1 Motivations for Mixed Method Social Research

High-quality data collection is fundamental to the advancement of knowledge in the social sciences. Yet, advances in techniques for data analysis in the past half-century have far outpaced advances in data collection methods. This is likely to change in the coming decades, as new technologies and strategies bring the social sciences to the brink of a revolution in data collection methods. Some of the seeds of that revolution lay in mixed method data collection approaches. This book is devoted to recent innovations in mixed method strategies for collecting social science data.

The three main goals of this book are: (1) to demonstrate that by combining multiple methods it is possible to elicit important new insights into the causes and consequences of beliefs and behavior; (2) to provide concrete, operational examples of mixed method data collection techniques so that those interested in using these methods have a clear starting point; and (3) to highlight state-of-the-art developments in these data collection strategies, identifying a set of common principles that underlie them with the aim of stimulating continued methodological innovation in this area.

Mixed method data collection strategies are those that are explicitly designed to combine elements of one method, such as structured survey interviews, with elements of other methods, such as unstructured interviews, observations, or focus groups in either a sequential or a simultaneous manner (Axinn, Fricke, and Thornton 1991; Edin 1999; Fricke 1997; Kertzer 1997; Kertzer and Fricke 1997; Pearce 2002; Sieber 1973). We consider mixed method data collection to be a subset of multimethod research in which what is learned from one particular method is integrated in the application of another method.

We argue that mixed method strategies afford special opportunities to use multiple sources of information from multiple approaches to gain new insights into the social world (Axinn, Fricke, and Thornton 1991; Kertzer and Fricke 1997). Varying the data collection approach can (1) provide information from one approach that was not identified in an alternative approach; (2) reduce non-sampling error by providing redundant information from multiple sources; and (3) ensure that a potential bias coming from one particular approach is not replicated in alternative approaches (Axinn, Fricke, and Thornton 1991;

Edin 1998). Although every data collection approach may be characterized by some type of bias, replicating empirical evidence across approaches characterized by varying forms of bias substantially increases confidence in the empirical results (Rosenbaum 2001). Thus, mixed method strategies are extremely valuable tools for social research.

Systematic consideration of mixed method data collection strategies reveals two key themes. The first is that mixing multiple methods affords opportunities to use the strengths of some methods to counterbalance the weaknesses of other methods. Because all methods have strengths and weaknesses, combinations of multiple methods that achieve this counterbalancing aim are particularly valuable. The second theme is that mixing multiple methods is a valuable strategy for producing a comprehensive empirical record about a topic. Empirical documentation that combines redundant measurement using radically different approaches has special strengths for reducing errors, discovering new hypotheses, and testing hypotheses. Counterbalancing strengths and weaknesses and comprehensive empirical documentation will be two themes we return to again and again in our review and analysis of mixed method data collection strategies.

In this chapter, we consider three sources of fundamental background to understand and motivate mixed method data collection strategies. The first issue is the divide between "qualitative" and "quantitative" approaches to research in the social sciences. We review this divide and consider the extent to which it does or does not add a constructive dimension to the consideration of alternative data collection strategies. The second source is a brief review of various approaches to the investigation of cause and consequence in the social sciences. Consideration of the issues of causal inference in the social sciences both motivates some aspects of mixed method data collection and focuses our efforts on specific types of mixed method strategies. The third source involves consideration of the role of introspection in the social sciences and the ways that investigator introspection intersects with data collection strategies. This review of background issues points us toward a relatively small set of key principles in the design of mixed method strategies – principles closely related to the counterbalancing and comprehensiveness themes.

Qualitative vs. Quantitative Approaches: Is This Distinction Useful?

