Causal Validity

Causal validity, also known as internal validity, refers to the truthfulness of an assertion that A causes B. It is the focus of Chapter 6.

Most research seeks to determine what causes what, so social scientists frequently must be concerned with causal validity. Sherman and Berk were concerned with the effect of arrest on the likelihood of recidivism by people accused of domestic violence. To test their causal hypothesis, they designed their experiment so that some accused persons were arrested and others were not. Of course, it may seem heavy-handed for social scientists to influence police actions for the purpose of a research project, but this step reflects just how difficult it can be to establish causally valid understandings about the social world. It was only because police officials did not know whether arrest caused spouse abusers to reduce their level of abuse that they were willing to allow an experiment to test the effect of different policies.

Chapter 6 will give you much more understanding of how some features of a research design can help us evaluate causal propositions. However, you will also learn that the solutions are neither easy nor perfect: We always have to consider critically the validity of causal statements that we hear or read.

Authenticity

The goal of authenticity is stressed by researchers who focus attention on the subjective dimension of the social world. An authentic understanding of a social process or social setting is one that reflects fairly the various perspectives of participants in that setting (Gubrium & Holstein 1997). Authenticity is one of several different standards proposed by some as uniquely suited to qualitative research; it reflects a belief that those who study the social world should focus first and foremost on how participants view that social world, not on developing a unique social scientists' interpretation of that world. Rather than expecting social scientists to be able to provide a valid mirror of reality, this perspective emphasizes the need for recognizing that what is understood by participants as reality is a linguistic and social construction of reality (Kvale 2002:306).

SOCIAL RESEARCH PROPOSALS

Be grateful to those people or groups who require you to write a formal research proposal (as hard as that seems), and be even more grateful to those who give you constructive feedback. Whether your proposal is written for a professor, a thesis committee, an organization seeking practical advice, or a government agency that funds basic research, the proposal will force you to set out a problem statement and a research plan. So even in circumstances when a proposal is not required, you should prepare one and present it to others for feedback. Just writing down your ideas will help you see how they can be improved, and almost any feedback will help you refine your plans.

Each chapter in this book includes a section, "Developing a Research Proposal," which has exercises that guide you through the process of proposal writing. This section introduces the process of proposal writing as well as these special end-of-chapter exercises. It also provides

a schematic overview of the entire research process. You will want to return to this section frequently in order to remember "where you are" in the research process as you learn about particular methods in the remaining chapters.

Every research proposal should have at least five sections (Locke, Spirduso, & Silverman 2000:8–34):

- *an introductory statement of the research problem*, in which you clarify what it is that you are interested in studying;
- *a literature review,* in which you explain how your problems and plans build on what has already been reported in the literature on this topic;
- *a methodological plan*, detailing just how you will respond to the particular mix of opportunities and constraints you face;
- *an ethics statement*, identifying human subjects issues in the research and how you will respond to them in an ethical fashion; and
- *a statement of limitations,* reviewing the potential weaknesses of the proposed research design and presenting plans for minimizing their consequences.

You will also need to include a budget and project timeline, unless you are working within the framework of a class project.

When you develop a research proposal, it will help ask yourself a series of questions such as those in Exhibit 2.12 (see also Herek 1995). It is easy to omit important details and to avoid being self-critical while rushing to put a proposal together. However, it is even more painful to have a proposal rejected (or to receive a low grade). It is better to make sure the proposal covers what it should and confronts the tough issues that reviewers (or your professor) will be sure to spot.

The series of questions in Exhibit 2.12 can serve as a map to subsequent chapters in this book and as a checklist of decisions that must be made throughout any research project. The questions are organized in five sections, each concluding with a *checkpoint* at which you should consider whether to proceed with the research as planned, modify the plans, or stop the project altogether. The sequential ordering of these questions obscures a bit the way in which they should be answered: not as single questions, one at a time, but as a unit—first as five separate stages and then as a whole. Feel free to change your answers to earlier questions on the basis of your answers to later questions.

