Chapter 7
The Naked and the Epistemologically Deadening: Understanding FIDUROD

The routines of FIDUROD have become so deeply ingrained in the thinking of contemporary Western peoples that such an epistemology has become the cultural commonsense of the world of the upwardly mobile and the socio-politically and economically privileged. Yet, what is fascinating about this epistemological dynamic is that at the same time it becomes this collective commonsense, there is a growing dis-ease with its consequences for individuals and the human species in general. Because there is no public conversation about such issues and epistemology is a word at this point used only in academia, there is no language, no conceptual lexicon with which to address the issues raised here in the popular space. Thus, at the end of the first decade of the twenty-first century we see individuals struggling to make sense of what's missing in their lives.

The rise of religious fundamentalism around the world is not unconnected to these dynamics. In addition, what Philip Wexler (2000) has brilliantly labeled "the mystical society" with diverse peoples exploring and reevaluating mystical traditions from a variety of sources also reflects this gnawing discomfort with the unnamed epistemological and ontological foundations of contemporary colonialistic Western social orientations. In many ways it is apparent that the wider public has been more insightful about the poverty of a mechanistic worldview than have most of the representatives of the educational establishment. This should be a humbling revelation to many academics, but for the most part they have dismissed this public discomfort as a manifestation of the irrationality of the under-educated masses. They have missed that which is profound in such feelings and intuitions. With these dynamics in mind, let us continue with our description of the characteristics of FIDUROD.

Invariance: The World Is Uniform and What We Study Remains Consistent

Advocates of FIDUROD have faith that the world is simply ordered and ultimately rational. In this epistemological belief system communicants trust that by following the steps of the scientific method this natural order and rationality can be realistically

J.L. Kincheloe, *Knowledge and Critical Pedagogy: An Introduction*,

depicted. In this process knowledge is formalized—transformed into rational disciplinary knowledge and deposited in the dominant canons of university knowledge (Yerbury & Kirk, 1990)—as it is categorized, ordered, and codified. Thus, knowledge that often resists neatness and tidy classification is transformed into compliant academic information. In this context we can discern one of the central dimensions of the epistemology and ontology of FIDUROD: the world is invariant, what we see now in physical and social reality is essentially what it is and we are—and will always be. The idea that the cosmos and human beings are on a much longer excursion, a trek on which we will evolve and change, is simply absurd in the invariant zone of FIDUROD.

It's not difficult, reductionists argue, the objects of the world will stay perpetually steady because the innate natural order of things will determine the actions of both the social and physical domains. These stable phenomena can be described best via quantitative analysis that employs the propositional language of mathematics. As previously mentioned this by no means is meant to convey that all quantitative research embraces the characteristics of FIDUROD. Indeed, there is much qualitative research undertaken in the present era that reports on and describes invariant phenomena without the help of social theory or an understanding of social construction. The objective for this type of formal research is the production of universal, unvarying knowledge that eventuates in theories that regularize human activity and make it predictable.

Here the correspondence dimension of the epistemology of FIDUROD comes into play, as researchers operate on the principle that once the phenomenon in question is delimited, controlled, and measured, direct correspondence between the knowledge produced and an external, universally exhibited phenomenon will be extracted. Thus, the knowledge produced is characterized by its invariance as the one and only reality that exists. Regardless of the observer, the reality that corresponds to the knowledge produced by FIDUROD will always be a single essence—the truth of what it really is. In this intractable epistemology the success of Western science is comprehensive and beyond challenge because the scientific methodology is fail-safe and the world is an ordered, rational entity. In the crystal clear, always sunny world of FIDUROD if one undertakes A then B will result. No matter where one goes or what dynamics might intrude, this relationship remains fixed. The blind monk in Umberto Eco's *Name of the Rose* could have conceptualized it little better (Griffin, 1997; Harding, 1998; Thomas, 1998).

The "truth" of FIDUROD, thus, is timeless, intractable, and value-free. This belief so saturates the perceptions of most radical proponents of FIDUROD that they see no justification for the use of socio-historical methodologies in their research. In this epistemological context we can better understand the growth of standardized, transmission-of-truth educational programs over the last quarter of a century. The smell of FIDUROD permeates the No Child Left Behind type top-down imposed education of the twenty-first century. Here, as I have observed in schools from rural Louisiana to New York City, the informational content, the order in which it is to be taught and learned, and the length of time needed to learn it is precisely proscribed—an intractable pedagogy for a body of intractable

knowledge. We all know the story by now: knowledge is fragmented into little memorizable fragments, such fragments are learned in isolation from other knowledges that might provide students with the meaning of what they're learning, and then students are given a post-test that tells us how well this low-level cognitive process has taken place.

Thus, we are taught early on to accept on faith the version of the world and how to produce it accurately that FIDUROD provides. In the trance of FIDUROD we ignore our intuitions, the voices of experience, and other ways of seeing produced by peoples around the world (Bruner, 1996; Harding, 1998; G. Jardine, 2005; Kincheloe, 2005b). Like parishioners in a fundamentalist Protestant church, we are taught the "King James Version" of the world—and we are heretics if we raise too many questions about the "Word" of the godlike scientific experts. The mere idea that there might be valuable constructions of the world different than such truth, multiple levels of reality, a web of reality that shapes the nature of our constructions, and dimensions of human ability not yet understood, is threatening to the high-status guardians of the Word. Tomorrow we could uncover a cognitive, psychological ability that everyone on earth could use that would dramatically change the destiny of the peoples of Earth. Many scholars emerging from the zone of FIDUROD might avoid the use of such an ability because it diverted too much from the sacred texts of mainstream cognitive psychology.

Proponents of critical pedagogy and a critical complex epistemology argue that humans are much less predictable and far more complex than the advocates of FIDUROD maintain. Humans are not intractable beings who act in predetermined ways. The human mind is more mighty than any machine humans have built, more receptive and insightful than any recording system or radio telescope, and more nuanced in its understanding of data than any word processing system. As humans communicate their unpredictability and their wide range of differences, critical educators maintain that individuals must resist FIDUROD's efforts to measure and categorize everyone. Indeed, unlike many proponents of FIDUROD, criticalists maintain that humans cannot—like machines—be divided up into discrete, measurable parts. They cannot then be accurately evaluated and rank-ordered on the basis of a particular measurement of these parts. Instead of concentrating on understanding, say, a child in school by getting to know him, examining his work at school, gaining insight into the background that shaped him, appreciating his hopes and fears, reductionistic researchers actually distance themselves from a child and remove the most revealing knowledges about who he is and what he needs. Once again, the ugly head of dominant Western culture's rational irrationality comes into view.

We have understood for over 2 decades that the everyday issues that teachers face are not simple and well delineated. They are anything but clear and easily characterized—Donald Schon (1995) labeled them "indeterminate zones of practice." Such issues are marked by complications, vagueness, complexity, distinctiveness, and inconsistency. Formal research methods are oftentimes inadequate in the attempt to deal with such complex indeterminacy. With the Western social scientific construction of the idea of the individual, there developed a failure in the ability of such knowledge producers

to understand humans in relation to the socio-cultural and physical contexts and processes of the world. If humans could be taken out of the contexts and processes of which they were apart, the research process could be accomplished with many fewer complications.

Social scientists argued in this context that such laboratory-type research could provide us with a "real and uncontaminated" picture of who humans really are. Getting rid of these obfuscating contexts and processes when combined with the elimination of irritants such as human interests, feelings, emotions, and objectives could produce the invariant knowledge for which Western scientists were searching. With such knowledge the regulatory functions of dominant social science could be accomplished: such scientists could categorize everything and everyone so better to discipline, stipulate, castigate, and compensate "deserving" individuals (Rouse, 1987; O'Sullivan, 1999; G. Jardine, 2005).