Many social scientists use the words "qualitative" and "quantitative" to divide the world of approaches to research. Unfortunately, discussions of this distinction usually do not derive from uniform definitions of these terms nor from careful analyses of the meaning of this distinction. In our view, a dichotomous, unidimensional distinction between quantitative and qualitative approaches

is not particularly useful, because it ultimately refers only to whether the data were coded into numbers or into text (Bazeley 2003; Lieberson 1992).[1] Certainly, a distinction between the statistical analysis of numerically coded data and the interpretive analysis of data coded as text is useful. However, the results of both of these analytic approaches depend on investigators' insights as they go about simplifying and reducing the information at hand. We argue that other distinctions speak more directly to these insights. In fact, as we choose among approaches to research problems, making distinctions among types of research designs, data collection techniques, data coding strategies, and analytic approaches is at least as useful as considering the notion of quantitative versus qualitative approaches. Some use the words "quantitative" and "qualitative" to summarize distinctions between various dimensions of research approaches, such as large versus small samples, survey interviews versus unstructured interviews, or research aimed at hypothesis testing versus description or hypothesis generation. We argue that such dichotomies are far too simplistic. Rather, we argue that each research project or approach may vary along continua of many different dimensions in ways that cannot be summarized by a simplistic quantitative/qualitative dichotomy.

Distinctions among research designs are particularly important for telling us what types of questions a specific research project may be able to answer and what threats to validity a project may face (Campbell and Stanley 1963). Essential elements of research design involve selecting a unit of analysis and a comparative design. Research projects can be designed to compare nations, regions, communities, individuals, or time periods. Research projects that compare individuals can be designed to study the population of a country, a community, a set of communities, or some other group. Research projects can be designed as single cross-sectional studies, repeated cross-sectional studies, or longitudinal studies. And research projects can feature experimental, quasi-experimental, or non-experimental designs. Data collection methods are the focus of this book. Therefore, we confine our discussions of research design to the intersection between research design and data collection strategies. For readers seeking more information on research design, we suggest review of works offering more thorough advice on these issues (Babbie 2004; Campbell and Stanley 1963; Cook and Campbell 1979; Miller 1983).

Comparing Data Collection Methods

We discuss five specific types of data collection methods: surveys, semi-structured/unstructured interviews, focus groups, observations, and historical/archival research. Our discussion of each type is relatively limited because we have chosen to highlight the features of each method most relevant to a comparison across methods. The distinctions we emphasize include (1) whether the

data come from primary or secondary sources; (2) whether people are observed or interviewed; (3) whether the interviews are structured or unstructured; and (4) whether or not the principal investigator interacts with the study population. We also discuss the extent to which the quantitative-versus-qualitative dichotomy is useful in helping us understand what can be learned from these methods. We believe each method has something unique to offer in terms of gaining insights into social scientific research problems.

Surveys Research on survey methods has generated a particularly high volume of scholarship, and survey methodology itself has evolved into a substantial subfield of the social sciences. Numerous books and articles describe survey methods, explain the application of survey methods, discuss the shortcomings of survey methods, and investigate ongoing methodological issues related to survey methods (Babbie 2004; Biemer et al. 1991; Converse and Presser 1986; Groves and Couper 1998; Groves et al. 2004; Rossi et al. 1983; Sudman and Bradburn 1974; Tourangeau et al. 2000). Here we focus on a few characteristics of survey methods that distinguish this approach from other data collection methods.

A key feature of surveys is standardized questions. Although social scientists recognize that respondents' interpretations of questions are not standardized, many feel that question standardization is a minimum criterion for using data to test hypotheses. Comparability of the questions is the key. Many social scientists would treat comparisons based on asking respondents different questions as perhaps interesting, but not a rigorous test of a hypothesis. Substantial evidence indicates that differences in question wording result in responses that are not comparable (Cantril 1967; Rugg 1941; Sudman and Bradburn 1974; Tourangeau 1989). For purposes of standardization, survey questions are compiled in a questionnaire. The use of a questionnaire imposes a high level of structure on the survey interview, which makes it difficult to use surveys to uncover completely new hypotheses (Caldwell 1985; Sieber 1973). That is, researchers' ideas about what should be measured and how it should be measured must be concrete before a survey begins in order to produce a questionnaire. The discovery of new research questions or new approaches to measurement is limited, and to the extent that it does occur, revised measurement must await the next survey.

This level of standardization and structure allows well-trained interviewers to administer a survey as intended by the survey designer and to administer it to a very large number of respondents. Thus, survey methods can be used to take a census of a population or to interview a large representative sample of a population. This is generally considered a positive aspect of surveys, because inferences based on large, representative samples are known to be more reliable than inferences based on small or nonrepresentative samples (Kish 1965). However, the use of trained interviewers and mail or Web questionnaires in

survey administration reduces or eliminates the need for the survey designer or principal investigator to have direct contact with the people being studied (Groves et al. 2004).