We will learn how to apply the decision checklist with an example from a proposal focused on treatment for substance abuse. At this early point in your study of research methods, you may not recognize all the terms in this checklist. Don't let that bother you now, since my goal is just to give you a quick overview of the decision-making process. Your knowledge of these terms and your understanding of the decisions will increase as you complete each chapter. Your decision-making skills will also improve if you complete the "Developing a Research Proposal" exercises at the end of each chapter.

Case Study: Treating Substance Abuse

Exhibit 2.13 lists the primary required sections of the "Research Plan" for proposals to the National Institutes of Health (NIH), together with excerpts from a proposal that I submitted in this format to the National Institute of Mental Health (NIMH) with colleagues from the

EXHIBIT 2.12 Decisions in Research

PROBLEM FORMULATION (Chapters 1–3)

1. Developing a research question
2. Assessing researchability of the problem
3. Consulting prior research
4. Relating to social theory
5. Choosing an approach:
   Deductive? Inductive? Descriptive?
6. Reviewing research guidelines and ethical standards
   CHECKPOINT 1
   Alternatives: • Continue as planned.
   - Modify the plan.
   - STOP. Abandon the plan.

RESEARCH VALIDITY (Chapters 4–6)

7. Establishing measurement validity:
   - How are concepts defined?
   - Choose a measurement strategy.
   - Assess available measures or develop new measures.
   - What evidence of reliability and validity is available or can be collected?
8. Establishing generalizability:
   - Was a representative sample used?
   - Are the findings applicable to particular subgroups?
   - Does the population sampled correspond to the population of interest?
9. Establishing causality:
   - What is the possibility of experimental or statistical controls?
   - How to assess the causal mechanism?
   - Consider the causal context.
10. Data required: Longitudinal or cross-sectional?
11. Units of analysis: Individuals or groups?
12. What are major possible sources of causal invalidity?
    CHECKPOINT 2
    Alternatives: • Continue as planned.
    - Modify the plan.
    - STOP. Abandon the plan.

(Continued)

(Continued)

RESEARCH DESIGN (Chapters 7–9, 11–13)

13. Choosing a research design and procedures:
    Experimental? Survey? Participant observation?
    Historical, comparative? Evaluation Research?
14. Specifying the research plan: Type of surveys, observations, etc.
15. Secondary analysis? Availability of suitable data sets?
16. Causal approach: Idiographic or nomothetic?
17. Assessing human subjects protections
    CHECKPOINT 3
    Alternatives: • Continue as planned.
    - Modify the plan.
    - STOP. Abandon the plan.

DATA ANALYSIS (Chapters 10, 14)

18. Choosing an analytic approach:
    - Statistics and graphs for describing data
    - Identifying relationships between variables
    - Deciding about statistical controls
    - Testing for interaction effects
    - Evaluating inferences from sample data to the population

    * Developing a qualitative analysis approach
    CHECKPOINT 4
    Alternatives:
    - Continue as planned.
    - Modify the plan.
    - STOP. Abandon the plan.

REPORTING RESEARCH (Chapter 15)

19. Clarifying research goals and prior research findings
20. Identifying the intended audience
21. Searching the literature and the Web
22. Organizing the text
23. Reviewing research limitations
    CHECKPOINT 5
    Alternatives: • Continue as planned.
    - Modify the plan.
    - STOP. Abandon the plan.

EXHIBIT 2.13 A Grant Proposal to the National Institute of Mental Health

Relapse Prevention for Homeless Dually Diagnosed

Abstract

This project will test the efficacy of shelter-based treatment that integrates Psychosocial Rehabilitation with Relapse Prevention techniques adapted for homeless mentally ill persons who abuse substances. Two hundred and fifty homeless persons, meeting . . . criteria for substance abuse and severe and persistent mental disorder, will be recruited from two shelters and then randomly assigned to either an experimental treatment condition . . . or to a control condition.

For one year, at the rate of three two-hour sessions per week, the treatment group ($n = 125$) will participate for the first six months in "enhanced" Psychosocial Rehabilitation . . . , followed by six months of Relapse Prevention training. . . . The control group will participate in a Standard Treatment condition (currently comprised of a twelve-step peer-help program along with counseling offered at all shelters). . . .

