Modernist Epistemology

Describing what psychology tells us about a minority group like Asian Americans commonly takes the form of summarizing characterizations produced by various psychological studies (e.g., L. Lee & Zane, 1998; Sue & Morishima, 1982; Uba, 1994a). However, to judge those characterizations, consideration must be given to how they are circumscribed by underlying ontological and epistemological assumptions and interpretive practices that psychology, as a social science, shares with other sciences.

Modern Epistemology and Science

Psychology-as-a-science grew from Western philosophy; therefore a brief reminder of science's philosophical roots provides an ontological and epistemological framework for analyzing psychological characterizations and the extent to which science's assumptions are appropriate for psychology.[1] A review of the centuries-long goal of discovering the foundations of reality, epistemology's move from a theological to a secular center, the promise of rationality, and the possibility of scientific knowledge lays the groundwork for a discussion of key metaphysical assumptions.

Assuming that the most basic characteristics of reality[2] are unchanging, Western scholars have long sought constant metaphysical truths and transcendent meanings beyond the particular. They have searched for ultimate, indivisible, fundamental, or absolute entities, laws, or powers that, while requiring no explanation of themselves, are foundations for other explanations (Slife & Williams, 1995).

In the Middle Ages when transcendent knowledge (of what is beyond direct experience) was regarded as God's sole province and an aspect of

God's essence, scholarly investigations and explanations were grounded in theology. However, fifteenth- and sixteenth-century humanism, marking a return to the pre-Christian standard of people[3] as the measure of all, set the stage for human-focused science; and the Reformation's argument for direct communication between an individual and God elevated the role of the individual to truth-finder with access to foundations. As the secular, intellectual activity of individuals challenged the imposed conclusions of theological and papal authorities, the medieval metaphysics, distinguishing between God and world, was displaced by a modern ontology, dividing existence into the human mind and the world external to it (Faulconer & Williams, 1990b; Polanyi, 1946/1964).

In addition to outlooks growing from the Reformation, changes in European society during the Renaissance, and Scientific, Industrial, and French Revolutions, along with concomitant faith in the social promise of human rationality, prompted the elevation of human understanding. The concurrence of heightened rationalism and modern prosperity seemed to justify the linkage of rationality, truth, and progress (Racevskis, 1993). The Biblical claim that "man" was created in God's image, coupled with *Genesis'* granting of dominion to Adam, was read to mean that humans are almost godly in their dominion. Whereas at one time, Christians and Islamics searched for intellectual coherence in depictions of reality that glorified and enhanced appreciation for God's creation of nature, the Scientific Revolution spurred a practical agenda for scholars with goals formerly thought to be solely God's prerogatives—control, prediction, and explanation—which are sustaining goals in psychology (Manicas, 1987; Toulmin, 1990).

By combining Cartesian doubt with Lockean empiricism and waving away both theology and philosophy as the sources of answers to their questions (Polkinghorne, 1983), Enlightenment scientists advocated Baconian scientific knowledge gained by using reasoning and carefully measured observations to test explanations against evidence. Knowledge gained in this way would be characterized in a way that formerly distinguished the divine: constant, absolute, and transcendent (Faulconer & Williams, 1990b). In what I refer to as the "modernist science" that grew out of such metaphysical assumptions and epistemological movements, judgments about intellectual conclusions would hinge on how those conclusions were achieved (Toulmin, 1972).

Positivism, a combination of mathematical logic, inductive principles, and (David) Humean empiricism laid out in Auguste Comté's (1798–1857) *Positive Philosophy* and John Stuart Mill's (1806–1873) *System of Logic*, was a set of principles defining the scientific method and epitomizing modernist science (Barrett, 1967). Positivists believed that following those principles would lead to certain, logical knowledge and general conclusions. However,

many scholars, including Comté, Mill, and the Vienna Circle of linguistic philosophers, denied that psychology could be a science (Manicas, 1987; E. Nagel, 1979; Robinson, 1976; Slife & Williams, 1995). The latter, for example, declared that all true sciences must explain in terms of formal deduction from a general law and a set of conditions, which was a standard psychology could not meet (Polkinghorne, 1988).

Nevertheless, reflecting the scientistic belief that any field of inquiry can produce objective knowledge by using scientific research methods (Spretnak, 1997), psychology developed from the belief that following scientific procedures would reveal foundational, metaphysical truths about human behaviors and their meanings. While linked to philosophy in Germany, it labeled itself an empirical science in the United States in the years before and following World War I. As psychology became increasingly an American endeavor, it was increasingly defined by its empiricism (Manicas, 1987): Highly controlled studies came to be regarded as the most legitimate way to collect data. In arguments over whether psychology was a positivist endeavor or a nonscience, proponents of the latter position did not promote a coherent alternative and positivism established its discursive hegemony in psychology.

Partly due to the belief that all sciences should use the same hypothetical-deductive methods and partly born of a desire to have the cachet of science,[4] psychology has modeled itself after physics (Faulconer & Williams, 1990b; Kockelmans, 1990). However, to the extent that physical and natural sciences' assumptions about "the nature of truth and the world . . . are not true of the human world and of human phenomena, then the scientific methods based on those assumptions [might] not be appropriate for studying people" (Slife & Williams, 1995, p. 175).

There is neither a logical nor an empirical reason for assuming that methods used in one disciplinary domain or level of analysis should necessarily be appropriate for another. Hypothetical-deductive methods, for instance, have not worked equally well in all sciences (Kockelmans, 1990). Some sciences, such as astrophysics, still produce well-grounded interpretations without being primarily experimental sciences; like most other scholars before the eighteenth century, Isaac Newton relied predominantly on reason (Robinson, 1976). Nevertheless, psychology has insisted on being an experimental science and has primarily used the null-hypothesis-testing technique of the physical and medical sciences. (See Appendix A for a brief summary of psychological research methods.)

The scientific assumptions and methods underlying those sciences gained credence because they were useful in battles against dogmatism and research based on them undeniably provided technological and medical advances; but more than a century of psychology has neither identified comparably precise regularities nor produced comparable levels of control,

prediction, and understanding. At most, psychology has found intriguing patterns with multiple exceptions (Richardson & Fowers, 1998). Yet it has continued with the premises of modernist science and so I refer to it as "modernist psychology."

