as currently worded is going to adequately serve your needs, you really need to read the question not as an author (who knows its intent) but as someone reading it for the first time. This way you can "hear" the problems, or "see" the flaws in the wording.

So what are the guidelines to follow in constructing a question?

1. Write Brief Questions

I do not recommend this just because I want to save paper. Brief questions are more valid questions because they are more likely to be read completely, less likely to have qualifying phrases, and less susceptible to extraneous influences on the respondents' answers (Armstrong & Overton, 1971). In particular, they are less susceptible to biases produced by format or positioning of the response alternatives.

One of the ways that people get into trouble and write overly long questions is that they use extraneous words or phrases that take up space but do not add anything essential to the question. Another reason is that authors want to put many qualifiers into their question. Finally, authors try to get too much out of a single question. Here is an example of an *unbrief* question:

> "If you combine the value of all your (and members of your family living here) savings and investments such as savings and checking accounts, the cash value of your life insurance, stocks, bonds, and things like that, plus what you would keep if you sold your real estate, including your home, which of the categories below comes closest to your total assets?"

There are really two ways to improve this question. The first is to make it simpler without all the qualifiers, and therefore settle for an answer that is "close enough but not perfect." If you really need all the details, another approach is to break the question up into its component parts, each of which can be made into a relatively simple question.

2. Write Clear Questions

Nobody purposely writes unclear questions, but sometimes people are so close to the topic and know so well what they intend that they just do not realize how convoluted they have made things. There are a variety of methods that can help you write clearer questions.

a. Define Key Terms

Within the question itself, you can define a key term, particularly if it is subject to alternate meanings. If you are going to define a term, the definition should come at the *beginning* of the question. For instance:

> "How do you feel about the amount you pay the government on the money you take in during the year, that is, your income tax?"

b. Beware of Expert Jargon

You have to be extremely cautious about using terms that are common in your field but may not be readily understood by the average person. In a health study I worked on the clients wanted to ask mothers how many *prenatal* visits they had. The researchers knew exactly what "prenatal" meant, but we convinced them that they needed to define the term so that mothers would not be confused about what we meant.

c. Beware of Unclear Referents of Pronouns

This problem arises frequently when you are doing a series of questions about a particular topic and you start using "it" and "they." A close reading of the questions might show you that it is not clear what "it" refers to.

d. Avoid Double Negatives

Usually a question can be reworded to avoid a double negative construction. Sometimes such constructions are hard to avoid because the referent of the question has a negative connotation, for example, "Do you agree or disagree that the current seat belt law should be repealed?" Usually, these types of questions can be reworded to make them simpler to understand. For example, "Do you think there should be a mandatory seat belt use law, or do you think we should not have such a law?"

e. Avoid Adverbial Question Constructions

Avoid adverbial question constructions. Avoid wording that starts with "how," "why," "when," "where," or "how much." These terms are inherently ambiguous although you think you are being perfectly clear. For example:

"WHERE do you live?" Do you mean address, town, or type of building?

"WHEN did you go to that school?" Do you mean what year, how many years ago, or how old were you when you did?

In a self-administered format in which you provide the answer categories, this issue may not be a tremendous problem, but if you are using open-ended formats, you may be surprised at the types of answers people write down.

3. Stay in Touch With Reality

When you write your questions, be aware of "reality" issues and how they might affect your data. In particular, there are four issues to consider.

a. Intention Questions

If you write a question asking about someone's intentions, you should understand that the answers may not reflect actual future behavior. At best, intentions should be viewed as an attitude. Sometimes attitudes correspond to behavior and sometimes they do not. Sometimes our future behavior is different from an earlier stated intention because of intervening events. When pollsters ask people whom they intend to vote for for president, they have a better chance of predicting the election if they calculate the responses only for those people who are more likely to actually go to the polls (e.g., registered voters or people who voted in the last election).

b. Hypothetical Questions

These questions are difficult ones to answer in general because everybody says "it depends." Make sure that all parts of the question are included in the hypothetical.
For example:

"If a friend of yours were looking for a job, would you recommend your employer?" Answer: "No, because there are no openings."

