

from the rest of the group. In the main hall of New York's Grand Central Station, the same people could easily be dispersed.

Loudness, light intensity, and air flow are *environmental conditions* that directly affect possibilities for behavior relationships by limiting and augmenting people's ability to hear, see, and smell other people and activities. For example, light turned low in a restaurant effectively separates people at different tables as if there were a physical screen between them. A single worker in an open-plan office listening to a radio at high volume acoustically invades the space of other workers and separates himself from them aurally. Machines that emit high-pitched sound and mask background noise without participants' awareness protect acoustical privacy as a closed door might. An exhaust hood and fan over a kitchen stove keep kitchen smells out of adjacent rooms—olfactorily separating people cooking in the kitchen from others.

OVERVIEW

To design environments suited to what people do in them, we must understand environmental behavior: *Who does what with whom?* In what *relationship*, *sociocultural context*, and *physical setting*? This chapter proposes that by looking at how environments affect people's ability to see, hear, touch, smell, and perceive each other, we can begin to understand how environments impinge on social behavior.

Environmental elements that affect relationships include barriers, such as walls, screens, objects, and symbols; and fields, such as shape, orientation, size, and environmental conditions. Design decisions about these elements have identifiable side effects for social behavior.

Environmental-behavior descriptions that can enable designers to improve control over behavioral side effects of their decisions include six elements: actor, act, significant others, relationships, context, and setting.

The next three chapters discuss how to find out about people's feelings, attitudes, perceptions, and knowledge—namely, by asking questions.

Chapter 9

FOCUSED INTERVIEWS

Asking questions in research means posing questions systematically to find out what people think, feel, do, know, believe, and expect. Normally when we think of an interview or a questionnaire, we think of the yes/no or multiple-choice questions of most public opinion polls. But such questions are fringe forms of a research tool of potentially much more penetrating power. You can use a focused interview with individuals or groups to find out in depth how people define a concrete situation, what they consider important about it, what effects they intended their actions to have in the situation, and how they feel about it. Originally formulated to tap reactions to films of military instruction and propaganda, radio broadcasts, and other mass communication devices, focused interviews are particularly suited to the needs of environment-behavior researchers interested in reactions to particular environments. Many of the concepts this chapter explains and the way it explains them are based on Merton, Fiske, and Kendall's insightful and inventive book *The Focused Interview* (1956).

PREINTERVIEW ANALYSIS AND INTERVIEW GUIDE

To understand thoroughly how someone reacts to a situation, one must first analyze the structure of that situation, using theory and observational research methods. This analysis can then be used as the basis for discussing the situation in detail with the respondent. Such a situational analysis guides the discussion; the interviewee's responses are used to test, refine, and modify the analysis. A skilled focused interviewer negotiates with a respondent to find correspondence between his own analytic structure and the respondent's mental picture of the situation. By structuring the information themselves, focused-interview respondents become participants in the research.

The *interview guide* is a loose conceptual map, such as a family might draw up before taking a cross-country camping trip. It lays out major sights to see, places to stay, and so on. After the trip begins, the family members find some of the sights closed, others uninteresting, others so arresting that they stay longer than expected. They also find that they do not drive as many miles as planned each day and that the children like to stop to eat more often. Every day they adjust their plans, and they end up having a fine trip that mixes the plans

they made on the basis of advance analysis with reactions to events as encountered. Skilled focused interviewers similarly modify their original plans to correspond to the conceptual map reflected in the respondent's answers. That conceptual map is the respondent's definition of the situation for which the interviewer is searching.

In the focused-interview guide, the map is a set of topics, elements, patterns, and relationships that the interviewer tentatively intends to cover. Adjustments to the guide during the interview are carried out by skillful use of the major focused-interview tool, the *probe*: the interviewer's prompting for further elaboration of an answer. An interviewer probes to find out how a respondent's definition of the situation differs from the hypothesized one; this information allows the interviewer to adjust and refine the guide. The researcher's goal is to determine which of the many hypothesized elements are important to the respondent and then to understand as thoroughly as possible what these elements mean in the respondent's definition of the situation.

To avoid misunderstandings, one should know that for surveys in which questions are posed with prescribed rigidity, a "good interviewer" is one who adheres to the text and never develops initiative of his own. In a focused interview, the opposite is true.

OBJECTIVES OF FOCUSED INTERVIEWS

Definition of the Situation

An individual's definition of a situation is the way she sees and interprets it—the personal light in which a particular event is cast. This definition influences the way she responds to that event.

For example, during focused interviews custodians, school administrators, and neighboring residents reported that kids messed up public lawns by playing ball on them and broke public street furniture by jumping on it (Zeisel, 1976a). Teenagers involved in these activities described them differently. They played ball in open fields to avoid the danger of traffic and the bother of people walking by. They hung around benches and play equipment in tot lots because the equipment was convenient for sitting, climbing, and jumping. In the beginning of this school-property-damage study, the research team heard repeated reports from administrators of costly "vandalism" at the schools. The investigators assumed, along with the respondents, that the property damage was indeed "vandalism"—maliciously carried out—until, of course, they got the teenagers' definition of the situation.

Knowing how participants define a situation—the meaning they give it—helps to interpret data gathered through other methods, no matter how unreasonable the respondent's definition sounds. To keep an open mind and see situations as others see them, one must be prepared to find as many definitions as there are participants.

Strength of Respondents' Feelings

Throughout any design project, decisions about priorities are made. Is it more important to plan direct access to cars from apartments or to keep cars parked far from the front door? Is it more important for patients in a cancer-treatment center to wait with relatives, or is modesty more important for them, maintained by waiting alone? Designers forced to make such tradeoffs can better control the side effects of their decisions if they know the strength of respondents' feelings about convenient access, a view free of automobiles, relatives' support, and modesty.

Intentions

Observing behavior and physical traces tells investigators about unintended consequences of activities. In Boston's West End "urban village," men spent much time on the street washing and polishing their cars. They said they did this to keep the cars clean, which the cars are. Observations showed that the men polished their cars next to one another and talked to passers-by as well, creating a close-knit network of neighborhood friends. This social contact is another consequence of car washing in this neighborhood. Both consequences could be observed in the situation. Only by asking the actors what their intentions are can researchers distinguish conscious intent from unintentional side effects.

BASIC CHARACTERISTICS OF FOCUSED INTERVIEWING

Focused interviewing has the following characteristics:

1. Persons interviewed are known to have been involved in a *particular concrete situation*: they have worked in the same office building, lived in the same neighborhood, or taken part in an uncontrolled but observed social situation, such as a tenants' meeting, a street demonstration, or a design review session.
2. An E-B researcher has carried out a *situational analysis* to provisionally identify hypothetically significant elements, patterns, and processes of the situation. The researcher has arrived at a set of hypotheses about what aspects of the situation are important for those involved in it, what meaning these aspects have, and what effects they have on participants.
3. On the basis of this analysis, the investigator develops an *interview guide*, setting forth major areas of inquiry and hypotheses.
4. The interview about subjective experiences of persons exposed to the already-analyzed situation is an effort to ascertain their *definitions of the situation*.

PROBES

Probes are primarily questions that interviewers interpose to get a respondent to clarify a point, to explain further what she meant, to continue talking, or to shift the topic. The probe is the systematic development of an everyday device used in conversation when one person is interested in precisely what another has to say.

- *Addition probes* encourage respondents to keep talking—to keep the *flow* of the interview moving.
- *Reflecting probes* determine in a *nondirected* way which of the analyzed topics in the interview guide are significant to the respondent and which new ones to add because they were overlooked.
- *Transitional probes* make sure that the respondent discusses a broad *range* of salient topics.
- *Situational probes* stimulate the respondent to *specify* what parts of a situation prompted the responses.
- *Emotion probes* encourage discussion in *depth* of how the respondent feels about each specified part of the situation.
- *Personal probes* get respondents to describe how the *context* of their lives influenced their reactions.

This chapter goes on to discuss each type of probe, showing with examples how it can be used to enrich an interview.

Addition Probes to Promote Flow

Addition probes urge respondents to continue talking by conveying the researcher's interest in what is being said. Skillful interviewers use addition probes to get respondents to express themselves more fully and to keep the overall flow of the interview moving. They are so simple and natural that interviewers sometimes use them inadvertently.

Addition probes may be *encouragements*: such as “Uh-huh,” “I see,” “Yes,” “Good,” “That’s interesting,” “I understand,” interjected during and after answers. Encouragements can be combined with *body movement* probes, such as nodding your head, leaning forward, looking directly at the respondent, and putting your hand to your chin thoughtfully. Skillful interviewers invent an unending number of such probes. If it seems inappropriate to make utterances, interviewers can combine attentive body movements with one of the most difficult types of probes—*attentive silences*. This probe, during which an interviewer waits for the respondent to begin speaking, requires much tact and skill because the lack of conversation between two persons alone in a room is uncomfortable. It is socially unacceptable in many Western cultures. As a result, inexperienced interviewers often fill up a silence by asking another question or by changing the topic. They are afraid of not being able to keep a flow of conversation going.

Focused-Interview Probes and Their Purposes	
<i>Probe</i>	<i>Purpose</i>
<i>Addition</i> Encouragement Body movement Attentive silence	<i>Flow</i>
<i>Reflecting</i> Echo Question-to-question Attentive listening	<i>Nondirection</i>
<i>Transition</i> Cued Reversion Mutation	<i>Range</i>
<i>Situation</i> Re-presentation Environmental walk-through Reconstruction	<i>Specificity</i>
<i>Emotion</i> Feeling Projection Attentive listening	<i>Depth</i>
<i>Personal</i> Self-description Parallel	<i>Context</i>

They may be unwittingly stopping the respondent from finishing a difficult answer that he would just as soon avoid because it is a particularly weighty topic for him and therefore probably significant for the interviewer.

