

3. *Disciplinary perspectives get integrated.* They do not. Only insights into a particular problem get integrated. Two examples from Repko and Szostak (2016) illustrate the point:

- Earth science views planet Earth as a large-scale and highly complex system involving the four subsystems of geosphere, hydrosphere, atmosphere, and biosphere. When this perspective is applied to a particular problem, say damming a river system such as the Columbia, the insight that Earth science may generate (in the form of a scholarly monograph, journal article, or report to a public agency) is that building the system of dams is feasible given the geological characteristics of the Columbia Basin. We can then try to integrate that insight with a biologist's insight regarding the effect of such a dam on fish in the river.
- Sociology views the world as a social reality that includes the range and scope of relationships that exist between people in any given society. When this perspective is applied to a particular problem, say repeated spousal battery, the insight into the problem that sociologists may generate is that it is caused by male unemployment or the desire for patriarchal control. (p. 97)

The Defining Elements of a Discipline

.....

Thus far, we have said that the concept of disciplinary perspective refers to a discipline's view of reality in a general or overall sense. But the concept also refers to those specific elements of a discipline that give it definition and set it apart from other disciplines. A discipline's overall perspective is generated by the interaction among these complementary elements (discussed later). These are called here the **defining elements of a discipline**, which include the phenomena it studies, its epistemology (how one knows what is true and how one validates truth), the assumptions it makes about the natural and human world, its basic concepts, its theories about the causes and behaviors of certain phenomena, its methods (the ways it gathers, applies, and produces new knowledge), and the kind of data it collects. The tendency of disciplinary authors is to privilege a single disciplinary perspective and the elements associated with it (T. Miller et al., 2008, p. 1).

The following discussion provides the most basic information about each of these elements and explains how you will use this information in subsequent chapters. You should know that these elements are typically reflected in the insights that disciplinary authors have published as books or articles in academic journals. Stated differently, the insights produced by a discipline's community of scholars reflects the discipline's defining elements.

Phenomena

Phenomena are the subjects, objects, and behaviors that a discipline considers to fall within its research domain. For example, sociologists are interested in the phenomena of social structure. Second-level phenomena under this broad category include gender, family types, kinship, classes, ethnic/racial divisions, and social ideology. Third-level phenomena include particular family types (i.e., nuclear, extended, single parent, etc.) and occupations (various; Szostak, 2004, p. 29). The disciplines and the phenomena they study are shown in Table 5.4.

Table 5.4 Disciplines and the Phenomena They Study

Category	Discipline	Phenomena
Natural Sciences	Biology	Biological taxonomies of species; the nature, interrelationships, and evolution of living organisms; health; nutrition; disease; fertility
	Chemistry	The periodic table of chemical elements that are the building blocks of matter—their composition, properties, and reactions
	Earth Science	Planet Earth's geologic history, processes, and structures, soil types, topography and land forms, climate patterns, resource availability, water availability, natural disasters
	Mathematics	The logic of numbers, statistics, mathematical modeling, computer simulations, theoretical counterpoint to sensitivity analysis
	Physics	Subatomic particles, the nature of matter and energy and their interactions
Social Sciences	Anthropology	The origins of humanity, the dynamics of cultures worldwide
	Economics/ Business	The economy: total output (price level, unemployment, individual goods and services), income distribution, economic ideology, economic institutions (ownership, production, exchange, trade, finance, labor relations, organizations), the impact of economic policies on individuals

Category	Discipline	Phenomena
	Political Science	The nature and practice of systems of government and of individuals and groups pursuing power within those systems
	Psychology	The nature of human behavior as well as the internal (psychosocial) and external (environmental) factors that affect this behavior
	Sociology	The social nature of societies and of human interactions within them
Humanities	Art and Art History	Nonreproducible art—painting, sculpture, architecture, prose, poetry—and reproducible art— theater, film, photography, music, dance
	History	The people, events, and movements of human civilizations past and present
	Literature (English)	Development and examination (i.e., both traditional literary analysis and theory as well as more contemporary culture-based contextualism and critique) of creative works of the written word
	Music and Music Education	Development, performance, and examination (i.e., both traditional musicological analysis and theory as well as more contemporary culture-based contextualism and critique) of creative works of sound
	Philosophy	The search for wisdom through contemplation and reason using abstract thought
	Religious Studies	The phenomena of humans as religious beings and the manifestations of religious belief such as symbols, institutions, doctrines, and practices
Fine and Performing Arts	Art	Creation and transmission of original nonreproducible and reproducible art. Artifacts reflect on culture, beliefs, values, and ideas.
	Dance	Performance of movement that physicalizes the imagination, drawing on ritual, emotions, and stories (inclusive of theories on choreographic composition)
	Music	Development and production of sound delivered via a particular rate, pattern, and flow (utilizing elements of tone, harmony, rhythm, and melody, artifacts can be either representational or nonrepresentational and can be both formal and informal)