Instead the question should read:

"If your employer had an opening and if a friend . . ."

I have found that hypotheticals are particularly hard for people with high intelligence and those with lower intelligence. The high IQ people see all the contingencies and therefore cannot take a stand, whereas the lower IQ people cannot imagine the circumstance you posit.

c. Ask Only Relevant Questions

A series of questions may not be relevant for a particular group of respondents. For instance, if you have a series of questions on preg-

nancy care, you want the males to skip over them, or if you have a series of questions about spousal interactions, you want the unmarried to skip over these. You want to use some kind of screening question at the beginning of a sequence to decide who should continue and who should skip. You also want to make sure your instructions are clear about who should go where in the questionnaire.

d. Commonplace Is Not Universal

Not everyone has only one job; the self-employed may not have "income." Beware particularly of the rich and such responses as "But I don't shop, the housekeeper does" and "House? Which one?" The sequence of questions you ask and the format of the answer categories needs to anticipate such circumstances.

4. Write Unidimensional Questions

A unidimensional question has one issue that it addresses. Avoid double- (or triple-) barreled questions. In other words, do not combine two or three questions within one question. Again, for the most part people do not purposely do this; they fall into it as they try to make the question clearer. The tipoff to a problem question is usually the word "and" or "or." For example:

"How friendly *and* helpful are your coworkers?"

The problem with this question is that some coworkers may be friendly but not helpful or helpful but not friendly. Another example that is not quite so obvious:

"Do you think personal income taxes should be lowered by 4% in order to help the economy?"

This is actually three questions. Should income taxes be lowered? Should they be lowered by 4%? Will this help the economy? The solution is always easy: Break the question up into its component questions or rewrite it to focus on the issue you really are interested in.

5. Write Mutually Exclusive Response Categories

One common problem in draft questions is that answer alternatives overlap. Sometimes the overlap comes because the author has been

sloppy with his or her alternatives. Sometimes it is just laziness: It is easier to write categories that end in round numbers (e.g., age categories 25-30, 30-35, 35-40, etc.). The issue is, of course, the people whose answer corresponds to the endpoint—they do not know which category to check. Marital status is another example of this type of problem—"married, single, widowed, divorced, or separated." The "single" category overlaps with widowed, divorced, and separated. Using "never married" solves this problem.

6. Create Exhaustive Response Categories

It should almost go without saying that you want to provide response choices that reflect almost everybody's position and therefore you need to consider the whole range of answers that someone might give. There are two situations that commonly occur that create problems. One is with scales in which there are uneven aspects to the distance between points on your scale, and so "psychologically" (for subjective scales) or "objectively" (for behavioral scales) there is an answer "missing." A closely related issue is endpoints that are not strictly parallel. For example:

Always   Often   Sometimes   Rarely

The "rarely" response is not parallel to the "always" response; what is missing is the "never" choice.

The second situation involves questions where you are giving "reasons" as choices and you leave out the favorite answer of a large segment of your sample. As I will discuss later in this chapter, there are some fairly straightforward ways to spot these problems.

7. Do Not Write Loaded Questions

A loaded question is a biased or slanted question. It is written in such a way as to "force" people to answer in one direction or another. Unfortunately, there are many examples of this problem. Often the "researchers" have purposes in mind other than discovering truth. For example:

"Should the state ignore the principles of the Bible, which is the law of God, and morality by legalizing murder by abortion?"

Often the loading happens in a more subtle fashion. We have discussed earlier how writing scales that are not balanced stacks the deck toward

one end or the other. In addition, loading happens because particular words or phrases are used that invoke strong positive or strong negative reactions (e.g., American institution, giveaway programs). Also, invoking authority figures within the question can bias responses (e.g., God, the Supreme Court, the president). Even invoking the status quo can slant responses. For example:

"Up until now gambling has been illegal in this state. How do you feel about legalizing gambling?"