Modernist Scientific Assumptions

As groundwork for this chapter's analysis of the appropriateness of modernist assumptions for psychology, consider the metaphysical ideas psychology has appropriated by molding itself to modernist science's positivist standards and first premises, which still form psychology's bedrock. Four of the key ontological and epistemological premises have been: knowledge reflects the unadulterated imprint of reality; the reality studied by scientists is stable and ordered by laws; parsimonious explanations are best; and the scientific method provides an accurate, objective foundation for knowledge.

The Unadulterated Imprint of Reality

Growing out of the medieval view that the metaphysical world is of timelessness, God, and things rather than perceptions was an assumption about reality and the nature of things in the world (Barrett, 1967). That assumption, the *metaphysics of things*, holds that things are constituted of inherent "qualities, properties, or categories [that] either directly or indirectly determine what the things are" (Williams, 1990, p. 145): Those properties and relationships among them presumably exist independently of any human understanding and determine meaning and knowledge (Spretnak, 1997).

A twin assumption is modernist science's *correspondence theory of truth*: In keeping with the Aristotelian notion that reality is apprehended (i.e., directly understood for what it is without interference), this theory holds that knowledge or truth is found when concepts correspond to what exists "out there" in an objectively knowable reality that is ontologically independent of our creation of it (Manicas, 1987). Much as a signet ring imprints wax, reality allegedly stamps understanding of the world on the mind. Accordingly, knowledgeable people are those who have accurate representations of the world in their minds, molded "and 'enformed' by reality through . . . careful observation and reason" (Faulconer & Williams, 1990b, p. 16).

Based partly on the Newtonian belief that rational laws governed reality, modernist science has held that the world and the relationships among things in it are rational. Therefore, reasoning about empirical data is thought to allow access to knowledge of the material world in its sense-transcendent forms—as concepts, qualities, properties, meanings, categories, and regularities.

Reality is Lawful, Orderly, and Stable

Tied to characterizations of the world as rational is a second key metaphysical assumption, modernist science's belief that reality is characterized by an ultimate order and stability which has, at its seed, logically deducible principles (Faulconer & Williams, 1990b; Polkinghorne, 1990; Toulmin, 1972). The belief in order was epistemologically descended from the medieval view that God created a stable, orderly, hierarchical nature running according to divine and, Aristotle and St. Thomas Aquinas added, unchanging principles.[5] A desire for order and stability was further piqued during the religious wars of the Reformation.

Whereas medieval human experience was explained primarily by one's relationship to God or temporal manifestations of divine truth (Cahill, 1998), by the late seventeenth century some Enlightenment scholars thought that human behaviors, like the movement of planets and other aspects of the natural world, should be understood in terms of transcendent, enduring, universal, underlying governing laws (Polkinghorne, 1988, 1990).[6] This view was bolstered by René Descartes' argument that the basis for knowledge was in the timeless and abstract rather than in the particular, timely, and concrete (Toulmin, 1990). Phenomena, then, were regarded as manifestations or instances of those ultimate, self-evident, indubitable, timeless, noumenal, abstract foundations or first principles (Cassirer, 1951; Toulmin, 1990); those organizing principles purportedly account for the conditions under which events occur and the relationships between apparently disparate events or conditions (E. Nagel, 1979). Consequently, Carl Hempel, the father of a radically empiricist brand of positivism, logical positivism, tempered science's charge by arguing that the goal was to find those covering laws—broad, if not universal, relationships among variables, empirical laws, or regularities that explain a wide range of phenomena and the conditions that support or limit the appearance of regularities (Barrett, 1967; Kockelmans, 1990; Slife & Williams, 1995).

Accordingly, psychology tried to discover expected, causal and necessary relationships arising from lawful, consistent properties and relations (R. Williams, 1990). Today, however, it focuses more on regularities than on universal truths, in part because of its lack of success in discovering the latter.[7]

Parsimonious Explanations are Best

Contributing to the predilection toward claiming the discovery of orderly regularities, a third metaphysical assumption of modernist science has been Ockham's Razor, named after William of Ockham (c. 1290–1349), and later reformulated by Newton in Book III of *Principia* and as C. Lloyd Morgan's

(1852–1936) Law of Parsimony. That rule states that the best explanations are those that require the fewest hypothetical constructs, assumptions, structures, or forces. Not surprisingly, the frequent result of following this rule has been that after a series of studies, researchers concede that "The role of [some variable, X] is much more complex than previously conceived" (e.g., Lien, 1994, p. 237).

The reductionism that has resulted is particularly unsatisfying in psychology, perhaps because people normally perceive so much uniqueness, complexity, and ambiguity in human behavior. Explaining a pebble falling from a cliff in terms of gravity, for example, is often considered adequate but such an explanation for a person falling from the cliff would not because gravity would not provide enough useful information or be sufficiently intelligible (Bauman, 1978). It would fail at a task shared by myth and science—producing descriptions and explanations that help people make sense of themselves and the world (Madison, 1988).

Scientific Method Provides Objective Foundations

A fourth key premise of modernist science concerns how the scientific method itself is regarded. Although it is a type of theory designed by philosophers and predicated on ontological and epistemological assumptions, such as beliefs about what constitutes knowledge and what empirical data mean (Slife & Williams, 1995), the scientific method has been treated as a single, unchanging, authoritative system of ideas. That system is characterized as fixed principles of universal rationality and impartial methods that provide more accurate and sophisticated representations of a rationally structured, internally consistent reality than can ordinarily be achieved (Polanyi, 1946/1964; Spretnak, 1997; Toulmin, 1972).

More specifically, the scientific method is purportedly a timeless, rational, systematic, dispassionate, and value-free way by which scientists can objectively observe events, experiences, and behaviors without affecting what is observed (Gergen, Gulerce, Lock, & Misra, 1996; Hollinger, 1994). It is thus distinguished from the subjective—which has been branded irrational, biased, and self-indulgent—and from other ways of knowing that are self-conscious of the role of human perspective in the construction of knowledge (Keller, 1985). The scientific method, modernist science claims, enables scientists to access reality's ontological foundations and produce unalloyed, unadulterated, apodictic knowledge—the absolute, objective, infallible, foundational knowledge philosophers sought for centuries.

