Chapter 7
Post-Modernism, Social Constructionism, and the Science Wars

Any overview of the philosophy of science would not be complete without covering these recent views as they have received a lot of attention in the past few decades. Many of these views are quite controversial on a number of dimensions—sometimes the criticism is that these views are meaningless or at a minimum obscurantist (see the so-called Sokal affair that will be discussed below); sometimes the claim is that they are unfairly and unduly incendiary—for example, a prominent feminist critic of science Harding (1986) has called Newton's classic *Principia* "a rape manual" because "science is the male rape of female nature"; and of course sometimes the criticism is simply that they are wrong.

However, if the reader is to be conversant in twenty-first century meta-science, he or she must have a basic understanding of the major dimensions of these views and the controversies that they have spawned. Unfortunately, any expositor of these views has a difficult task for two major reasons: (1) many of these views are not clearly or simply presented, perhaps again due to their inherent complexity or perhaps due to the rather obscure linguistic style (in their own terms, is this a rhetorical move or just an unfortunate but perhaps necessary complexity due, for example, to the reflexive nature of their language use—language is being used to criticize language?) of many writers belonging to this movement; (2) there is some significant variance among these views—not all postmoderns agree with one another—if only because there are different points of emphasis, and perhaps it is most fair to say that these views form somewhat of a family—a family tree of postmodernists, social constructionists, post-structuralists, hermeneutists, radical feminists, and contemporary sociologists of science and technology. However, my goal is to provide the broad outlines and a description of some of the key views of this general movement. There are other more extended treatments that are quite excellent; see for example, Cahoone (2003); Brown (2001); Gross and Levitt (1997) and Koertge (1998).

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Roots of Post-Modernism and the Philosophy of Science

First, we must recognize that these views are to some extent anticipated by some of the philosophers of science that we have previously discussed. We can see some of the roots of these meta-scientific claims in several of the conclusions of several of the previous philosophers of science. For example, the logical positivists examined language and thought that they "exposed" that the claims of religion were meaningless. The focus of these postmodern philosophers also is often on language, and these philosophers also believe through their *deconstructions* or *interpretations* that they also are exposing previously unnoticed but very problematic aspects of language, including paradoxes, false assumptions, and other serious problems. Kuhn emphasized the sociology of science—for example, how social factors contrive to create consensus in the scientific community during periods of normal science, and thus, these social factors have a large role in explaining science. Kuhn suggested that a scientist's acceptance of a theory was not due just to *internal factors* such as its correspondence with evidence but also to some extent to *external factors* such as beliefs and norms of the scientist's group. These postmodernist philosophers also emphasize the social relationships involved in science—whether it is social decisions in the laboratory about what constitutes "data" to how certain dichotomies such as gender are created and disadvantage certain groups. Popper, and other philosophers such as Lakatos, allowed metaphysical beliefs—beliefs about politics, religion, and ethics, among other topics—to enter into science as long as these produced falsifiable theories. These postmodern meta-scientists would agree that there are these metaphysical influences on what is taken to be science although they elevate their importance considerably. Quine argued that logic did not direct the arrows of *modus tollens* to any particular statement in the web of belief, but rather pragmatic judgment was necessary to square the web of belief with anomalies. These postmodern philosophers would agree with this *underdetermination thesis* as well as Quine's *holism* thesis—that the scientist's entire belief system is involved in his or her scientific pursuits. Popper, Kuhn, and Feyerabend all argued for the *theory-ladened nature of observation*. Again, the philosophers examined in this chapter would agree. Gross suggested that rhetoric has a large role in defining knowledge. Moreover, these postmodern philosophers would agree that science is a rhetorical process although they often see political and sometimes quite pernicious and sinister motives to these rhetorical activities.

However, the most influential philosopher of science setting the stage for this movement was clearly Paul Feyerabend. His concerns that scientific ways of knowing not be *privileged*; his interest in epistemic and theoretical *pluralism*; his concern about *democratization* of science; and his concern that science be more humane and not an instrument of *oppression* share the most overlap with the meta-science studies that I will cover in this chapter. Feyerabend, in short, was one of the first philosophers to be concerned about the relationship between power and science, developed a quite political view of science, as do these postmodern meta-scientists.

