CHAPTER 1

**Introduction**

**CHAPTER OUTLINE**

* 1. **The Research Enterprise**

Research forms the foundation of our modern lives, giving rise to technology, medicine, and the scientific advancement that makes modern human life possible.

**1.1a What Is Research?**

Research is a systematic, empirical approach to gathering knowledge about a topic that can promote the public good.

**1.1b Translational Research**

Translational research allows us to take knowledge generated from our research efforts, and be able to apply it in a practical, measurable way.

**1.1c Research Syntheses and Guidelines**

Research synthesis evaluates the work of previous research, in order to understand a research topic as a whole. A guideline is the outcome of this synthesis, allowing the researcher to make recommendations for future applications of a topic.

**1.1d Evidence-Based Practice**

Evidence based practice is a philosophy that requires practitioners in applied fields to use techniques that have been supported by previous research findings.

**1.1e An Evolutionary Perspective on the Research Enterprise**

This perspective holds that research ideas evolve through a process of natural selection, and that this process can take a research program in new and exciting directions.

* 1. **Conceptualizing Research**

Finding a viable research topic has, in the past, been an ephemeral “groping in the dark” process. Instead, provide your students with the road map outlined in this section for finding viable, sustainable research ideas.

**1.2a Where Research Topics Come From**

Research ideas come from practical problems in the field of study, previous research (through the use of the literature review, discussed in the next section), requests for proposals, and a researcher’s own creative insights.

**1.2b The Literature Review**

A literature review is a systematic review of all research published to date on a given area of interest. Most literature reviews focus on academic sources, such as journal articles and academic books, all of which have been peer reviewed, meaning that the research has gone through a vigorous screening process prior to publication.

The literature review is conducted very early in the research process.

**1.2c Feasibility Issues**

Feasibility issues are a major determining factor in the decision to pursue a given research topic, and these issues include time, cost, ethical constraints, and the cooperation of your research environment and participants.

* 1. **The Language of Research**

Research, as an enterprise, has a variety of terms, jargon, and vocabulary to learn, in order to communicate effectively in your field of study.

**1.3a Research Vocabulary**

Give your students a brief introduction to the very basics of the research vocabulary, including the following terms: theoretical, empirical, probabilistic, causal, and causal relationships.

**1.3b Types of Studies**

Most research projects in the social sciences fall into one of three categories: descriptive studies, relational studies, and causal studies. Descriptive studies document what is going on with a given topic; relational studies look at the relationship between two or more variables of interest, and causal studies examine how one (or more) variables can cause changes in other variables.

**1.3c Time in Research**

Some research projects take more time than others. Cross-sectional studies look at a variable of interest at a single point in time, whereas longitudinal research will track a variable of interest at two or more points in time. A repeated measures design allows the researcher to track the performance of a given variable through the use of two or more measurements of that variable. On the other hand, a time series design allows the researcher to take measurements in several waves (often twenty waves or more).

**1.3d Types of Relationships**

Relationships between variables can differ, and we have special terminology to denote this fact. A correlational relationship means that two variables are related in some way, but that does not mean that one variable is “causing” the other. Often, there is a third variable that is causing a change in the two related variables, and this is referred to as “the third variable problem.” Correlations form patterns that we can use to make a conclusion about a correlational relationship.

**1.3e Hypotheses**

A hypothesis is always a statement making a prediction about the relationship between the variables in your research. The null hypothesis states that there is no relationship between the variables, whereas the alternative hypothesis is the prediction you are making about your variables. These hypotheses can be either one or two-tailed, depending on the nature of your prediction. All of these hypotheses are derived from what is called the hypothetical-deductive model.

**1.3f Variables**

Variables are used throughout research, and can take on any value. Types of variables discussed in this section include: quantitative (numerical) variables, independent variables, and dependent variables. Variables can take on attributes, which are specific values.

**1.3g Types of Data**

Data can come in many forms. Quantitative data is numerical in nature, whereas qualitative data is descriptive and can come in the form of words, pictures, and observations.

**1.3h The Unit of Analysis**

The unit of analysis in a research project is the focus of your study, be it an individual, a group, an artifact (like a book), a geographical unit (town, country), or a social interaction or problem. Some studies use multiple units of analysis to see how the different units interact.

**1.3i Deduction and Induction**

Deductive reasoning moves from the general to the specific. A theory generates a hypothesis, which generates an observation, which generates a confirmation or refutation of the hypothesis. This is a top down approach. Inductive reasoning moves from the bottom up, going from the specific to the general. It starts with an observation, identifies a pattern, generates a tentative hypothesis, and then leads to a theory.

* 1. **The Structure of Research**

Research has a structure, that when broken down and approached systematically, can make the research journey less daunting.

**1.4a Components of a Research Study**

The components of a research study include the research problem, the research question, the program (causal variable), the units, the outcome (effects; dependent variable), and the research design. Operatationalization of the hypothesis is also a component of the research study.

* 1. **The Validity of Research**

Research validity refers to the truthfulness and trustworthiness of the conclusions drawn from a particular research project. There are several kinds of research validity: conclusion validity, internal validity, external validity, and construct validity. Each type of validity has a list of threats that the researcher must address when designing a study.

#### CLASS ACTIVITIES/TEACHING TIPS

1. Conduct a class demonstration in how to use academic databases to find relevant literature, and include your students in the activity. Ask the class to come up with a broad research topic of interest. If you have a computer available that can project the screen as you work, navigate to PSYC-INFO and put this search term into the basic search box. Show students how to use the tools in the database to narrow their topic. If, for example, they say, “let’s research clinical depression,” include very general terms into the search and demonstrate how broad the topic is.