"What's it all about in education?" I recently heard an educational leader ask in a speech to a group of teachers. Not surprising, his answer to his questions was: "raising test scores." Not graduating smart and ethical people, democratic citizens with the courage of their convictions, but simply raising test scores. In that moment I realized how powerful the epistemology of FIDUROD had become, how far it had removed humans from the lived world and the effort to make sense of it and improve it. Our pedagogical goal in Western schools near the end of the first decade of the twenty-first century is not to understand and change the world, but is too perfect our ranking and classification systems in a way that diminishes the value of those people and those human abilities that can expose this, dare I say it again, rational irrationality of FIDUROD. Of course, this documenting and classifying impulse can be viewed both in No Child Left Behind and the racial classification work of the Third Reich. Both Orwell and Huxley were on the right trail in their socio-literary fears of what this classifying/regulatory impulse could construct in a dystopian future. Here there was little distinction between individuals, as they were viewed an unvarying "types" who could be regulated by universal techniques.

Invariance means that since particular causes produce specific effects we can predict what's going to happen in any system appropriately studied. Here rests the ultimate epistemological expression of linearity. As numerous scientists have recognized the non-linearity of both the so-called animate and inanimate worlds, debates have emerged about the nature of invariance and the traditional Western cause-effect universe. While many scientists recognize the importance of the move to complexity, one can quickly discern in education that many educational leaders and knowledge producers are still uncomfortable with non-linearity and ambiguity. Watching these reductionists operate, I often get the feeling that they are attempting to fit a multi-dimensional socio-educational cosmos onto a three-dimensional conceptual model—from my perspective I see an attempt to fit a square peg in a round hole.

Here we see why the invariance dimension of FIDUROD demands a critical complex epistemology informed by chaos and complexity theories. Chaos theory helps us to view a physical or social configuration as an ever-changing phenomenon, not a fixed, intransigent thing-in-itself. Chaos theory provides us a set of inquiries about nonlinear behavior in the context of complex, ever-changing

systems, in the process illustrating how a few ostensibly clear-cut variables may intermingle to construct unanticipated outcomes that display emergent connecting patterns never before observed. Chaotic behavior of this variety may emerge in ostensibly predictable systems when a particular dimension of the system is altered to the point that an "irregular" activity of the total schema materializes. In this framework we walk through the unopened doors of perception into a new cosmos where invariance is an anachronism and much more is possible. Critical pedagogues with their critical complex epistemology are beginning to get excited about what they can accomplish in this new epistemological dimension (Capra, 1996; McClure, 2000).

This is a good point to bring in the powerful insights of Humberto Mautarana and Fransisco Varela's Santiago Theory of **Enactivism**. Enactivism posits that living things constantly remake themselves in interaction with their environments. Thus, invariance is overturned and human possibility is dramatically enhanced. Critical pedagogy's notion of a new self (a critical ontology) and new modes of exploring the world are grounded on the human ability to use new social contexts and experiences to reformulate both subjectivity and knowledge. In this context the concept of personal ability, of being itself becomes a de-essentialized cognition/ontology of possibility. No essentialized, intransigent, bounded self can access the intellectual potential offered by epiphanies of difference or triggered by an ostensibly "insignificant" insight.

As teachers, psychologists, social workers, physicians, and other professionals begin to identify previously unperceived patterns in which the self is implicated, the possibility of cognitive change and personal growth is enhanced. As the barriers between mind and multiple contexts are erased, the chance that more expanded forms of "cognitive/scholarly **autopoiesis**"—self-constructed modes of higher-order thinking and intellectual work—will emerge is increased. A more textured, a thicker sense of self-production, the nature of self and other, self and knowledge, and all of these dynamics in relation to larger social, political, cultural, psychological, and pedagogical structures are constructed in this process. As we examine the self and its relationship to others in these situations, we gain a clearer sense of our purpose in the world especially in relation to justice, interconnectedness, and meaning making. In these activities we move closer to the macro-processes of the social domain and their micro-expressions in everyday life. The rigor of our knowledge production and pedagogy is enhanced.

Concerned with the limitations of monological, invariant approaches to knowledge production, critical educators subscribe to the "practical reason" of critical complex epistemology that operates in concrete settings to connect theory, technique, and experiential knowledges. Here the theoretical domain is connected to the lived world and new forms of cognition and research are *enacted*. Such enactment is the epistemological opposite of FIDUROD's invariant research and the knowledge it produces. This improvisational enactment moves research to a new level. This is the place where the multiple inputs and forces facing the researcher in the immediacy of her work are acknowledged and embraced. The critical complex researchers does not allow these complexities to be dismissed by the excluding, reducing impulses of

monological, universal, invariant methodology (Fischer, 1998; Weinstein, 1995; Maturana & Varela, 1987; Varela, 1999; Geeland & Taylor, 2000). Such a refusal is in itself an act of subversion to the dominant politics of knowledge.

In the critical complex epistemology and ontology that is informed by the intersection of critical theory and Enactivism, the material world exists, but it does not possess prearranged and fixed (invariant) features. No phenomena exist independent of human thought, individual cognition. The human process of making a map of any physical or social phenomena constructs in conjunction with the phenomena themselves the nature of what we perceive. The invariant epistemology of material realism simply dismisses consciousness—an amazing feat given that it is certainly one of the most phenomenal marvels of the universe I observe—asserting in the process there is one true reality. Even when individuals from different cultural and historical setting perceive divergent realities, the one produced by a scientific one-truth epistemology is the "correct" one. Criticalists working in the epistemological realm who challenge this one-truth epistemology are scholarly outlaws. The idea, advocates of FIDUROD contend, that human consciousness has a role in helping construct what is considered reality is pure "silliness" (Matthews, 2003). Scientists must put an end to this absurdity before it destroys what Western science has bequeathed us.

Data in FIDUROD's invariant epistemology are perceived in a uniform way by anyone using the scientific method. If the correct method is used, not only will perceptions not vary but neither will interpretations. "Knowledge in dispute" has no place in FIDUROD; if different interpretations exist, it is because the final truth has not yet been discovered. The researcher in this context is anonymous; she has no relevance at all in interpreting the world. Indeed, one of the great problems of the FIDUROD involves researchers' inability to discern the tacit and often unintended ways that knowledge is inscribed by the cultural and experiential background of the inquirer. In this context FIDUROD-grounded scientists rail against the criticalists who would politicize research, while at the same time allowing flagrant political interests to inform their own work.

Since analysis of the researcher's **subjectivity** and the conceptual structures employed in the research, are off limits in FIDUROD produced research much of what is called rigorous research simply props up the status quo of power relations and the status of dominant institutions. As the world has become completely colonized and commodified, researchers from dominant cultural backgrounds produce intractable and objective views of the world that avoid problematizing these realities in the name of scientific neutrality. This illusion of understanding keeps the world going round, the market functioning efficiently, school turning out well regulated and socialized citizens, the empire expanding. Without critical social theory and a critical complex epistemology, there is little left to challenge the neo-liberal, globalizing, imperial monster. FIDUROD plays an important role in imposing conformity to the norms and expectations of the dominant power bloc. With an intractable, objectivist epistemology dominant power is better able to bestow benefits on those who conform to and penalize those who resist "correct" way (Rouse, 1987; Harding, 1998; G. Jardine, 2005; Steinberg & Kincheloe, 2006).

Variables Can Be Controlled: The Forces That Cause Things to Take Place Are Bounded and Knowable

The world is completely knowable if we just follow the methods laid out by FIDUROD, the epistemological story goes. The fragmentation of disciplines and sub-disciplines, however, with their inability to even communicate with one another has created a disjointed information system that often fails to examine that which we don't know because of our epistemological and disciplinary arrangements. Thus, even when scientists faithfully follow the "correct" research methodology and "prove" cause-effect relationships between variables, they still many times produce information that is impoverished and reductionistic. In these studies particular phenomena are examined outside of a broader context, moving scientists in the process to misread the meaning of an event. If one examines, for example, the behavior of a high school student without understanding the contextual factors that shape her relation to the world at large and the school in particular, the researcher can get a distorted view of the meaning of the student's actions.

