Chapter 1: Science & Research

I. Introduction
   a. The Social Science Success Story
      i. Science is about the systematic creation of knowledge that provides us with the tools to better understand, predict, and manipulate our social, psychological and physical environment.
      ii. For the last 400 years our lives have been dramatically altered as a result of the increasing progress made through the use of the scientific method. But some critics argue that with the benefits, also come the tragic or inevitable failures.
         1. Social Science Failures
            a. To naively suggest that all of the knowledge produced from scientific exploration has resulted in positive social change is short-sighted. In fact, science has a long history of failures, but unlike other forms of knowledge-acquisition, it employs a procedure known as replication to quickly identify weaknesses or strengths in prevailing research findings.

II. Why Study Research Methods?
   a. It is important to stress that research methods is not simply a list of rules or guidelines that must be followed to ensure objectivity or sound judgment, but rather, an outlook or perspective on the world. Each day, we are bombarded by information and forced to make important decisions that may affect our own lives or the lives of millions of others. Through the use of rigorous observation and the application of scientific tools, individuals can become better consumers of information. A skill that I guarantee will change your life forever. In fact, the empirical reality that you once held so dear, may simply vanish.

III. What is this book about?
   a. This book discusses the ways in which we learn what we know. Ultimately, we live in a world of two realities that play a central role in our understanding of the empirical world.
      i. Experiential Reality
         1. Includes those things we know from direct experience.
      ii. Agreement Reality
         1. Includes those things we consider real because we have been told that they are real, and everyone seems to agree they are real.
   b. The Role of Science Through the Use of the Scientific Method
      i. To provide scientists with a means to objectively observe and collect data that accurately represents the empirical world. The role of science doesn’t just stop there. But that captures the major goal of scientific research. We will touch on this subject a little later.

IV. So What Does 'Social Research Methodology’ Mean Anyway?
   a. To better understand what social research methodology means, let’s take a moment and define what each word means separately.
      i. Social (Social Research)
         1. Social research is a type of research conducted by sociologists, social scientists, and others to seek answers to questions about the social world.
      ii. Research (Scientific Research)
         1. The term research can simply be defined as diligent and systematic inquiry or investigation into a subject in order to discover or revise facts, theories, applications, etc.
      iii. Methods (Research Methods)
         1. Scientific methodology can be easily understood as the mechanics or operations involved in pursuing scientific investigation.
         2. In addition, it also refers to the ideas, rules, techniques, and approaches that the scientific community uses. That sounds great, but why should I employ these methods? To answer this question, let’s review several
epistemological orientations, and then move to a section that describes alternative approaches to understanding our social world.

V. Epistemology: Different Ways of Knowing

a. Epistemology Defined

i. In philosophy, epistemology is the study of knowing, of the basis for knowing and how it is that people come to know what they know.

ii. Epistemology is concerned with various issues about knowing, including:

1. The relationship between the knower and the object of knowledge
2. Variations among different types of knowledge (scientific, spiritual, and so on)
3. The nature of truth
4. The possibility of understanding social life using scientific data alone
5. The possibility of attaining any kind of valid knowledge about anything at all
6. The most valid methods for acquiring different kinds of knowledge
7. The role of reason and the senses in knowing

iii. When it comes to epistemology, there exist several key questions.

1. One is whether you subscribe to the philosophical principles of rationalism or empiricism.

   a. Rationalism versus Empiricism

      i. Rationalism

         1. Is the idea that human beings achieve knowledge because of their capacity to reason.
         2. From the rationalist perspective, there are ‘a priori’ truths, which, if we just prepare our minds adequately, will become evident to us.
         3. From this perspective, progress of the human intellect over centuries has resulted from reason.

      ii. Empiricism

         1. Modern social science has its roots in the empiricists of the French and Scottish Enlightenment.
         2. Empiricism is a philosophical approach based on the idea that the only valid form of knowledge is that which is gathered through the use of the senses.
         3. According to this perspective, if something cannot be observed, then it is of no use in trying to explain natural or other phenomena.