To summarize, one of the key assumptions of modernist science has been the idea that knowledge is produced when the mind apprehends properties or meanings "out there" in the world: Meanings are inherent in stimuli

and independent of knowers who simply discover those meanings. Other key premises have included the belief that the world is composed of stable and transcendent structural foundations, notably universal laws and regularities, which can be discovered and objectively known by using the scientific method. By employing parsimonious explanations and the scientific method, scientists presumably can access the highest form of knowledge.

Psychology clings to a self-ascribed identity as a science and uses that identity to give its research findings heft. However, judging psychological "facts" and interpretations based on whether they were produced in a way congruent with an a priori definition of science is arbitrary and authoritarian (Feyerabend, 1970). Has the scientific method, like Bacon's idols (e.g., tradition and habitual ways of thinking), been undeservedly "worshiped and endowed with authority" (Slife & Williams, 1995, p. 171)?

Problems Modernist Science's Metaphysical and Epistemological Assumptions Present

The long-standing, self-satisfying, convenient tendency to view contemporary perspectives as the rational, natural, and mature efflorescence toward which the history of ideas has been headed all along encourages the belief that the current framework is the most apt (Robinson, 1976). But are modernist assumptions appropriate for social sciences?

The appropriateness of psychology modeling itself as a modernist science can be judged by analyzing and evaluating modernist assumptions and comparing those assumptions and corresponding methods with psychological concerns. Do they fit? Reconsidering the four, aforementioned assumptions of modernist science reveals flaws in modernist metaphysics and ways in which modernist science is an inappropriate model for psychology.

The Meaning of Facts

The epistemological appropriateness of the modernist science model can be evaluated in terms of how modernist science views facts, or the relationship between reality and knowledge. Notwithstanding the correspondence theory of truth's implication that facts speak for themselves, "simply there for everyone to see . . . somehow fully transparent to the attentive mind, indubitably given" (Schrag, 1990, p. 66), data themselves cannot be the firm foundation of objective knowledge. Observation and experimentation alone only provide sensory data.

The interpretation of data determines their meaning. That is, data have meaning and are considered to be "facts" only when they are interpreted

(e.g., described and classified) and assessed based on nondata, such as ontological, epistemological, and methodological presuppositions or criteria, including research goals, reason, and purported value neutrality (Schrag, 1990; Slife & Williams, 1995; Zelditch, 1992). Consequently, any demonstrated "fact" is already laden with interpretation, such as decisions about whether a description or interpretation constitutes a fact (Glynn, 1990). Knowledge is constructed in the context of assumptions.

The logical fallacy of affirming the consequent supports the misimpression that empirical methods alone can tell us the meaning of facts: Researchers create a hypothesis, test it, and if the results are in keeping with the hypothesis, the reasoning behind the hypothesis is said to be confirmed. Empiricist epistemology has led to the belief that "if we can demonstrate something we believe, . . . there must be something true about the way we are thinking" (Slife & Williams, 1995, p. 196). However, empirical methods can only ascertain whether interpretations of data, events, or behaviors are consistent with a point of view, a prediction, or suppositions; they cannot prove which interpretation is correct and what reality is.

Scientific "facts" are considered "simply facts" only in the context of exclusionary, normalized, taken-for-granted scientific practices and thinking habits (Schrag, 1990). For example, according to modernist science's referential, representational theory of meanings, language—whether used to refer to concepts; characterize people, situations, events or relationships; or describe behaviors, attitudes, and experiences—is a neutral, shared, unproblematic, unobtrusive, clear way of communicating (Keller, 1985; Polkinghorne, 1990): Words have a fixed, reflective relationship to the world and sensations (Faulconer & Williams, 1990a). As misinterpretations demonstrate, however, words and other signs such as symbols and gestures, do not have unambiguous, fixed meanings. Even when asking a factual question, researchers cannot be sure of the meaning of a respondent's answers without investigation. To illustrate, a Vietnamese American recalled:

> I was in the sixth grade when this boy asked if I wanted to "go steady." I told him the only way we would have a relationship was if it were "secret" one. He wasn't sure exactly what that meant and neither did I but I guess it was a pretty well kept secret because from that day on we never spoke again.

Researchers would probably misinterpret an affirmative response to a questionnaire item asking whether she had gone steady. By failing to appreciate the role of language in the understanding of behavior, psychology in general has not closely scrutinized its commitment to the metaphysics of things (R. Williams, 1990).

The ambiguity presented by language points to a broader issue: Data can always be interpreted in different ways, so knowledge is eternally provisional and uncertain (Polanyi, 1946/1964). No word about the world is last or final; and all statements of meaning must be tentative (Faulconer & Williams, 1990b).

Nevertheless, the multiplicity and instability of meanings have not been widely examined in part because, as a social institution, psychology limits whose meanings are considered. The researchers' voice is typically amplified over that of the respondents studied; so in effect, researchers are placed in an echo chamber that drowns out the tautological nature of what they "find" or, more accurately, "produce." Scholarly interpretations in terms of underlying structures, for instance, are regarded as evidence of the reality of the structure; the failure of others to perceive those structures is treated as evidence that the structures are hidden. Researchers create explanations in terms of transcendent, deterministic regularities they assumed when they ran their statistical analysis (Slife & Williams, 1995).

More basically, modernist psychological explanations have at their foundations mismatches between psychology's metaphysical assumptions and its concerns, between its methods and its subjects, and between the types of interpretations modernist science expects and the findings psychology produces. They are based on the belief that objectivist interpretations predicated on modernist ontology apply to psychological events and concerns. That modernist world view has been that there are two separate worlds: one objective, beyond experience, functioning according to universal laws, and existing independently of people; and the other subjective, including people's thoughts, feelings, consciousness, and motivations (Bevan, 1991).[8] Although psychology's area of interest is largely the latter, scientism has led to its adoption of a scientific method designed to uncover the former.