(Continued)

Table 5.4 (Continued)

Category	Discipline	Phenomena
	Theater	Development and examination of creative storytelling via live performance (includes production of both scripted and unscripted events performed for a live audience)
Applied Fields	Criminal Justice	The phenomena of social deviance in all of its manifestations, its causes, costs, and the social, political, and legal systems that deal with it
	Communication	The process of communication whether among individuals or to large numbers of people
Professions	Education	How we learn and internal and external factors that influence learning
	Law	The laws that exist and how these are interpreted; principles of legal systems
	Medicine	The human body, with particular attention to disease and injury, and how these can be ameliorated through medical intervention.

Source: Adapted from Repko and Szostak (2016), *Interdisciplinary Research: Process and Theory* (2nd. ed.). SAGE Publishing, and Szostak, R. (2004). *Classifying science: Phenomena, data, theory, method, practice*. Dordrecht: Springer. pp. 26–29, 45–50.

You will use this information to

- Identify disciplines that may be interested in a particular complex problem (for example, the disciplines potentially relevant to the issue of deviant lifestyles include criminal justice, sociology, psychology, economics, political science, cultural anthropology, history, and education)
- Connect each part of a particular complex problem to the disciplines that typically deal with that part
- Detect in the work of others missed opportunities to develop a more comprehensive understanding of a complex issue because the author consulted only a few disciplines, leaving parts of the issue unexamined

Epistemology

Epistemology is the study of the nature and basis of knowledge. It answers questions such as the following: What is the nature of knowledge? How can

I know what I know? What is truth? How much can we know? (Marsh & Furlong, 2002, pp. 18–19). Different disciplines embrace different epistemologies or theories of knowledge. Each discipline has a different conception of what constitutes knowledge, how it is produced, and how it should be applied (Rescher, 2003). Each discipline's epistemology is its way of knowing the part of reality that it considers within its research domain (Elliott, 2002, p. 85). Understanding the epistemological positions of the disciplines you are working in and developing your own epistemological positions (or preferences) are key aspects of what it means to be educated. To this end, Table 5.5 presents the three overall epistemologies that characterize disciplinary researchers in the natural sciences, social sciences, and humanities. These summaries are idealized and debatable and do not include the more detailed and nuanced descriptions of each discipline's epistemology presented in Table 5.6. Within any disciplinary approach, there is some scope for individual deviation.

Epistemologies of the Natural Sciences The epistemologies of the natural sciences are empiricist (see Table 5.6). **Empiricism** holds that all knowledge is derived from our perceptions (transmitted by the five senses of touch, smell, taste, hearing, and sight), experience, and observation. Empiricism, the “ruling ‘ideology’ of science,” assures us that observation and experimentation make scientific explanations credible and the predictive power of its theories ever increasing (Rosenberg, 2000, p. 146). However, the epistemologies of the natural sciences make scientific approaches inadequate for addressing *value* issues (Kelly, 1996, p. 95). As noted in Table 5.5, natural scientists typically embrace the notion that nature and knowledge are mechanistic, that knowledge is objective and replicable, and that knowledge

Table 5.5 Epistemologies of the Natural Sciences, Social Sciences, and Humanities

Knowledge as Mechanistic	Knowledge as Contingent	Knowledge as Narrative
“Believed to be objective, replicable. Knowledge acquired via the ‘scientific method’; is sought to demonstrate causality and allow for predication.”	Importance of agent and context. Knowledge seeks causality; relies on behavior, variability, and relation to socially held norms.	Interpretive and critical. Knowledge is inherent to object and represents values that may be shared or individually held.
Nature as mechanistic	Nature as a complex adaptive system	Nature as constructed

Source: Miller, T. R., Baird, T. D., Littlefield, C. M., Kofinas, G., Chapin III, F. S., & Redman, C. L. (2008). Epistemological pluralism: Reorganizing interdisciplinary research. *Ecology and Society*, 13(2), 1–17.