Changes over time in the technology of questionnaires, particularly in the form of Computer-Assisted Personal Interviewing (CAPI), have added a new dimension to the standardization of survey interviews (Baker et al. 1994; Couper 1998; Couper and Rowe 1996; Saris 1991). A key example is Audio Computer-Assisted Self-Interviewing (ACASI), in which respondents listen to computer-generated questions on headphones and key-in their own responses. Although this technology also limits the investigator's interaction with study participants, it removes interviewers from the data collection process – study participants respond directly to questions posed by the investigator via a computer.

Because surveys are often administered to large numbers of people, survey research is occasionally referred to as quantitative research. But for the purposes of this book, we argue that this reference is both misleading and counterproductive. Nothing about a survey is inherently numeric. Highly structured questionnaires can be administered to an extremely small number of people. And although surveys that feature highly structured response alternatives may be easy to code into numbers, it's the process of coding that turns data into numbers, not the survey itself (Lieberson 1992).

For example, the U.S. Intergenerational Panel Study asks respondents if they strongly agree, agree, disagree, or strongly disagree with the statement: "A young couple should not live together unless they are married." It seems fairly straightforward to code their responses as a 1, 2, 3, or 4. But interviewers also record on the questionnaires respondents' reactions outside the structured response alternatives. Examples for the question above might include "respondent asked if the couple is engaged," "respondent said it depends on the couple's age," "respondent paused for a long time before answering," or "respondent laughed at the question." If we listen to tape recordings of the interviews, even more details may become available to us. So, we ask the respondents standardized questions, and they provide us with reactions in verbal and behavioral responses. When we summarize these reactions by coding them into numbers, we may lose much of the information the respondent provided. But summarizing is a part of every data collection and analysis process, even if no numbers are used to code responses. Thus, as we examine other data collection techniques, we will argue that nothing makes surveys any more quantitative than any other technique.

Less Structured Interviewing Research literature also provides a great deal of information on less structured interviewing, which is sometimes called "unstructured," "ethnographic," "focused in-depth," or "qualitative" interviewing. This literature sometimes contrasts less structured and structured interviewing and often discusses techniques (Briggs 1986; Hammer and

Wildavsky 1993; Mishler 1986; Weiss 1994). Here we make some methodological comparisons in the context of our discussion of qualitative versus quantitative.

Some researchers consider less structured interviewing to be the opposite of survey interviewing, but the primary difference, as the name we chose implies, is the degree of structure or standardization in the questions. An unstructured or semi-structured interview can be much more flexible, allowing the respondent to change the course of the conversation and bring up new issues that the researcher had not preconceived. This flexibility is much more likely to yield new hypotheses than highly structured surveys (Sieber 1973; Weiss 1994).

Semi- or unstructured interviews are often considered too intensive and demanding to carry out with large numbers of respondents. Researchers often conclude that trained interviewers cannot administer less structured interviews as well as they themselves could, particularly because direct participation may inform the research process. Limiting interviews to those conducted by the principal investigator constrains the number of informants who can be interviewed. The main limitation is imposed by the time required to field interviews, compile notes, transcribe audio recordings, and analyze transcripts. However, note that nothing inherent in less structured interviewing makes it impossible to apply this method to large numbers of individuals or systematically selected samples of individuals, given sufficient time and energy. In fact, a number of recent research projects incorporate components featuring interviews and/or observations of hundreds of participants (Burton et al. 2002; Edin and Lein 1997; Smith and Denton 2005).

Many of the concerns that are commonly associated with survey research should also be raised with respect to less structured interviewing. For example, less structured interviews are just as vulnerable to errors that result when characteristics of the interviewer influence the respondents'/informants' answers to questions. Likewise, the principal investigator is not necessarily less likely to produce errors and omissions than properly trained interviewers. Thus, shortcomings that arise when data are generated by an interview affect less structured and survey methods alike. Literatures exist that highlight these unavoidable biases for both more structured survey data collection (e.g., Biemer et al. 1991) and less structured interviews or observations (e.g., Kleinman and Copp 1993).