Reflecting Probes to Achieve Nondirection

Nondirection pervades the focused interview. Respondents, rather than interviewers, decide what issues and elements are salient to them and are to be discussed and which are irrelevant. The ideal interview would be one in which

the interviewer analyzes a situation—its parts, patterns, relationships, and overall structure—and then begins by asking one general, unstructured question. Then in a long monologue the ideal respondent discusses his feelings about each topic, pointing out in detail which are and are not relevant to him and adding new topics the interviewer overlooked.

Ideal interviews do not occur. Respondents mention important issues but seldom raise and then discard unimportant ones. The interviewer must bring up topics in order to find out whether a particular topic was not raised because the respondent thought it was obvious and could be taken for granted or because he thought it irrelevant. Few respondents are specific enough about issues or explain their responses in sufficient depth. The interviewer's job is to test and modify the interview guide by inferring from the discussion how well the respondent's definition of the situation meets the guide's hypothetical one. To do this, the interviewer uses probes to see that the discussion covers all the hypothesized topics, leaving room for the respondent to raise additional ones. Then the interviewer makes sure each topic is discussed in enough detail and depth.

The focused interviewer's success is closely linked to her skill in using addition and reflecting probes to urge respondents to be complete in their reporting without telling them directly what to talk about. Beginning the interview with general, unstructured questions, the interviewer urges the respondent to express which topics are important and which unimportant and what types of answers are relevant for the different questions. As the interview continues and topics are discussed at length, the interviewer divides and focuses general questions into more specific ones, sometimes even suggesting the types of possible answers. These more structured questions are based on the sometimes implicit leads that respondents provide when they answer general, unstructured questions.

Example	Comment
<i>Int:</i> What is your general feeling about this hospital?	General unstructured question.
<i>Resp:</i> I really like it.	Respondent expresses a general feeling.
<i>Int:</i> What do you particularly like about it?	Focus on aspect of environment that generated expressed feeling.
<i>Resp:</i> Well, I don't know.	Stalling tactic to think.
<i>Int:</i> (Nods head and listens silently)	Body movement and silence probes.
<i>Resp:</i> I suppose the thing I like best is the waiting areas; a real person has taken the time to put personal things on the walls and tables.	Focused answer explaining with greater specificity what it is about hospital environment respondent likes.
<i>Int:</i> What do you mean when you say you like that best?	Question probing depth of feeling.

Resp: I mean it makes me feel comfortable, like I don't mind being here.

Focused answer beginning to explain feeling more completely.

Int: Is there anything else here that makes you feel that way?

Question structuring response category but keeping stimulus unstructured.

While the interviewer probes and focuses, the respondent sets the stage, directing the conversation into areas she feels are important. This procedure enables interviewers to find out two things at the same time: which topics respondents think are relevant and what they feel about these topics.

To avoid directing the focused interview, a useful position for an interviewer to take is that of a *potential convert* to the respondent's point of view. The crucial word here is *potential*, because interviewers who voice strong agreement or disagreement may thereby inhibit further explanation of a topic. Respondents may not go on if they feel they have convinced the interviewer or feel they have come up against a stone wall. The trick is to use probes to show the respondent that by continuing her report, she may indeed make a convert of the mildly skeptical interviewer.

Direction can also be avoided by reflecting back the respondent's own words. One reflecting probe is the *echo probe* (Richardson, Dohrenwend, & Klein, 1965), in which the interviewer literally repeats in the form of a question the respondent's last phrase:

Example	Comment
<i>Resp:</i> The thing I like best about this place is its location.	General response.
<i>Int:</i> Its location?	Echo probe.
<i>Resp:</i> Yes, you know, the fact that it is right near two bus stops and a store.	Focused response specifying stimulus.

An equally simple reflective probe is the *question-to-question probe*. The interviewer uses it by answering a respondent's question with a question, to avoid stating an opinion:

Example	Comment
<i>Resp:</i> What did the architect think when she put these windows next to the playing field?	Respondent's question to interviewer, apparently for clarification.
<i>Int:</i> You mean it is not clear what the architect had in mind when she did this?	Question-to-question probe.

Example

Resp: No. She obviously didn't think about the fact that kids on the playing field are always being rough and showing off to other kids by breaking everything in sight that's breakable.

Comment

Focused response explaining situation from respondent's point of view.

A third reflective probe, the *attentive-listening probe*, demands more interviewer participation. The interviewer listens for the implied meaning of the respondent's remarks, repeating back to the respondent as a question what the interviewer believes is meant:

*Example**Comment*

Int: Is there anything you do regularly on a daily basis in the building?

General question about routines.

Resp: I always go down to get my mail late in the morning, at least half an hour after the mail arrives. This way I don't meet anyone and no one knows if I get mail or not.

Descriptive response about personal routine.

Int: You mean it bothers you if there are other people there who see that you might not receive any mail for a day or two?

Attentive-listening probe.

Resp: Yes, it's none of their business. I like to meet my friends when I want to, but I don't like to be forced to see them when I am doing chores around the building.

Focused response explaining resident's avoidance behavior in terms of forced meetings.

Transition Probes to Extend Range

The range of an interview is the number of topics it covers relevant to the respondent and to the situation. Extensive range is often a measure of the quality of an interview. Probes extend range by making certain that the topics listed in the guide are discussed, as well as unanticipated topics the respondent brings up and topics that suggest interrelations between the focused interview and data from other research projects. In maintaining sufficient range in an interview, it is difficult to move from one topic to another without giving the respondent the impression that the interviewer is running the show entirely. The major danger is that respondents may become passive and wait for the interviewer to ask a series of structured questions—destroying the purpose of the interview.

In easy interviews respondents demonstrate their involvement with each topic by giving short shrift to irrelevant items and discussing in depth topics that

hold meaning for them. When this occurs, a skilled interviewer simply stays out of the picture. Still, he listens closely to the order in which topics are covered as an indication of their importance within the respondent's definition of the situation.

When such ideal conditions do not occur, the interviewer uses *transition probes* to facilitate movement from topic to topic with a minimum of overt direction. In focused interviews several typical situations requiring transition probes arise regularly.

For one, respondents may continue to discuss a topic the interviewer feels has been discussed with sufficient specificity, depth, and context at detailed levels of abstraction. The interviewer can then use a *cued transition probe*, in which "the interviewer so adapts a remark or an allusion by an interviewee as to ease him into consideration of a new topic" (Merton et al., 1956: 58). Cued probes use analogy, association of ideas, or shifts in emphasis to effect smooth transitions.

*Example**Comment*

Resp: (School maintenance worker discussing maintainability in various areas of the school) . . . another thing particularly convenient about cleaning the bathroom is the special water faucets there, although the outlets might be a bit larger to allow water to get out faster.

Final remarks of a sufficiently detailed explanation.

Int: Another place with readily available water must be the school swimming pool. How is that as far as maintenance is concerned?

Cued probe using the topic of water to move from a discussion of lavatories to one of play facilities.

Resp: In the swimming pool, water is not the main maintenance problem. There it is the type of tile; it is difficult to clean . . .

Response related to new interview topic.

When a respondent finds herself discussing a topic with intense personal meaning, her answers become highly charged. She may try to change the subject either because of unpleasant associations or because she does not feel at ease talking about important things with a stranger. Since such topics may be particularly relevant, an interviewer tries to keep respondents on the topic by showing how interested he is—with silence and body probes.

If a respondent nevertheless moves on to a new topic, the interviewer is better off dropping the topic and picking it up later in the interview in a new context or when rapport with the respondent has improved. A mental or written note to use such a *reversion probe* will help. Reversion probes take advantage of at least a superficial connection to bring up a topic insufficiently covered earlier:

Int: That reminds me of something we spoke about earlier.

or

Int: Isn't this point a continuation of the point you made before?

A reversion probe is particularly useful when a respondent is distracted from an interesting topic to one that interests her still more. The interviewer knows there will be no difficulty returning to the first topic but hesitates to do so quickly for fear of interrupting the respondent's train of thought.

Another common situation is one in which the respondent, happy to have an audience, warms up to a topic having nothing to do with the subject of the interview. A lonely hospital patient asked to discuss a hospital setting, for example, may show the interviewer pictures of his grandchildren and discuss them in detail—their ages, education, and exploits. The interviewer should be grateful for such excursions because they strengthen rapport with the respondent. Nevertheless, cued transitions help to bring the conversation on track:

Example	Comment
<i>Resp:</i> . . . and my fourth grandchild just started nursery school . . .	Irrelevant discussion.
<i>Int:</i> That raises the issue of families visiting patients in the hospital. Where do you entertain your family?	Cued probe.
<i>Resp:</i> Usually my family sits in the bedroom with me, but when the grandchildren come we sit in the dayroom.	Response moved back to interview topic: the hospital setting.

With garrulous respondents, however, an interviewer may need to resort to *mutation probes* that blatantly change the subject. Mutation probes, generally unstructured questions, raise questions out of context, with no reference to previous discussions. Interviewers must use mutation probes sparingly. Otherwise they can cut off discussion of relevant topics because they are too tired to listen carefully or because the topic is mistakenly not on their interview guide. Potentially informative leads are easily lost this way. The temptation to use mutation probes unwisely is particularly great at the end of an interview when some topics have not been covered. The interviewer wants to translate his guide topics into specific questions and ask these in rapid succession. As a rule, if an interviewer does not have the time to follow up on a topic, it is inefficient to raise it using mutation probes. It is better skipped altogether.