Table 5.6 Epistemologies of the Natural Sciences

Discipline	Epistemology
Biology	Biology stresses the value of classification and experimental control. The latter is the means of identifying true causes, and which therefore privileges experimental methods (because they are replicable) over all other methods of obtaining information (Magnus, 2000, p. 115).
Chemistry	Chemists use both empirics and theory (especially thermodynamics). Even more than physics, chemistry relies on lab experiments, data collection in the field, and computer simulations. Chemistry involves less fieldwork than Earth science and biology do.
Earth Science	In much of Earth science, the theory of uniformitarianism is used. Since geologists are concerned about the history of the Earth but can't directly observe it, they accept that natural laws and processes have not changed over time (L. Standlee, personal communication, April 2005). Geologists stress the value of field work.
Mathematics	Mathematical truths are numerical abstractions that are discovered through logic and reasoning. These truths exist independently of our ability or lack of ability to find them, and they do not change. These truths or forms of "invariance" enable us to categorize, organize, and give structure to the world. These mathematical structures—"geometric images and spaces, or the linguistic/algebraic expressions"—are "grounded on key regularities of the world or what we 'see' in the world" (Longo, 2002, p. 434).
Physics	Like all the physical sciences, physics is empirical, rational, and experimental. It seeks to discover truths or laws about two related and observable concepts—matter and energy—by acquiring objective and measurable information about them (Taffel, 1992, pp. 1, 5).

Source: Repko & Szostak (2016). *Interdisciplinary Research: Process and Theory* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc. p. 47.

is acquired via the "scientific method," which seeks to demonstrate causality and allow for prediction. Truth, then, is that which is scientifically verifiable.

Epistemologies of the Social Sciences The disciplines in the social or human sciences, more so than in the natural sciences, tend to embrace more than one epistemology, as shown in Table 5.7. For example, reflecting the growing postmodernist criticism of empiricism and value neutrality, most social scientists now agree that knowledge in their disciplines is generated by the "continual interplay of personal experience, values, theories, hypotheses, and logical models, as well as empirical evidence generated by a variety of methodological approaches" (Calhoun, 2002, p. 373).

Table 5.7 Epistemologies of the Social Sciences

Discipline	Epistemology
Anthropology	Epistemological pluralism characterizes anthropology. Empiricists hold that people learn their values and that their values are therefore relative to their culture. The rationalist notion is that there are universal truths about right and wrong. Both physical and cultural anthropologists embrace constructivism, which holds that human knowledge is shaped by the social and cultural context in which it is formed and is not solely a reflection of reality (Bernard, 2002, pp. 3–4).
Economics/Business	Economics is the last bastion of logical positivism in the social sciences. Most economists believe in the primacy of empirical evidence and the use of mathematical theories that dominate their models. As empiricists, they stress fixed definitions of words, use a deductive method, and examine a small set of variables (Dow, 2001, p. 63). Even so, postmodernism is making inroads in the discipline with its pluralistic understanding of reality. Postmodernists see reality, and the self, as fragmented. Therefore, human understanding of reality is also fragmented.
Political Science	Political science embraces a rationalist epistemology. However, logical positivists in the discipline are trying to cast the “science” of politics in terms of finding some set of “covering laws” so strong that even a single counterexample would suffice to falsify them. But human beings, according to others in the discipline, while they are undeniably subject to certain external forces, are also in part intentional actors, capable of cognition and of acting on the basis of it. Consequently, these scholars study “belief,” “purpose,” “intention,” and “meaning” as potentially crucial elements in explaining the political actions of humans (Goodin & Klingerman, 1996, pp. 9–10).
Psychology	The epistemology of psychology is that psychological constructs and their interrelationships can be inferred through discussion and observation and applied to treatment (clinical) or a series of experiments with slight variations (experimental). A critical ingredient of a good experiment is experimental control that seeks to eliminate extraneous factors that might affect the outcome of the study (Leary, 2004, p. 208).
Sociology	Modernist (i.e., positivist) sociology shares a rationalist epistemology with the other social sciences, but this epistemology is opposed by critical social theory, a theory cluster that includes Marxism, critical theory, feminist theory, postmodernism, multiculturalism, and cultural studies. What unites these approaches in the most general sense is their assumption that knowledge is socially constructed and that knowledge exists in history that can change the course of history if properly applied (Agger, 1998, pp. 1–13).