Moreover, it is also important to note that these postmodern authors all believe, as does Feyerabend, that a fairer assessment of science also would need to include an examination of the technology spawned from it and they generally have a rather negative view of this technology. Many of the previous philosophers focused on what might be called basic science and not on the technology spawned from science. These postmodern meta-scientists examine both. They would see conventional philosophy of science as celebrating technological advances such as inoculations, moon landings, and dishwashers. However, they call for a more complete evaluation of science and technology that includes the atomic destruction of Nagasaki and Hiroshima, Auschwitz's genocidal poisonous showers, Nazi eugenics based on racist science, the politically biased agricultural practices that starved millions in the Stalinist Soviet Union, global warming due to destruction of forests and reliance upon carbon-based fuels as well as other harms to the environment by a consumerist culture, the destruction of First Nations and indigenous cultures by Western hegemony, the alienating labor of an assembly line, the lonely and perhaps dehumanizing deaths in high-tech intensive care units of modern medicine, lobotomies, overmedicated children, and even junk food. Their view is that the received view of traditional Western *scientism*—the worshippers in the church of science—has not given these kinds of scientific applications proper attention in their unfair and overly positive appraisals of science and technology, and they see their views as a necessary corrective.

What is Post-Modernism?

It is difficult to precisely define postmodernism. Let me instead try to list some of its key ideas:

- It is a rejection of modern (post-Enlightenment) views of objective scientific knowledge that claims to describe the essential features of the world, as well as the view that post-Enlightenment science is progress and has produced progress.
- The view that "There is a strict interlinkage between the kind of language called science and the kind called ethics and politics" (Lyotard 1984, p. 8).
- Reality is not mirrored in human "knowledge" but rather is *constructed* by the human mind, and this construction is influenced by ideologies found in culture, tradition, and race. Scientific constructs are *social constructions* in much the same way that balls and strikes in the game of baseball are *social constructions.*
- Knowledge claims are seen as attempts to control others. Knowledge claims or rules about what counts as knowledge, reason, or evidence "privileges" some people and not others.
- *Deconstruction* of texts is key as this can expose ideology, prejudices, assumptions, contradictions, paradoxes, political motivations, and problematic frames of reference.
- Words and sentences do not have a single meaning. Meaning is a very complex problem generally showing multivocality.

- It involves a fairly radical cultural critique—especially a critique of the culture of science and particularly of its relationship to power in the wider culture. There is a deep concern of how texts may implicitly or explicitly be related to cultural hegemony, violence, and exclusion. Michel Foucault, for example, stated "language is oppression."
- Key scientific and everyday concepts—especially dichotomies or "*binaries*" such as male versus female and straight versus gay—are problematic dichotomies and are social constructions influenced by historical contingency, power, and hierarchy that are not "found" or "discovered" in nature and have problematic political uses.
- The assumptions of universality, consensus, generality, essence, and reality are rejected—especially as these relate to "authority"—to be replaced by more local, personal, diverse, and even intuitive and aesthetic *ways* of knowing. They advocate an *epistemic pluralism*—there are multiple ways of knowing, and science should not have a monopoly and should not oppress these other ways of knowing. They would agree with Pascal, "The heart has its reasons which reason know nothing of….We know the truth not only by the reason, but by the heart."
- Interpretation is seen as the key activity; for postmodernists, we never know reality, but rather we have *readings* (plural) of experience that are true for us personally—but not necessarily true for others. *Hermeneutics* is the critical process of interpretation of these readings.
- An important philosopher in this tradition, Jacques Lyotard, stated that the central notion is "Incredulity toward all *meta-narratives*." Lyotard attempts to dissolve *master narratives* like "progress" and "history" by exposing the contingent and constructed *ideologies* involved in these. "Progress" becomes a (among many) failed master narrative. "Reason" is also a failed master narrative. The power of modern medicine would be another failed "big story."
- There is no discovery but rather simply human invention—so-called "discoveries" all have a particular history that will reveal their contingency—they need not have been. The concepts used to engage the world are artificial—literally these discoveries ought to be seen as *human artifacts* not as human discoveries that mirror the world. A scientific discovery is as much a human artifact as a skyscraper.
- It seeks to expose the "*late-capitalistic" ideology* in the consumerist culture. The West's claims of prosperity, freedom are empty promises and a failed meta-narrative that if examined properly (deconstructed), one would find militarism, cultural hegemony, oppression, and a vapid consumerist culture.
- The meta-narratives of the West are oppressive because these denigrate *local tribal ways of knowing and wisdom* that is communicated through myths and legends. Science seeks an oppressive epistemic monopoly by excluding other narratives.
- Truth is a less important norm than aesthetic judgments, for example those of social justice. Scientists have been too concerned with truth and insufficiently attentive toward justice for all humans.

