

CHAPTER 4

Quantitative and Qualitative Research

Learning Objectives for Chapter 4

Upon completion of this chapter, the reader should be able to:

- ◆ Understand the differences between quantitative and qualitative research, including:
 - ◆ the differing assumptions underlying the two approaches;
 - ◆ the methods typical of each approach; and
- ◆ Understand and discuss how these two approaches to research differentially influence the scientific questions asked, the methodologies employed, and the conclusions drawn, and why this is important to consider.

It is important to recognize that systematic observation and testing can be accomplished using a wide variety of methods. Many people think of scientific inquiry strictly in terms of laboratory experimentation. However, it is neither possible nor desirable to study all phenomena of interest under controlled laboratory conditions.

The design of any study begins with the selection of a topic and a research methodology. These initial decisions reflect assumptions about the social world, how science should be conducted, and what constitutes legitimate problems, solutions, and criteria of "proof." Different approaches to research encompass both theory and method. Two general approaches are widely recognized: quantitative research and qualitative research.

Quantitative research is an inquiry into an identified problem, based on testing a theory, measured with numbers, and analyzed using statistical techniques. The goal of quantitative methods is to determine whether the predictive generalizations of a theory hold true.

By contrast, a study based upon a **qualitative** process of inquiry has the goal of understanding a social or human problem from multiple perspectives. Qualitative research is conducted in a natural setting and involves a process of building a complex and holistic picture of the phenomenon of interest.

The selection of which research approach is appropriate in a given study should be based upon the problem of interest, resources available, the skills and training of the researcher, and the audience for the research. Although some research may incorporate both quantitative and qualitative methodologies, in their 'pure' form there are significant differences in the assumptions underlying these approaches, as well as in the data collection and analysis procedures used.

Why is the distinction between quantitative and qualitative research important?

It is important to be able to identify and understand the research approach underlying any given study because the selection of a research approach influences the questions asked, the methods chosen, the statistical analyses used, the inferences made, and the ultimate goal of the research.

When critically reviewing scientific research, the questions asked, and the answers given, will differ depending upon whether the research is quantitative or qualitative.

 ***Quantitative Methods***

Assumptions Underlying Quantitative Methods

- reality is objective, "out there," and independent of the researcher -- therefore reality is something that can be studied objectively;
- the researcher should remain distant and independent of what is being researched;
- the values of the researcher do not interfere with, or become part of, the research -- research is value-free;
- research is based primarily on deductive forms of logic and theories and hypotheses are tested in a cause-effect order; and
- the goal is to develop generalizations that contribute to theory that enable the researcher to predict, explain, and understand some phenomenon.

Three general types of quantitative methods:

1. **Experiments** → True experiments are characterized by random assignment of subjects to experimental conditions and the use of experimental controls.
2. **Quasi-Experiments** → Quasi-experimental studies share almost all the features of experimental designs *except* that they involve non-randomized assignment of subjects to experimental conditions.
3. **Surveys** → Surveys include cross-sectional and longitudinal studies using questionnaires or interviews for data collection with the intent of estimating the characteristics of a large population of interest based on a smaller sample from that population.

➔ *Qualitative Methods*

Assumptions Underlying Qualitative Methods

- multiple realities exist in any given situation -- the researcher's, those of the individuals being investigated, and the reader or audience interpreting the results; these multiple perspectives, or voices, of informants (i.e., subjects) are included in the study;
- the researcher interacts with those he studies and actively works to minimize the distance between the researcher and those being researched;
- the researcher explicitly recognizes and acknowledges the value-laden nature of the research;
- research is context-bound;
- research is based on inductive forms of logic; categories of interest emerge from informants (subjects), rather than being identified *a priori* by the researcher;
- the goal is to uncover and discover patterns or theories that help explain a phenomenon of interest; and
- determinations of accuracy involve verifying the information with informants or "triangulating" among different sources of information (e.g., collecting information from different sources).

Three general types of qualitative methods:

1. **Case Studies** → In a case study the researcher explores a single entity or phenomenon ('the case') bounded by time and activity (e.g., a program, event, institution, or social group) and collects detailed information through a variety of data

collection procedures over a sustained period of time. The case study is a descriptive record of an individual's experiences and/or behaviors kept by an outside observer.

2. **Ethnographic Studies** → In ethnographic research the researcher studies an intact cultural group in a natural setting over a specific period of time. A cultural group can be any group of individuals who share a common social experience, location, or other social characteristic of interest -- this could range from an ethnographic study of rape victims in crisis shelters, to children in foster care, to a study of a cultural group in Africa.
3. **Phenomenological Studies** → In a phenomenological study, human experiences are examined through the detailed description of the people being studied -- the goal is to understand the 'lived experience' of the individuals being studied. This approach involves researching a small group of people intensively over a long period of time.

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Questions to consider when evaluating scientific evidence ...

- ◆ Was a quantitative or qualitative research approach adopted?
- ◆ Was the research approach appropriate given the problem investigated and the goals of the research?
- ◆ Was the process of investigation consistent with the underlying assumptions of the research used?
- ◆ Were appropriate types of conclusions drawn given the research approach used?

Before going any further, stop and reflect ...

- ◆ What are some examples of quantitative research that might be proffered as evidence in court?
- ◆ What are some examples of qualitative research that might be proffered as evidence in court?
- ◆ To what extent, if any, would your critical review of these different types of evidence differ?

CRITICAL QUESTIONS REVIEWED

- ◆ Was the quantitative or qualitative approach adopted?
- ◆ Was the research approach selected appropriate given the problem investigated and the goals of the research?
- ◆ Was the process of investigation consistent with underlying assumptions of the research approach used?
- ◆ Were appropriate types of conclusions drawn given the research approached used?

GLOSSARY

case studies	the researcher explores a single entity or phenomenon ("the case") bounded by time and activity (e.g., a program, event, process, institution, or social group) and collects detailed information through a variety of data collection procedures over a sustained period of time
ethnographic studies	the researcher studies an intact cultural group in a natural setting over a specific period of time; a cultural group can be any group of individuals who share a common social experience, location, or other social characteristic of interest
experimental studies	characterized by random assignment of subjects to experimental conditions and the use of experimental controls
phenomenological studies	human experiences are examined through the detailed description of the people being studied -- the goal is to understand the "lived experience" of the individuals being studied; involves studying a small group of people intensively over a long period of time
qualitative research	a process of inquiry with the goal of understanding a social or human problem from multiple perspectives; conducted in a natural setting with a goal of building a complex and holistic picture of the phenomenon of interest
quantitative research	an inquiry into an identified problem, based on testing a theory composed of variables, measured with numbers, and analyzed using statistical techniques; the goal is to determine whether the predictive generalizations of a theory hold true
quasi-experimental studies	share almost all the features of experimental designs <i>except</i> that they involve non-randomized assignment of subjects to experimental conditions
random assignment	all subjects have an equal chance of being assigned to a given experimental condition; a procedure used to ensure that experimental conditions do not differ significantly from each other
survey	questionnaires or interviews for data collection with the intent of generalizing from a sample population to a larger population of interest

SUGGESTED READINGS

Creswell, J.W. (1994). *Research Design: Qualitative and Quantitative Approaches*. Sage Publications: Thousand Oaks, CA.

Mason, J. (1996). *Qualitative Research*. Thousand Oaks: Sage Publications.

Judge's Notes:

