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Research as a Way of Knowing

Chapter Summary

The goal of **science** is to produce a widely acceptable description of the nature or operation of some aspect of the universe. Essentially, science tries to explain why something is the way it is or how something happens. **Scientific research** involves the attempt to gather evidence in such a way that others can see why particular evidence was gathered, how that evidence was gathered, and what the findings were. This makes it possible for others to draw their conclusions on the basis of that evidence. Scientific research is done to find ways of understanding, describing, and making more predictable, or controlling, the behaviour of some aspect of the universe. Additionally, we do research to settle conflicting claims or differences of opinion or to test ideas. The results of research may be used to develop remedies for problems, strategies for projects, and plans for action.

Doing research involves a process or series of linked activities moving from beginning to end. This process is highly variable from researcher to researcher. There are three basic steps of the research process. Phase 1 involves several essential first steps including the issue or the focus of the research topic, the selection of a research method, the importance of **variables** and their measurement, and the problems of sampling. Phase 2 involves the work of collecting, summarizing, and organizing **data**. Phase 3 of the research process involves analyzing and interpreting the evidence, drawing conclusions, noting limitations, and offering suggestions for future research. The importance of staying connected to the literature is a feature of each phase. To note, while both qualitative and quantitative research follow these same three steps, there are differences in the way that they do. There are examples outlined in the chapter on pages 14–19. (See also Chapter 12 for details).

Empirical research can only deal with the observable, measurable aspects of the questions we want to answer. Empirical research can be either **qualitative** or **quantitative**. Empirical research only seeks to answer those questions that can be answered by reference to **sensory data** (data that can be seen, heard, touched, recorded, measured, or counted).

Doing research requires discipline, clear thinking, and careful observation. First, the right kind of questions must be asked (developing/creating research questions). Research questions have two basic properties: They are limited in scope to certain times, places, and conditions; and they identify some observable, tangible, countable evidence or data that can be gathered. Second, honesty and accuracy in asking questions and reporting findings are required. Research is only useful to the ex-

tent that the researchers have been disciplined, accurate, and honest. Third, careful recordkeeping and accurate reporting are essential. This is done in such a way that someone else can see exactly what was done and why. It safeguards reliability and provides a record for the researcher. And fourth, the limitations of the research process must be addressed in addition to posing questions and problems for future research.

Research questions can come from anywhere: curiosity, a problem, arguments, or controversy to name a few. A **theory** is a guess about the way things are. There are many ways to express theories. Theories are abstract notions about the way the concepts relate to each other.

We test theories by collecting evidence, or data. Data are the facts produced by research, but like facts, data are meaningless unless they are related to theories. Data are empirical facts and they are not abstract. There are two kinds of data used in social science research: **quantitative** and **qualitative**.

The challenge of the research process is to related theory and research in such a way that questions are answered. Both theory and data are required to answer research questions. The result of the research process is neither theory nor data, but knowledge. Research provides answers to researchable questions with evidence that is collected and evaluated in a disciplined manner. This is how we know we know.

Key Terms

Data The evidence collected in the research process is called data. Data are empirical facts. (p. 28)

Empirical research Seeks only to answer those questions that can be answered by reference to sensory data. Empirical research can be either qualitative or quantitative. (p. 21)

Qualitative data Qualitative data tend to be expressed in the language of images, feelings, and impressions; they describe the qualities of the events under study. (p. 12)

Qualitative research design A method of research that is typically concerned with the collection of data that exclude numbers. It can include personal accounts, feelings, observations, images such as photos and drawings, and personal beliefs. Proponents of this research design believe that numbers oversimplify our understanding of complex human phenomena. It is a powerful method for giving voice to participants in a research study. Qualitative research designs include unstructured interviews, focus groups, participant observations, and ethnography. (p. 11)

Quantitative data Quantitative data are usually expressed in numbers, percentages, or rates. (p. 12)

Quantitative research design A method of data collection that focuses on assigning numerical values to social science research questions. This research design is most interested in answering questions of how often and how much. The data collected can be numbers, percentages, or statistics. (p. 11)

Research objective A statement in qualitative research that specifies the main focus of the research project. (p. 13)