When recommendations for particular actions are made on the basis of such information, profoundly negative outcomes can result. When I think of the 2003 U.S. invasion of Iraq in this context, for example, I see clearly such negative outcomes. Indeed, the consequence is profound, as we sink deeper and deeper into an existential coma brought on by truncated understandings. With the notion that variables can be controlled and scientists can examine each phenomenon simply on its own terms, existentially and epistemologically comatose Western societies generally fail to see the interrelationship of the problems that face them. In the public discourse that takes place in the U.S., for example, many analysts fail to see how the prevailing epistemology and the politics of knowledge help lead the society into a disaster like the Iraqi War.

One of the many reasons that the U.S. made the fateful decision to preemptively invade Iraq involves the knowledge climate that existed around the time of the invasion. The voices of many of us from the critical community who were advocating anything but an attack while pointing out the consequences of such an invasion were simply ignored by corporate media and many mainstream publications. The decontextualized, dehistoricized studies of the region relied upon by many policy makers provided misleading views concerning the intense affect and the negative feelings of the Iraqis (and many other Muslim peoples) toward the West—the U.S. in particular—regarding the history of colonialism, the exploitation of oil, and the U.S.'s neo-colonial role in the region over the last half of the twentieth century (Kincheloe & Steinberg, 2004). When we begin to view a situation such as the Iraqi War from multiple perspectives, contexts, and historical locales, many will perceive our talk about interconnections, multiple ways of knowing, and the complexity that makes it impossible to control variables in a study as dangerous and subversive.

In this context monological and fragmented perspectives on a topic such as the Iraqi War provide individuals with the illusion that mastery—knowing all the relevant data—about a topic is possible. It moves individuals to disregard what we don't or

even can't know. When we are unaware of such limitations, we often make knowledge claims and engage in actions based on those claims that lead to tragedy. According to Ilya Prigogene (1996) an understanding of these epistemological limitations, or indeterminacy, is central to an overhaul of contemporary science. Such a perspective offers a direct challenge to FIDUROD's notion of complete and final knowability—*the forces that cause things to take place are bounded and knowable*. In the Cartesian-Newtonian world that led to FIDUROD the social and physical cosmos was viewed as totally causal and determinate. In this context the pressure to "determine" causality led (and leads) to grotesque misunderstandings of diverse phenomena (Bohm & Peat, 1987; Marijuan, 1994; Nissani, 1997).

The most extreme articulation of this notion of complete knowability was expressed by the eighteenth century mathematician Pierre-Simon de Laplace who argued that any scientist who was knowledgeable of the variables that shaped nature could know all there is to know about the past, present, and future (Goswami, 1993). Even though Laplace's epistemological matrix was zealous, it set the tone for much of the mainstream science that followed. For example, positivist researchers believed that the causal relationships between **dependent variables** and **independent variables** could be isolated from other factors that could affect the relationship. In most research—human-based inquiry in particular—it is not possible to control and assess the all the variables or to position the research in a simulated setting. In natural human contexts so many variables exist and so many of them are thoroughly irregular and thus unpredictable that such a controlling effort becomes futile.

The question critical researchers ask in this context is: what exactly has been learned when variables are reduced and controlled and the phenomenon in question is studied in a simulated setting or artificial context. The answer tends to be very little that is of compelling use in social, cultural, political, psychological, or educational domains is obtained in such a process. Even in the so-called post-positivist paradigms that have emerged over the past few decades, researchers hold on to many of FIDUROD's epistemological and ontological assumptions. They accept that there are universal laws that regulate the physical and social worlds. Such laws can be discovered and known beyond question by following rigorous research protocols.

Regardless of whether one is conducting quantitative or qualitative research, researchers can still accept traditional epistemological notions of cause and effect that are as decontextualized and deterministic as those who engage in **path analysis**—the process by which the causal relations between variables takes place. A critical complex epistemology and ontology understands that just because individuals performed A, and B occurred doesn't mean that every time Jim Bob performs A, B will result. In the complexity of everyday life no event takes place in a contextual void. Diverse factors always encroach on any circumstance moving it in a divergent or unexpected direction. Thus, in contrast to FIDUROD's final knowability, a critical complex epistemology proposes a level of indeterminacy; instead of one response, a range of possible yet tentative answers to a research question; and, in lieu of reductionism, complexity (J. Smith, 1995; Capra, 1996; Bettis & Gregson, 2001).

Thus, in the world of FIDUROD researchers believe that variables can be segregated and analyzed in isolation in the effort to discern particular causes for specific phenomena. In line with Sir Isaac Newton's laws of nature, such researchers accept as true the axiom that for every action there exists an opposite and equal reaction and that such dynamics can be detected and measured. As I have previously argued, FIDUROD-based scholars are intimidated by the complexity of the cosmos and of humans themselves. The world of phenomena, such researchers assert, is spick and span, but the clamor, noise, and disorder imposed on it by the humanness of living people makes them jittery. "Damnit," they lament, "research would be so much easier if we could just remove the process from this messy world."

Advocates of FIDUROD fantasize about a neat and tidy mode of social research in which inquirers can employ matching, neutral, infallible, measuring instruments. With their mechanistic, cause-and-effect linearity, many physicians, for example, tell us when our bodies malfunction that they can pinpoint one key factor that has caused the illness. As medicine advances, we have come to understand that most of the time the causes of sickness are many and multi-varied. Some of the causes of disease might be environmental, many psychological, and others physical. Stress, chemical pollutants, what we eat, emotions, heredity, viruses and bacteria all affect human health, and these multiple dynamics do not operate in some simple, easy-to-track manner. The processes of life, like social, psychological, and educational practices, are never simple. Thus, if they have any chance of making sense of the way such phenomena operate, critical complex researchers study them within the contexts and processes that grant them meaning.

FIDUROD works to resist this scary complexity that keeps creeping into the research milieu. Multilogicality, multiple perspectives are viewed in this single-cause logic of inquiry as manifestations of miscalculation at the least and warnings of wimpish relativism at the worst. Bring power into the mix and the proponents of FIDUROD head for the hills. At this juncture we come again to a central theme of this book: I am looking at knowledge production through both philosophical and sociological/cultural studies lenses. The importance of this point is that the study of epistemology is synergistic with the analysis of the politics of knowledge. They are inseparable, they work together to shape the nature of the knowledge produced and the beneficiaries of such production. Criticalists must understand that power operates on any research act both internally and externally. Power shapes the internal processes of research by helping to mold:

- The internal dynamics of knowledge production that deal with the way we think about the nature of knowledge
- The ontological ways of being in the world (as a thing-in-itself or a thing-in-relation) we have previously discussed
- The manner in which we design research
- The ways we deal with the contexts and processes in which the phenomenon in question is a part
- The means by which—in light of all these dynamics—we frame the logics of our inquiry, the research methods we use, etc.

The effect of power on these internal processes fit more within the epistemological domain. The ideological, sociological, and psychological dynamics that shape what subjects are researched, to what uses knowledge is put, and who has the influence to have their knowledge certified and made public fit with the external influence of power on research and what I am referring to as the politics of knowledge. Of course, both the internal and external influences—the epistemological and the politics of knowledge—are necessary to a critical complex understanding of many of the dynamics that undermine any simple, transparent knowledge of the world. The social and even the physical sciences that fail to understand these internal and external dynamics are unable to deal with a chaotic and complex reality that crumples at the edges as FIDUROD attempts to place a pseudo order on it. Indeed, in this context a critical complex epistemology moves away from the universality of the pseudo order, in the process embracing a complex diversality. We will develop this concept of diversality in Section 3 of the book (Rouse, 1987; Harding, 1998; Mignolo, 2001).

As we study FIDUROD's assertion that causation is restricted and completely knowable, imagine a study of classroom management. Thousands of educational researchers have analyzed classroom management over the last 40 years. The control of variables in such research encounters numerous obstacles including but not limited to sample size and the definition of both what is defined as good classroom management and its relation to particular educational achievements. Estimating conservatively, thousands of unimagined factors can profoundly shape what happens in any classroom. One student might react to a particular teacher's managerial techniques in one way, because of their home experience with "discipline" while another student with a different experience responds in a different way. A student, for example, who grows up in an upper middle class more "permissive" home may perceive an understated, gently coercive, non-corporal act of classroom management very differently than does a student raised in a working class home where discipline might be more rigid and often physical. To such a working class student such managerial techniques may be viewed as a sign of the teacher's weakness.