The result has been that psychology has narrowed and distorted its subject of interest to fit modernist scientific parameters and transformed psychological facts into events with objectified meaning. The Enlightenment model of science held that primary qualities, such as number, can be known, whereas secondary qualities, such as experiences of color or sound, are too tainted by subjectivity to be known scientifically. Accepting this epistemology, psychology concentrates on primary qualities or, by using operational definitions,[9] tries to transform secondary into primary qualities.

When applied to psychology, the modernist subject-object ontology of the physical sciences inadequately reflects the effects of the interrelationship between the subject and object for the meaning of facts. "Because the realm of meaning exists in a different ontological mode from the physical reality through which it can be represented, we cannot know it using the same procedures we use to know the physical realm" (Polkinghorne, 1988, p. 159).

Even more than in physical sciences, psychology's realm of reality does not have objective meaning that researchers can simply pluck from events because of the role meaning, consciousness, and communication play in human affairs. For example, readings of context affect ascribed meanings. A seventeenth-century atom would presumably behave the same way as a twenty-first century one, but the same cannot be said of people: Human behaviors are vitally embedded in and creating historical, cultural, political, interpersonal, phenomenological contexts in ways that atoms are not. Claims of detachment pull a shade over the contingency of meanings, conditions, and perspectives (Racevskis, 1993). Understanding human behaviors requires appreciation for how they are situated in a realm that emerges from interaction rather than researcher-imposed, a priori meaning.

Accompanying the mismatch between physical and social sciences' ontological realms has been a mismatch between the goals for which the scientific method was established and psychology's goals. From Descartes to Kant, science's concern was presumably to uncover causally determined objects, processes, and mechanisms. However, instead of being causally determined, human consciousness, thought, behavior, and experience are, to a great degree, "intentional, purposive, free, temporal, historical, and reflexive" (Kockelmans, 1990, p. 79; Toulmin, 1990). Indeed, the meanings of human behaviors frequently relate to the fact that the behaviors did not have to occur and that other behavior options were available, but not chosen (Slife & Williams, 1995). Whereas modernist social science often tries to demonstrate causation, most behaviors are not triggered by causal stimulus conditions but by meanings ascribed to stimuli. Although people are situated in a meaning realm, social science usually does not directly study the meanings people ascribe, often relies on decontextualized questionnaires and selectively simplified notions of context, and underappreciates demand characteristics, a study's situational features that push people toward particular behaviors.

Modernist methods continue to "impose meaning on data in an a posteriori fashion, leading away from direct investigation of human experience and its meaning" (R. Williams, 1990, p. 144). By holding that all meaningful problems are empirical and casting off any metaphysical considerations as twaddle with no place in psychology, positivism denies the humanity behind behavior (Manicas, 1987; Polanyi, 1946/1964; Popper, 1968; R. Williams, 1990).

For such reasons, between 1890 and 1920, Wilhelm Dithy, Wilhelm Wundt, Edmund Husserl, Max Weber, and William James led a backlash against positivism and asserted that modernist science ignored meaningful experiences and belief systems that distinguish humans (Polkinghorne, 1983). Dithy, for example, argued that in contrast to physical sciences, human sciences should seek understanding through interpretations of meanings

(Meacham, 1999). However, the dominance of positivism has muffled the epistemological alternatives of those previous antimodernist movements.

That dominance also shores up the seeming legitimacy of a modernist scientific framework for psychology. Because assumptions and decisions determine operational definitions, restrict the types of answers that can be found, and channel subsequent interpretations, study results seem to support and justify underlying assumptions. The adoption of an ontology "determines what is counted as an event; data can't correct or falsify the ontology because all data collected within the perspective can be understood only in its terms" (Gergen, 1988, p. 29). Therefore, claims of validity arising from the use of the scientific method and scientific equipment are masks for interpretations based on particular assumptions (Denzin, 1995).

Modernist social science uses self-legitimating criteria to justify its metaphysics and methods (Lyotard, 1984): It is logocentric, a self-referential and self-satisfying system of thought that claims legitimacy by pointing to a connection between its representations and an external reality that cannot be independently substantiated. Even though the scientific method itself cannot be scientifically validated, science is a framework that assumes its own validity (Rosenau, 1992).

In addition to producing logocentric versions of valid research, marrying into conceptual boundaries of modernist ontology and epistemology frames and restricts the types of questions asked. Rather than declare itself a science because it posed questions that required scientific methods to resolve, empirical psychology initially decided to use scientific methods and then posed questions based on what could be studied using tried and not-so-true positivist methods (Robinson, 1976). For instance, it usually asks questions that can be answered in quantifiable terms. However, when behavioral science's research methods and orientations are inappropriate for humans, they deflect investigators from what is important about humans and what makes them interesting (Slife & Williams, 1995), such as the different ways people experience events and the meanings they ascribe.

Regularities

Assumptions about orderly regularities governing the domain of interest have also taken psychology down a conceptual and methodological path that is not altogether appropriate for the study of human behavior. Broadly speaking, they have led to a bias toward explaining behaviors in terms of ontological order. More specifically, from mechanistic psychological explanations to homogenizing research methodology and portrayals and simplistic explanations that overlook meaning, manifestations of the bias permeate psychology.

When psychology began to develop its identity as a science, mechanistic, Newtonian world views dominated. Despite post-Newtonian discoveries in physics undermining rampant mechanistic assumptions and showing nature as a network of relations and transient patterns in an interdependent dynamic world, psychology continued to search for mechanisms in social reality. Posited structures and processes, for example, have often been cast in mechanistic terms. Behaviorists have searched for mechanisms to explain behavior; cognitive theorists have proposed mechanistic gates and filters; and Freud argued that urges build up in us, producing pressures that, if unrelieved, trigger particular behaviors. Linking structural causes and effects, deterministic thinking is rationalized as merely matching a deterministic nature (Barrett, 1967; Gergen, 1985).