Finally, another phrasing that biases answers is to use social pressure within a question.

"In the last election a large majority rejected proposition X. How do you feel about it now?"

or

"Most people feel that smoking marijuana is harmful. How do you feel?"

In all these situations, the loading or biasing can be removed relatively easily by writing a question from a neutral stance. What you want to do is to give both sides of the issue, or both ends of the scale, an equal presentation. Mostly this can be achieved by writing the question without adding the various strategies listed above. Sometimes what you need to do is be explicit about both sides. For example:

"Some people support legalized gambling, others want it to be illegal; how do you feel about it?" (As an aside to the reader, when I first typed this example I wrote ". . . others want it to *remain* illegal." It is very easy to slip and write a loaded question; in this case using the status quo in my first wording.)

I do not want to end this discussion without making one point about phrasings that use social pressure. In one circumstance an argument can be made that it will make your data more valid. There are behaviors or attitudes that people might really do or hold but because of a social stigma they would be reluctant to admit to it. By using a loaded structure in your question you try to counterbalance this force and free people to report honestly. For example:

"Most people have times when they drink too much and feel tipsy. How often has that happened to you in the past month?"

Obviously, the use of such procedures must be done carefully and be based on previous results that show that there is a social norm operating to inhibit responses. As we will see in chapters to follow, there are other ways within the structure of the questionnaire to free people to be honest, and these strategies should be considered as well.

HOW TO CREATE QUESTIONS

Even with these guidelines, it is still a significant task to produce a series of questions. There are several ways in which the question producing process can work well. When we talk about developing questions, we assume that you have a fairly good idea of the issues that need to be explored. However, how does one get that fairly good idea?

Having a command of prior work in the field is a tremendous boost to creating a new questionnaire. Reviewing prior studies will help you develop a model for understanding your research area. It will also help you identify the unknown areas or the ones in which confusing findings have been reported. This will help you identify the most fertile ground for your explorations.

Besides prior research, exploratory efforts can help you map out the terrain. These exploratory efforts might consist of relatively unstructured interviews with a small number of people who represent a mix of circumstances, or they might represent interviews with knowledgeable observers of the issues you want to research. For instance, you might talk with doctors and nurses about their views on what makes for quick recoveries after surgical procedures.

In addition to these techniques, focus groups are a wonderful mechanism to help you understand the important issues that relate to your topic of study. A focus group is like a group interview with a small number of persons (maybe 6 to 12). The idea is to get the group to focus on an issue and to discuss their perspectives and experiences. A synergism exists in the group dynamic when one member hears what another member is reporting. Sometimes there is sharp disagreement and sometimes widespread agreement. It is up to the leader of the group to make sure the group follows a productive process including giving everyone a chance to be heard, making it clear that the purpose is to hear where

people agree or differ, and to guide the discussion to various broad areas. You may want to tape these meetings and then extract issues by listening again to the tape, or you might want to have a colleague sit in with you to take copious notes. What the focus group is good at is identifying issues; it cannot really tell you how many people feel one way and how many feel another—that is for your survey.

Pretests

No researcher ever created a perfect survey with the first draft. Getting to the final version of your questions and your questionnaire takes many rounds of revisions. Each time you revise a question, it should get better. To make your revisions effective, however, you need to have information that tells you what you need to revise.

First, you can do a lot yourself just by giving your questions a critical reading. Remember my advice about "hearing" your questions from a naive perspective. This is where this skill comes in handy. As you critically assess your questions, keep in mind what your analytic objectives are. What kind of information do you really want to get?

Second, you can get a lot of feedback from colleagues. Some will be more enthusiastic than others about telling you where you have gone wrong, but try to stay nondefensive and hear what the problem is that they are having with it. Do not rush too quickly to say, "Oh you misunderstood what I was trying to get at . . . " If they misunderstood, maybe a respondent would also.

Third, you can try some informal data gathering by using willing students, or friends for whom the opportunity to fill out the questionnaire on this topic might be interesting. Get feedback from them on the length of time it took, places where it was confusing, and things you might have left out.

