Strategies for Educational Inquiry

What is Inquiry?

Philosophy & Inquiry

This is not a course in philosophy, rather a course in research design and methods. Methods and designs rest on assumptions about knowledge, causality, and justified inference. Although we will not study the philosophical foundations formally, nonetheless questions that have traditionally interested philosophers will appear at various points throughout the course.

The term “inquiry,” meaning, “search for truth,” appears not infrequently in writings by philosophers but not so often in the work of social science researchers. The earliest known philosophical writings are thought to have been written around 1500 B.C. Then, as now, philosophers wrestled with questions about the nature of existence, knowledge, morality, reason, and purpose or meaning. Teichman and Evans (1999) categorize some of the questions and topics that interest philosophers:

1. Metaphysics
   - Ontology — nature of existence and coming to be
     - What is the nature of places, times, qualities, and events?
     - The existence of God.
     - The existence and identity of persons.
     - What is free will?
     - The existence of evil.
   - Epistemology
     - Can mere humans know absolute truth?
     - How do we know whatever it is we purport to know?
     - How is knowledge related to truth and falsehood, to belief and evidence?

2. Ethics — values
   - Morality and illusion
   - Egoism and altruism
   - Utility and principles
   - Life and death

3. Politics — The state and citizen
   - Authority and anarchy
   - Liberty and freedom
   - Equality
   - Marx and Marxism
   - Politics and feminism

4. Philosophy of science
   - Methods of science
   - Causation
   - Induction
Philosophy & Inquiry

5. Logic — Inference and Argument
   • Syllogistic logic & modern logic
   • Propositional calculus
   • Predicate calculus

6. Meaning of Life

Omitted above is the philosophy of mathematics, of language, of jurisprudence, and of art. Philosophers who deal with ideas related to any of these areas are engaged in inquiry; that is, they are searching for an aspect of truth.

Although the focus of this course is on research methods, we should always keep in mind that methods rest on philosophical assumptions. Based on observational methods, what can humans know and what inferences are justified? We will see various philosophical questions appear throughout the course as we examine the relationship of theory to research, the scientific method, positivism, constructs, operational definitions, qualitative methods, and advocacy research. A major component of learning to critique an empirical report consists of learning to spot the tacit assumptions held by the researchers, and then identifying and evaluating their chain of logic. Students are encouraged to read Teichman and Evans (1999) and Blackburn’s (1999) Think, which reads almost as easily as a novel.

If we were to devote the semester to a philosophical approach to these issues, the outline might look like this:

1. A framework for a philosophical inquiry into social sciences:
   • Ontology
   • Epistemology
   • Methodology
2. Early Rationalists: Plato (metaphysics) and Descartes (doubts)
3. Empiricists: Bacon (inductivism) and Hume (skepticism)
4. Kant: Reconciliation of rationalism and empiricism
5. Logical Positivists: The Vienna Circle presents questions for a unified science
6. Popper (falsifiability) and Kuhn (paradigm shifts)
7. Phenomenology (Husserl, Schutz): Meaningfulness
8. Germans: Habermas, Horkheimer
9. Language: (Wittgenstein, Quine, Winch)
10. Pragmatists: Pierce, James, Dewey
11. Postmodernists: Rorty, Said, Foucault, Lyotard, feminist theories
12. Is social science a viable enterprise?

If you are interested in reading further about these topics and persons, explore the web resources related to “Philosophy” and “Fallacies.”

With this context in mind, let us focus on strategies for educational inquiry. Clearly some areas — such as epistemology, philosophy of science, and logic — are of more related to the study of educational research methods than are the other branches of philosophy.

Introductory research methods courses begin with a discussion of the “nature and ways of knowing,” and the “meaning of ‘research’.” What do we mean when a person claims to know something? What is the relationship of knowledge to truth and falsehood, to belief and evidence? What constitutes belief and what methods of inquiry constitute evidence?
Sources of Knowledge

Humans acquire knowledge from a variety of sources, such as:

- Revelation, divine inspiration, grace
- Authority, tradition, legal precedent, expert opinion
- Inter-personal communications, “common knowledge”
- Logic: deductive and inductive
- Sensory (empirical) observation
- Scientific research (disciplined inquiry)

Research is a combination of empirical observation and logic. The following discussion of research, inquiry, and related terms is based on ideas developed by the philosopher Elizabeth Steiner, formerly at Indiana University. Research can be viewed from several different perspectives:

- As a process conducted by individuals and/or groups,
- As an established body of knowledge,
- As a purposeful procedure for settling doubt,
- As disciplined inquiry,
- As a collection of methods and procedures,
- As a set of assumptions, a belief system about what constitutes evidence.