Further complicating the study of such a situation, another student reacts in yet another way to the teacher's mildly coercive discipline because of his long-term relationship with her. This student whose parents are good friends with the teacher, may know her outside of class as an adult friend. When faced with management of this kind, this student feels ill at ease because he is not accustomed to conflict in his relationship with her. What a researcher might view as a gentle chiding elicits a profound sense of embarrassment to the student. In this research context another student is disturbed by the presence of an outside observer and responds in a manner that conflicts with her prior conduct in the classroom. The researcher engaged in the observation of the teacher's classroom management and its effects finds it extremely difficult to account for the diverse variables that may shape what is occurring in the classroom.

Many experienced teachers understand such complications, knowing, for example, when a supervisor or an unknown observer comes to the classroom, the social climate may be dramatically altered. Students who might typically be "well behaved"

and who take part in classroom activities may abruptly become insolent and/or distracted. Thus, the diverse dimensions of students' and teachers' personalities, peoples' backgrounds, and an incalculable number of other factors shape what goes on in a classroom. This complexity/chaos elude the positivist tradition and FIDUROD. Thus, in decontextualized educational research where all the heads are bowed, all eyes are closed, and all variables are controlled, highly paid "experts" are brought in by schools to provide workshops on classroom management. Such workshop entrepreneurs give teachers the seven scientifically approved no-fail tactics that will lead to effective discipline no matter context or the students' background. Teachers, of course, faced with different students in different places know that these FIDUROD-produced universal methods of effective discipline hold little relevance for their complex everyday professional lives. Workshop coordinators pay little—if any—attention to the types of issues raised by our discussion of the politics of knowledge and epistemology.

The ability to manage a classroom is knowable, they assert—just follow these steps, stupid. What happens to these quick and easy steps if we account for the socio-political orientation of the teachers in question? What about the educational philosophy of the teachers in the workshop? Critical pedagogues would not be especially happy with disciplinary techniques that do not take into account the effort to treat each individual with dignity, the effort to, as much is possible, appeal to a student's inner motivation to contribute to a learning situation. What about factors of culture, race, class, gender, sexuality, religion, and physical ability? Might diversity in any of these categories raise questions about the nature and purpose of managing a classroom? If teachers don't consider such factors, the seven steps of the workshop entrepreneur can provide misleading information to teachers. And, of course, they quite often do. In fact, such decontextualized sure-fire methods can keep teachers from building respectful relations with students that serve to encourage, validate, engage, and move them to do great things.

Producing Certainty, the Truth: When We Produce Enough "Certain Knowledge" We Will Understand the World So Well That No Further Research Will Be Needed

The epistemology of FIDUROD is designed to produce the methods necessary to finding the truth. In this context a critical complex epistemology takes issue with FIDUROD, maintaining that epistemological understanding helps us comprehend why certain data becomes (or does not become) certified knowledge, the social and political economic impact of such a process, what is possible in the act of knowledge production, and how we might produce a thicker form of usable knowledge that accounts for the impact of where, when, and by whom it was generated. Rene Descartes, the father of the scientific method, argued in the seventeenth century that the only thing he was certain of was his capacity to doubt. Unfortunately, in his subsequent work on the scientific method he neglected doubt focusing much more

on certainty. Such a focus helped shape the subsequent history of Western science and what I am calling the epistemology of FIDUROD.

As referenced above, Pierre Simon Laplace provided Western science with one of its greatest expressions of certainty in his conception of determinism. All phenomena act the way they do because that's the way they acted in the past. Such thinking reflected a correspondence epistemology that saw science as simply a mirror of nature. In such a totally predictable universe there would be no need for a scientist to be innovative, creative, or develop a critical consciousness. Such deterministic certainty sees no need for a scientific or cognitive diversity that leads to innovative and new ways of thinking. Why would a rigorous science need to be innovative, creative, political, or diverse when all its doing is providing us certain truth about the world. Indeed, advocates of FIDUROD argue, such factors simply corrupt the objectivity and neutrality of the scientific enterprise.

To counter such regressive arguments, Sandra Harding (1998) maintains that there is no reason to believe that the ways of conducting research and producing knowledge developed in Western Europe and North America will be the most helpful and practical methods in the future. We will need new forms of knowledge production that are creative, sensitive to the needs of diverse peoples, informed by numerous insights, and aware of how an epistemology of FIDUROD leads to specific regressive political outcomes (Madison, 1988; Wolf, 1993; Allen, 2000; Hahn, 2005). What science or humanity itself for that matter will become is not certain and predictable—we will have to wait and see what the future brings. As John Lennon so succinctly put it in the song on the *Revolver* album: tomorrow never knows.

Formal positivism and what I'm referring to as FIDUROD have consistently searched for certain answers to human questions. Such a mission has had and continues to possess a definite end point of achieving final truth. Because, as previously noted, we can't control all the infinite variables that affect human affairs, the trek for such certainty is simply a flight of an immature epistemological imagination. A critical complex epistemology maintains that if we gain any insight from the history of science, it is that our understandings of the cosmos change and will continue to change in the future. The chance of reaching some point in time where no more research is necessary in a particular domain is not likely. In an educational context we again don't have to go very far to understand this epistemological issue. Ask any veteran teacher in a secondary school organized so that she teaches five periods of language arts everyday about the certainty of the world painted by FIDUROD. Chances are good that she will answer the question by speaking of how even though the requirements and lesson plans for each class are the same, each period plays out in sometimes a dramatically different manner.

Sometimes the teacher may gain a pedagogical insight in the second period that can be applied successfully in the next three classes of the day. A student in the third period may come up with a question that profoundly changes the flow of the lesson. Since, students in each class ask diverse questions, have unique personalities, possess different learning styles and emotional needs, and react differently because of the time of day, what happened at their homes before school started,

modified events in the school schedule, weather conditions, etc., teachers can never be certain of how a particular lesson will work. A standardized lesson plan for all five periods of the class may be possible, but because of the uncertainty of daily events uniform lessons are not. Even if teachers could control every lesson, such domination would impede learning because it would cut out student input. The interaction between teacher and students—as we'll discuss later in the book—is key to the creation of understandings and often times new knowledge and skills. Here is one of the key points where epistemology and education intersect.

Thus, FIDUROD's epistemology of certainty hides complexity under an epistemological burka in the process proclaiming the existence of scientific certainty. The ways that our backgrounds, concerns, everyday cultural practices, and language shape our perceptions of the world are, of course, ignored in this epistemology of certainty. In this context, scientific understanding exists outside the boundaries of space and time—the FIDURODian observer comes from no place or historical time. With this in mind we can discern that reductionistic knowledge producers seek certainty through the process of a disengaged perspective—it is disengaged in the sense that we do not perceive within the confines and limitations of the world. Whether we realize it or not individuals always view phenomena from a particular historical era and a specific cultural space. Ignoring or hiding this reality is tantamount to failing to account for wind speed when timing a 100-meter dash. Runners compete in the world, not in a vacuum. Teachers teach in the world, not in the land that time and space forgot.

A critical complex epistemology asks how can we know that we have produced certainty when the social, cultural, and political dynamics that shape our conceptual structures are constructed right along with knowledge itself. These conceptual schema and the knowledge of our sciences evolve together and are inseparable from one another. And this is the part that FIDUROD has swept under the theoretical carpet. One profound difference between the epistemology of FIDUROD and critical complexity is that the latter takes on the difficult task of studying these diverse constructing dynamics. In this context criticalists come to understand that without such analysis, researchers find it much too easy to simply reproduce the prevailing wisdom of the day. Of course, like all knowledge and cultural perspectives such prevailing wisdom does not age well and can cause numerous problems. Indeed, the production of certainty has its costs.