2. Another question is whether you accept the assumptions of the scientific method, often called positivism in the social sciences, or favor the competing method, often referred to as interpretivism (To be discussed in more detail below.).

b. The Development of Social Science

a. Positivism

   i. As developed by Auguste Comte, positivism is a way of thinking based on the assumption that it is possible to observe social life and establish reliable, valid knowledge about how it functions.

   ii. In other words, the practice in which metaphysical speculation is rejected in favor of ‘positive’ knowledge about the empirical world based on systematic observation and experiment.

b. Humanism/Interpretivism

   i. According to humanism, it is up to us to find the truth, not wait for it to be handed to us through revelation, mysticism, tradition, or anything else that is incompatible with the application of logic to the evidence.
ii. In demanding that we avoid blindly accepting unsupported beliefs, it supports scientific skepticism and the scientific method (when examining nonhuman objects), rejecting authoritarianism and extreme skepticism, and rendering faith an unacceptable basis for action.

iii. Likewise, humanism asserts that knowledge of right and wrong is based on our best understanding of our individual and joint interests (i.e., humanity), rather than stemming from a transcendental or arbitrarily local source (i.e., Supreme Being).

iv. Humanists also add that due to the uniqueness of humanity, different methods must be employed to understand fully the social experience. In other words, quoting Protagoras’ (485-410 B.C.) dictum, “man is the measure of all things,” which means that truth is not absolute but is decided by human judgment.

v. Humanism sometimes means a commitment to subjectivity— that is, to using our own feelings, values, and beliefs to achieve insight into the nature of the human experience.

c. Hermeneutics

i. Originally referred to the close study of the Bible. In traditional hermeneutics, it is assumed that the Bible contains truth and that human beings can extract those truths through careful study and exegesis.

ii. As a perspective in the social sciences, hermeneutics challenges mainstream applications of the scientific method because it argues that there is no objective reality “out there” to be understood in a strictly scientific way. Rather, to understand a particular social artifact, we have to examine the context in which it was produced and in which we are now trying to make sense of it.

iii. Furthermore, it is a field of study devoted to the problem of how to give meaning to a cultural product such as a work of art or a piece of writing.

d. Phenomenology

i. Like positivism, phenomenology is a philosophy of knowledge that emphasizes direct observation of phenomena. Unlike positivists, however, phenomenologists, seek to sense reality and to describe it in words, rather than numbers—words that reflect consciousness and perception.

ii. In sociology, this perspective emphasizes the study of the connection between human consciousness and social life, between the shape of social life on the one hand and how people perceive, think, and talk about it on the other.

VII. Alternatives to Social Research

a. For many of you, a great deal of what you know about the empirical world is based on what your parents and others have told you. You also have knowledge gained from personal experience. The books and magazines you have read and the movies and television you have watched also provide you with information. You may also use common sense to learn about the social world. Unfortunately, many of these methods used to gather data about the social world produce inaccurate conclusions. On the other hand, knowledge based on scientific research is more likely to yield accurate results with fewer potential errors. It is important to recognize that research does not always produce accurate information. Nonetheless, compared to alternatives, it is less likely to be flawed. Let us review the alternatives.

i. Authority

1. When you accept something as being true just because someone is in a position of authority says it is true.

2. How do scientists guard against this type of error (Refer to page 6, ‘Norms of the Scientific Community’ for additional information)?

   a. Universalism

      i. Irrespective of who conducts research and regardless of where it was conducted, the research is to be judged only on the basis of scientific merit.

   b. Organized Skepticism

      i. Scientists should not accept new ideas or evidence in a carefree, uncritical manner. Regardless of an individual or institutions notoriety and history.
ii. Tradition
1. When you accept something as being true because “it’s the way things have always been.”
2. How do scientists guard against this type of error?
   a. Organized Skepticism
      i. Scientists should not accept new ideas or evidence in a carefree, uncritical manner. Regardless of an individual or institutions notoriety and history.
   b. Disinterestedness
      i. Scientists must remain neutral, impartial, receptive, and open to unexpected observations or new ideas.