Situation Probes to Encourage Specificity

Specificity in the focused interview is a respondent's ability to state with precision which elements in a situation she reacted to and in what way, rather than just saying that the situation as a whole had an effect on her. This is particularly vital if you want to understand respondents' reactions to such complex environments as housing projects. Merton et al. (1956: 7) point out that this was the case in Chapin's early research on public housing:

Chapin (1940) studied the gains in social participation which can be attributed "to the effects of living in the [public] housing project." As he recognized, "improved housing" is an unanalyzed "experimental" situation: managerial policies, increased leisure, architectural provision for group meetings, and a host of other items are varying elements of the program of "improved housing."

Chapin used focused interviews to find out specifically what it was about the housing project that influenced people's social participation. Researchers interested in influencing design decisions need to know which decision in a complex set of decisions has had what effects.

Interviewers who want respondents to specify further a particular stimulus situation can ask them directly to do so:

Int: What was there particularly about the building that you liked?

or

Int: What part of the schoolyard do you play in most?

The more an interviewer repeats references to the stimulus situation, especially in a series of progressively specifying questions, the more likely the respondent is to make reference to specific parts of the environment.

Researchers can either first request respondents to specify aspects of the environment and then discuss their reactions to each aspect or ask respondents to first describe a reaction, followed up by further specification of what is being reacted to. Merton et al. (1956: 71–72) surprisingly found the latter sequence of questions more effective in achieving specificity—namely, first eliciting a description of reactions, then asking respondents to specify just what was being reacted to.

Example	Comment
<i>Int:</i> How do you feel about the office you work in?	General question requesting reaction to environment.

Example	Comment
<i>Resp:</i> I feel that if I don't always stay aware of where I am, I'll get lost.	General response describing reaction to environment.
<i>Int:</i> What is it about your office that makes you feel that way?	Probe requesting specification of environmental stimulus.
<i>Resp:</i> The windows. I can't see any windows from where I work, so I never know what time it is or which direction I'm facing.	Focused specification of environmental stimulus.

When interviewers repeatedly request specification of an environmental stimulus, respondents may revert to mere description of the environment. Interpreting a request for specification as a request for information, they may proceed to try to remember as many details about the environment as they can—even irrelevant ones. To avoid this pitfall and to elicit sufficiently specifying responses, interviewers can use probes aimed at helping respondents remember clearly the settings they are asked to specify.

Using *re-presentation probes*, interviewers present respondents with a photograph or drawing of some part of the setting being discussed—a doorway, an area, a piece of hardware. This active probe is least directive when the picture is presented only after the respondent has verbally identified an element or place as relevant to him.

Example	Comment
<i>Int:</i> What in the school causes the most maintenance problems?	Request for general information about problems.
<i>Resp:</i> Well, we have the most trouble keeping the thermostats in order.	Mention of an object.
<i>Int:</i> (Presenting photograph of thermostat to respondent) Here is a photograph we took recently of the thermostat you use throughout the building. What is there about it that gives you the most trouble?	Re-presentation probe, combining photograph of object with request for specification.
<i>Resp:</i> If you look closely, you can see how flimsy the adjustment switch is. When kids fool with the switch or even when faculty members try to adjust the temperature, the switch often breaks off. This means we have to replace the whole unit at \$. . .	Focused response specifying aspect of object that causes reaction.

Graphic re-presentations can be used together with cued transition probes or even with mutation probes if interviewers want to find out respondents' reactions to a broad range of environments. Re-presentations then take on the added directive nature of these other probes.

A special case of re-presentation, the *environmental walk-through probe*, can be used if the focused interview takes place in the environment that is the topic of the interview. During a walk-through the interviewer asks the respondent to point out and describe places and objects that are important to him. For particularly salient items the interviewer and respondent stop to specify more precisely what it is about the item that is relevant.

A walk-through is not just a guided tour. To get the most out of an environmental walk-through, interviewers first question the respondent in one place, asking him to describe the environment they will walk through, together with his general reactions to it. As places and objects are mentioned, the interviewer discusses them up to the point of requesting detailed specification, noting these items for later reference during the walk-through. In this way, the interviewer uses first the respondent's personal definition of the situation to define important elements and then the walk-through to elicit further specification.

Reconstruction probes may be used when respondents have trouble remembering the setting they are asked about or when they remember it only in general terms. Reconstruction probes ask respondents to think back to particular events in a place to recall their reactions to it *at the time* the event took place.

<i>Int:</i> When you first entered the hospital three weeks ago, which entrance did you come in?
or
<i>Int:</i> What do you remember about the last time you sat at your old desk, before moving to this office?

When the respondent refers to a complex set of phenomena that she remembers only as a whole or when she replies "don't know" or "can't remember" after being asked to specify her answers, reconstruction probes often help switch attention to specifics.

Example	Comment
<i>Int:</i> How do you feel about the park?	General request for information on feelings.
<i>Resp:</i> I think it is a particularly good place to come with my children.	General report of feelings.
<i>Int:</i> What makes it a good place for children?	Specifying probe.

Example	Comment
<i>Resp:</i> I don't know, it's just the way it's planned.	"I don't know" meaning "I can't verbalize it."
<i>Int:</i> Well, do you remember the last time you went to the park with your kids?	Reconstruction probe.
<i>Resp:</i> Yes, we played hide-and-seek on the curved pathways, and . . .	Response beginning to reconstruct specific situations.

Reconstruction probes help respondents to look retrospectively at the situation they are commenting on—to put themselves backward in time and reexperience the setting. Specifying probes in general do more than isolate for analysis specific parts of a whole situation. By linking specific parts to specific respondent reactions, they set up the interview so that each reaction can be explored in depth.

Emotion Probes to Increase Depth

Depth in a focused interview is the degree to which the respondent's feelings about a situation are explored. Reports that a respondent "likes" or "dislikes" a place, that it is "very satisfying," or that it is a "frightening" place can signify a variety of things. Someone, for example, can dislike her workplace but choose to work there because it is better than any other place she has found. Or a street can be frightening to someone, but the fear can be such a peripheral concern that it does not hinder his walking there.

Interviewers use emotion probes to determine how strongly a person feels about a response he has given. The probes encourage respondents to explore and explain in depth the meaning and richness of general expressions of feelings. Emotion probes keep respondents from merely describing a setting by directing them to explain their feelings about it as well.

Feeling probes continually use the term *feel* or *feeling* in questions or repeatedly ask respondents to explain what they mean by a given generally-expressed feeling.

Example	Comment
<i>Resp:</i> I am frightened by the teenagers who walk through the project.	General reaction.
<i>Int:</i> What do you mean, "I am frightened?"	Feeling probe.
<i>Resp:</i> The teenagers are rough and could hurt us. We are old.	Descriptive response.
<i>Int:</i> Are you actually afraid they will harm you?	Feeling probe.

Resp: No. In fact, they are actually well-behaved if you talk to them. They just walk across the lawn where there is no path and sometimes throw rocks at the lights.

Int: What do you feel about this?

Resp: I am very angry that they do not obey the rules, but I am glad that the kids respect our being old and that they stay out of our front yards.

Specifying response.

Feeling probe.

Depth response.

A series of feeling probes can bring to the surface strongly felt sentiments that appear at first to be peripheral, and it can show seemingly deeply felt sentiments to be no more than offhand remarks. As a rule, no briefly expressed sentiment ought to be taken at face value until it has been probed in depth.

Another probe for depth of emotion is the *projection probe*, in which interviewers ask respondents to project feelings about a situation onto another, hypothetical person. This is useful when discussing sensitive emotions that the respondent himself might not admit having but would be at ease admitting that "others" or "someone else" might have.

Example	Comment
<i>Int:</i> How do you feel about playing at the central basketball court with the older kids?	General request for feeling.
<i>Resp:</i> I don't mind. I'll play anywhere. I play there sometimes, and sometimes I play on the smaller court down the block.	Neutral feeling response.
<i>Int:</i> Why do you use the smaller court?	Feeling probe.
<i>Resp:</i> Because I just don't feel like hassling with the older kids.	Response indicating avoidance reaction.
<i>Int:</i> Does anybody avoid the central courts because he's afraid?	Projection probe.
<i>Resp:</i> Sure, some kids are really afraid of getting picked on by the older kids. Some even avoid walking down the block if they know that someone playing on the central court is after them.	Projective response describing feelings of "some kids" in depth.

When respondents seem to avoid answering a feeling question, this is a clue to interviewers to try a projection probe—particularly when respondents *deny that they personally* have a certain feeling. At the same time, interviewers must be careful not to think that every response referring to "a friend" or "some-

one else" actually describes respondents' unexpressed feelings. The ability to make such distinctions increases with interviewing experience.

A final emotion probe is the *attentive-listening probe*, in which interviewers listen for the meaning implied in the respondent's answer and then make this meaning explicit in a follow-up probe:

Example	Comment
<i>Int:</i> How do you feel about the rules that the school principal makes about what you can and cannot do on school grounds?	General request for feelings about a specific subject.
<i>Resp:</i> He has a right to make any rules he wants. But they should apply equally to all grades, not just to us seventh- and eighth-graders.	Response obliquely describing reactions and feelings.
<i>Int:</i> You mean you feel you are being treated unfairly?	Attentive-listening probe.
<i>Resp:</i> Yes, it really makes me angry that they can . . .	In-depth feeling response.

Sometimes stating implied feelings in terms of limits to action—in terms of extremes—allows respondents first to reject the extreme statement and then to clarify what they were trying to say.