Despite the absence of compelling reasons for believing that causal laws should be the fundamental basis for psychological explanations (Faulconer & Williams, 1990b), psychologists search for such laws or for universal regularities. Their modernist assumptions about order create a bias toward interpretations supporting that contention. For example, assumptions about orderliness have been a basis for some to regard varying behaviors as merely superficial manifestations of directly unobservable, yet underlying, transcendent laws or regularities in psychological and social structures, processes, and relationships (Ritzer, 1997; Slife & Williams, 1995). Even though nature can be orderly without being ruled by unchanging laws (Toulmin, 1990), some psychologists, particularly behaviorists, have gone so far as to translate expectations of ontological order into interpretations of "facts" or events as logocentric laws.

The tendency to interpret events in terms of ontological order is also manifested in the wide net psychologists cast in their search for regularities across a range of cultures, circumstances, and species. Many psychologists who study the behavior of rats, for example, are not interested in rats per se, but in behavioral patterns among rats that, in an orderly world, might have parallels in humans. People frequently are not even of direct interest; what is of interest are the hidden influences and principles presumably controlling behaviors or group differences, of which individuals are just manifestations. As the most popular introductory psychology textbook claims, *"It is the resulting principles—not the specific findings—that help explain everyday behaviors"* (D. Myers, 1998, p. 32).

Another manifestation of the presumption of regularity is that theories customarily do not include cultural variables because regularities found in the United States, constituting less than 5% of the world's population, are initially presumed to exist everywhere (Betancourt & López, 1993; S. Sue, 1999). A result of applying modernist metaphysics to psychology has been that people are regarded as roughly interchangeable. Demographic charac-

teristics, such as race, gender, and class, are viewed as factors that account for mild variation around a normative human (Meacham, 1999). Apparently, that normative human is conveniently American—convenient because most psychological research is done by Americans on Americans (S. Sue, 1999). The resulting essentialism, in which differences are treated as unimportant variances from universal processes, has made difficult explanations of behavior in terms of agency, choice, hopes, meanings, reason, radical change, or emergent forces (Lennert, 1997; Polkinghorne, 1983).

Like the physical world, the psychological realm is not only presumed to be orderly; it is presumed to be mathematically so. Mathematics is thought to be a language that matches, expresses, and finds preexisting, logical relationships among naturally existing, transcendent dimensions or properties of reality, constituent elements of a behavior, and links between characteristics and behavior (Barrett, 1967; Hoshmand & Polkinghorne, 1992; see Taylor, 1970). Thus, science accepts an alternative to falsehood and apodictic knowledge: assertoric knowledge, whose truthfulness, while supported by evidence, is stated in terms of varying degrees of probability.[10]

The conceptual delineation of behavioral patterns is not a problem per se. However, it is problematic when statistics are used to imply a mathematical precision to the underlying concepts or when those behavior patterns are said to indicate an unadulterated foundational order existing independently of the cognitive construction of those patterns. Characterizations of order are also problematic when, in the search for noumenal order, modernist methods, assumptions about a fundamental, metaphysical order, and the desire to gather data tapping into it stack the research deck so that considerable variation is reduced to gross similarities. For instance, forced-choice questionnaires or psychological tests require respondents to adjust and squeeze their responses into the tests' formatted response options, thereby codifying complex behaviors into simple categories and imposing similarity on the responses of diverse people.[11] If those assessments do not produce enough order or statistically significant results, psychologists might collapse multiple response categories into a simple dichotomy, thereby imposing a bifurcated order on behaviors to produce the assumed ontological order.

Also reflecting a predilection toward explaining in terms of regularities and perhaps a mechanistic world view is the tendency to attribute the same meaning to ostensibly similar behaviors and overlook whether the behaviors should be considered varied manifestations of one behavior or completely different behaviors. For example, in a nod to Ockham's Razor, the basis for seemingly similar behaviors is ascribed to the same components, processes or demographic variables. Researchers treat behaviors as expressions of basic, unchanging characteristics or essences (Ritzer, 1997).

Contributing to the emphasis on finding regularities, homogenizing investigative methods are used even at the expense of systematically over-looking complex, changing, and particular behaviors and the varied, disorderly appearances of everyday experiences (Polkinghorne, 1990). Rather than be defined as experiencing people who construe their lives and events or as people whose consciousness, agency, and behavior are mutually defined instead of mechanistically related (Meacham, 1999), people commonly are, in effect, defined as a compilation of demographic variables, such as ethnicity, age, and sex. These defining characteristics are too often treated as conditions triggering behaviors or people as media through which structural elements or principles direct behaviors. For example, researchers would classify both of the following sisters simply as Korean despite the possibly very relevant differences described by one:

> When I was six years old, my mom died. My father put my sister and I into an orphanage. Korean people treated us very badly because we were orphans. I felt different from them.
>
> My sister and I were adopted by two different American families four years ago. Fortunately, we live close together so we can see each other frequently. But many things have changed between us. When we lived in Korea, our way of thinking and acting were very similar to each other but now they are very different.
>
> Even though my sister lives in America, she tries to be a part of the Korean culture and community here. She does not want to deal with the American culture. . . . I want to reject the Korean culture and accept the American culture. . . . Because people rejected me in Korea. . . . I try to isolate myself from the Korean community. For instance, whenever I meet Korean people at church or at school, they ask me what my family is like. Sometimes, I feel ashamed that my sister and I have to live in different families and that we were adopted by American families, not Korean families.

Echoing medieval and Enlightenment biases toward order, reductionist descriptions and explanations obscure such individuality whereas listening to respondents reveals complexity which would challenge notions of behaviors as being the result of (an implicitly) deterministic ethnicity. Such reductionism draws an epistemic veil over varying relationships among different, changing individuals and a changing, multifaceted world (Toulmin, 1972). Nevertheless, in a move traceable to Cartesian emphases, modernist science dispatches variant values, feelings, and interpretations in the quest for regu-

larities and thereby passes over the heterogeneity Diderot regarded as characteristic of nature (Anchor, 1967).