iii. Common Sense
1. When you rely on what everyone knows and what just “makes sense.”
2. How do scientists guard against this type of error?
   a. Organized Skepticism
      i. Scientists should not accept new ideas or evidence in a carefree, uncritical manner. Regardless of an individual or institutions notoriety and history.
   b. Disinterestedness
      i. Scientists must remain neutral, impartial, receptive, and open to unexpected observations or new ideas.

iv. Media Myths
1. Television shows, movies, newspapers, and magazine articles are important sources of information about social life.
2. Unfortunately, the media tends to perpetuate the myths of culture.
3. How do scientists guard against this type of error?
   a. Organized Skepticism
      i. Scientists should not accept new ideas or evidence in a carefree, uncritical manner. Regardless of an individual or institutions notoriety and history.

v. Inaccurate Observation
1. The keystone of inquiry is observation.
2. We can never fully understand how things are without first having observed them and secondly, doing so accurately. Otherwise we may draw conclusions that are in fact incorrect as a result of incomplete or misunderstood information.
3. How do scientists guard against making inaccurate observations?
   a. Active, Conscious, and Structured Observation
      i. In contrast to casual (passive, unconscious, unstructured) human inquiry, scientific observation is a planned activity (active, conscious, structured).

vi. Personal Experience
1. If something happens to you, if you personally see it or experience it, you accept it as true.
2. How do scientists guard against making inaccurate observations?
   a. Sampling
      i. When conducting research, they properly sample the number and type of observations in order to draw data that accurately reflects empirical reality.

vii. Overgeneralization
1. Occurs when you have some evidence that you believe and then assume that it applies to many other situations.
2. How do scientists guard against this type of error?
   a. Sampling
      i. Criminal justice researchers protect themselves against this kind of error by committing themselves to a
sufficiently large sample of observations and by being attentive to how representative those observations are.

b. Replication
   i. Provides another safeguard along with proper sampling.
   ii. Replication means repeating a study, checking to see whether similar results are produced each time.

viii. Selective Observation
   1. Occurs when you take special notice of some people or events and generalize from them.
   2. A problem occurs as a result of our tendency to seek out evidence that confirms what we already know or believe and ignore the range of cases and contradictory information.
   3. How do scientists guard against this type of error?
      a. Sampling
         i. Scientists guard against this type of error by carefully drawing samples from a study population.

ix. Premature Closure
   1. Occurs when you feel you have all the answers and do not need to listen, seek information, or raise questions any longer.
      a. Disinterestedness
         i. Scientists must remain neutral, impartial, receptive, and open to unexpected observations or new ideas.
      b. Replication
         i. Replication means repeating a study, checking to see whether similar results are produced each time.

x. Halo Effect
   1. It comes in many forms, but basically, it states that we over generalize from what we interpret to be highly positive or prestigious.
   2. We often give things or people we respect a halo, or strong reputation.
   3. How do scientists guard against making inaccurate observations?
      a. Universalism
         i. Irrespective of who conducts research and regardless of where it was conducted, the research is to be judged only on the basis of scientific merit.

VIII. The Foundations of Science
a. Pillars of Science
   i. Science is a social institution and a way to produce knowledge.
   ii. The critical factor that separates social research from other ways of knowing about the social world is that it uses a scientific approach.
   iii. In other words, science refers to both a system for producing knowledge and the knowledge produced from that system.
   iv. Science is sometimes characterized as logico-empirical. This ungainly term carries an important message: The pillars of science are:
      1. Logic/Rationality
      2. Observation
b. Theory, not Philosophy or Belief
   i. Social scientific theory has to do with what is, not what should be.
   ii. This means that scientific theory and, more broadly, science itself cannot settle debates regarding values or morality.
   iii. Scientists can only determine “better/worse,” “correct/incorrect,” and so on, if they are given a set of objective standards to measure and apply.
      1. For example, if we could agree that conviction rate (objective standard), say, or average sentence length (objective standard) was a good measure of a prosecutor’s quality, then we would be in a position to measure scientifically whether a prosecutor was better (higher quality) or worse (lower quality) than a prosecutor in another city.
c. Regularities
   i. Ultimately, social scientific theory aims to find patterns of regularity in social life.
   ii. Well, what about the exceptions?
      1. The objection that there always exist exceptions to any social regularity misses the point.
      2. The existence of exceptions does not invalidate the existence of regularities nor the conclusions drawn from them.
      3. Social regularities represent probabilistic patterns, and a general pattern does not have to be reflected in one-hundred percent of the observable cases to still be a pattern.