It is fair to say that these folks tend not to vote Republican very often. These views represented are radical—in the sense of "root" in that they are a rejection of some of the foundational beliefs of modern Western civilization. However, it is also important to note that although it can be said that postmodernists are on the Far Left politically, some others such as Noam Chomsky on the Far Left have rejected their views as "obscurantist," "meaningless," or even lacking argument and evidence.

Now it is important to note that there are also deep disagreements among the postmodernists on these issues—from points of emphasis to use of different technical languages, to drawing out different political implications (e.g., radical feminists predictably focus more on gender and sexism than some of the male postmodernists). Thus, there is significant fragmentation (or perhaps what postmodernist would call "locality") in postmodernism.

Another argument against these views is a reflexive one: Is not postmodernism defeated by its own claims as it, like the views it rejects, is making a claim to something objective, general, trans-linguistic, and essential? Postmodernist, of course, has noted this reflexive criticism. Lyotard has responded by saying he is making no claims that his views are true, but rather that they have "strategic value in relation to the questions raised" (Lyotard 1984, p. 7). Interesting move to say the least, but remember "being true" for them is of less importance than for those with more traditional views of regulative epistemic norms. They might see, for example, what they would take as positive political impact as more important "justification" for their views.

What are the Implications of These Views for Science?

Some of this is fairly obvious as the conventional views of science have been a major target for these theorists. However, Koertge (1998) provided a nice summary of the relevance of postmodernist and social constructionist views to science:

- Every aspect of that complex set of enterprises that we call science, including, above all, its content and results, is shaped by and can be understood only in its local historical and cultural context.
- In particular, the products of scientific inquiry, the so-called laws of nature, must always be viewed as social constructions. Their validity depends on the consensus of "experts" in just the same way as the legitimacy of a pope depends on a council of cardinals.
- Although scientists typically succeed in arrogating special epistemic authority to themselves, scientific knowledge is just "one story among many." The more epistemological authority that science has in a given society, the more important it is to unmask its pretensions to be an enterprise dedicated to the pursuit of objective knowledge. Science must be "humbled."
- Since the quest for objective knowledge is a quixotic one, the best way to appraise scientific claims is through a process of political evaluation. Since the "evidence" for a scientific claim is never conclusive, it is always open to

negotiation. The best way to evaluate scientific results is to ask who stands to benefit if the claim is taken to be true. Thus, for the citizen, the key question about a scientific result should not be how well tested the claim is but, rather, *Cui bono?*

- "Science is politics by other means": The results of scientific inquiry are profoundly and importantly shaped by the ideological agendas of powerful elites.
- There is no univocal sense in which the science of one society is better than that of another. In particular, euroscience is not objectively superior to the various ethno sciences and shamanisms described by anthropologists or invented by Afrocentrists.
- Neither is there any clear sense in which we can talk about scientific progress within the European tradition. On the contrary, science is characterized chiefly by its complicity in all the most negative and oppressive aspects of modern history, increasingly destructive warfare, environmental disasters, racism, sexism, eugenics, exploitation, alienation, and imperialism.
- Given the impossibility of scientific objectivity, it is futile to exhort scientists and policymakers to try harder to remove ideological bias from the practice of science. Instead, what we need to do is deliberately introduce "corrective biases" and "progressive political values" into science. There is a call for "emancipatory science" and "advocacy research" (pp. 3–4).

What is Social Constructionism?

We turn now to examine social constructionists because these theorists have garnered a lot of attention in the science studies and share some commonalities with the postmoderns (however, remember the family metaphor used above).

First, let us define a social construct. A *social construct* is an artifact (a human-made concept or practice) of some particular social group. There is a focus on providing explanations of the scientist by examining the *contingent choices* of the individual or group rather than on influences from an independent external reality. Social constructionist aims to discover the way social phenomena are invented, become known, are disseminated, are institutionalized, and finally come to constitute tradition. For example, the construct of gender is seen by social constructionists as having a history, is contingent (not inevitable), and constructed from a series of human choices, invented by humans not "found" in nature, and, when found to be harmful to some individuals or groups, should be reinvented.