Research as process & product

The term “research” designates both a process and a product. When we talk about the processes or tasks involved in research we are engaging in descriptive inquiry; that is we are describing the research process. When we discuss the product of research we focus on the specific contribution to knowledge that is the result of research as process.

Inquiry and belief

Inquiry, the search for truth, is a rational process of settling doubt. The settling of doubt leads to the fixating of belief. Belief can be arrived at in other ways, such as through personal experience or appeals to authority.

Disciplined thinking

A rational process is characterized by thinking that is adequately rule-governed or disciplined. The rules for thinking are those set forth in logic. Logic includes syntactics — rules for form (arrangement of thought), semantics — rules for content (significance of thought), and pragmatics — rules for function (activity of thought). When thinking is governed by the rules of logic, it is disciplined.

Research: descriptive & prescriptive

Two kinds of doubt can be distinguished. Doubt about “what-is” and doubt about “what-to-do.” Inquiry aimed at describing “what-is” is descriptive inquiry (i.e., research), while inquiry about “what-to-do” is prescriptive inquiry (i.e., development).
Quantitative descriptions

Quantitative descriptions of what-is (i.e., what-is the actual state of affairs) are general characterizations while qualitative descriptions of what-is are unique characterizations. Quantitative descriptions of what-is can either be factual or theoretical. Factual descriptions are specific instances of members of a class (i.e., a particular sample drawn from a population), and theoretical descriptions are about classes (the population). The term “quantitative” is used because class logic is basic to general characterizations, not because numbers are sometimes involved. Class logic is quantification logic because extension is involved. Terms such as “few,” “some,” and “most” are quantifiers and indicate the scope of the term to which the quantifier is attached.

Quantitative knowledge

Knowledge consists of systems of signs that truly describe what-is. Quantitative knowledge consists of systems of signs that state true general descriptions of what-is. The descriptions are either factual or theoretical.

A widely held impression is that when quantitative knowledge about a particular phenomenon has progressed beyond the natural history stage, it consists not only of description but also of explanations. That is, when investigating any particular phenomenon, the first stage, or natural history stage, is the description of (perhaps unique) states of affairs. This is accomplished by describing the properties and characteristics of the phenomenon. The second stage is explanation, that is, investigating and establishing why a particular state of affairs has a particular property. This is accomplished by relating a particular property to other properties (i.e., relating a dependent variable (or endogenous variable) to one or more independent/predictor variables (or exogenous variables) in the form of a cause-and-effect relationship). The generalizations in the first or natural history stage are descriptions; the generalizations in the second stage are explanations. Note that explanations are descriptions of connections (relationships, associations) between (and among) properties.

Critical feature of research

For an undertaking to qualify as quantitative research, the research process must be a thought activity (i.e., rules of logic) using public methods, applied to public knowledge. Thus, research involves either factual or theoretical descriptive problems and the product of research is an addition to the body of public knowledge.

Secondary functions of quantitative research are diagnosis (explaining why a state of affairs is what it is), and prognosis (predicting what future states of affairs will be). The secondary functions enable design of developing states of affairs and so enable the control of practice.

Coherence and clarity

The syntactic rule (the form) for quantitative research is that the process must be a thought activity that is coherent with past quantitative research and within itself. Coherence cannot be determined unless there is clarity and order in the expression of the thought activity; that is, the signs, whether words or non-word symbols, are precise, non-ambiguous, and are systematized.
Correspondence

The semantic rule (the content) for quantitative research is that the task must be a thought activity that, when expressed as in a research report, sets forth new general descriptions that correspond to experience. Correspondence cannot be determined unless evidence is presented — that is, justification or reasons establishing that the signs express the general character of what-is.

Quantitative research is an evidential process (i.e., methods and procedures) based on observational data to support generalizations.

References