d. Aggregates, not Individuals
   i. Social scientists study primarily social patterns rather than individual ones.
   ii. Although social scientists study motivations that affect individuals, aggregates are more often the subject of social science research.
   iii. Social scientific theories deal then, typically, with aggregated, not individual, behavior. Their purpose is to explain why aggregated patterns of behavior are so regular even when the individuals who participate in them change over time.

e. Pseudoscience
   i. Is a practice of passing information or knowledge falsely under the guise of science.

f. The Scientific Community
   i. Norms of the Scientific Community
      1. Universalism
         a. Irrespective of who conducts research and regardless of where it was conducted, the research is to be judged only on the basis of scientific merit.
      2. Organized Skepticism
         a. Scientists should not accept new ideas or evidence in a carefree, uncritical manner.
      3. Disinterestedness
         a. Scientists must remain neutral, impartial, receptive, and open to unexpected observations or new ideas.
      4. Communalism
         a. Scientific knowledge must be shared with others; it belongs to everyone.
      5. Honesty
         a. Scientists must maintain complete honesty; dishonesty or cheating in scientific research is a major taboo.

g. Inductive and Deductive Reasoning
   i. Inductive
      1. Inductive reasoning moves from the specific to the general.
      2. In other words it moves from:
         a. Observation (Specific) → Theory (Generalization)
         b. A set of particular observations
c. To the discovery of a pattern that represents some degree of order among all the varied events under examination.
   ii. Deductive
      1. Deductive reasoning moves from the general to the specific.
      2. Unlike induction, it moves from:
         a. Theory (Generalization) → Observation (Specific)
         b. A pattern that might be logically or theoretically expected
         c. To observations that test whether the expected pattern actually occurs in the real world.

IX. Why Conduct Social Research?
   a. People conduct social research for many reasons.
      i. Some want to answer practical questions.
      ii. Others want to make informal decisions.
      iii. Still others want to change society.
Finally, there is the scientific community who seeks to build basic knowledge about our social world.

X. The Creation of Social Science Theory
a. Theory and observation go together in science, but sometimes theory precedes observation (Deductive) and other times observation comes before theory (Inductive).
   i. The Traditional Model of Science (Positivistic, Deductive, and Quantitative)
      1. The three main elements in the traditional model of science, which are typically presented in chronological order or execution, are (To be discussed in more detail later.):
         a. Theory
         b. Operationalization
         c. Observation
   ii. Terms used in Theory Construction (To be discussed in more detail later.)
      1. Objectivity and Subjectivity
      2. Observation
      3. Law
      4. Theory
      5. Concepts
      6. Variables
      7. Statements
      8. Hypotheses
      9. Paradigm

XI. About Numbers and Words: The Qualitative and Quantitative Split
a. Quantitative Data (Positivistic, Deductive)
   i. Data collected by a scientist that is numerical in nature.
      1. Quantitative Research Techniques
         a. Experiments
         b. Surveys
         c. Content Analysis (Falls in both quantitative and qualitative techniques.)
         d. Existing Statistics
   b. Qualitative Data (Interpretive-Phenomenological, Inductive)
      i. Data or information collected scientifically in the form of words, pictures, sounds, visual images, or objects.
      1. Qualitative Research Techniques
         a. Field Research
         b. Historical-Comparative Research
         c. Content Analysis