As the process progresses, have the class work together to narrow the topic down until there is a small enough number of articles to work with. Also, be sure to show them your institution’s interlibrary loan process. Many students do not realize they can obtain articles through interlibrary loan.

1. Have students pair up in teams of two or three to create a mind map of the concepts in this chapter, starting with one big circle called “Research.” Drawing these maps will illustrate how each concept relates to the overall research paradigm.
2. As a group, have each individual student write down a “burning question” they have about the day’s lecture. Have them crumple the paper up into a ball. Once everyone is ready, allow the students to throw their crumpled balls (with their written questions) to other students to answer. If the receiving student does not know the answer, have them toss the question to another student. This is a fun and kinesthetic way to get students involved in active learning.
3. Ask students to write a summary of the day’s lecture, as though they were explaining the material to a complete novice. Have them turn these in at the end of class, so you as the instructor can get a snapshot assessment of the students’ learning.
4. Think-Pair-Share. Pose some of the following questions to the class, and then break them up into pairs. Have each student think about the question, and then brainstorm an example/application of each question. Finally, ask for a few volunteers to share their insights with the class.
   1. What is research?
   2. Compare and contrast the types of research relationships with an example.
   3. What is the difference between an independent and a dependent variable? Provide an example.
   4. What is the difference between deductive and inductive reasoning? Have each pair toss a coin as to which person will come up with an example of which type of reasoning.
5. The SEE-I activity. Ask students use the SEE-I method of concept learning, using the terms:

* Hypothesis
* Null hypothesis
* Alternative hypothesis
* Variable
* Independent variable
* Dependent variable

Provide the following instructions.

S: State it—Put the definition of a concept into your own words.

E: Elaboration—Expand on your definition, going into greater depth.

E: Example—Come up with an example of the concept that clarifies your definition and elaboration.

I: Illustrate it—Illustrate the concept, either through a metaphor, a story of the concept in use, or even a drawing.

1. Review games: run a review game, where students answer questions for low-stakes prizes. You can use the review questions at the end of the chapter, or create your own. Put the question up on the board (or project it), and ask students to hold up cards lettered a, b, c, or d. Give prizes to those students who are correct. This can also work electronically if you have an i-clicker system available in your classroom.

#### WEB RESOURCES

<http://www.socialresearchmethods.net>

The author’s Web center for social science research methods

<https://explorable.com/what-is-a-literature-review>

A description of the components of a literature review

<https://explorable.com/research-methodology>

A good overview of the concepts and terms employed in this chapter

<http://www.sciencedaily.com/news/health_medicine/psychology/>

A daily Web newspaper that covers trends in psychological research

<http://opl.apa.org/main.aspx>

Online psychology laboratory where real experiments are carried out

<http://faculty.frostburg.edu/mbradley/activities.html>

Activities and quizzes for testing one’s knowledge

<http://teachpsych.org/resources/Documents/otrp/resources/buess10.pdf>

An example research paper that uses many of the terms discussed in this chapter

**WEB RESOURCES FOR “RESEARCH EXPLORATION” ACTIVITY IN MINDTAP:**

MindTap™ for Research Methods: The Essential Knowledge Base, 2e (ISBN: 9781305274525) is an online personalized learning experience built on the text's content. Contact your Cengage Learning Consultant to learn more. If you are using this online platform, the Research Exploration activity in this chapter may be enhanced by incorporating the following link(s) that are relevant to the activity:

<https://www.youtube.com/watch?v=zrzMhU_4m-g>

Deductive vs. Inductive Reasoning – Monty Python Style, a clip from the movie *Monty Python and the Holy Grail* referenced in the activity

#### DISCUSSION QUESTIONS

*All questions are open-ended; responses note important points to keep in mind.*

1. Why is psychological research empirical?

*If the data we collect in our research is not based on things we can measure and base in reality, our conclusions may be flawed or incorrect.*

1. Why does a research endeavor require structure, and why is the approach systematic?

*A research structure is systematic because it gives a road map through which we can ask questions, devise hypotheses to test those questions, and generate knowledge about our world. We can then apply that knowledge to make informed decisions through evidence-based practice.*

1. Suppose two variables are related through a correlation. Does this mean that one variable caused the resulting value of the other? Why or why not?

*Correlation does not equal causation. Most likely, there is a third variable in play.*

#### KEY TERMS

alternative hypothesis

applied research

attribute

basic research

causal

causal relationships

causal studies

cause construct

conclusion validity

construct validity

correlational relationship

cross-sectional study

deductive

dependent variable

descriptive studies

effect construct

empirical

evidence-based practice (EBP)

evolutionary epistemology

exhaustive,

external validity

guideline

hierarchical modeling

hypothesis

hypothetico-deductive model

impact research

implementation and dissemination

research

independent variable

inductive

internal validity

inverse

literature review

longitudinal

meta-analysis

mutually exclusive

negative relationship

null hypothesis

one-tailed hypothesis

operationalization

operationalized

peer review

policy research

positive relationship

probabilistic

quantitative

relational studies

relationship

repeated measures

requests for proposals (RFPs)

research enterprise

research

research question

research synthesis

research-practice continuum

systematic review

The Campbell Collaboration.

The National Library of Medicine

PubMed Tutorial

theoretical

third variable problem

threats to validity

time series

translational research

two-tailed hypothesis

unit of analysis

validity

variable