Outcome measures include substance abuse, housing placement and residential stability, social support, service utilization, level of distress. . . . The integrity of the experimental design will be monitored through a process analysis. Tests for the hypothesized treatment effects . . . will be supplemented with analyses to evaluate the direct and indirect effects of subject characteristics and to identify interactions between subject characteristics and treatment condition. . . .

Research Plan

1. Specific Aims

The research demonstration project will determine whether an integrated clinical shelter-based treatment intervention can improve health and well-being among homeless persons who abuse alcohol and/or drugs and who are seriously and persistently ill—the so-called "dually diagnosed." . . . We aim to identify the specific attitudes and behaviors that are most affected by the integrated psychosocial rehabilitation/relapse prevention treatment, and thus to help guide future service interventions.

2. Background and Significance

Relapse is the most common outcome in treating the chronically mentally ill, including the homeless. . . . Reviews of the clinical and empirical literature published to date indicate that treatment interventions based on social learning experiences are associated with more favorable outcomes than treatment interventions based on more traditional forms of psychotherapy and/or chemotherapy. . . . However, few tests of the efficacy of such interventions have been reported for homeless samples.

3. Progress Report/Preliminary Studies

Four areas of Dr. Schutt's research help to lay the foundation for the research demonstration project here proposed. . . . The 1990 survey in Boston shelters measured substance abuse with selected ASI [Addiction Severity Index] questions. . . . About half of the respondents evidenced a substance abuse problem.

Just over one-quarter of respondents had ever been treated for a mental health problem. . . . At least three-quarters were interested in help with each of the problems mentioned other than substance abuse. Since help with benefits, housing, and AIDS prevention will each be provided to all study participants in the proposed research demonstration project, we project that this should increase the rate of participation and retention in the study. . . . Results [from co-investigator Dr. Walter Penk's research] . . . indicate that trainers were more successful in engaging the dually diagnosed in Relapse Prevention techniques. . . .

(Continued)

(Continued)

4. Research Design and Methods

Study Sample.

Recruitment. The study will recruit 350 clients beginning in month 4 of the study and running through month 28 for study entry. The span of treatment is 12 months and is followed by 12 months of follow-up. . . .

Study Criteria.

Those volunteering to participate will be screened and declared eligible for the study based upon the following characteristics:

1. Determination that subject is homeless using criteria operationally defined by one of the accepted definitions summarized by . . .

Attrition.

Subject enrollment, treatment engagement, and subject retention each represent potentially significant challenges to study integrity and have been given special attention in all phases of the project. Techniques have been developed to address engagement and retention and are described in detail below. . . .

Research Procedures.

All clients referred to the participating shelters will be screened for basic study criteria. . . . Once assessment is completed, subjects who volunteer are then randomly assigned to one of two treatment conditions—RPST or Standard Treatment. . . .

Research Variables and Measures.

Measures for this study . . . are of three kinds: subject selection measures, process measures, and outcome measures. . . .

5. Human Subjects

Potential risks to subjects are minor. . . . Acute problems identified . . . can be quickly referred to appropriate interventions. Participation in the project is voluntary, and all subjects retain the option to withdraw . . . at any time, without any impact on their access to shelter care or services regularly offered by the shelters. Confidentiality of subjects is guaranteed. . . . [They have] . . . an opportunity to learn new ways of dealing with symptoms of substance abuse and mental illness.

Source: Schutt et al. (1992b).

University of Massachusetts Medical School. The Research Plan is limited by NIH guidelines to 25 pages. It must be preceded by an abstract (which I have excerpted), a proposed budget, biographical sketches of project personnel, and a discussion of the available resources for the project. Appendixes may include research instruments, prior publications by the authors, and findings from related work.