In a book that has received much attention, Latour and Woolgar (1979), *Laboratory Life: the Social Construction of Scientific Facts,* conducted what they thought was an anthropological study of a culture: laboratory scientists at work. They thought science should be used to study science—and a reasonable method was that of a participant observer. They studied a neuroendocrinology research laboratory at the Salk Institute. They claimed that in examining actual

laboratory practice, Popperian falsificationism, logical positivism, and other objectivist accounts of science simply fail to describe what actually occurs in the laboratory. Their observations suggested that a large issue of laboratory life consisted of making subjective and contingent decisions of what data to keep and what data to throw out. They suggested that the behavior of scientists in the laboratory shows that data are not "given" but are the product of a series of human decisions. The constructs used in the laboratory are creations of scientists as they talk about instruments readings, for example. All scientific facts are really *artifacts*—much like a painting or a beautiful building—these are human creations. Thus, what scientists do is to make decisions in which order is created out of a multitude of possible orders. Scientific facts for them are not uncovered as much as produced or constructed from the decisions and behavior of a variety of different actors, including the scientists, the measurement instruments, the laboratory, the technicians and the subjects being studied and the wider scientific community (this is called Latour's actor–network theory—which he later rejected). For example, in clinical psychology, the human construction of tests such as the Beck Depression Inventory which involves a series of decisions about which items to include (which in turn are based on human decisions about DSM diagnostic criteria), how these should be weighted, what are proper test-taking conditions, etc., all are involved in construction "data" about depression. In order to understand science, one must understand all these actors and the alliances they form.

These views give rise to certain puzzles. What is the status of say microbes, before scientists started to talk about them? For Latour, it appears that they simply did not exist—as humans did not invent them yet. Just as a telephone did not exist prior to Alexander Graham Bell, a microbe did not exist prior to scientists inventing the construct. When French scientists declared in 1976 that tests on the mummy of Pharaoh Ramses II pointed to his death by tuberculosis, Latour claimed this to be impossible because the bacillus virus was not known at the time of the ancient Egyptians!

However, understanding Latour's views gets more complicated because in more recent years, he has rejected his earlier views—although a number of folks in this camp seem to still follow them. He has stated:

> what if explanations resorting to power, society discourse had outlived their usefulness and deteriorated to the point of now feeding the most gullible sort of critique?…threats might have changed so much that we might still be directing all our arsenal east or west while the enemy has moved to a very different place.

and further:

> Sentences such as "the danger would no longer be coming from an excessive confidence in ideological arguments posing as matters of fact …but from an excessive **distrust** of good matters of fact disguised as ideological biases" resonated with many scientists, as did "dangerous extremists are using the very same argument of social construction to destroy hard-won evidence that could save lives."

Many of the critiques of this kind of view came to a head in the late 1990s when a physicist published an article in a key postmodern journal. Let us turn to this now.

What Are the "Science Wars"?

The Sokal Affair

In 1996, the physicist Alan Sokal submitted an article "Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity" to the *Social Text*, an academic journal of postmodern cultural studies, and had the article accepted and published. However, on the date of the publication of the article, Sokal revealed in another journal *Lingua Franca* that the article was actually a hoax and stating that the article was in fact a "pastiche of Left-wing cant, fawning references, grandiose quotations and outright nonsense…structured around the silliest quotations (by postmodern academics) he could find about mathematics and physics." It might be instructive to read a bit of the article. Here are the first few sentences of the concluding paragraph:

> Finally the content of any science is profoundly constrained by the language within which its discourses are formulated; and mainstream western physical science, has since Galileo, been formulated in the language of mathematics. But whose mathematics? The question is a fundamental one, for as Aronwitz has observed, "neither logic nor mathematics escapes the contamination of the social." And as feminist thinkers have repeatedly pointed out, in the present culture this contamination is overwhelmingly capitalist, patriarchal and militaristic: "mathematics is portrayed as a woman whose nature deserves to be the conquered other." Thus, a libratory science cannot be complete with a profound revision of the canon of mathematics. As yet no such emancipatory mathematics exists, and we can only speculate upon its eventual content. We can see hints of it in the multidimensional and nonlinear logic of fuzzy systems theory, but this approach is still heavily marked by its origins in the cirrus of late-capitalist production relations.