Example	Comment
<i>Resp:</i> I can't think of any place I'd rather live.	Seemingly extreme statement of feeling.
<i>Int:</i> Does that mean you like it here so much you wouldn't move for anything?	Extreme attentive-listening probe.
<i>Resp:</i> Not exactly. If my best friend bought a house where it is warmer, I'd consider moving.	Rejection of extreme restatement and clarification of attachment to residence.

Interviewers should be careful not to put words in a respondent's mouth by restating implied feelings approximately and then using a feeling probe too forcefully: "You did mean this, didn't you?"

Attentive-listening probes, like many others, have side effects as significant as their direct effect. Respondents who see interviewers interested and listening tend to relax, be more talkative, and feel greater rapport.

Personal Probes to Tie In Context

Reactions to environments have, as a rule, a dual chain of causes, the environment and characteristics of the reacting person. One such characteristic is his or her position in the environment: nurse, doctor, patient, visitor; teacher, student, principal, parent; tenant, janitor, landlord, delivery person. More general characteristics, such as age, sex, and family status, can also heavily influence a respondent's reactions. The most important factors, however, may derive from the respondent's biography, his or her history, different personal backgrounds, experiences, or idiosyncrasies that influence his or her feelings about things. For example, one high-rise urban tenant may have lived his whole life on a farm, while another was brought up in high-rise city buildings. One doctor may be particularly sensitive to problems of cancer patients because she had a parent who suffered from the disease. If a researcher wants to understand a respondent's answers throughout a focused interview and to generalize data to any larger group of people, the researcher must know the personal context within which a respondent is answering questions: position in the system, personal characteristics, background, personal idiosyncrasies. Biography is a dimension that can provide useful insights, but it requires an interviewer's particular tact.

Self-description probes directly request respondents to describe themselves and why they react to situations the way they do. This achieves results when respondents are self-analytic and conscious of underlying reasons for their actions.

Example	Comment
<i>Resp:</i> I hate people talking in the library.	General statement on depth of feeling.
<i>Int:</i> Is there anything particular about you that makes you feel so strongly?	Self-description probe.
<i>Resp:</i> Yes, my mother was a librarian, and . . .	Context response explaining personal background.

When self-descriptive answers result from nonpersonal probes, they are also significant.

Example	Comment
<i>Resp:</i> I am afraid to live in that area.	Response stating general feeling.
<i>Int:</i> Why are you afraid?	General probe.
<i>Resp:</i> My age means that my legs are not so strong, so I am afraid of falling down when I walk. And in that area the kids play ball and ride bicycles on the sidewalk.	Contextual response explaining reactions in terms of personal characteristics.

Parallel probes help respondents talk about themselves in one setting by requesting them to find parallel situations in their own lives. This often has the effect of getting respondents to explicate the parallel by talking about personal contexts.

Example	Comment
<i>Resp:</i> I find this office extremely inefficient and wasteful.	General response.
<i>Int:</i> In what way?	General probe.
<i>Resp:</i> I don't know, just "inefficient."	Difficulty expressing self.
<i>Int:</i> Is there any setting you can think of which is inefficient like this office or which explains what you mean by "inefficient"?	Parallel probe.
<i>Resp:</i> A submarine is efficient. When I was a sailor, we learned that . . .	Response explaining personal context.

FOCUSED INTERVIEWS IN GROUPS

Many of the initial experiences of Merton et al. with focused interviews took place with groups, not individuals (1956: Chapter 7). Carrying out interviews in groups is a good idea if you want to identify the range of definitions of a situation that interviewees hold, to find out whether a particular opinion is held at all, and to save time. In a study to design social-service offices for a staff of 40, researchers can carry out interviews with four groups of ten respondents much more easily than with 40 individuals. Group interviewing often works out best if the size of the group is kept under 15, if the interview is held informally around a table or in a circle in a small enough room that respondents feel they are all part of one event, and if respondents in the group have something in common.

In a group, interviewers face many of the same problems and use many of the same probes as they do with individuals. You have to keep the flow of discussion moving, remind people of specific details you are interested in, and maintain sufficient range. Sometimes the fact that others are in the room makes an interviewer's job easier—when, for example, an emotional statement by one person incites others to express their feelings more openly.

But a group can also present special problems, most stemming from the "leader effect" (Merton et al., 1956: 148)—namely, that in most groups of people one or two persons will inevitably emerge as louder, more dominant, or more opinionated. Such a person can easily take over an interview, divert it from its focus, and inhibit others from talking. What can you do to prevent this without damaging your rapport with the group and interrupting the flow of the meeting?

Appeals for Equal Time

When one person takes over an interview, that person and others usually know it. Sometimes people even do so as a subtle challenge to the interviewer. It is your task to appeal to the person's sense of fair play in order to give others a chance to talk:

Int: Good point. Perhaps we should hear some other opinions now.

Int: To get a broad enough picture, it might be good to see what other people think about this as well.

Attention to Body Language

Reticent respondents in a group often remain quiet, leaving the floor to the self-chosen leader. This does not, however, mean that quieter interviewees have nothing to say; they just do not create their own openings in the conversation. So it is your job to create openings for them when you notice they want to say something. Cues that they have an opinion to express include these:

- A respondent sitting forward on his chair, looking at you intensely.
- A respondent raising her hand as in a classroom.
- Two respondents chatting quietly—probably expressing minority opinions to each other.

Asking for a Vote

When discussion has been limited to several respondents, or when more respondents have contributed but it is unclear who holds what opinion, you can ask for a vote on an issue. But first you must show you have been listening attentively by clearly stating the opinion or alternative opinions the respondents are to vote on:

Int: Charley has stated that the most important thing about an office is that it have a window—more than privacy or anything else. Which of you agree with this and which disagree? (This type of question in part challenges respondents to contribute.)

Int: Some of you say that you dislike moving from desk to desk when more people are hired; others seem to be saying they don't mind. Could I see a show of hands: How many of you dislike moving? And how many don't mind it?

Group focused interviewing can be disappointing and exhilarating, insightful and frustrating, because the mixtures of people you find lead to infinitely varied interactions among them and between you and them. As with every

research tool, to use it successfully you need to know more than you can read about in books. This is particularly true for the skills necessary to carry out a group focused interview.

OVERVIEW

You cannot find out how people see the world and feel about it unless you ask them. The focused interview is uniquely suited to discovering a respondent's personal definition of complex E-B situations. Skilled interviewers analyze situations to develop a guide of interview topics. The purpose of the guide is limited to reminding the interviewer of topics and issues to cover. The skilled interviewer then enables the respondent to approach and discuss these topics in her own special way.

To achieve full coverage and depth of insights, the interviewer's main tool is the probe: an indication by the interviewer to the respondent to provide more information about depth of feelings, other topics, the respondent's personal context, or details of a situation. Interviewers use probes to keep an interview flowing without directing it.

Focused-interviewing techniques are as useful with groups as with individual respondents if the interviewer knows how to keep one member of the group from dominating and can encourage diversity of opinion rather than forced consensus.

Focused interviews, however, are not suited to gathering large amounts of easily comparable and quantifiable data. For this researchers need to use standardized questionnaires—the topic of the next chapter.

Chapter 10

STANDARDIZED QUESTIONNAIRES

Standardized questionnaires are used to discover regularities among groups of people by comparing answers to the same set of questions asked of a large number of people. Questionnaires can be delivered by mail or administered over the phone or in person by interviewers trained to ask the questions in the same way. Questionnaires administered in person are also called "scheduled interviews," especially when interviewers are instructed to follow up certain questions with probes for depth or specificity.

Questionnaires provide useful data when investigators begin with a very well defined problem, knowing what major concepts and dimensions they want to deal with. Analysis of questionnaire responses can provide precise numbers to measure, for example, the degree of satisfaction among residents in a new apartment complex or the percentages of residents who moved from single-family homes and from apartments.

Skilled researchers use standardized questionnaires to test and refine their ideas by beginning with hypotheses about which attributes relate to each other. What they do not know is which hypotheses are going to stand up best to empirical study and how, precisely, the concepts will relate. For example, a research team may hypothesize that type of previous dwelling influences satisfaction with apartment living. Using questionnaires, they might find out that residents moving from single-family houses are more satisfied than previous apartment dwellers with high-rise living because they expected to have drastically less space than they had before (Merton et al., 1960).

Fried (1963/1972) demonstrates insightful use of questionnaires to show how reactions among residents of a neighborhood to being forced out in the wake of urban renewal were related to their "sense of spatial identity" with the neighborhood, "based on spatial memories, spatial imagery, the spatial framework of current activities, and the implicitly spatial components of ideals and aspirations" (1972: 234). Fried's quantitative analysis of responses from 259 relocated women residents before and after moving showed that the more they liked living in the West End and the more they viewed the West End as "home," the more they reported severe grief reactions after moving (see Tables 10-1 and 10-2).

Table 10-1. Post-relocation "grief" by pre-relocation "liking"

	Percent Severe Grief Reactions
Among those who said they liked living in the West	
End:	
"very much"	73%
"positive but less than very much"	53%
"ambivalent or negative"	34%
n = (259)	

Table 10-2. Post-relocation "grief" by pre-relocation "feeling like home"

	Percent Severe Grief Reactions
Among those who said their real home was:	
"the West End"	68%
"in some other area"	34%
"they had no real home"	20%
n = (259)	

This chapter discusses some of the qualities of questionnaires, how to organize a questionnaire, and ways to code and formulate categories.

The following chapter will show how asking questions in interviews and questionnaires is suited to such environment-behavior topics as perception, aspirations, knowledge, attitudes, and intentions. That chapter also discusses how to formulate questions in order to find out what you want to about these topics.