One element of a Rembrandt self-portrait, such as the use of dark colors, cannot be extracted and regarded as the painting's essence because much of the meaning of the Rembrandt—what makes it art—is in the relationship among elements or pieces. Likewise, we cannot assume that how a researcher characterizes a sample captures the essence of that sample any more than we can assume, notwithstanding the standardization of Thomas Hobbes' focus on material cause, that recognition of an efficient or material cause, such as the use of color, is defining.[12]

Yet psychologists frequently categorize people in terms of some characteristics (independent variables) and then compare behaviors to see whether the characteristics predict behaviors (dependent variables). That tactic sometimes makes as much sense as trying to understand a piece of music by counting the number of its G-chords and comparing that number to the number in other works or using the occurrence of G-chords to predict the incidences of particular contrapuntal moves.

The application of modernist assumptions about ontological order in the physical realm has different consequences in the realm of human affairs. A search for regularities in the characteristics of cumulonimbus clouds does not have the same consequences as order-emphasizing interpretive practices that produce homogenizing portrayals, if not stereotypes, of people.

Contributing to the problem of the mismatch between modernist assumptions and psychological concerns, adherence to Ockham's Razor has too often been translated into simplistic explanations. While avoiding unnecessary assumptions can help to produce well-grounded conclusions, parsimony should be contingent on the complexity of the issue at hand. Parsimonious explanations of people's behaviors, which may seem to require fewer assumptions than complex ones, might not produce more accurate, clear, or compelling explanations. For example, insofar as additive explanations for behaviors are more parsimonious than more complex, organismic ones, Ockham's Razor introduces a bias toward the former (Pepper, 1942). More generally, a bias toward the simple, additive, stable, linear, easily quantifiable, and mechanistic distracts from emergent, synergetic psychological effects and the way experiences and complex behaviors come into being, develop, intensify, subside, and pass away (Schrag, 1990).

Extending this predilection toward interpreting behaviors in terms of order, even research results that seem to conflict or undermine assumptions about regularities are customarily explained in ways that uphold expectations of orderliness: Researchers frequently cite the possibility that the people studied were unusual in some way or that strictly scientific methods were not followed. Metaphysical and epistemological assumptions about transcendent,

cross-situational behavior patterns are not seriously questioned and the possibility of alternative, useful interpretations and multiple truths is downplayed (Tanaka, Ebreo, Linn, & Morera, 1998). The ways in which the social world might be more dynamic and fragmented than currently assumed in psychology are minimized (T. Young, 1991).

In practice, adoption of modernist assumptions about order have had another consequence: What has not fit neatly into an orderly perspective has typically been treated as noise (Bütz, 1995). For example, the implicit publication requirement that a classification system account for almost all studied responses encourages vague, encompassing classification models.

This treatment of the extraneous is part of a larger pattern in which, all too often, psychology regards complexity and situational variability as variance or superfluous nuisance to be controlled, eliminated, or studied at "another" time. Again we see a lack of fit between modernist orientations and psychology: Often, attempts are made to reduce behaviors and participatory, interpreted, rich, and historically, culturally, and socially situated lived experience to a more fundamental relationship or structure by controlling for extraneous variables. However, the attempt to control for a wide array of variables is akin to trying to describe the basic ingredients of a turkey casserole by deleting reference to (or controlling for) spices, noodles, and sauces. The result is not a scientifically clean depiction of a turkey casserole or the essence of turkey casserole. What is left is just turkey.

Given the complexity and temporality of human experiences and behaviors and people's freedom to vary their behavior, psychological characteristics, experiences, and behaviors cannot be reduced to one or two variables while others are "controlled," except as a conceptual fiction. All relevant variables for all members of a sample cannot even be identified and empirical psychological studies cannot produce assertoric much less apodictic certainty that the effect of only one variable has been parsed. When modernist research uses statistical or experimental controls to find foundational regularities in the effects of a variable such as gender, they assume that the same variable is being controlled—in effect, that the variable has the same meaning for different individuals. However, the meaning of characteristics is not simply inherent in them. Despite attempts to control for extraneous variables in a simulation of "all-things-being-equal," situations, individuals, and moments are never equal except as part of a fantasy about transcendent orderliness. In practice, statistical control usually amounts to the conceptual removal of variables.

While purporting to tell us about behavioral tendencies, modernist psychology tells us how researchers, seduced by modernist assumptions, have constructed interpretations of behaviors which were triggered using positivist

methods. The multiple, simultaneous layers and meanings of behaviors and experience are overlooked. Complex, changing, holistic behaviors and experiences have become ineffable.

Scientific Objectivity

As the foregoing has suggested, assumptions undergirding the scientific method are, in many ways, not a good fit with psychology. Another aspect of the modernist ontology that is a problematic foundation for psychology is the belief that the scientific method produces objective knowledge of reality (Polkinghorne, 1990).

The pretense of scientific objectivity hides a tautological logocentricity (Keller, 1985): Any proof of the objectivity of scientific findings is contingent on acceptance of modernist assumptions (Fontana, 1994) rather than contradictory premises outside the paradigm. Although modernist science assumes that researchers trained in the scientific method can find an Archimedean standpoint from which they can objectively observe reality, when people experience the world, they do not—and, in fact, cannot—experience a separate, detached, objective world or objectively know their own behaviors or experiences. Humans have no way of transcending their own brains and consciousness to independently know an objective reality. As Einstein's theory of relativity demonstrated, "there is no place to stand that is no place; we are inevitably caught in the very world we are describing and so are inevitably subject to its hold on us" (Sampson, 1999, p. 50). Although some people regard science as a sanctified nowhere, enabling scientists to be positioned without really standing anywhere and to view the world from that nowhere position, it represents one among many possible views.

Therefore, contrary to scientism's tenet, science is not the lone standard of knowledge and reality. As Feyerabend has argued, "it is an illusion to think . . . there is or must be a permanent, neutral matrix to which we can appeal that will tell us once and for all what is to count as better and worse . . . argument" (Bernstein, 1983, p. 72).

Claims of neutrality are socially grounded. "The pretense that science is objective, apolitical, and value-neutral is profoundly political because it obscures the political role that science and technology play in underwriting the existing distribution of power and society" (Hubbard, 1988, p. 13).