What can be learned from this hoax? Sokal suggested the following: (1) his hoax does not show that all of postmodernism is nonsense or that in all of this kind of science studies, standards are lax. That would place too much weight on the publication of one hoax article in one journal. (2) That science is indeed a human endeavor, and it should be subject to a rigorous sociological analysis as historians, sociologists, political scientists, economists, and psychologists have something to say about the ideological, political, and social influences on key scientific questions such as what gets funded, who benefits, and who gets prestige and power. (3) Even so-called internal questions—what types of evidence count, and what types of theories get proposed are also partly influenced by these "external" variables; and (4) there is nothing wrong with research being influenced by political commitment, as long as these political views do not blind the researcher. These critiques can use conventional scholarly and scientific methods and standards to critique problematic science. They ought not to use problematic epistemologies, erroneous readings of science, and faulty logic in conducting these studies, and Sokal suggested that postmodernism is rife with these kinds of problems.

Feminist Critiques of a Gendered Science and "Newton's Rape Manual"

Feminists have had a variety of critiques of science. Their concerns run along the following lines: (1) women have been excluded from science in that the vast majority of scientists have been males; (2) women are denied epistemic authority; (3) women have a unique style of thinking and unique modes of knowledge, but these are denigrated; (4) sometimes science has produced theories in which women are seen as inferior, unimportant, or valued only to the extent that they serve male interests; (5) theories are sometimes produced in which women's interest is made invisible or gendered power relationships are made invisible; and (6) science and technology is produced that reinforces gender hierarchies or does not in any way advantage women (http://plato.stanford.edu/entries/feminism-epistemology/).

Thus, one concern of feminists is that women are underrepresented in many of the sciences, such as chemistry, physics, and mathematics. (Recall the incident when the then President of Harvard, former Clinton economic advisor Larry Summers explored this issue in a brief speech and had to resign as feminists protested that his speech content was insensitive. See http://www.harvard.edu/president/speeches/summers_2005/nber.php for the transcript of his speech.) Feminists have also seen this underrepresentation as mirroring ways in which women are underrepresented and unempowered in wider society—if women do not have power in financial, corporate, military, academic, and political spheres, these inequities might be interrelated to the fact that they are underrepresented in the sciences. Feminists point out that this problem perhaps is even more severe in technology: If historically (and currently) women have failed to have the economic and sometimes the legal power to secure patents, how can they develop and profit from their technological creativity?

An additional concern is that sometimes women are not even sufficiently valued to be the subjects in scientific research—a whole host of medical research was conducted, but it was unclear to what extent the results applied to women because all the subjects were male. For example, in the early studies showing a daily low-dose aspirin regimen decreased heart attacks—all the subjects were men, and thus, it Left of the question of what women ought to do to decrease their risks of heart attacks. The Physicians' Health Study included 22,000 men and zero women (http://feminist.org/research/medicine/ewm_exen.html). Feminists justifiably take credit for a series of reforms of medical research instituted in the 1990s that require the inclusion of female subjects in clinical trials (Schiebinger 1999).

Another concern is that are histories of science written in a way that excludes the contributions and the problems of women? Remember there are legitimate critical questions regarding—historiography, that is, how is history to be validly written? Feminist have suggested that in conventional histories of science, the contributions of women are ignored, the problems of women are ignored, and the problems of men prioritized or that if a fairer history was written, one might even at times see men

appropriating the scientific work of women without giving them due credit (e.g., the reliance of Nobel Prize winners Watson and Crick on the work of Rosalind Franklin but received little recognition for her work on the molecular structures of DNA and RNA).

However, probably most radically, some have also suggested that modern science is a male way of knowing and that it privileges this way at the expense of female ways of knowing. For example, feminists assert that males interpret experience differently than females and use different, often more aggressive and violent metaphors. Feminists give examples such as the one we mentioned in the beginning of this chapter, Newton's rape manual:

> One phenomenon feminist historians have focused on is the rape and torture metaphors in the writings of Sir Francis Bacon and others (e.g., Machiavelli) enthusiastic about the new scientific method. Traditional historians and philosophers have said that these metaphors are irrelevant to the *real* meanings and referents of scientific concepts held by those who used them and by the public for whom they wrote. But when it comes to regarding nature as a machine, they have quite a different analysis: here, we are told, the metaphor provides the interpretations of Newton's mathematical laws: it directs inquirers to fruitful ways to apply his theory and suggests the appropriate methods of inquiry and the kind of metaphysics the new theory supports. But if we are to believe that mechanistic metaphors were a fundamental component of the explanations the new science provided, why should we believe that the gender metaphors were not? A consistent analysis would lead to the conclusion that understanding nature as a woman indifferent to or even welcoming rape was equally fundamental to the interpretations of these new conceptions of nature and inquiry. Presumably these metaphors, too, had fruitful pragmatic, methodological, and metaphysical consequences for science. In that case, why is it not as illuminating and honest to refer to Newton's laws as "Newton's rape manual" as it is to call them "Newton's mechanics"?