Source: Repko & Szostak (2016). *Interdisciplinary Research: Process and Theory* (3rd ed.). Thousand Oaks, CA: SAGE Publications, Inc. p 47.

Assumptions

Assumptions are things that are accepted as true or certain. “All areas of academic study are constructed on assumptions regarding what scholars regard as legitimate knowledge” (Brookfield, 2012, p. 28). Assumptions mostly reflect epistemology but capture elements of ethics, metaphysics, and ideology when these are particularly important. With respect to ethics, disciplines differ in terms of whether they think ethical considerations can or should influence research. You should be wary of supposedly neutral arguments regarding issues such as euthanasia where ethical positions can easily influence research outcomes. Epistemological positions will reflect metaphysical positions. For instance, those who build mathematical models must believe that there is regularity in the interactions they posit. As for ideology, certain disciplines are typically more skeptical of the exercise of governmental power than are others.

Each discipline makes its own assumptions about the natural and human worlds. Grasping the underlying assumptions of categories of disciplines (i.e., the natural sciences, the social sciences, and the humanities) and then of each discipline in each category provides important clues to the assumptions underlying a discipline’s insights into a particular problem.

Assumptions of the Natural Sciences There are at least seven basic assumptions of the natural sciences:

1. Nature is orderly.
2. We can know nature.
3. All natural phenomena have natural causes.
4. Knowledge is based on experience.
5. Knowledge is superior to belief unsupported by empirical evidence (Frankfort-Nachmias & Nachmias, 2008, pp. 5–6).
6. Scientists can transcend their cultural experience and make definitive measurements of phenomena (i.e., things).
7. “There are no supernatural or other a priori properties of nature that cannot potentially be measured” (Maurer, 2004, pp. 19–20).

Assumptions of the Social Sciences The social sciences assume that there is some order to society (Frankfort-Nachmias & Nachmias, 2008, p. 5). This assumption surfaces in a popular textbook on behavioral research methods (used in psychology, communications, human development, education, marketing, and

social work) when it says, “Data obtained through systematic empiricism allow researchers to draw more confident conclusions than they can draw from casual observation alone” (Leary, 2004, p. 9). Social science assumptions differ from those of the natural sciences because of key differences between the phenomena each studies. The natural sciences study the natural world whose behavior is fixed or governed by instinct or evolution, whereas the social sciences study the world of sentient, willful humans who imagine future and alternative states to the world as it currently is and change their patterns of behavior in light of anticipated or desired futures as well as present realities.

Assumptions of the Humanities Since the humanities also focus on the world of humans, they share many of the assumptions of the social sciences. Table 5.9 contrasts the assumptions of the “new humanities” with older modernist assumptions. The new humanities, says Klein (2010),

Table 5.9 Assumptions of Disciplines in the Humanities

Discipline	Assumptions
Art and Art History	Modernists assume that the intrinsic value of the object is primary. Radical art historians—i.e., Marxist, feminist, psychoanalytical, and poststructuralist—“share a broad historical materialism” of outlook: that all social institutions, such as education, politics, and the media, are exploitative and that “exploitation extends to social relations, based, for instance, on factors of gender, race, and sexual preference” (Harris, 2001, p. 264). In general, these critics assume that intrinsic values remain primary, but understanding the social context completes one’s grasp of the work (p. 264). ^a
History	Modernist (positivist and historicist) historical scholarship rests on the idea that objectivity in historical research is possible and preferred (Iggers, 1997, p. 9). In general, social history (e.g., Marxian socioeconomic history, the Braudelian method, women’s history, African American history, and ethnic history) assumes that those whom traditional history writing had ignored (the poor, the working class, women, homosexuals, minorities, the sick) played an important but unappreciated role in historical change (Howell & Prevenier, 2001, p. 113).
Literature	Literature (broadly defined) or “texts” are assumed to be a lens for understanding life in a culture and an instrument that can be used to understand human experience in all of its complexity. Texts “encompass the continuous substance of all human signifying activities” (Marshall, 1992, p. 162). Another assumption is that these texts are “alien” to the reader, meaning that “something in the text or in our distance from it in time and place makes it obscure.” The interpreter’s task is to make the text “speak” by “reading” the text using extremely complex skills so as to give the text “meaning.” Meaning is “an intricate and historically situated social process” that occurs between the interpreter and audience (i.e., reader) that neither fully controls (pp. 159, 165–166).

(Continued)