QUALITIES

By organizing questionnaires and their administration, investigators can find out a great deal in a short time. But this takes preparation. The quality of questionnaire data depends on the thoroughness that E-B researchers apply to defining the problems they are studying. This is a significant burden because resulting quantitative data often convince other people of arguments qualitative data do not—even when the conceptual basis of the numbers is weak.

Standardized Questionnaires

Qualities

Control
Intrusiveness
Convincing rigor

Organization

Rapport
Conditioning
Fatigue

Coding Open-Ended Responses

Mutual exclusiveness
Exhaustiveness
Single abstraction level

Precoding Responses

Nominal
Ordinal

Visual Responses

Maps
Drawings
Photographs
Games

Control

Interviewers structure questionnaires and control their administration. There is an implicit contract between researcher and respondent that the researcher defines what happens during the interview: how it begins, the ordering of questions and answers, and how it ends. Control has positive side effects, not the least of which is efficiency—minimal cost to gather large amounts of specific and comparable data. Some control over the situation is given up when questionnaires are delivered by mail; accordingly, to increase control, mail questionnaires are usually shorter and more tightly organized.

Repeating standardized questions the same way to many respondents enables researchers to easily compare answers from different respondents. When individual questionnaire items are repeated in separate and similar studies, answers can be shared and compared to build a cumulative body of data.

Intrusiveness

Control in administering questionnaires raises the issue that respondents can change and distort answers. Respondents can be directed by the questions themselves, for example, to treat some issues in greater depth than others, define things in certain ways, respond in provided categories. This is not a problem if questions and response categories correspond to respondents' definitions of the situation. However, when they do not correspond, respondents sometimes feel that the implicit contract to answer questions means they ought not to correct obvious mistakes: the researcher surely knows what she is after.

Researchers using standardized questionnaires must decide before going into the field what level of refinement they want answers to achieve to solve their problem. There is little room for adjustment once data gathering begins. One of the most frustrating things that can happen to researchers in structured interview research is to find that they have spent a great deal of time and energy finding out everything except one item essential to explaining relations between crucial variables.

To avoid some of the side effects of control in any method and in any type of interview (not only questionnaires), researchers carry out particularly thorough preliminary diagnostic research. Focused interviews may be used to determine how people similar to intended questionnaire respondents define a situation: what is important; the names they use for places or things; the types of answers they give. Observation methods can also be used during diagnostic studies. Using diagnostic data, investigators structure standardized questionnaires. But that is not all there is to it.

After the questionnaire is written, investigators *pretest* it with more people like the expected respondents. Pretesting a questionnaire means administering it to self-conscious respondents while asking them to comment on points such as these: what do they understand each question to mean; is it clear or confusing; what do they think is its intent; do response categories give them ample opportunity to express themselves? Pretests are invaluable aids not only in questionnaire construction but in designing any research instrument to fit the needs of a particular situation, group of respondents or elements to observe, and research problem.

Pretests carried out skillfully also alert investigators to unforeseen problems in other dimensions of the research approach: problem definition, research design, methodological mix, observer training, interviewers' skills, "even of the first steps of analysis." A pretest is a small, self-conscious pilot study, a microcosm of the actual project carried out to identify, if possible, unintended side effects (Galtung, 1967: 138).

Convincing Rigor

Quantitative analysis of questionnaire data not only contributes precision to knowledge; it also can make research data convincing to others. The apparent exactness and rigorousness of statistical analysis is a useful device to win argu-

ments with people who do not understand the value of qualitative knowing in scientific research. This is an important characteristic of the method when research results are to be used in a court of law, in a political setting, in applied design—in any competitive decision-making situation. Such situations are increasing as E-B research issues are brought into the public eye by citizens' groups and environmental legislation.

Naive researchers sometimes are themselves convinced by the numbers they can get using questionnaires. They think they can learn something significant by asking a lot of questions and running answers through a computer. Something can, of course, be learned in this way. But it has a low probability of solving the researcher's, the client's, or the respondents' problems.

Quantitative questionnaire data not augmented by researchers' qualitative insight or by qualitative data from other methods can provide a hollow and unscientific understanding of important problems (Campbell, 1975).

ORGANIZATION

If you are not careful, the way your questionnaire is structured can antagonize, bore, confuse, and tire respondents. If it does, you might as well not ask any questions.

Rapport

Questionnaire respondents participate in a research project as informants about themselves. Research results are as valid as the relationship between interviewer and respondent is open and nondefensive. Rapport can be established by introducing oneself and the purpose of the interview clearly, honestly, realistically, and without threatening the respondent. Environment-behavior research projects may be introduced to respondents as attempts to ask their *advice*—how to make future similar environments better, what could have been improved in that setting, or just what people like and think. Respondents like to see themselves as advice givers rather than guinea pigs.

Questions requesting positive responses ("What do you like best about working in this building?") can start an interview on a friendly note. Later, requests can be made for suggestions on improvements. Initial questions can request general impressions; ask for simple demographic information, such as previous residence; or, especially, be on interesting topics to elicit respondents' attention. For every situation and problem each investigator must work out the most appropriate way to begin.

Conditioning

Early questions can influence the way respondents answer later ones. For example, if early questions give respondents the feeling that interviewers really want to find out what is wrong with a place, they may criticize it more than they

praise it. If information is presented in the wording of an early question, knowledge of that information cannot be tested later. A good rule to follow is to go from general to specific questions so that questions asked later in the interview require greater specificity of information, intent, and purpose.

Fatigue

In the half hour or so during which a questionnaire is administered, interviewers often have to choose between gathering a great deal of information and not tiring out the respondent. To try to maximize information gathering and minimize fatigue, you can group questions relating to a topic: all those dealing with a neighborhood, with an event, with a set of activities in one place. For clarity each group can be introduced with a unifying sentence: "And now I would like to ask you some questions about . . ."

Interviewers can also group questions having similar types of response categories, such as those discussed in the next section: a series of preference questions, then semantic differential questions, then attitude questions. Both types of groupings can lead to "response sets" among answers—namely, respondents' natural tendency to answer questions in a way that seems logically consistent. For example, respondents may tend not to admit to criticism of one part of a setting while praising another. It is therefore sometimes necessary to mix up questions about different dimensions of the same topic and to limit the length of any one set of questions with identical response categories.

Another way to use wisely the time respondents give you is not to ask them questions that do not apply to them. *Filtering questions* can help you avoid inapplicable questions by, for example, finding out who drives to work before asking how long it takes by car, how many people are in the car, what parking conditions are like. When *follow-up questions* are used for explanation ("Why?"), specification ("What precisely?"), or clarification of intensity ("How much?"), it saves time to target them only to respondents to whom they apply.

All this can be achieved with clear layout and written interviewer instructions to keep the interview flowing and to avoid confusing respondents with irrelevant questions. Saile et al. (1972) faced many of the problems discussed here. Their questionnaire helped resolve many of them (facing page).

CODING OPEN-ENDED RESPONSES

No matter how researchers pose questions in an interview, they must record the answers and prepare them for counting and analysis. By grouping similar responses together, they make responses comparable to one another. For example, four respondents who are asked a free-response question about why they like a room might give four answers: "I like it because it is big," "I like it

OMIT QUESTION #s 127-135 for SCATTERED SITES:

"Now, we have just a few more questions to go, and we'd like to get your views on the Housing Authority..."

127. In general, would you say that the management here does a good job, a fair job, or a poor job in running the project?

Good job.....1
Fair job.....2
Poor job.....3

128. Do they repair things fairly quickly when something goes wrong?.....1 YES NO 2

GO TO
130

129. What problems have you had? (Record exact answer)

130. Do you think the rules and regulations about living here are fair?.....1 YES NO 2

GO TO
132

131. Why not? (Record exact answer)

132. When you first moved here did you go through a training program to learn how to look after this house?.....1 YES NO 2

133. Would you recommend a training program like that for other people moving in here?.....1 YES NO 2

134. Would you like to have a booklet explaining how to look after this house?.....1 YES NO 2

135. Do you think it would be helpful to have a handbook to explain the rules and regulations about living here?.....1 YES NO 2

136. Do you think you'll stay in this house or do you expect to move sometime?.....1 STAY MOVE SOMETIME 2

GO TO
138

(From *Families in Public Housing: An Evaluation of Three Residential Environments in Rockford, Illinois*, by D. Saile, J. R. Anderson, R. Borooah, A. Ray, K. Rohling, C. Simpson, A. Sutton, and M. Williams. University of Illinois at Urbana-Champaign Committee on Housing Research and Development, 1972. Reprinted by permission.)

because sound travels well there," "I like it because of its size," and "I like the way many people can fit into it." The researcher must decide whether each response is unique, whether the responses can be partitioned into categories of answers (two mention largeness, one good acoustics, and the fourth accommodating many people), or whether they can be partitioned into two categories (large size and acoustics). His decision will be based on how the different groupings, or partitions, help him solve his research problem.

This process of deciding how to partition responses into groups is called *coding* because researchers use a few responses to develop a category "code," which is then applied to the rest of the responses in a study. Coding categories—partitions—are confusing rather than helpful unless they are mutually exclusive, exhaust all the possible types of responses, and are all at the same conceptual level. The following examples will explain these three coding characteristics.

Mutual Exclusiveness

Mutual exclusiveness means that responses clearly fall into either one or another category. There can be no overlapping, either numerically or conceptually.

The age categories "under 11, 11–20, 21–40, 41 or over" are mutually exclusive; the categories "under 10, 10–20, 20–40, 40 or over" are not. An example of mutually exclusive categories for residential location is "in this neighborhood, in this city but outside this neighborhood, outside this city but in this state, within any other state in the country, in another country."

Exhaustiveness

Exhaustiveness means that any possible response fits into some category. Researchers can include an "other" category to achieve exhaustiveness in complex questions.