Feminists have suggested male-centric biases can be found in other areas too: Male reproductive biologists have seen the sperm as active and the egg as passive, but feminists have argued a better case can be made about a more active role of the egg in selecting one sperm during fertilization. They have also suggested that technology based on "controlling" and "dominating" nature is also a male bias and a female-oriented technology would be more ecologically sensitive.

Feminists and the "Situated Knower"

Feminists seek to understand "the situated knower"—that is, the many ways in which the knower's social, psychological, and even physiological characteristics affect what and how one come to know. Their view is that an analysis of the knower's situation will review a patriarchal, sexist, and misogynist context that has an influence on the "known." Feminists seek a libratory science free of misogynistic practices and assumptions so that women's voices, concerns, values, and contributions can be brought forth. Here is their quite interested view of the situated knower—an epistemic account that is quite interesting:

Embodiment. People experience the world by using their bodies, which have different constitutions and are differently located in space and time. In virtue of their

different physical locations, observers who stand in front of an object have different information about it than observers who have a distant but bird's eye view of it.
First-person versus third-person knowledge. People have first-personal access to some of their own bodily and mental states, yielding direct knowledge of phenomenological facts about what it is like for them to be in these states. Third parties may know these states only by interpreting external symptoms and imaginative projection or by obtaining their testimony. People also have knowledge *de se* about themselves, expressed in the form "*I* am F *here, now*." This is distinct in character and inferential role from propositional knowledge having the same content, which does not use indexicals.
Emotions, attitudes, interests, and values. People often represent objects in relation to their emotions, attitudes, and interests. A thief represents a lock as a frustrating obstacle, while its owner represents the lock as a comforting source of security.
Personal knowledge of others. People have different knowledge of others, in virtue of their different personal relationships to them. Such knowledge is often tacit, incompletely articulated, and intuitive. Like the knowledge it takes to get a joke, it is more an interpretive skill in making sense of a person than a set of propositions. (The German language usefully marks this as the distinction between *Erkenntnis* and *Wissenschaft*.) Because people behave differently toward others, and others interpret their behavior differently, depending on their personal relationships, what others know of them depends on these relationships.
Know-how. People have different skills, which may also be a source of different propositional knowledge. An expert dog handler knows how to elicit more interesting behavior from a dog than a novice does. Such know-how expresses a more sophisticated understanding of dogs on the part of the expert and also generates new phenomena about dogs for investigation.
Cognitive Styles. People have different styles of investigation and representation. What looks like one phenomenon to a lumper may look like three to a splitter.
Background beliefs and worldviews. People form different beliefs about an object, in virtue of different background beliefs. In virtue of the different background beliefs against which they interpret a patient's symptoms, a patient may think he is having a heart attack, while his doctor believes he just has heartburn. Differences in global metaphysical or political worldviews (naturalism, theism, liberalism, Marxism) may also generate different beliefs about particulars on a more comprehensive scale.
Relations to other inquirers. People may stand in different epistemic relations to other inquirers—for example, as informants, interlocutors, students—which affects their access to relevant information and their ability to convey their beliefs to others (http://plato.stanford.edu/entries/feminism-epistemology/).

In psychology, a very interesting episode occurred in research, regarding moral reasoning. First, a Harvard psychologist Kohlberg (1981) proposed a theory of moral development based on how individuals' reason about what is ethically right and wrong. He suggested that there is a series of stages of moral reasoning

in which, for example, an early-stage reasoning is simply based on what one gets punished for and a later-stage moral reasoning is based on universal principles of justice. His former graduate student Gilligan 1977 published a critique of Kohlberg's view in a book called *In a Different Voice*. In this book, Gilligan argued that Kohlberg only used samples of males in his studies and thus failed to see the unique perspectives of women, and in doing so, his theory relegates women to be deviants from the norm. Gilligan's research using samples of females suggested that females use a different type of moral reasoning—women cared more about preserving relationships and nurturing than simply following rules. Gilligan argued that women's moral reasoning should not be seen as inferior but just different—"situated" to use the term discussed above. In all likelihood, there are still further ways that situate a knower who is reasoning morally—race, socioeconomic status, etc. But Gilligan's work can be seen as a partial cashing out of this general notion of the situated knower.