Advocates of FIDUROD seem to fear these critical epistemological analyses as threats to the scientific enterprise if not reason itself. I find such fears quite strange and in many ways inexplicable in a scientific world that has found itself confronting increasing manifestations of complexity and uncertainty over the last century in particular. Quantum physics and Werner Heisenberg's Uncertainty Principle, for instance, did not contribute to an impression that science was the provider of final truths about the universe. Why do the defenders of FIDUROD find it so disconcerting to deal with diverse cultural, subjugated, and indigenous knowledges? with knowledge produced by the social and historical studies of science? with the feminist critique of science? Are human beings in the epistemology of FIDUROD viewed as such fragile creatures that they need some final prevailing "truths"—no matter how

problematic they may be—to sustain their sanity? I feel enough of an outsider to dominant culture to view this mainstream epistemology as a logic that too often deploys certainty in a way that props up a grotesque authoritarian, moralistic, and oppressive status quo.

While by no means advocating some spineless form of relativism, I don't believe that we must always resolve the meaning of certain dimensions of our knowledge production. Sometimes with the benefit of historical distance, for example, we can make more sense out of a particular phenomenon after our research is "completed." While I am deeply committed to critical action for social justice, I am always suspicious of definitive universalistic conclusions derived from the research we conduct. Thus, we engage in critical practice based on the best information we have, always mindful that we may know and act more intelligently as we understand oppressive situations in more complex ways. Using William James and John Dewey's pragmatic test—what is the consequence of the ideas we hold about the world?—a critical complex epistemology embraces a fallibilism that constantly strives to do better work in the world.

The great epistemological irony here is that beginning our knowledge production and analysis with the assumption that we are going to produce certainty often creates problems worse than the ones that originally existed (Bohm & Peat, 1987; Rouse, 1987; Harding, 1998; Geeland & Taylor, 2000; Peat, 2007). Using fossil fuels for generating power may in the long run make the human species worse off than it was before such processes were discovered. If the logic of profit undermines taking the actions necessary to reverse global warming, the destruction of human life might be considered a bigger problem than slow transportation and other forms of daily inconvenience. Gaining more scientific data about the development of large scale agricultural production for the creation of high profit-generating agribusiness with its pesticides, destruction of land, and genetically altered plants may undermine the quality of both human and animal life far more than the more "inefficient" yet environmentally sustainable methods of small farmers.

In these examples particular social structures, the logic of profit as just one of them, may induce knowledge producers to focus on one dimension of transportation or food production and not another. It is a restricted mind that believes that fast transportation was the only way humans could have achieved "progress." Is it not possible that focus on another domain of study could have found an innovation that precluded the use of oil and other fossil fuels and the numerous social, physical, environmental, military, geo-political, etc. side effects they have precipitated? To be whimsical, what about a transporter such as the one on *Star Trek*? Beam me up, Paulo. Maybe it would have produced its own side effects, but the point is that there are always creative alternatives to our problems. Believing that there is one certain truth about such matters prunes our imagination, our ability to discern more complex visions. The quest for certainty is an "imagination-buster," as it mechanizes the cognitive and knowledge production processes in ways that shatter possibility. A critical complex epistemology maintains that we can do better.

As this quest for certainty proceeds, we find that much of the knowledge and many of the actions that emerge from such certain information are actually grounded

on an inappropriate form of measurement of particular isolated variables. Such measurements produce scientific information, but tell us nothing about the larger context from which the phenomenon emerges. We don't base our actions on an understanding of the big picture, but on a juvenile certainty of the value of particular assessments (Saul, 1995). Here, I can't keep the image of educational leaders proclaiming that the purpose of contemporary schools is to raise standardized test scores out of my consciousness. Ignorance always accompanies the proclamation of knowing. FIDUROD's ignorance in this context involves seeing any benefits produced by traditional science as a manifestation of its epistemological/methodological superiority while viewing the damaging side effects of science as the result of its misuse. This epistemological arrogance, this assertion of the certainty of the knowledge produced has created a darkness on the edge of FIDUROD town.

Objectivity Is Possible: Facts and Values Must Be Separated in the Production of Knowledge

An epistemology of FIDUROD makes it very clear that objectivity exists. The formalist dimension of the epistemology sets up the conditions for objectivity via the assertions that:

- Language is transparent in that words have unmistakable meanings.
- Rational humans are capable of discerning these meanings.
- Rationality is a dynamic that exists apart from the context in which it was created.
- The world is ordered and structured and can be understood by the faithful and precise application of the scientific method.

In FIDUROD's formalism the world and its physical and social phenomena can be understood unambiguously and realistically. Using the proper methods, the argument continues, researchers and educators can overcome any taint of haziness, skepticism, doubt, relativism, ideological inscription, subjectivism, or constructivism. The interpretation of data in this framework has nothing to do with creativity or what hermeneutics calls horizon—the context(s) in which a phenomenon exists. Multiple interpretations of scientific data cannot exist because there is only one valid interpretation. Indeed, the point of research is to find this interpretation, this explanation of true objective reality. If different researchers come up with divergent interpretations of an entity in their research, then FIDUROD demands that the evidence must be rigorously analyzed so that an objective understanding of the true meaning can be confirmed.

Here again we come back to Rene Descartes' seventeenth century rearticulation of Aristotle's ancient Greek notion of objectivity. The basic concept, of course, is that the things of the world are totally detached from human consciousness—there is no connection between mind and matter. A critical complex epistemology is dedicated to reconnecting mind and matter, in the process reshaping the way we

conceptualize knowledge, research, education, and even the nature of the universe. Even in the ontological realm, FIDUROD's abstracted individual leads to a detachment from the world and other human beings. Thus, the formalistic grounding of objectivism holds chilling consequences. Such consequences include, but are by no means limited to, narcissistic tendencies in Western and Western dominated societies that lead to a multitude of socio-political pathologies including alienation, isolation, nihilism, and depression. Mind and matter, criticalists argue, are connected. Indeed, everything our mind does affects our perception of the phenomena that surround us, the contexts of which we are an inseparable part.

At least there are both physical and social scientists who now understand these contextually sensitive epistemological dynamics. Numerous knowledge producers from diverse domains have called for more study of how scientists reach conclusions about issues of interpretation and the reliability of data, how they choose which problems to study, how they decide when to conclude a research project, and how they draw upon the work of other researchers and trade data. Despite these encouraging developments, advocates of FIDUROD still hold to the notion that human consciousness discovered reality already ordered and well-organized. Such an epistemological configuration reminds me of Homer Simpson jumping into a cartoon Springfield with all its physical and human phenomena already drawn, animated, and in place. Here mind and matter are still quarantined—with FIDURODian researchers always partial to matter. Mind and its impact are too often dismissed as irrelevant aspects of the cosmic equation. A critical complex epistemology sees the world as a compound like water, with consciousness being an indispensable element. What reality would be like without consciousness is an unanswerable question (Leshan & Margenau, 1982; Madison, 1988; Gergen, 1996; Thomas, 1998; Thomas & Kincheloe, 2006). If such is the case, where then does objectivity fit?

From the outset the epistemology of FIDUROD assumes, without questioning, that the purpose of knowledge production is to produce objective truth by separating facts from consciousness and the values that always accompany it. Moreover, the literature that supports reductionistic, decontextualized modes of epistemology is short on explanations of exactly what is meant by objectivity. Does it mean that the knowledge produced by research correspondences to "true reality" or does it denote that any reasonable person could reproduce the data the researchers produced? Sandra Harding (1998) maintains that the term objectivity has been related to at least four different kinds of entities: The first involves knowledge claims that are "better supported by evidence," are "more accurate" than other information. The second pertains to research methods determined to be more rigorous because they are standardized and depersonalized and thus, provide more truthful data. The third relates to the nature of particular knowledge-producing communities—aggregations of experts, distinguished scholars, members of particular academies, etc. The fourth is used to denote non-objective entities, that is, groups of people who are too politically oriented, too committed to a cause, too emotional to be capable of objective analysis. Such groups would include civil and human rights organizations, anti-sexist or anti-homophobic consortiums, environmentalists, patients rights associations, etc.