Qu: How did you travel to the supermarket the last time you went?

Categories that are not exhaustive:

car, bus, on foot, other

Exhaustive categories:

Own car, other's car, taxi, bicycle, public bus, special shopping bus, subway, on foot, combination of two or more modes (please specify):

- (a) _____
- (b) _____
- (c) _____

other (please specify):

- (a) _____
- (b) _____
- (c) _____

Single Level of Abstraction

Single level of abstraction means that response categories are conceptually parallel. They do not partition responses into, for example, apples, pears, oranges, and fruit.

Qu: What do you feel is the nicest part of a house?

Multi-level abstraction

code:

bedrooms, shared rooms, esthetics, windows, hardware

Single-level abstraction

code:

bedrooms, private work rooms, other rooms, passageways, outside grounds

PRECODING RESPONSES

In a standardized questionnaire, if there are open-ended questions needing coding, analysis of the survey can be time-consuming and costly. In addition, a great number of free-response questions reflects a lack of researcher preparation and wastes the potential benefits of using a standardized questionnaire. In some cases what the researcher wants to find out cannot be rigidly structured—for example, when the subject of the study is how respondents picture their surroundings in their mind or how they react in complex decision-making situations. In these situations, as discussed at the end of this chapter, special methods of recording and coding information may be developed.

In some situations, however, it is possible to *precode* responses to questionnaire questions: to partition possible response alternatives into a set of categories for respondents to choose from that are exhaustive, are mutually exclusive, and have a single level of abstraction. This means asking questions of the form "Are you very tired, somewhat tired, or not tired at all?" (precoded) rather than "How tired are you?" (open-ended).

Codes may organize things parallel to one another or in rank order. The first are nominal and the latter ordinal categories.

Nominal

Such things as building types or types of research methods may be partitioned for certain purposes into separate and parallel categories. Chapters 7, 8, 9, 10, and 12 of this book represent a nominal code of methods. A simple nominally

precoded response asks respondents to reply yes or no to a question, such as "Do you have a driver's license?" Or it offers a binary choice: "Sex? male _____ female _____." Usually, however, nominal codes classify more than two alternatives: "What is your religion? Protestant _____, Moslem _____, Catholic _____, Jewish _____, Hindu _____, agnostic _____, atheist _____, other _____, none _____." "Do you find it difficult to climb the stairs? Yes; no; don't know, no opinion; does not apply, never climb stairs."

Nominal codes are most useful to collect information, to offer nonranked choices to respondents, and to find out attitudinal data useful in a binary "yes" or "no" form.

Ordinal

To analyze intensity, direction, and quality of such variables as verbally expressed attitudes and perceptions, it may be helpful to arrange responses in a rank order representing different degrees or magnitudes.

When each category is separated from others by what seems to be an equal magnitude, ordinal categories are called "intervals." There are some difficulties with this idea. For example, a uniform difference in temperature—say, 2° F—may be experienced differently if it represents a rise from 6° F to 8° F than a rise from 65° F to 67° F. The same problem holds for age differences. A year has a different quantity and quality at ages 5, 30, and 80. Therefore, interval categories are not presented here as distinct from ordinal ones.

Information. Ordinal precoding can be used for questions gathering *information* that reasonably are seen as "how much" or "how many" questions—age, income, size of household, number of clubs a respondent belongs to.

Age: Under 11 ☐, 11–20 ☐, 21–30 ☐, 31–40 ☐, 41–50 ☐, 51–60 ☐, 61 or over ☐.

Club membership: None ☐, 1 or 2 ☐, 3 to 6 ☐, 7 or more ☐.

Attitudes. Ordinal coding may also be useful for response categories following questions that ask respondents to judge the intensity of an *attitude* about something, such as a situation, person, object, or setting.

Would you say the rules in this factory are

very fair ☐, fair ☐, unfair ☐, very unfair ☐, or do you have no opinion ☐ about this?

Would you say the work areas you have are

very supportive ☐, supportive ☐, unsupportive ☐, very unsupportive ☐, or are you uncertain about this ☐.

When a questionnaire is administered orally, the "no opinion" or "uncertain" category is sometimes not read to respondents, to encourage them to make some kind of choice—no matter how weakly felt. If they still have no opinion, interviewers check the box.

Some coding categories are associated not only with a format for responses but as well with quantitative procedures for analyzing responses. One of these is the *Likert attitude scale*, in which groups of statements are presented to respondents for them to indicate the intensity of their agreement or disagreement. If standard scores are assigned to responses in such a way that high agreement with positive statements is equivalent to high disagreement with negative statements, and if several questions tap dimensions of the same general attitude ("feelings about company management," for example), then cumulative scores on these statements can be used to indicate a respondent's position on that attitude.

Example of Likert Attitude Scale

Please check the appropriate box:

	<i>Strongly Agree</i>	<i>Agree</i>	<i>Uncertain</i>	<i>Disagree</i>	<i>Strongly Disagree</i>
The rules in this factory are unfair	☐	☐	☐	☐	☐
Management is very helpful in job training	☐	☐	☐	☐	☐
The work areas we have could easily be much better	☐	☐	☐	☐	☐

(Number scores in the boxes are not presented on the questionnaire.)

When Likert-scaled questions are used, they can be grouped together in a questionnaire so that once respondents understand how to use this system of recording responses, they can use it for several questions. When this is done, however, the list must be short enough and must mix up positive and negative statements to avoid respondents' going down a long list checking only one column and not thinking.

If researchers feel that using Likert-scale items on a questionnaire can help them solve their problems, they should carefully study the assumptions underlying this type of attitude quantification. If they decide they can make these assumptions, they carry out careful empirical procedures to choose and score

groups of statements that actually do relate to one another (as explained, for example, in Shaw & Wright, 1967).

The same caveat holds for the use of every empirically developed measurement scale, including the semantic differential scale, discussed next.

Meaning. When you look at the Eiffel Tower, Mount Fuji, or the chair you are sitting in, you react to it in part on the basis of what it "means" to you. You may, for example, feel uncomfortable and tense in the chair because it is an antique that you see as dainty, weak, and silly, although tasteful. Most people find it difficult to express verbally the range of meaning things have to them. In a taste test of different ice creams, few tasters could spontaneously manage to say anything but "creamy" and "tasty" in attempts to differentiate brands. But when presented with lists of descriptive terms to choose from, they could easily indicate what the different tastes meant to them (Osgood, Suci, & Tannenbaum, 1957).

The principle that people express the meaning things hold for them more completely when presented with a set of appropriate alternatives underlies another analytic coding technique—the *semantic differential scale*. Like the Likert and other scales, this one must entail careful procedures for determining what alternatives are "appropriate" for particular respondents and situations. It also entails important and often questionable assumptions about quantification and ensuing analysis of data (Osgood et al., 1957).

If the scaling technique is critically examined, it can be selectively used to identify the *quality* and *intensity* of meaning that E-B topics such as environments, persons, places, and situations hold for people.

The format for semantic differentiation presents respondents first with the name or picture of an object (place, concept, and so on) or with the object itself, followed by a series of polar opposite terms: good/bad, happy/sad, big/little. For each pair of terms, respondents are requested to indicate how the terms apply to the object on the basis of what the object means to them. They do this in the following format:

		Your Chair							
Wide								Narrow	
	(1)	(2)	(3)	(4)	(3)	(2)	(1)		
Contemporary	___/	___/	___/	___/	___/	___/	___/	Traditional	
Functional	___/	___/	___/	___/	___/	___/	___/	Nonfunctional	
Tasteful	___/	___/	___/	___/	___/	___/	___/	Tasteless	
Gay	___/	___/	___/	___/	___/	___/	___/	Dreary	
Orderly	___/	___/	___/	___/	___/	___/	___/	Chaotic	
Private	___/	___/	___/	___/	___/	___/	___/	Public	
Sparkling	___/	___/	___/	___/	___/	___/	___/	Dingy	

Respondents are instructed that marking the line above a response of 1 means the object is extremely wide, contemporary, or whatever; 2, quite wide; 3, slightly wide; 4, neutral, equally wide and narrow, or wideness is unrelated to the object.

Choice and interpretation of scale items are difficult. Osgood et al. carried out several studies and much computer analysis to develop a scale of 50 paired items particularly relevant to general concepts. They found that the descriptive terms fell mainly into categories of evaluation, potency, and activity. A great deal more work is necessary to adapt this scaling technique to E-B studies.

When semantic differential scales are used, it is necessary to choose categories appropriate to the particular research situation and respondents' definition of the situation. For example, in their study of housing for older persons, Howell and Epp (1976) pretested the following semantic differential question:

How would you describe the way the building looks from the outside?

like a private	___/	___/	___/	___/	___/	___/	___/	like a public
home	(1)	(2)	(3)	(4)	(3)	(2)	(1)	building
hard	___/	___/	___/	___/	___/	___/	___/	soft
simple	___/	___/	___/	___/	___/	___/	___/	complex

The older respondents were able to choose between the attributes in the first pair, but they could not understand what the other two pairs had to do with the way their building looked.

Question construction has developed into a complex skill—perhaps too complex. The semantic differential scale exhibits a problem many such techniques face: They may cause you more damage than they are worth. It is unclear, for example, that seven-point polar-opposite judgment tests yield more information than a three- or five-point agree/disagree rating scale. If respondents feel that the adjectives they are asked to rate are nonsensical (*gay* and *dreary* applied to a chair, for example), the loss of rapport with the interviewer may invalidate other parts of the interview. Careful pretesting is one way to avoid such mistakes. Another is to include on the team constructing questions some people who are like potential respondents. This is good advice no matter what type of question you are constructing. In sum, rating scales of any sort must be used only after carefully examining their wording and the operational assumptions they embody.