Fourth, you are ready for your first formal pretesting of your questionnaire. Some authors suggest trying out all of your procedures on a small scale, including your introductory letter and your data collection phases (Sletto, 1940)—a pilot test. There is nothing wrong with testing out your procedures, but you need more information than merely how quickly the questionnaires come back and what they look like when they are returned. The critical issue is that you want feedback on the questions themselves.

What you want to do, although your real procedure will be a mail survey, is to gather in a room about 10 individuals who represent the kind of person who will be in your sample. Preferably they will not

know you. You can recruit these people through colleagues, through a continuing education course at a local junior college, or through direct recruiting via the phone by you or your research assistant. Depending on whether they have to come to you or not, you may want to pay them a small stipend ($10-$25), and you at least want to provide coffee and doughnuts (maybe fruit if this is a health survey).

People generally like to be helpful. Tell them at the beginning that you want to get a good estimate of the time it takes to fill out the questionnaire and that you need feedback on unclear instructions, ambiguous wording, confusing questions, questions that are too difficult to answer, and questions that they do not like answering. Let everybody finish (remind them to record start and end times) and then move to a discussion about the questionnaire. First get overall feedback—did they enjoy it or not, how was the length, did they like the way the survey looked, was it easy to read? Then move on to specific sections of the questionnaire. Go through it page by page, asking for any issues that they might have had. Sometimes pretest respondents are reluctant to criticize; after all, you are the expert, and what do they know about research? It is up to you to make them feel at ease and to encourage them to help you work out the "kinks" in the survey. Make them feel a part of the process. Sometimes you can get them talking by asking them if they think "others" might have problems understanding any of the questions. You should also ask them if you have left out issues within each section that they think would be important to know. This is somewhat like the focus group process, but with a specific stimulus. You should run enough groups so that you have at least 25 pretests; more would be better.

In addition to obtaining reactions from your pretest respondents, you may also want to specifically ask them what their reasoning was when they checked a specific box or what definition they applied to a critical term. In a recent study, we used the term "work group" in a study of job factors and health. We wanted to know whether respondents' notions of work group corresponded to ours. We discovered that respondents have different definitions, so we added our definition to the wording of the question. This process provides a wealth of feedback on the understanding of key terms and the processes that respondents use to formulate answers. All of this information is useful in determining whether you need to revise items and how to revise them so that they are better able to assess your question objectives.

Besides the feedback from the respondents, you should tabulate their answers and look at the distributions that you get. Also note how many

people refused to answer questions or left them blank. You should be suspicious of items on which everybody is answering the same thing or almost the same thing. These kinds of items will not be very useful in any kind of comparative analysis. You have to ask yourself if you expect people to vary on this item. If yes, then why are you not getting that variation? Is the item loaded? Are the response categories not balanced? Maybe you need more gradations where the bulge of responses is. If you do not expect variation, then you might ask yourself if you really need this item.

Inevitably, your questionnaire will be too long, *and* you will think of additional items that you want to add based on the group's feedback. A good researcher can always think of additional interesting questions to ask. Here is where discipline comes in: You really need to stick with your analytic objectives and not try to do everything in one study. Cut out the nonessential questions, trim back on the second priority areas, and add in some of the additional ideas. Revise wording, question ordering, and formats.

Then pretest a second time! You may feel that you do not have time or resources, or you may feel that the revisions you made will work, so you might be tempted to skip the second pretest. Don't. It is worth the time and effort. Your study will be significantly better from doing a second pretest. What you have to tell yourself is that it is not worth the real study turning out to be just a big second pretest. You will regret your shortcuts when it comes time to write up the results.

In stressing two pretests, I do not mean to imply that you never do more. Sometimes you do many. It depends on how much development work you are doing, and it depends on how complicated the material is and how broad it is. Sometimes you only pretest sections of the questionnaire. I do not recall ever hearing a researcher say that the time spent in pretesting was a waste. I do recall many researchers saying, "I only wished I had pretested more."

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