These epistemological perspectives show up day after day in the social world. In the world of curriculum development, especially in the era of No Child Left

Behind, it is viewed as nonsense to assert that knowledge has anything to do with the consciousness of the knowledge producers. Such an idea undermines the purity of the information provided to students. In the same context the notion that the subjective experience of students might be taken into account as we think about what knowledge might be of the most value to them is dismissed as a misguided pedagogical concept. The proposition is undebatable—the production of objective knowledge involves making sure that facts and consciousness/values never intersect. So adamant are the advocates of FIDUROD concerning this separation that they view **constructivist** modes of epistemology similar to the way right-wing zealots labeled individuals interested in social justice as communists in the last half of the twentieth century.

All of this takes place, of course, without the word, epistemology, being used. "That Joe Kincheloe," William Bennett sneered, "is nothing more than a constructivist." There's an invisible humor embedded in these socio-epistemological dimensions of FIDUROD—the effort to stay within these reductionistic, one dimensional boundaries cause researchers and educators to engage in some amazing tightrope walking. I have always found it humorous (and tragic) that there is only one truth to be passed on to students in many Western schools. As a young middle school teacher in Tennessee I was asked by my principal to coach the school's social studies team for an academic contest. I worked with the students in the areas of history, geography, political science, prepping them for the competition. The students knew a lot of facts, and we made it through to the regional finals.

Throughout the contest I had challenged the right wing, one-truth answers to questions that were obviously interpretive and highly subjective. For example, the "correct" answers to questions about Marxism were, to say the least, ideologically inscribed. When one of my students would give an answer that was ruled incorrect on ideological grounds, I objected. At the finals I made a couple of ideological objections to "wrong" answers given by members of my team. When I was in the middle of my third objection, the locally prominent judge threw me out of the contest in the process making me leave the building. "I'm not going to let this obnoxious teacher," he proclaimed to an approving crowd, "turn this important contest into his political soapbox." Obviously, the answers were only political if they challenged the prevailing ideology. I sat in the car until the end of the contest pondering epistemology and the politics of knowledge. I remember thinking of how men often degraded women in arguments by saying, "damn, honey, can't you just look at this objectively?" They could always win arguments using this tactic, as it made the wife look weak, feminine, emotional, and irrational. Obviously, I'm still thinking about how this all works.

As we read Sir Isaac Newton's famous pronouncement about the way a scientist should treat nature—"bind her to your service and make her your slave" (quoted in Rouse, 1987, p. 20)—we understand that the scientific method did not simply materialize out of thin air. It came from a particular place and time from individuals with particular ways at looking at Mother Earth, the woman in the moon, and women as servants to men. In addition, if we coerce the phenomena of the world to serve us we succeed in keeping mind and matter separate. Implicit in Bacon's quote is not only misogyny but also the separation of knower and known. This separation and

the ontological thanatos it constructs helps create an alienated selfhood as well as a crisis of meaning stemming from a lack of understanding of how knowledge is produced, certified, and deployed.

As distrust of science continues to grow among many segments of the public, the forces of FIDUROD fight harder to maintain an authoritarian control over the domain of knowledge. It is difficult to fight such distrust when more and more people understand a scientific value system that has not respected life systems or ecological balance. The technologies constructed by science have not been particularly interested in harmonizing with the natural technologies of the planet. People take note of pollution and its cancerous effects in their own lives and those of their loved ones. If science in its FIDURODian articulation is the best game in epistemology then it is understandable that a crisis of meaning has emerged that will ultimately change who we are as a species and where we are going. If these are the outcomes of scientific objectivity, then there must be a better way to produce and use knowledge. A critical complex epistemology wants to have a voice in shaping the direction and the value structures of such a transformation in knowledge work (Parker, 1997; O'Sullivan, 1999).

As critical educators and critical theorists critique the notion of objectivity, they are often misunderstood. If objectivity meant only trying to limit the way biases move researchers to "cherry pick" what data they used in their research, to be very careful about their choice of sources and the interpretation of their meanings, or avoiding purposeful distortions of data to support their thesis, I would have no problem with using the term. The point here is that objectivity in the epistemology of FIDUROD means much more than this. Critical complex epistemologists have deep problems with an objectivity that

- Removes phenomena from historical, social, and cultural contexts
- Avoids analysis of the researcher's frame of reference
- That refuses to study the way prevailing values are inscribed on the knowledge researchers produce
- That in the end promotes particular ideological outcomes in the name of neutrality

As a criticalist my ideological and epistemological sensibilities are offended by the way the objectivity of FIDUROD erases the way theoretical frameworks, diverse assumptions, and particular logics of inquiry construct the production and transmission of knowledge. An economic study, for example, that indicates how profit margins of the Bechtel Corporation can be raised by 34% at an Indonesian construction site by particular policy changes without exploring the impact of such a policy on Indonesian workers, the Indonesian economy, and its local environmental impact may reveal little about the neo-colonial nature of the situation under study. The reason for such neglect is that those who funded the study don't *value* these concerns, as they focus on the bottom line for Father Bechtel. In this example we can clearly see the way facts and values are inseparable even when objectivity is claimed.

In the Bechtel example of the epistemological perception of the existing relationship connecting the transnational corporation to the economy, environment, and peoples of Indonesia, researchers may (or may not) be politically unaware of the consequences of

their actions (Giroux, 1997). The key point here is that there is nothing embedded in their FIDUROD-based research strategy/epistemology that would induce them to ask such value questions. In a critical complex epistemology such value concerns are a central aspect of any knowledge work. As one would guess, the educational strategies and purposes that emerge from these divergent epistemological dynamics are also acutely different. An educational orientation—a critical pedagogy—based on a critical complex epistemology is one that is sensitive to the hidden values of mainstream knowledge production and thus the ideologically inscribed information peddled as objective knowledge. With this in mind it becomes much easier to understand why we critical pedagogues are so concerned with challenging dominant power and questioning the authority of knowledge producers and school sanctified methods of knowledge transmission. This is why a literacy of power is so central to a politics of knowledge.

So unlike the advocates of an objectivist epistemology and the research and pedagogy it supports, criticalists never consider the production and transmission of knowledge a value-free activity. Popular representations of objectivist researchers echo the prevailing epistemological belief that the only dimensions that restrict a scientist's work are her creativity, intellect, curiosity, and proper research methodological training.

Such a faith is deceptive because values and politics always mold inquiry. You don't have to hang around higher education very long to understand that if a school of nursing or a school of education is ruled by FIDURODian assumptions about the correct way to produce knowledge, gatekeepers may happily deny tenure to those who stray from the dictates of "true science." And obviously, because monetary grants from government and private organizations many times shape the type and subject of inquiry that takes place in higher education, too many funded research projects merely reflect the values and concerns of funding organizations. By the way, thank you for smoking.

Even after all of this, the disciples of FIDUROD continue to argue that rigorous researchers should always contain their opinions, value judgments, and ideological orientations. These objectivists forcefully maintain that empirical research is by nature value-free, because values are intrinsically contaminated. Thus, the prestidigitators of FIDUROD labor to perpetuate the fantasy that knowledge emanating from their research is politically and ethically neutral. The scientific mind, the argument continues sets mind apart from world. Any dynamic that imperils this severance of mind and world allows values to contaminate the recipe for objectivity—alas, the advocates of FIDUROD cry out, it endangers the very future of knowledge. Thus, critical pedagogues maintain that the trolls at the FIDUROD bridge must be exposed, and the epistemological impulses that determine what counts as validated facts must be exposed for the world to see (Garrison, 1988; McClure, 2000).

The failure of FIDURODian objectivism undermines the quality of the knowledge it produces. Research can never be neutral, for humans cannot escape the requirement to choose the precepts that channel their research. For example, the positivist tradition and FIDUROD directs our attention on pedagogy as a technical activity (Williams, 1999). When educational knowledge producers measure particular dimensions of education to see how well school districts or certain teachers *are*

doing, critical complex epistemologists cannot detach this question from the ideological problem of what schools *should be* doing. In this context a central dimension of our epistemological discussion arises: when the researchers guided by FIDUROD construct the standards via their research instruments that measure the quality of the educational work schools are doing, they have concurrently determined the purpose of their pedagogical work.