Rank-ordering of items. It may be useful to precode responses to questions asking respondents to rank a group of items relative to one another on a single attribute: importance, beauty, usefulness, worthwhileness. For example:

Which of the spaces on the following list do you feel it is most important to include in a house? (Please circle "1" for the most important, "2" for the second most important, "3" for the next, and so on until you have ranked all places in terms of their importance to you.)

bathroom	1	2	3	4	5	6	7	8	9	10	11	12
kitchen	1	2	3	4	5	6	7	8	9	10	11	12
laundry room	1	2	3	4	5	6	7	8	9	10	11	12
living room	1	2	3	4	5	6	7	8	9	10	11	12
bedrooms	1	2	3	4	5	6	7	8	9	10	11	12
den or rec. room	1	2	3	4	5	6	7	8	9	10	11	12
study	1	2	3	4	5	6	7	8	9	10	11	12
storage attic	1	2	3	4	5	6	7	8	9	10	11	12
vestibule	1	2	3	4	5	6	7	8	9	10	11	12
dining room	1	2	3	4	5	6	7	8	9	10	11	12
Other: specify _____	1	2	3	4	5	6	7	8	9	10	11	12
Other: specify _____	1	2	3	4	5	6	7	8	9	10	11	12
Other: specify _____	1	2	3	4	5	6	7	8	9	10	11	12

When items in the group are unduly complex—alternative life-styles, for example—it is easier to present them in pairs for sequential comparison than in a simultaneous list.

Each technique for precoding responses creates opportunities for researchers, but each also limits what researchers can do with the data. Only experience with using classification and scaling methods—asking the questions, recording answers, tabulating responses, and analyzing data—will give researchers the knowledge and self-confidence needed to choose a form for precoded responses.

VISUAL RESPONSES

Some cognitive, expressive, and perceptual information about respondents' physical surroundings may be better expressed visually than verbally, through nonprecoded techniques, such as freehand area maps, base-map additions, drawings, photographs taken by respondents, and games.

This is especially true for people's *cognitive maps*, the mental pictures of their surroundings that they use to structure the way they look at, react to, and act in their environment (Downs & Stea, 1973; de Jonge, 1962; Ladd, 1970; Lynch, 1960). One can envision this continually changing picture as a two-dimensional map or drawing, a three-dimensional model, a hologram, or a file of pictures kept in one's mind. "A cognitive map is not necessarily a 'map' " seen as a flat piece of paper (Downs & Stea, 1973: 11). It is more an ongoing "process . . . by which an individual acquires, codes, stores, recalls, and decodes information about the relative locations and attributes of . . . his everyday spatial environment" (Downs & Stea, 1973: 9).

You refer to your cognitive map whenever you deal with an environment. Your so-called map tells you, for example, that if you find yourself in the dining room of a modern middle-class Western home you have never been in, one of the doors around you probably leads to the kitchen. You will be surprised if it is not so—if, for example, you find that the kitchen is on the third floor.

It is interesting enough that we can use the idea of implicit mental maps to help design places more comprehensible to people. Still more interesting is that people's cognitive maps only partly correspond to the measurable attributes of environments that might be represented by a street map drawn to scale or an aerial photograph. People's cognitive maps are influenced and distorted by their background, their experience, their purposes, and so on. For example, in a hospital, workers estimated a path outside the building to be twice as long as a path inside the building, although the two were measurably the same distance (Stea, 1974).

If designers know how people who use their environments see them, they can better control the side effects of design decisions. In the hospital mentioned above, for example, if the designer knows that outside paths are seen as longer than inside ones, he might make different decisions about enclosing them in order to provide alternative ways to get around that are actually seen as alternatives.

There is no one way to study the complex set of perceptions and attitudes that make up a person's cognitive map. Lynch (1960) carried out a 90-minute focused interview with respondents, one part of which requested them to draw freehand maps of the city. Some of Lynch's respondents were shown a series of photographs of downtown areas and asked to choose those they felt were most typical of the way they saw the city. The volunteers in this group were also interviewed with a walk-through probe (see Chapter 9) of the downtown area. During the trip, interviewers asked respondents why they took a particular path, what they saw, and when they felt confident or lost (Lynch, 1960: 140–142).

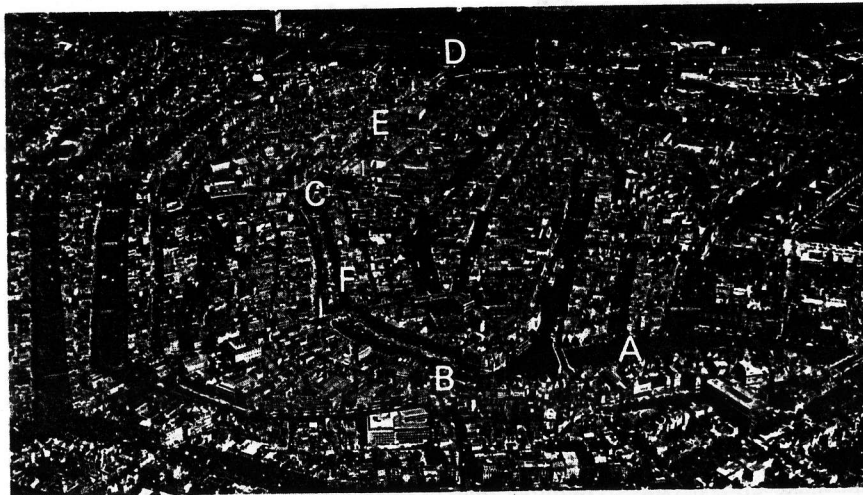
The visual-response techniques discussed in this section are essential—used together with verbal responses and observational methods—to study people's attitudes, perceptions, and knowledge concerning physical environments. Broadly defined, people's "cognitive maps" comprise all these mental processes—requiring for their study the same array of methods and techniques. In this section, I will discuss freehand maps, the use of base maps, drawings, respondents' photographs, and games.

Freehand Area Maps

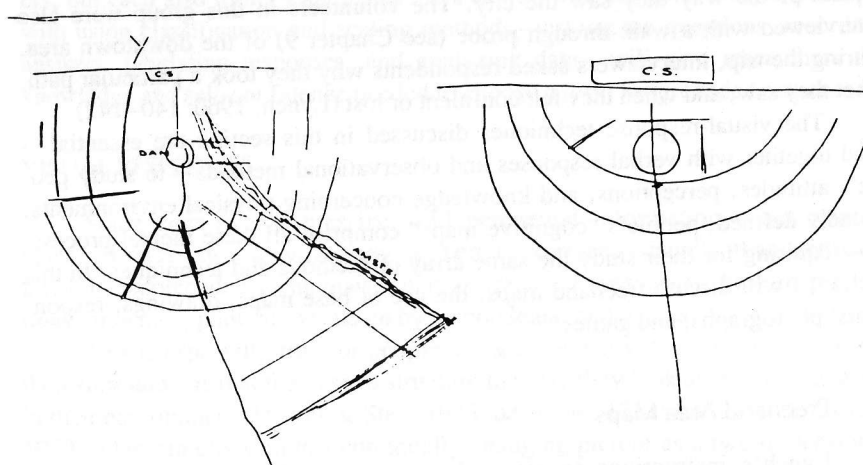
Lynch's instructions to respondents were to draw "a quick map of Make it just as if you were making a rapid description of the city to a stranger, covering all the main features. We don't expect an accurate drawing—just a rough sketch" (Lynch, 1960: 141).

Lynch analyzed the resulting maps for such things as omissions, precision, distortions, and differential knowledge of areas. He also established a coding scheme for map responses, which he called "city image elements": paths, edges, districts, nodes, landmarks, and element interrelations.

Lynch's study began a tradition of freehand-area-map drawing in interviews, both to develop the method (de Jonge, 1962) and to look at cross-cultural and group differences in maps.



A. Amstel River
C. Dam
E. Damrak
B. Mint Square
D. Central Station
F. Rokin



Aerial photo and freehand area maps of central Amsterdam. (Freehand map from "Images of Urban Areas, Their Structure and Psychological Foundations," by D. de Jonge, *Journal of the American Institute of Planners*, 1962, 23, 266-276. Used by permission of the *Journal of the American Planning Association*. Air photo by K. L. M. Aerocarto N. V.)

Interpreting area maps has shown that people with limited movement—often poorer people—have detailed knowledge of their immediate neighborhood but only an ill-formed image of the city they live in as a whole (Orleans, 1973) and that children see things differently from adults and women from men. For

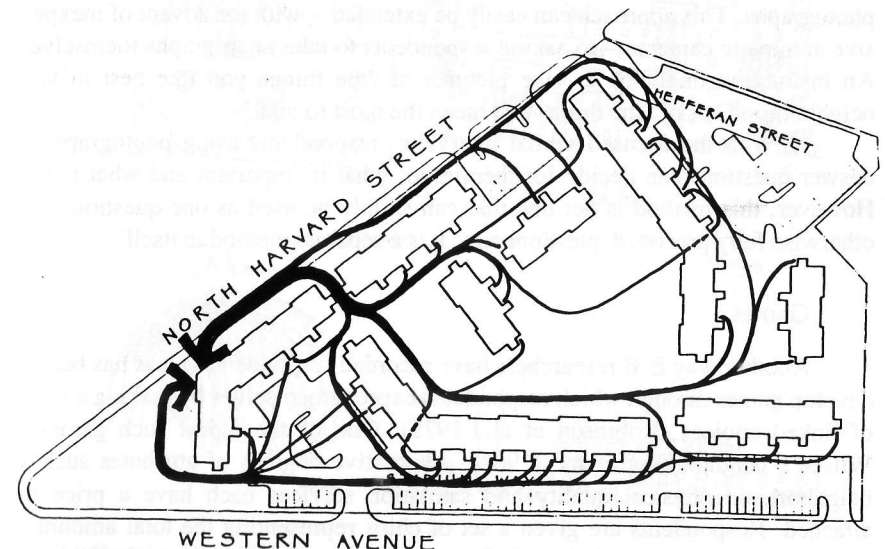
designers, this means that if they want to control the behavioral side effects of places they design, they must understand the ways different groups see them.