Foucault on Psychiatry and Sexuality

> ….modern man no longer communicates with the madman… There is no common language: or rather, it no longer exists; the constitution of madness as mental illness, at the end of the eighteenth century, bears witness to a rupture in a dialogue, gives the separation as already enacted, and expels from the memory all those imperfect words, of no fixed syntax, spoken falteringly, in which the exchange between madness and reason was carried out. The language of psychiatry, which is a monologue by reason about madness, could only have come into existence in such a silence.
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> Foucault, *Preface to the* 1961 *edition*.

The French philosopher Michel Foucault is an important postmodernist who saw himself as engaging in "archeology," which he sees as a "metaphor for "digging deep" into the underlying rules and assumptions of the human sciences (Windschuttle 2000). He hoped that this digging will show how certain *discourses*—what sometimes Foucault also calls "regimes of truth" come to be accepted (temporarily) as true and how certain practices (again temporarily) come to be accepted as normal. These regimes are always contingent social and historical products, bound up with the economic, cultural, and political realities of their times.

Foucault suggested that modernity adhered to the Enlightenment ideals of scientific rationality, objectivity, dispassionate search for truth, and the universality of knowledge. However, Foucault argued life is full of inequities and oppressive structures of power that need to be exposed and criticized. He often used a historical method and indicates that this method reveals that there was a shift in "discourses"—and these need to be examined by the critical historian because in these linguistic structures can be found part of the mechanisms of power and oppression. In two of his most important books, *Madness and Civilization* and *The History of Sexuality*, Foucault presented a critique of the medicalization of mental illness and

sexuality—one discourse that emerged from quite different prior discourses. His critique is based on an examination of the context of post-Enlightenment discourse about madness as a failure of rationality—and how this failure defines the "other" who must be segregated from society.

He saw psychotherapy and psychiatry as critically involving issues of "disciplinary power" and sees the construction of categories used by psychiatry as attempts by the larger society to exert its interests as well as mechanisms by which doctors can exert power over those they deem to be mentally ill. In this contemporary discourse, problems with our beliefs or sexualities show up not as religious, spiritual, or moral issues—as they have in the past—but as technical problems that are open to rational discourse involving examination, classification, analysis, and intervention by suitably trained experts. For Foucault, although this has brought benefits, there are also losses and losers in this process. He also suggested that his historical research does not reveal a linear, progressive trajectory for psychiatry. He sees much therapy as "confessional" in which an individual who has an unsound will and unorthodox passions is "opposed" in a struggle of domination by the "healthy" physician. Foucault stated:

> We must apply a perturbing method, to break the spasm by means of the spasm…. We must subjugate the whole character of some patients, subdue their transports, break their pride, while we must stimulate and encourage the others (Esquirol, J.E.D., 1816 [12].

Foucault also critiqued the increasing internment of psychiatric patients which he thought consisted of involuntary commitment (internment), isolation, interrogations, punishment techniques such as cold showers, moral talks, strict discipline, compulsory work, relations of vassalage, of domesticity, and even of servitude between patient and physician. The physician becomes "the master of madness." Foucault pointed to the history of brutality in which the mentally ill are deprived of freedoms, confined in unsavory institutions, overmedicated, lobotomized, and even periodically shocked.

In some ways, Foucault's critiques are not new. The Soviets used psychiatry and asylums as an arm of the totalitarian state: committing those that would create their perfect state as "insane" in need of rehabilitation. However, it is important to know something of Foucault not only because he is an important postmodernist but also because he turns his attentions to subjects very close to clinical psychology.

Discussion

It is fair to say that the authors we are discussing in this chapter generally cluster on the Left politically. This raises some interesting questions. First, we note that although the postmoderns are writing against what they see as the entrenched orthodoxy and entrenched power, it is actually none too clear that those who hold power are actually on the Right as they seem to assume. What happens to the worth of these postmodern critiques when the Left is in power—or at least has more power—such was clearly the

case of the first two years of the Obama administration? Do these critiques become somewhat moot? It does not appear to be so because as Gross and Leavitt (1997) and Brown (2001) have noted, these critiques are usually from the Far Left. Certainly, these postmodernists are much more radically politically than the typical liberal democratic political view—most adherents of this kind of this more mild leftism would not see Newton's *Principia* as a rape manual, would hold more traditional views of science, and would generally be in favor of much more mild political and social reforms. However, if this is the case, then these postmodern critiques are not only relevant to the Right but also relevant to the mild Left often found among scientists, professionals, university faculty and administrators and state bureaucrats. To see these critiques as only applying to the boogey man of the Right is to create a straw man.