This is not how such a process is supposed to operate. Evaluation must not determine purpose. When it does it becomes an ideological instrument of socio-political regulation. This form of social control works so well because all the time it is regulating what can and cannot take place, it is proclaiming its everlasting objectivity. Too many times in my experience in and study of schools I have witnessed researchers depict students' readiness for academic work as connected with their willingness and capacity to follow orders, defer to authority, and conduct themselves as "team players." Of course, the schools that receive the best appraisals know to teach these skills. FIDUROD's objective mode of identifying a student's readiness for academic success hides some very explicit socio-political values. From a multitude of ways to define the notion of student readiness to learn, objectivist researchers often pick the designation of the concept most directly reflective of their social, political economic, and cultural assumptions.

Historical study (Kincheloe, 2001) often reveals that such assumptions are grounded on a market driven desire for submissive laborers inclined to comply with edicts without "attitude," conflict, or defiance. Despite the protestations of the researchers guided by FIDUROD, they make value-laden choices. They quickly lose any claim to political innocence. The crisis of meaning precipitated by the failures of FIDUROD push researchers and educators into a labyrinth characterized by modes of self-distancing from the world, its diverse contexts, its complex processes, and other people. By now we know what happens to the knowledge that is produced in such truncated contexts. Again, we see the way epistemology and the politics of knowledge intersect, in the process exacerbating the effects of one another. It is not hard to see that the philosophical is political and the political is philosophical no matter how vehemently the advocates of FIDUROD strive to undermine such an insight. Such a synergy is key clue in understanding the way power shapes knowledge, infuses values, and undermines any fatuous pretense to objectivity in the neo-imperial, corporatized, globalized era.

One Reality: The Goal of a FIDUROD-Driven Pedagogy Is to Inculcate That Reality Into the Minds of Students

The knowledge producers grounded on the epistemology of FIDUROD seek out the one and only objective reality that exists in total isolation from those conducting the research. The objective reality produced by these reductionistic researchers, of course, corresponds to the intractable, independent, "true" reality "out there." One way, FIDUROD becomes the tacit, unspoken mantra of those researchers seeking

this one true reality. In this epistemological process the fragmented disciplinary system of all Western educational endeavor facilitates the compartmentalization of information into chemistry, economics, biology, nursing, law, political science, geography, physics, education, etc. In the spirit of John Willinsky's (1998) multidimensional notion of learning to divide the world, the fragmented efforts of the "disciplining" of Western knowledge of the one reality serve undermine the holistic nature of the way the physical, social, psychological, and educational world operate. FIDUROD forgets that it is the epistemological lens we impose on the phenomenon surrounding us that gives us the bizarre impression that we can answer all possible questions about the world in a direct, unproblematic manner (Madison, 1988; Gee et al., 1996).

In the FIDUROD-driven halls of academia, knowledge produced by rigorous researchers and the disciplines that collect and store such information are as natural as an afternoon thunderstorm in central Florida—it could have been no other way. As the disciplinary knowledge collections grow, disciplinary researchers escape to FIDUROD's Fantasy Island where they explore one narrow strand of specialized knowledge. Isolated on the island the researchers create their own Dharma Project where they produce data about their chosen province of reality. Thus, in this reductionistic academiverse researchers demarcate their terrain and get on with the task of delineating the nature of their one slice of true reality. Fending off all poseurs from other disciplinary islands who might intrude on their work, the FIDURODians refuse interaction with those who might bring a new perspective, a new angle on their chosen phenomenon. In their isolation, their lack of input from other knowledge producers and individuals with different relationships to the domain in question, the knowledge of the one true reality these researchers produce can be quite dangerous. Indeed, it can lead to policy making that fails to account for the multidimensionality of the phenomenon and the effects of viewing it from only one perspective.

In such an epistemological context the critical theoretical impulse to produce knowledges that exert a powerful, life-affirming, social justice-oriented effect on the world is severely thwarted. No doubt, there are multiple reasons for such an impulse. One factor, however, involves the fact that researchers in their effort to explain the one true reality fragment and isolate the phenomenon to the point that we are left passive before such a disembodied and eviscerated view of reality. Standing before this fragmented cosmos where all wholes are reducible to their smallest components, humans lose their sense of meaning and their will to act. The affective dimensions of knowledge are ripped apart, the complex orders in which data patterns emerge are lost, and interpretive insights that allow us to discern our personal relationships to the world are dismissed as knowledge is reduced to mechanistic fragments, to trivial truth statements that mislead more than enlighten. FIDUROD's quest for the one materialist true reality, the isolated things-in-themselves de-eroticizes our relationship with learning and the world itself.

Losing this life force, the libidinal energy, the creativity of our encounter with the phenomena of the world moves secondary and university students to devalue education to the point that they see it having nothing intrinsically important to offer

them. It is only a hoop to jump through in a larger effort to attain financial stability and a degree of status. FIDUROD is at loggerheads with eros, as it lays the foundation for the imperial machinery that is destroying the planet and the lives of billions of its inhabitants. The one reality FIDUROD seeks to discover and measure emerges as the reductionistic terror of absolute reality. Here, all that is available through the research strategies and the "everyday" consciousness that FIDUROD produces. Such a one-reality perspective on a multidimensional world creates a prison for our consciousness and our cognitive abilities that restricts our ability to act in the world to address human suffering. An amazing world with so many deeply embedded and occluded features—many of which cannot even now be imagined—is pulsating outside the borderlines of FIDUROD (Griffin, 1997; Nissani, 1997; O'Sullivan, 1999; Pickering, 1999; Hellstrom & Wenneberg, 2002). As all this is taking place, I see Officer Barbrady of *South Park* admonishing onlookers to "move on, folks, there's nothing to see here."

The possibilities offered by the multi-dimensional world we inhabit and the **bricolage** of ways to study and make sense of them are quashed by numerous monological ways of perceiving a single true reality. In many ways these monolithic ways of perceiving are modes of fundamentalism—outlooks that emphasize a narrow and literal-minded fidelity to a set of fixed unchanging precepts. In fundamentalism whether it be religious or epistemological, there is little room for diversity of opinion, for questioning the central tenets of the faith. The critical complex valuing of difference is quickly dismissed in FIDURODian fundamentalism, for such multilogicality will lead us away from a knowledge of the one true reality. Something is wrong with such fundamentalism when it sees ethical concern with the production and use of scientific knowledge as a contaminant in the doxology of pure science. I understand that it is dangerous to question the power of FIDUROD in a time where prevailing opinion supports it—but criticalists have no choice, they must question it while offering alternatives to it.

This broad articulation fundamentalism permeates both contemporary culture and many aspects of scientific culture as well. Here we witness another dimension of the right-wing recovery movement—the effort to recover the dominance of traditional Cartesian-Newtonian-Baconian ways of seeing that will undermine any propensity to rethink the way we produce knowledge and, of course, the actual knowledge we produce. In epistemology we watch the U.S. government consider only that knowledge produced by the "gold standard" of scientific experiment, while in the test-driven curriculum we see a Eurocentric worldview inculcated that carefully designates the Western heroes and the non-Western or sub-cultural Western villains. Thus, the unabashed purpose of contemporary standardized curricula is to pass FIDUROD's one true reality in all its fragmented glory into the brains of students. Children, the epistemological and curricular fundamentalists argue must be told what to think. What they don't need, the argument goes, is not some over intellectualized notion of how to conduct multiple forms of research and the freedom to explore divergent viewpoints about the nature of reality. My god, the employment of such a critical, multilogical approach to knowledge and education would mean the terrorists had won.