Area maps can be used to find out where respondents feel at home, are afraid, spend time. Limits on topics are imposed only by investigators' imagination. However, there are unresolved difficulties of interpretation. Some people draw particularly well; others refuse to draw. Some people can draw landmarks easily only when starting with a base map with major streets already indicated; others do so just as easily on a blank piece of paper. As with all methods, the more area maps are used and by more people, the more we learn about how to turn the data they provide into useful information.

Additions to Base Maps

Providing respondents with simple base maps to fill in answers can be an efficient way to find out how they use or feel about a place: paths they take, things they do in settings, names they use for places. If one wanted to find out, for example, the terms used for rooms in a house, one could give respondents an unlabeled floor plan.

Zeisel and Griffin, in their housing-evaluation study (1975), wanted to find out how residents moved through the project, particularly how often they passed through a central space planned by the architects to be an active social area. In interviews, the research team presented a completed scale map to respondents



Composite path-map of respondents' trips from home to local store. (From *Charlesview Housing: A Diagnostic Evaluation*, by J. Zeisel and M. Griffin. Cambridge, Mass.: Harvard Graduate School of Design, Architecture Research Office, 1975.)

and asked them to draw or point out on it the paths they took on the way to their cars, to the shops, and to the bus stop. These pathway maps were requested instead of verbal descriptions because they seemed more reliable, more accurate, and more expressive of the process of taking a trip.

Maps like these may be quantitatively coded. They also lend themselves particularly well to comparison and visual analysis on composite data maps.

Drawings

Sometimes people's mental pictures about the future can actually be expressed in a picture. Sanoff and Barbour (1974) worked with an architect commissioned to design a grade school. They were interested in finding out what a "dream school" was like for students. One approach they used was to ask students involved in the programming research to draw typical African, Japanese, and American schools and their dream school. They found particular contrast between the factorylike drawings of typical American schools and the multilevel, almost "treelike" dream schools. Although this type of response is still more abstract and difficult to interpret quantitatively than maps, it can provide investigators with important qualitative insights.

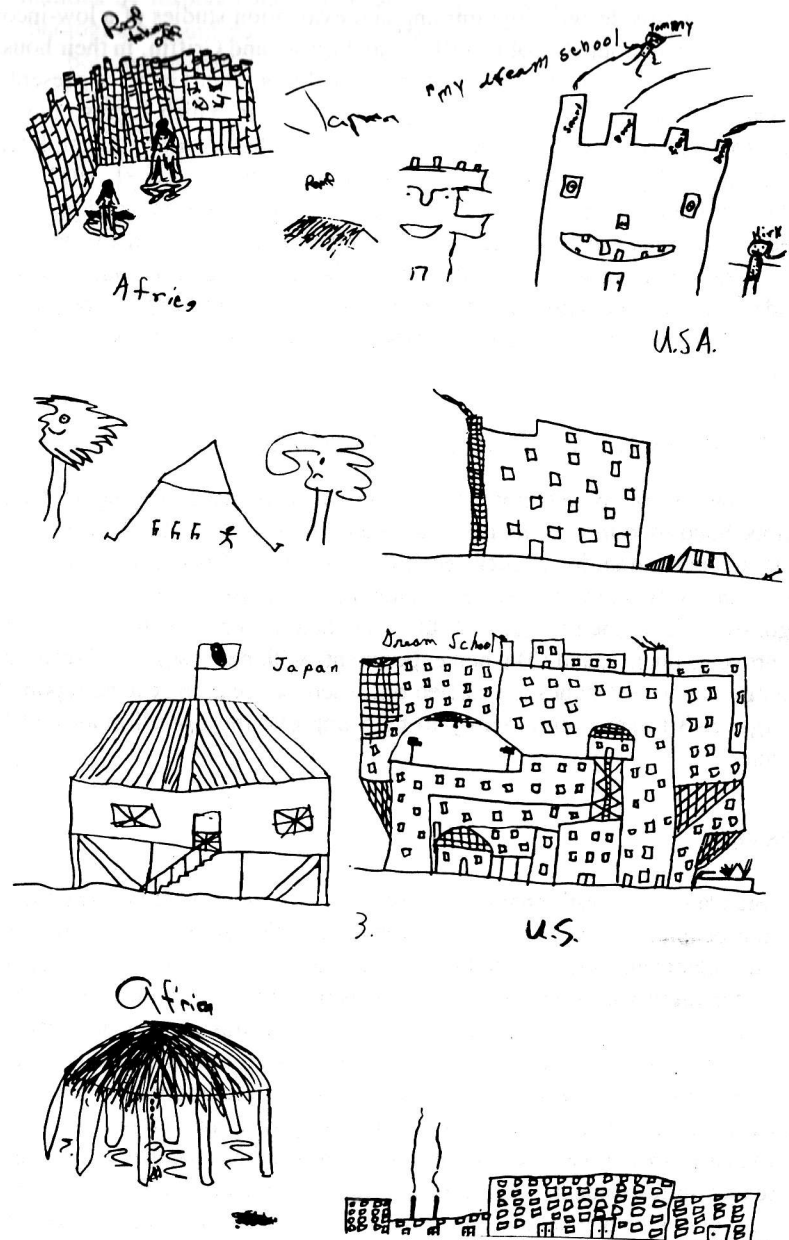
Photographs

Lynch asked respondents to choose typical views of a city from a stack of photographs. This approach can easily be extended—with the advent of inexpensive automatic cameras—to asking respondents to take photographs themselves. An instruction might be to take pictures of "the things you like best in your neighborhood" or of "the things that mean the most to you."

As with the focused verbal interview, respondents using photographs to answer questions can decide for themselves what is important and what is not. However, this method is not one that can simply be used as one question in an otherwise fully precoded questionnaire. It is a separate method in itself.

Games

Another way E-B researchers have recorded respondents' ideas has been to develop games through which respondents express themselves by making a series of linked choices (Robinson et al., 1975). One of the oldest such games is Wilson's neighborhood game (1962). Alternative degrees of attributes such as neighborhood physical quality and sanitation services each have a price tag attached. Respondents are given a set of chips representing the total amount of money they can spend to "buy" the amenities on the game board. With the amount of play money they have, they are forced to choose among attractive alternatives, not all of which they can afford. Their final judgments express not a linear series of individual choices but a balanced set of simultaneous ones.



Drawings by children participating in the design charrette for the Wallace O'Neill Alternative School, Pinehurst, North Carolina. (From "An Alternative Strategy for Planning an Alternative School," by H. Sanoff and G. Barbour. In G. T. Coates (Ed.), *Alternative Learning Environments*. Copyright 1974 by Dowden, Hutchinson & Ross, Inc. Used by permission.)

Zeisel, in his design programming and evaluation studies of a low-income housing project in South Carolina (1971), and Zeisel and Griffin, in their housing evaluation (1975), developed a Dwelling Unit Floor Plan Game to present respondents with a series of simple design decisions: in which rooms ought entrances to be; how would you like the kitchen to relate to where you eat; kitchen to living room; living room to eating; and balcony location (Zeisel, 1971). Each decision, a choice of three alternatives for separation and connection, is presented in the context of earlier choices. All together they result in an entire floor plan. In addition to composite results, interviewers use the opportunity the game provides to ask respondents why they made each choice, probing to find out what behavioral or cognitive side effects respondents were trying to achieve by the choice.

Development of Visual-Response Techniques

A catalog of all the nonprecoded visual-response recording techniques developed and used in E-B interviewing would be very lengthy. To improve the quality and comparability of such techniques, (1) investigators beginning a new project can review relevant literature to identify response, recording, and coding categories useful to their project; (2) they can then test each technique in practice to improve its quality; and (3) when experiments with new uses of old techniques and entirely new techniques are carried out, such explorations can be reported to the larger E-B research community to help improve the overall quality of E-B research.

OVERVIEW

Standardized questionnaires are useful if you know what you want to find out from people, if you want to discover regularities among groups of people with particular characteristics, and if you want to be able to quantify your data.

After discussing how to organize questions in a questionnaire so that it establishes a nondefensive, open interview situation, this chapter presents ways to record responses to standardized questions. Open-ended responses can be coded for analysis into mutually exclusive, exhaustive categories at a single level of abstraction. The same criteria for coding categories may be used to precode response categories if the investigator has developed the categories empirically to be sure they fit respondents' definitions of the situation and enable respondents to express themselves adequately on the topic. Otherwise, the control exerted by using an intrusive method, such as a questionnaire, distorts data and makes them worthless.

Some data, particularly visual data useful in assessing respondents' "cognitive maps," cannot be precoded. Response categories for such data include visual

presentations by respondents of freehand maps, additions to base maps, drawings, photographs, and games. The visual character of such data makes them available both for quantitative analysis and for qualitative visual presentation on composite maps or charts.

Used together with observation methods and focused interviewing, standardized questionnaires are particularly useful to gather information about such topics as people's perceptions, their attitudes, their values, and the meaning the environment holds for them.

The next chapter presents E-B topics particularly suited to questionnaire and interview investigation and discusses some rules of thumb for asking questions.