We use the label "less structured interviews" for this data collection method rather than some alternatives sometimes treated as synonyms, such as "long interviews" or "in-depth interviews." Our rational for this label is that it most clearly reflects the key difference between this type and other forms of interviewing: the freedom to deviate from structure. The term "long interview" can be misleading because interviews at all points on the structure continuum can be long. In fact, some surveys are quite long, while some less structured interviews are designed to be much shorter. We also find the term "in-depth

interview" misleading because highly structured survey interviews can be very rich in detail, particularly when they include a high density of questions in one area. The level of depth on a particular topic is a function of this density of questions, not a function of the type of interviewing.

On the qualitative-quantitative dimension, although less structured interviews generally produce data in the form of either notes or audio recordings, nothing prevents researchers from coding these data numerically for statistical analyses. In fact, it is quite common for researchers engaged in less structured interviewing to tally the occurrence of certain themes or characteristics among their informants (Anspach 1997; Edin and Lein 1997; Gerson 1985; Hochschild 1989). Also, as mentioned above, given sufficient time and resources, less structured interviews can be conducted with very large numbers of people.

Focus Groups The literature on focus group methods is also substantial (e.g., Agar and MacDonald 1995; Hughes and DuMont 1993; Knodel 1993, 1995; Krueger 1994; Morgan 1997, Vaughn et al. 1996). We urge those interested in implementing focus group methods to consult those materials directly. As before, our interest is not in describing techniques but in comparing data collection methods on a few dimensions.

Focus groups are unique in that they explicitly call for respondents to interact with one another in formulating responses to interviewers' questions. A potential benefit of this approach is that informants may feel greater confidence in a group setting, which may encourage them to offer comments and discuss matters they wouldn't in a one-on-one interview. They may also corroborate or challenge the responses of other members and remind one another of certain phenomena (Knodel 1993; Morgan 1997). On the other hand, this collaborative setting may present problems for data collection. Informants may be hesitant to share ideas in front of peers that they would offer in individual interviews. For example, Helitzer et al. (1994) found that adolescent girls in Malawi are more likely to reveal information on their menstruation, sexual experiences, contraceptive use, and abortion in one-on-one interviews than in focus groups with their peers. Another potential problem is that focus group members may conspire to either avoid issues or cast them in a particular light (Godsell 2000). In these cases, this method may not be appropriate.

Otherwise, focus groups share many characteristics with less structured interviews (Merton et al. 1990). An interviewer generally asks questions, guides the conversation, and records the participants' responses. Therefore, errors resulting from the involvement of interviewers are also potential hazards in focus group methods. The unstructured nature of focus groups also allows researchers to learn new information to inform their hypotheses. Focus groups are generally considered too intensive for anything except relatively small samples, although given sufficient time and resources they can be administered to large,

representative samples. Focus group results, usually in the form of long narrative texts that repeat the questions and participants' responses, can also be coded numerically and analyzed using statistical methods (Knodel et al. 1984; Morgan 1997).

Observation Methods of observation are an important tool in the social sciences, and a substantial literature describes these methods (Atkinson and Hammersly 2003; Burgess 1982; Lofland and Lofland 1994; Spradley 1997). These methods contrast in key ways to the three discussed above.

Like focus groups and less structured interviews, observational methods have the advantage of being relatively unstructured. However, observational methods are different because they have the potential to yield unique sources of insight and introspection. Methods of observation can be further divided into different types based on the level of contact with those being studied: direct observation, unobtrusive observation, and participant observation.

Participant observation methods may be particularly important for providing researchers with the opportunity to put themselves "in the shoes" of the people they study and use introspection as a tool (Burawoy 1991). However, researchers can never fully fill these shoes. For example, when an American researcher goes to Nepal and transplants rice, he or she is unlikely to ever feel exactly like someone who does it every year and who knows that if the crop fails he or she will not eat in the coming year. The challenge for participant observers is to recognize their own inherent biases and incorporate this knowledge in their analyses (Burawoy 1991).