Sample Research is almost always done on a small number of people who represent a larger group. Very rarely is everyone included. The results obtained from the sample will be used to generalize to the larger group. (p. 14)

Science Science is a discipline that collects, weighs, and evaluates the empirical evidence for accepting a particular theory or explanation. (p. 10)

Scientific research Collecting evidence and producing conclusions based on that evidence in a transparent manner. (p. 10)

Sensory data Sensory data can be seen, heard, touched, recorded, measured, or counted. (p. 21)

Theory A theory is an idea about how something works, or what it is like to be something, or “what will happen if....” Theories are abstract notions about the way concepts relate to each other. (pp. 26–27)

Variable or Research Concept Concepts that are assessed or measured in a research study; dictated by the research question. (p. 15)

Study Questions

Scroll down for answers.

1. What are the four disciplines required in order to undertake social research successfully?
2. What does it mean to say that “social research is a ‘process’”?
3. What is the relationship between data and theory? How do data acquire meanings as they are related to theories?
4. What are the five steps of Phase 1 of the research process?
5. What is empirical research?
6. What are the major differences between the types of questions asked in qualitative research versus those asked in quantitative research?
7. What kind of questions cannot be answered through empirical research? Provide an example.
8. In the research question, “does parents’ education affect scholastic achievement of children?” what are the key concepts between which a relationship is sought?

9. What are the steps of Phase 2 of the research process?
10. What are the steps of Phase 3 of the research process?
11. What are some of the reasons we engage in scientific research?
12. What is the goal of science?

Video Resource

Canada Council for the Arts. 2013. Yes I Dance—Ekos Survey [1:08]

The Canada Council for the Arts conducted a nationwide survey of dancers to get a sense of who dances and why. The promotional video above recruits participants to the survey, but students can also explore the project's website—YesIDance.canadacouncil.ca—which has an interactive map built from survey results, as well as summary and full research reports from the study.

<https://m.youtube.com/watch?v=24oQntErlfE>

Answers to Study Questions

1. The following four disciplines are required to undertake social research successfully:
 - Creating a research question
 - Honesty and accuracy in maintaining objectivity throughout the research process
 - Accurate recordkeeping throughout the research process
 - Assessing the limitations of the research process (pp. 19–25)
2. Social research is a “process” in that it has a beginning and an end to answering questions. What happens in between is all connected and related. The process is made up of a series of phases, each of which consists of several stages. (p. 11)
3. A theory asserts a relationship between concepts whereas data are used to test whether this relationship exists. (p. 28)
4. The five steps of Phase 1 of the research process include the following:
 - Select the question and specify the question to be studied;
 - Decide on a research design;
 - Construct variables and measures;
 - Set up tables for analysis; and
 - Make a decision on the sample size. (pp. 11, 13–14)
5. Empirical research is based on sensory observations, which take the form of objective data; sensory data are data that can be seen, heard, touched, recorded, measured, or counted. Empirical research can be either qualitative and quantitative, but it cannot answer moral questions. (p. 21)
6. Quantitative research is expressed in numbers and percentages (How much? How many? How often?) whereas qualitative research is expressed in images, feelings, impressions, and narratives (What is going on? What is it like? What does it feel like?). (pp. 28–29)
7. Empirical research cannot answer questions of moral or ethics, nor can they answer questions of beauty or faith. Examples will vary, but one example may be: “is it right or wrong to allow terminally ill patients to die?” with reference to assisted suicide. (p. 21)
8. This is examining the relationship between parents’ education and scholastic achievement. (p. 20)
9. The steps of Phase 2 are data collection and summarize/organize the data. (p. 16)
10. The steps of Phase 3 of the research process include the following:
 - Relate the data to the research question;
 - Draw conclusions;
 - Assess the limitations of the study; and
 - Make suggestions for future/further research. (p. 17)

11. Find ways of understanding, describing, and making more predictable, the behaviour, of some aspect of the universe. Results may be used to develop remedies for problems, strategies for projects, plans for action, settling conflicting claims or differences of opinion, and testing ideas about the world we live in. (p. 10)

12. To produce a widely acceptable description of the nature or operation of some aspect of the universe. (p. 10)