As you can see from the excerpts, our proposal (Schutt et al. 1992b) was to study the efficacy of a particular treatment approach for homeless mentally ill persons who abuse substances. The proposal included a procedure for recruiting subjects in two cities, randomly assigning half the subjects to a recently developed treatment program and measuring a range of outcomes. The NIMH review committee (composed of social scientists with expertise in substance abuse treatment programs and related methodological areas) approved the project for funding but did not rate it highly enough so that it actually was awarded funds (it often

takes several resubmissions before even a worthwhile proposal is funded). The committee members recognized the proposal's strengths but also identified several problems that they believed had to be overcome before the proposal could be funded. The problems were primarily methodological, stemming from the difficulties associated with providing services to, and conducting research on, this particular segment of the homeless population.

> The proposal has many strengths, including the specially tailored intervention derived from psychiatric rehabilitation technology developed by Liberman and his associates and relapse prevention methods adapted from Marlatt. This fully documented treatment . . . greatly facilitates the generalizability and transportability of study findings. . . . The investigative team is excellent . . . also attuned to the difficulties entailed in studying this target group. . . . While these strengths recommend the proposal . . . eligibility criteria for inclusion of subjects in the study are somewhat ambiguous. . . . This volunteer procedure could substantially underrepresent important components of the shelter population. . . . The projected time frame for recruiting subjects . . . also sees unrealistic for a three-year effort. . . . Several factors in the research design seem to mitigate against maximum participation and retention. (Services Research Review Committee 1992:3–4)

If you get the impression that researchers cannot afford to leave any stone unturned in working through the procedures in an NIMH proposal, you are right. It is very difficult to convince a government agency that a research project is worth spending a lot of money on (we requested about $2 million). And that is as it should be: Your tax dollars should be used only for research that has a high likelihood of yielding findings that are valid and useful. But even when you are proposing a smaller project to a more generous funding source—or just presenting a proposal to your professor—you should scrutinize the proposal carefully before submission and ask others to comment on it. Other people will often think of issues you neglected to consider, and you should allow yourself time to think about these issues and to reread and redraft the proposal. Also, you will get no credit for having thrown together a proposal as best you could in the face of an impossible submission deadline.

Let's review the issues identified in Exhibit 2.12 as they relate to the NIMH relapse prevention proposal. The research question concerned the effectiveness of a particular type of substance abuse treatment in a shelter for homeless persons—an evaluation research question [Question 1]. This problem certainly was suitable for social research, and it was one that could have been handled for the money we requested [2]. Prior research demonstrated clearly that our proposed treatment had potential and also that it had not previously been tried with homeless persons [3]. The treatment approach was connected to psychosocial rehabilitation theory [4] and, given prior work in this area, a deductive, hypothesis-testing stance was called for [5]. Our review of research guidelines continued up to the point of submission, and we felt that our proposal took each into account [6]. So it seemed reasonable to continue to develop the proposal (Checkpoint 1).

Measures were to include direct questions, observations by field researchers, and laboratory tests (of substance abuse) [7]. The proposal's primary weakness was in the area of generalizability [8]. We proposed to sample persons in only two homeless shelters in two cities, and we could offer only weak incentives to encourage potential participants to start and stay in the study. The review committee believed that these procedures might result in an unrepresentative group of initial volunteers beginning the treatment and perhaps an even

less representative group continuing through the entire program. The problem was well suited to an experimental design [9] and was best addressed with longitudinal data [10], involving individuals [11]. Our design controlled for many "sources of invalidity," but several sources of causal invalidity remained [12]. Clearly, we should have modified the proposal with some additional recruitment and retention strategies—although it may be that the research could not actually be carried out without some major modification of the research question (Checkpoint 2).

A randomized experimental design was preferable because this was to be a treatment-outcome study, but we did include a field research component so that we could evaluate treatment implementation [13, 14]. Because the effectiveness of our proposed treatment strategy had not been studied before among homeless persons, we could not propose doing a secondary data analysis or meta-analysis [15]. We sought only to investigate causation from a "nomothetic" perspective, without attempting to show how the particular experiences of each participant may have led to their outcome [6]. Because participation in the study was to be voluntary and everyone received *something* for participation, the research design seemed ethical (and it was approved by the University of Massachusetts Medical School's **institutional review board (IRB)** and by the state mental health agency's human objects committee) [17]. We planned several statistical tests, but the review committee remarked that we should have been more specific on this point [18]. Our goal was to use our research as the basis for several academic articles, and we expected that the funding agency would also require us to prepare a report for general distribution [19, 20]. We had reviewed the research literature carefully [21], but as is typical in most research proposals, we did not develop our research reporting plans any further [22, 23].