Claims of objectivity, as in research that supposedly judges behaviors by objective criteria, are efforts to pass on constructions as simply reflections of reality. Examinations of behaviors purportedly from the perspective of the culture in which the behavior occurs are, likewise, equally parodies because they usually imply both that a culture has a singular perspective that is not simply an artifact of a homogenizing characterization and that researchers

can separate themselves from their own background, which would be a prerequisite to taking on the views of those from another culture.

Like the discussion of the meaning of facts implied, to claim science is objective is to deny it is a human activity and to pretend that it is separate "from the life experiences, intentions, values, and world views of the persons who create that science" (Bevan, 1991, p. 477). As developers of hypotheses, creators of operational definitions, conductors of studies, and interpreters of statistical analyses, social scientists are not "passionless automatons . . . holding mirrors to reality" (Gergen, 1988, p. 43). Indeed, they cannot be. Representations of the world, including the meanings or knowledge scientists create, rely on sensory input and interpretations, not sensory data alone. Well-known psychological research on perception illustrates that stimuli are interpreted rather than apprehended and that perceptions do not simply record what exists "out there" (see Figure 1.1).

Even if scholars had objective data or descriptions, they would not be able to make sense of them objectively. Because human knowledge is based on experiences and available ideas, which are themselves based on interpretations influenced by time, culture, and other situated experiences, the interpretation of the data would reflect the interpreter's concerns, culture, interests, attitudes, experiences, assumptions, values, social position, and commitments and those of the community (Richardson & Fowers, 1998).

The interpretation of the data would also reflect more intuition than might be apparent in a textbook description of social science research or journal articles (Bevan, 1991): Although repelled as mere subjectivism, intuition, a subordinated representation of what is not said, often acts as the "tacit coefficient of a scientific theory" (Fuller, 1995; Polanyi, 1946/1964, p. 10). When theories and research findings are consistent with one's own interpretations, values, and outlooks, they seem especially convincing or self-evident (Keller, 1985); when they are counterintuitive, they are frequently doubted and efforts are made to find flaws in the study's method or logical missteps in the conclusions drawn.[13] Even statistical analyses can be based on subjectivity: In cluster analysis, for example, researchers select statistical criteria for groupings and create conceptual labels for each group.

Therefore, not only is rhetoric based on ideologies, but so are modernist psychology and constructions of reality (Bevan, 1991). Researchers' paradigmatic world views and scientific, social, political, and linguistic practices affect which phenomena are deemed worthy of study; how issues are depicted and questions are formulated; which methods are regarded as appropriate; which variables are studied and which are controlled; which data are considered significant; and which types of descriptions or explanations are considered adequate, appropriate, useful, satisfying knowledge (Hare-Mustin & Marecek, 1990; Keller, 1985). Thus, while empirical findings and ratio-

FIGURE 1.1   What White Triangle?
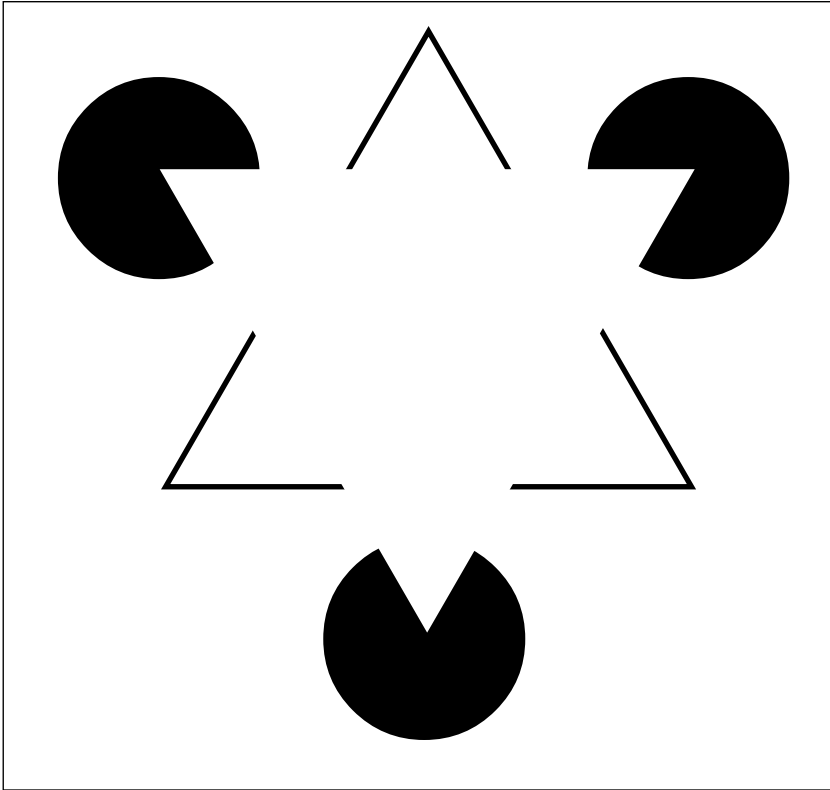
Perceptions do not simply reflect inherent characteristics of stimuli. For example, we are likely to perceive a white triangle superimposed on a background because of our familiarity with triangles. The triangle appears to be defined by lines and to be a brighter white than the background, but covering the lines surrounding the white triangle reveals no difference between the white of the triangle and the background. Illustration by and with the permission of Jerome Kuhl. Source: *Scientific American* Offprints #570, Subjective contours, 1976, p. 2.

nality might be the brick and mortar of a study's conclusions, they alone do not account for them.

Because any experience can be punctuated in various ways and events can be linked in multiple ways producing different meanings, the way a person investigates a subject matter affects what is "found." Niels Bohr's demonstration that light seems to be particles or waves, depending on the measuring equipment and language used to describe it, illustrates a broader point: Because measuring instruments and methods are based on assumptions, imply perspectives, and promote the valuing of particular data, they cannot produce independent, neutral interpretations (Hare-Mustin & Marecek, 1990).

