

Research Designs

Chapter Summary

Introduction

The research design process starts with determining the research questions. The chapter opens with an excerpt from Carroll's *Alice's Adventures in Wonderland*, where we see that some direction is required to start a journey. In social research, we also need an initial question to start the study, even if the question and the direction of the study can change over time. Therefore, conducting social research can also be seen as a journey.

The research design we choose strongly depends on goals of our research. One goal of social research is to find the regularities, laws, or explanations that govern social life. We might want to find the universal laws that explain a social phenomenon we study and we want these explanations to be universal in the sense of being applicable across different social settings, groups of people, and time periods. This type of explanation is called **nomothetic**, and it is typically associated with quantitative research orientation. In nomothetic explanations, in order to be considered a “cause,” a factor (or a variable) has to satisfy three conditions:

1. *Correlation*: An affected variable changes with the variable that causes it
2. *Time order*: The cause must occur prior to the effect
3. *Non-spurious*: There is no alternate explanation for the correlation.

Only if these three conditions occur together, can we claim that one factor (variable) causes the other.

Another goal of social research is to explain and understand the motivation of human action. Research of this type seeks to provide a detailed explanation of the case; it does so through a thick description of the case and its context, and it aims at empathetic understanding of human action rather than finding a universal law that explains it. This type of explanation is called **idiographic**, and it is typically associated with qualitative research.

In all social research, we are often concerned with causality—finding how one factor influences another. Causality is often expressed in the language of variables—characteristics or attributes of people or things that change (vary) within the population. Depending on the relationship of cause and effect they represent, variables can be independent or dependent.

Research Designs

Experimental design is common in psychology and organizational studies because of its ability to manipulate independent variables to determine the influence on the dependent variable. In sociology

and political science, the process of variable manipulation is much more difficult, if not impossible to do. Many variables (e.g., poverty, war) have long-term issues that cannot be set up as experiments. Similarly, general social attributes of respondents (e.g., gender, religion) cannot be easily manipulated or changed as the setup of the experiment requires. In addition, ethical concerns prevent experiments, since they postulate that no harm should be done to participants during the study. Furthermore, even where experimental design may seem operationally sound for qualitative research, it will not get a deep understanding of perceptions and feelings of the research participants, as the qualitative research demands. Finally, laboratory experiment fares quite poorly when generalized to wider settings and populations. However, experiments can serve as a good yardstick against which we measure other types of sociological designs.

The classic experimental design has three necessary components: (1) the control group, (2) the experimental (treatment) group, and (3) random assignment. True experimental evidence aims to eliminate all other possible (rival) explanations for the change in the dependent variable in the treatment group. However, most social experience is complex, and therefore to ascertain the causal influence in the experiment still remains difficult due to several contaminating factors, or threats to internal validity. Cook and Campbell (1979) identify six threats to internal validity:

1. History
2. Testing
3. Instrumentation
4. Mortality
5. Maturation
6. Selection

Another problem that can emerge in experiments is the generalizability of their results to other setting and other populations. This is referred to as external validity. Cook and Campbell (1979) identify five threats to external validity:

1. Interaction of selection and treatment
2. Interaction of setting and treatment
3. Interaction of history and treatment
4. Interaction effect of pre-testing
5. Reactive effects of experimental arrangements

Experiments can take place in the laboratory setting and in naturally occurring situations (quasi-experiments). Each of these settings has a number of advantages and disadvantages.

Laboratory experiments occur in artificial settings, whereas field experiments take place in real-life surroundings. Because laboratory experiments take place in artificial environments, it is easier to control the research environment: they are able to better assign research subjects randomly, can better monitor the manipulations of independent variables, and can eliminate the effect of other variables. All of this enhances internal validity of the experiment (the relationship of cause and effect) and makes it easier to replicate. At the same time, artificiality of setting and excessive control over the research situation make it more difficult to generalize the results of the lab experiments to the real-world settings and other groups of people.

Experiments occurring in natural settings are sometimes called “quasi-experiments,” because their subjects are not randomly assigned by the researchers to the control and experimental group, but simply happen to live in two distinct environments affected and not-affected by external influences (for example, natural disasters).