Some social scientists argue that any data collection that involves interviewing distorts the social reality because of interference from either the interviewers' interpretation of the respondents' answers or the respondents' own lack of knowledge about their motivations and actions. This point of view usually leads to an argument for observation as a better means of obtaining data on social phenomena. Of course, both participant observation and direct observation methods involve the presence of a researcher as well, which is also likely to influence the behavior of the people being studied. For some topics, this is very easy to imagine. For example, we are convinced that using direct observation to record couples' contraceptive use during sex might influence their behavior. In this type of situation, it seems likely that direct observation, or for that matter participant observation, would generate at least as much distortion of the social reality as interviewing. Even in situations where a researcher's presence is less obtrusive, his/her presence is likely to have some kind of influence.

The intensive nature of observational methods generally prevents them from being used to study large numbers of people. However, nothing about the method, per se, prevents this. If a researcher had sufficient time and resources she or he could observe a large number of people, a representative sample of a

population, or an entire population. Observations usually generate data in the form of field notes or recordings. However, as with any other data, it is entirely possible to code these data into numbers and analyze the numbers with statistical techniques. We don't mean to suggest that it is always useful to conduct statistical analyses on data from observations, focus groups, or unstructured interviews; we just argue that it's possible.

Historical/Archival Methods Similar to survey methods, historical or archival methods constitute a substantial subfield of the social sciences. In fact, the close association between these methods and the field of history might lead some to argue that archival methods constitute much more than a subfield. The literature on these methods includes some very useful summaries (Hall 1992; Mahoney 1999; Sewell 1996), and uses of the methods in disciplines outside of history may be of particular interest to the readers of this book (Bonnell 1980; Gould 1995; Kertzer 1995; Kertzer and Hogan 1989; Tuchman 1978), but a comprehensive examination of the literature on these methods would be an enormous task. Once again, we focus instead on comparisons to the methods described above.

For some research problems, archival methods and the use of secondary sources are the only options available. This is true of many historical research problems for which it is often impossible to interview or observe the study population because none are still living. However, written records and previous studies may provide useful information for more contemporary research problems. For example, when we study the impact of social change on contraceptive use in Nepal, the timing of major community events is critical information. For one such event, the construction of a road linking the village to major cities, we may get a more accurate date of completion from Department of Transportation records than from interviewing members of the study population.

Searching official records and other published sources has the advantage of being relatively unstructured. It is quite possible for researchers to discover something they had not thought of before the search began. However, many of the parameters we have discussed with regard to other methods are out of the researcher's control when using this method. When using documents or other secondary sources, the researcher is at the mercy of whoever recorded the information in the first place. The degree of structure involved in obtaining the information or whether interviewing was involved may be impossible to tell. Certainly, whatever was done is impossible for the researcher to change.

Data from secondary sources may be obtained in the form of either numbers or text, and, of course, archival data in the form of text can be coded into numbers. In fact, social scientists doing historical research sometimes engage in a combination of statistical analyses of archival data and interpretive analyses of archival texts (Gould 1991, 1993, 1995, 1999; Kertzer 1995; Kertzer and

Hogan 1989). Finally, it's quite possible that historical records and other archival documents pertain to large numbers of people, although the extent to which these records reflect a representative sample of people is outside of the researcher's control.

Key Distinctions Among Methods

Each of the methods described above has specific advantages making it particularly well suited to some types of research aims. Surveys are particularly useful when a high level of standardization is desirable. This may be true when the research aim involves creation of a standardized fact for a large population, such as a summary statistic (Groves et al. 2004). It is also likely to be true when the research aim involves testing hypotheses. Less highly structured data collection methods (see Figure 1.1.) offer greater flexibility, so that they offer advantages

Data Collection Method	Level of Structure	Interviewer Involvement	Researcher Involvement with Study Population
Surveys	**high**	**usually**	**low**
Less Structured Interviews	**low**	**always**	**high**
Focus Groups	**low**	**always**	**medium**
Observation	**low**	**usually**	**high**
Historical/ Archival Methods	**out of researcher's control**	**out of researcher's control**	**low**

Figure 1.1. Comparison of structure, interviewer involvement, and researcher involvement among data collection methods