Rhetoric.   Science's lack of objectivity casts its traditional disparagement of rhetoric in a new light. Tracing back to Platonic and Aristotelian arguments against rhetoric for its reliance on appearance as opposed to truth and reason, rejection of rhetoric as sophistry became part of the scientific model (O'Neill, 1998). An implicitly dichotomous relationship was assumed: Science's raw truth and rationality–*cum*–empiricism trumped rhetoric, which was dismissed as empty, manipulative technique merely suited to swaying audiences and perpetuating opinion rather than identifying fact. More specifically, science has contrasted rhetoric to rational, scientific activities by noting that: rhetoric uses imprecise language and tropes, such as metaphors and metonyms, whereas scientific language's precise descriptions and operational definitions are neither figurative nor ambiguous; rhetoric is designed to convince particular audiences whereas science is presumably accessible and convincing to all who are rational (Racevskis, 1993); rhetoric convinces by relying on opinion and emotions whereas science convinces through impartial evidence and logic; and rhetoric aims for the pragmatic whereas science aims for truth (O'Neill, 1998).

However, science's sharp, hegemonic distinction between truth and rhetoric is unwarranted. As the use of careful reasoning and supportive evidence to persuade, and not merely flamboyant oratory, rhetoric is neither irrational nor groundless. Without necessarily obviating each other, rhetoric, reason, and data are all tools used to construct meanings and knowledge. The claim of a clear distinction between psychology and rhetoric hides modernist psychology's favoring of some forms of rhetoric over others which, in turn, restricts the acceptable sources of knowledge and forms of arguments by limiting what is regarded as knowledge to the replicable and generalizable (Carlston, 1987; Slife & Gantt, 1999).

Whether a description or explanation of behaviors is accepted as convincing and true and therefore functions as knowledge does not depend just on the use of the scientific method. Because knowledge is socially defined, that acceptance also turns on the rhetoric used to support particular interpretations. Therefore, empiricism and rhetoric are not at odds: "Empirical efforts complement but do not replace rhetorical practices, the rhetorical analysis illuminates but does not invalidate empirical pursuits" (Carlston, 1987, p. 156). Instead, rhetoric can be reinforced by reasoned handling of empirical data.

Rhetoric and science are so intertwined that the adoption of a metaphor of knowledge, a rhetorical move, can affect how researchers try to gain knowledge (Lakoff & Johnson, 1980). For example, knowledge is often regarded as a structure built on a foundation of agreed-upon cornerstones or first premises. New data are interpreted in terms of established knowledge frameworks, such as theories: Data that fit the framework are said to support

it; data that do not fit are thought to show weaknesses in it or, if particularly powerful, make theories fall apart. In contrast, if knowledge were viewed in terms of a different metaphor, such as the creation of a meal, nothing might be dominating; data might be viewed in terms of what they add, how they relate to other elements, or how they change the whole.

Behaviorism's ascendency pushed aside the rhetorical devices of early psychologists such as Wundt and James who examined philosophical issues and provided reasoned, discursive constructions of meaning. Nevertheless, psychological discourse still embodies rhetorical decisions and is replete with rhetorical devices (Bazerman, 1987; Feyerabend, 1975; see Zeller & Farmer, 1999). Even science's claim that it is a fact-finding activity is a rhetorical device; the very denial that science uses rhetorical devices is a rhetorical description (O'Neill, 1998). The prestige and authority of science are used for rhetorical effect. Sometimes psychotherapists are taught cross-cultural methods of establishing their credibility to increase their rhetorical influence. Rhetorical skills, such as the ability to convince others of the meaning data will have and portray one's credibility, contribute to successful grant applications. Scientific reports present interpretations of facts in a way (e.g., "This study shows . . .") designed to influence the audience by implying that facts are speaking for themselves and conclusions are unambiguous and natural. When psychology journal articles have, as American Psychological Association (APA) guidelines stipulate, a "results" section presenting statistical analysis and a "discussion" section presenting the author's interpretation of those results, the pretense is that results are objective findings that are independent of interpretations. But, as is implicitly acknowledged in the introduction to articles, the author's interpretations are guiding the research from the beginning. Early editions of the APA style manual dictated the use of third-person, passive voice, and sparse language as ways of adding to the seeming objectivity, and, therefore, modernist legitimacy, of psychological research.

Like claiming a person is getting his or her 15 minutes of fame without questioning the legitimacy of the original "truism," describing people's behaviors in modernist terms without questioning the underlying assumptions of that framework can produce lots of instances in which behaviors are explained in those terms while shedding little light on whether those explanations are appropriate. Science's traditional authority has often deflected such questioning. Consequently, in general psychology continues to rely on a modernist scientific metaphysic that, in many ways, is inappropriate for addressing psychological issues of interest or providing a comprehensive understanding.

Rather than claim that scientists have direct ways to study the world the way it is, as realism would, a moderate form of positivism holds that science can help us formulate constructs to explain regularities in the world

(Slife & Williams, 1995). Instead of treating identified regularities as patterns existing "out there," they might be viewed as useful, constructed interpretations. For those meanings or interpretation to be socially effective constructs, they must be relayed to others in a convincing manner; thus, both discourse and rhetoric must play a role.

Scientific Tradition. In the 1950s, Bertrand Russell and Alfred Whitehead nourished a paradigm shift from a reliance on axioms as the basis for timeless, universal knowledge to an acceptance of multiple scientific methods for scholars in different sciences trying to adapt to varied and changing situations and problems (Toulmin, 1990). In the 1960s, many scholars rethinking social theories, primarily critical rather than scientific theories of social life, converged on a focus on the role of language and discourse (Lennert, 1997). Various disciplines, such as sociology, have participated in the resulting discourse. However, the vast majority of psychologists have not responded and have continued with psychology's modernist investigative goals and methods in the apparent belief that "there must be a horse in there somewhere."

When dealing with new problems, "Every succeeding generation [of scientists] is sovereign in reinterpreting the tradition of science. With [that sovereignty rests] responsibility [and] lasting effects on the tradition of science" (Polanyi, 1946/1964, pp. 16, 60). Psychologists have choices. While hypermodern views lament the problems of modernism, postmodernism,[14] an epistemological outlook discussed in the next chapter, represents different assumptions, alternative ways of investigating people's behaviors, and new perspectives on human behavior and the meaning of being Asian American.