Institutional Review Board (IRB)
A group of organizational and community representatives required by federal law to review the ethical issues in all proposed research that is federally funded, involves human subjects, or has any potential for harm to subjects.

If your research proposal will be reviewed competitively, it must present a compelling rationale for funding. It is not possible to overstate the importance of the research problem that you propose to study (see the first section of this chapter). If you propose to test a hypothesis, be sure that it is one for which there are plausible alternatives. You want to avoid focusing on a "boring hypothesis"—one that has no credible alternatives, even though it is likely to be correct (Dawes 1995:93).

A research proposal also can be strengthened considerably by presenting results from a pilot study of the research question. This might have involved administering the proposed questionnaire to a small sample, conducting a preliminary version of the proposed experiment with a group of students, or making observations over a limited period of time in a setting like that proposed for a qualitative study. Careful presentation of the methods used in the pilot study and the problems that were encountered will impress anyone who reviews the proposal.

Don't neglect the procedures for the protection of human subjects. Even before you begin to develop your proposal, you should find out what procedure your university's IRB requires for the review of student research proposals. Follow these procedures carefully, even if they require that you submit your proposal for an IRB review. No matter what your university's specific requirements are, if your research involves human subjects, you will need to include in your proposal a detailed statement that describes how you will adhere to these requirements.

You have learned in this chapter how to formulate a research question, review relevant literature, consider ethical issues, and identify some possible limitations, so you are now

ready to begin proposing new research. If you plan to do so, you can use the proposal exercises at the end of each of the subsequent chapters to incorporate more systematically the research elements discussed in those chapters. By the book's end, in Chapter 15, you will have attained a much firmer grasp of the various research decisions outlined in Exhibit 2.12.

CONCLUSIONS

Selecting a worthy research question does not guarantee a worthwhile research project. The simplicity of the research circle presented in this chapter belies the complexity of the social research process. In the following chapters, I will focus on particular aspects of the research process. Chapter 4 examines the interrelated processes of conceptualization and measurement, arguably the most important part of research. Measurement validity is the foundation for the other two aspects of validity. Chapter 5 reviews the meaning of generalizability and the sampling strategies that help us achieve this goal. Chapter 6 introduces causal validity and illustrates different methods for achieving it. Most of the remaining chapters then introduce different approaches to data collection—experiments, surveys, participant observation and intensive interviewing, evaluation research, comparative historical research, secondary data analysis, and content analysis—that help us, in different ways, achieve results that are valid.

Of course, our answers to research questions will never be complete or entirely certain. We always need to ground our research plans and results in the literature about related research. Our approach should be guided by explicit consideration of a larger theoretical framework. When we complete a research project, we should evaluate the confidence that can be placed in our conclusions, point out how the research could be extended and consider the implications for social theory. Recall how the elaboration of knowledge about deterrence of domestic violence required sensitivity to research difficulties, careful weighing of the evidence, identification of unanswered questions, and consideration of alternative theories.

Owning a large social science toolkit is no guarantee of making the right decisions about which tools to use and how to use them in the investigation of particular research problems, but you are now forewarned about, and thus hopefully forearmed against, some of the problems that social scientists face in their work. I hope that you will return often to this chapter as you read the subsequent chapters, when you criticize the research literature and when you design your own research projects. To be conscientious, thoughtful, and responsible—this is the mandate of every social scientist. If you formulate a feasible research problem, ask the right questions in advance, try to adhere to the research guidelines, and steer clear of the most common difficulties, you will be well along the road to fulfilling this mandate.

KEY TERMS

Anomalous findings
Authenticity
Causal validity (internal validity)
Conflict theory
Cross-population generalizability (external validity)
Deductive research
Dependent variable
Direction of association
Empirical generalization
External validity (cross-population generalizability)
Generalizability
Hypothesis