The case can be made that the (mild) Left has a fair amount of power in science and particularly in psychology. Rothman et al. (2005) found, for example, a 9:1 ratio of Democrats to Republicans among psychology faculty. This represents a dramatic increase from surveys taken in 1960s of 3.2 (McClintock 1962). (Although this is still not as skewed as other disciplines, the Democrat/Republican ratio in English was 19.3; Philosophy, 24.0; and History, 75.0 as reported in Klein and Stern 2009!) It is hard to make the case that with these highly skewed numbers, the problem with power in academia is that is a handmaiden to the Right.

Thus, through this lens, we actually see then a prong of the postmodern critique as the Far Left criticizing the soft Left. Then ought the force of this criticism be seen not only to apply to capitalists such as Gates and politicians such as Reagan, but the pedestrian management of the average department chair, or the rather general acceptance of the status quo by Left-leaning professional organizations such as the APA (O'Donohue and Dyslin 1996; Redding 2001)? And does the Left have its own oppressive and hegemonic practices such as Campus Speech Codes and other aspects of political correctness?

It is also interesting to note that these postmodern views are advanced with little use of economics, economic history, or political science. In this sense, they can also be quite naïve. What is the actual evidence of the effects of capitalism on poverty? What has brought more wealth and relief of suffering to the poor—capitalism associated with the Right or socialism associated with the Left? Where is the analysis of the evidence relevant to this question for these postmodernists? Are citizen freer in society's leaning to the Left or to the Right? What about historical situations such as East and West Germany? Is a market economy intrinsically a freer economy than a command economy as Popper would suggest? Although for them "progress may be a failed narrative," it seems like the percentage of humans across the world who do not go to bed hungry or sick has moved in the correct direction—and this move is based on increased wealth and the technology wealth can develop and disseminate. Who has done more good for the children of Africa-American white male heterosexual capitalists such as Bill Gates and Warren Buffet or Foucault, Lacan, and Derrida?

Moreover, what if an analysis of the power structure of capitalism shows that certain minority groups that have demonstrated consistent economic success such as Greeks or Jews are overrepresented say on Forbes list of billionaires? Does the sort of critique recommended by the postmodernists become anti-Greek or

anti-Semitic? What happens when liberation science discovers internal strains—such as misogynist rap lyrics of the authentic indigenous "local" culture of African-American gangsta culture? What is the quality of the "local knowledge" of Chinese women as they selectively abort females?

There is a salutary movement—because of the concern of money and commercialization of science for researchers—particularly those doing research related to the drug industry to be required to disclose their financial interests before their talks or in a footnote to their journal articles. The basic idea is that such disclosure increases sunshine and allows the reader to see whether the researcher has a stake in the outcome of the research. However, this is only a partial solution. For example, note that not all researchers are required to do this. Psychotherapy outcome researchers are not required, while psychopharmacology outcome researchers are. Psychotherapy researchers are not required to disclose all financial matters—positive results can lead to publications that can lead to merit pay raises at their university. Positive results are also more likely to lead to a higher probability of future grant funding—and researchers pay themselves summer salaries, fund trips, buy nice new computers, and pay for salaries for assistants from these grant funds. Moreover, researchers including psychotherapy researchers can make additional funds by leading workshops, writing books—particularly self-help books. Yet none of these kinds of financial matters are required to be disclosed.

Finally, researchers may not only be "in it for the money." They can also be in it for other kinds of goods such as fame and sex. If we want to disclose all the non-cognitive forces operating on the researcher so that we can assess to what extent the researcher's work represents "good science," do we also need to get some sort of picture of these other kinds of payoffs? How would we even do this—requiring researchers to disclose how many times they got lucky at the last convention? (Remember Kissinger's words, "power is the greatest aphrodisiac.") Or how many graduate students they have been able to marry? Or how many free trips they have earned to speak in nice locations?

I think it is good that the postmodernist have raised questions about the relationships between science and power. I do think it is rather one-sided though and expresses a political bias. It may be useful (and somewhat paradoxically consistent with some of their views) to look at this question from a variety of political lenses and not just that of the Far Left. In addition, it seems that some of the leaders of the postmodernism have given signs that things have gone a bit too far—that the proverbial baby is being thrown out with the bathwater. It is useful then to also seek a more balanced examination of some of the interesting questions raised by the postmodernists.

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