Cross-sectional design is the gathering of data at a specific point in time. For example, a survey represents such a cross-section of the population at a given moment, although cross-sectional design may also include research using different methods, such as observation or a focus group. Cross-sectional designs do not manipulate the independent variables; rather, they take a snapshot of

different variables at one point of time. These designs tend to be used in quantitative studies because the large sample size provides confidence that the observed correlation between the variables occurs regardless of other potential influences and because statistical techniques typically need large sample sizes. Cross-sectional designs tend to be quite reliable and have good measurement validity because measurement is of central concern in surveys. For the same reason, cross-sectional designs are quite replicable, and have high external validity—that is, they can be generalized to a wider population if the random sampling was used. However, the internal validity of cross-sectional designs is much weaker than that of the experiment, because the sequence of influence cannot be established. This does not mean that causal inferences are altogether impossible in cross-sectional design. The research can still bring suggestions of causal influence, without asserting it.

In a **longitudinal design**, data are collected at a particular time (T1) just as in the cross-sectional research design. But it is also gathered again at a later time, and perhaps at even further times (T2, T3 . . .). Although there is no manipulation of an independent variable, the longitudinal design helps to determine the direction of causation. There are two types of longitudinal design: the panel study and the cohort study. The **panel study** relies on the same set of research subjects. They are studied at time one (T1) and again at a later time, and perhaps at even further times (T2, T3, . . .). The **cohort study** is the repeated study of the people who share the same experiences or characteristics, although they don't have to be exactly the same people overtime. Longitudinal designs are most often associated with repeated surveys but can also be employed in qualitative research.

A **case study design** is an in-depth study of a single case. The case may be an individual, a family, an organization, an event, a geographic location, a social movement, etc. The case design identifies a specific case as an object of interest in its own right, and aims to provide its fullest description and analysis. Although many studies can be thought of as “case studies,” what distinguishes the case-study design from other designs is its goal: to find and reveal the features of the case. This is done because the case is considered valuable, or significant, in describing social phenomena of a similar type. Yin (1984) identifies three types of cases in a case study design: the critical case, the extreme (unique case), and the revelatory case. The advantage of the case study design is the depth and scope of its analysis of a single case.

Learning Objectives

In this chapter, you should learn to do the following:

- Distinguish between two types of explanations in sociology: the nomothetic explanation seeking to generalize and find the universal laws of social life, and the idiographic explanation seeking to describe the particularities of one case
- Understand the principles of causality underlying much of social research
- Name the different criteria for evaluating research in quantitative and qualitative traditions: replicability, reliability, and validity
- Differentiate between the concepts of internal validity and external validity
- Describe the principles and goals of four main designs in social research—experimental, cross-sectional, longitudinal, and case study—and assess their advantages and disadvantages through the criteria of reliability, validity, and replicability
- Understand how the choice of research design depends on the research questions and goals of the study, and how the different designs work within the qualitative and quantitative research traditions

Media Resources

For a short report of several research projects using different research designs on the correlation between media and violence, and a comparison of their various strengths and weaknesses, see the following document:

http://psychotron.org.uk/resources/social/AQA_A2_aggression_mediaantinotes.pdf

- Does the stated aim of the research affect the conclusion?
- How do you account for the difference in conclusions?

For a history of research into the link between genetics and political orientation, see

<http://www.theatlantic.com/politics/archive/2013/10/can-your-genes-predict-whether-youll-be-a-conservative-or-a-liberal/280677/>

For examples of specific research, see

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1006&context=poliscifacpub> and http://fowler.ucsd.edu/genetic_basis_of_political_cooperation.pdf

- What were the primary methods used in each study?
- Do the studies use a quantitative method?
- What is the impact of connecting biological research with social science research?
- What is the impact of the differences in methodology?

For a critique of this methodology, see

http://jayjoseph.net/yahoo_site_admin/assets/docs/Claims_and_Refutations_July_2010.pdf.205163035.pdf

- What premises do the critics rely to refute the findings of the earlier study?

See the Stanford Prison Experiment for ethical considerations. <http://www.prisonexp.org/>

- Would this study be permissible today?
- Do the social gains outweigh the individual costs?

Follow this link to see Jane Elliott's A Class Divided experiment:

<https://www.youtube.com/watch?v=TPktMLmMha8>

- Is there potential harm when applying experimental or quasi-experimental design on children?
- If there is actual harm, do the gains outweigh that harm?

Read the following essay by Daniel Schugurensky on Rosenthal and Jacobson's *Pygmalion in the Classroom*:

http://fcis.oise.utoronto.ca/~daniel_schugurensky/assignment1/1968rosenjacob.html

- What is the impact of economics and social class on the research subjects and the research?
- Would Rosenthal and Jacobson's findings apply outside of a school setting?
- What is the impact of expectation on the part of the researcher?
- What is the impact of expectation on the part of the research subjects (teachers and students)?