FIDUROD's belief in a one truth, monolithic reality represents knowledge as a substance that can be deposited in Freire's data bank, transported from place to place, and transferred from one mind into another. A critical complex epistemology rejects such a commodity view of knowledge. As previously argued, knowledge is intricately embedded in complex contexts and holistic frameworks. The idea that knowledge exists in fragments and is best taught by passing such fragments from teacher to student is a form of stupidification (Geeland, 1996; Kimball, 1996; Barros, 2004; Thomas & Kincheloe, 2006). I have been obsessed with this episto-educational dynamic since I was a student. When I speak with undergraduate and even many graduate students about their school experience, I still find at the end of the first decade of the twenty-first century that they equate learning with memorizing.

It is not uncommon in these conversations with students to find that even after 12 years of elementary and secondary education and a few years of undergraduate and graduate education, they have never been asked to think about the purpose of what they are doing or consider the process of knowledge production. Knowledge has been presented to them as a digested product, not as something produced by human beings that is contested and inscribed by power. Such students have never been asked to engage with the origins of knowledge—they have only been required to learn it as the valid reflection of true reality. Thus, in this context we observe yet again the intersection of the politics of knowledge and epistemology. This time to produce fragmented, easily consumed knowledge that teaches students not to think in a critical and more rigorous manner. Indeed, in this situation students are being taught to follow direction, to submit to authority, to accept schooling as a form of regulation (Macedo, 2006; Thomas & Kincheloe, 2006). I am still amazed that such a situation exists in contemporary socio-political and educational life.

Those of us who study contemporary education watch in horror as educational technocrats operating on this epistemological assumption that there is one true reality develop curricula and institutional strategies for schools as if there were no complications in the purposes of schools in democratic societies or in the politics of knowledge of the contemporary era. What's the problem, the mainstream educational technocrats ask, with assertions such as: "Balboa discovered the Pacific Ocean"; "the Indians were an impediment to Westward expansion"; "the British ruled their empire with a stern but benevolent hand"; science and technology have brought about the advanced way of life that Western societies now enjoy"; "the free market has been found to be the best mode of economic organization"; "after the Mexican War ended in 1848 and land disputes had been resolved, the size of the U.S. dramatically increased." The role of the teacher is simply to pass this data along to students and test them on how much they have "learned."

In contemporary schools there is no reason to ask questions about whose view of the world is reflected in such facts or what values and assumptions are embedded in them. In a Western culture that instructs students to respect science, scientific experts, and the methods of FIDUROD and to accept on faith that such dynamics are providing us the truth about the one true reality, criticalists have much work ahead of them. The widespread dissemination of the authoritarian voice of FIDUROD suppresses our

concerns with diverse knowledge, the political economic dimensions of knowledge production, and the complexities of interpretation. Dominant scientific thought considers such questions as soft, feminine, and irrelevant—not real scientific discourse. I have been asked countless times as I discuss these issues, why don't I just get on with doing research. The answer is clear: those researchers who don't ask such epistemological questions and who ignore the politics of knowledge often work either consciously or unconsciously to support an unjust status quo.

Educators who see pedagogical issues only within the framework of educational study make a big mistake. No educational question is isolated from social, cultural, political, philosophical, economic, and psychological concerns. Once such dynamics are taken into account in educational analysis, we can begin to see how pronouncements that assume that there is one true reality about teaching are in a way epistemologically primitive. An infinite number of examples—even in the first years of the twenty-first century—of scientific experts suggesting courses of action that are limited, unaware of diverse perspectives, and disastrous. Coming immediately to mind are the architects of the Iraq War, the designers of No Child Left Behind, those who formulated the governmental response to Hurricanes Katrina and Rita, those in charge of environmental protection, the gurus of television news, ad infinitum. Using FIDUROD's model of one true reality, such experts disregarded perspectives of most world leaders in the Iraqi debacle, the voices of those living in New Orleans and along the Gulf Coast in the Katrina and Rita tragedy, the insights of indigenous peoples living in far northern lands in global climate change, and the perceptions of subjugated peoples around the world in the trivialization of television news.

The normal science of the disciplines of study from which such experts emerged had already identified the true reality, and none of the other perspectives or ways of seeing referenced here had anything to do with the world they had constructed. Without an understanding of the epistemology and politics of knowledge we are dealing with here, such expert proclamations of rational irrationality will continue to drive planetary affairs. This is bad news for the planet and its inhabitants—and this is what a critical complex epistemology seeks to address. The epistemology of FIDUROD tends to produce data in lieu of wisdom. Here observers are confronted with the ideas that technical proficiency is not the purpose of critical knowledge production and critical pedagogy.

Simply vomiting back FIDUROD's description of the one true reality is not the purpose of critical education. The mechanistic view of the cosmos and of human life does not fit with a critical complex epistemology and ontology. Examining things-in-themselves as manifestations of the one true reality as opposed to studying constitutive interactions and relationships misses the point of a complex criticality. To overlook the notion that epistemology and scientific methods are as much social constructions as any other human creation is to operate with an uncritical view of traditional science as a transhistorical and transcultural phenomenon. Answers to questions emanating from any discipline cannot be answered in a final, intractable manner if we act on these understandings. And that is a good development, as it makes knowledge producers more humble and more dedicated listeners to individuals

with perspectives different than both their own and those of their **discourse community** (Nissani, 1997; Lepani, 1998; McClure, 2000; Kincheloe, 2005b).

Thus, the effort to discover one, final true reality is flawed from the start. If we begin with the notion that diverse peoples construct differing views of reality and that these perspectives always co-exist, then our orientation toward knowledge production begins to change. What do we tend to see when we come from this place and time with these cultural and ideological orientations? Such an inquiry becomes far more important in a critical complex epistemology than in FIDUROD. Not only does it grant us more insight into the ways people operate in the world, but it also provides us with a sense empathy that is now missing. Though it is brutally unpopular to assert, such a question is central to understanding and responding to, for example, the actions of contemporary militant Islamacists. While, of course, not rationalizing their actions—as right wing commentators will most certainly accuse me of doing—such an inquiry can provide insight into the anger of such individuals about the role of Western colonialism and neo-colonialism in their lands and their lives. Indeed, such a question and the study and self-reflection it demands can change our lives and worldviews, not to mention geo-politics in the coming years (Procter, 1995; Kincheloe & Steinberg, 2004).

Thus, criticalists strive to transcend the effort to produce knowledge about the one true reality and move to multiple perspectives and multidisciplinary and transdisciplinary perspectives (Hellstrom & Wenneberg, 2002). A critical complex epistemology is a detective of divergent frames of reference. From an intimate phenomenological portrait to a macro-political economic study, critical complex knowledge producers seek new and transgressive perspectives. In this context FIDURODian linearity is replaced by simultaneity, as knowledge becomes a diversely inscribed entity. Here the genealogy, the history of knowledge's process of construction must be carefully examined. In this framework students of research come to view a phenomenon from diverse perspectives, disciplines, theoretical assumptions, and historical contexts. Critical theorist Walter Benjamin's **angel of history** is on our side, as monolithic Western, FIDURODian perspectives cannot continue to dictate what is viewed as the final true reality.

The Degradation of Teachers: Educators Become Mere Delivers of Truth Not Knowledge Producing Professionals or Transformative Cultural Workers

In the knowledge and pedagogical world created by FIDUROD the role of a teacher is reduced from a scholar to an information deliverer. Drawing upon the various descriptions of the epistemology of FIDUROD, reductionistic educators believe that there is an essential body of knowledge that needs to be passed along to students. There is nothing problematic with this body of knowledge, of course, because it has been produced via the correct methodology and thus it is an accurate representation of the one true reality. In this context, the "delivery" aspect of teaching becomes the

profession's central function and pedagogy is primarily concerned with coming up with creative methods of inculcating the truth in students. Whether students are passive or more active in the process is of little concern as long as the purpose of teaching is to get the objective invariant facts into students' minds. Even many so-called constructivist teaching models don't stray too far from the dominant epistemology, as they still see their outcome—whatever the pedagogy—as instilling final, unvarying truths into immature brains.

In the rare Uranian air of contemporary Western schooling with its distaste for the intellectual climate created by the politico-epistemological questions raised here, both the process of producing knowledge and knowing are stripped of their complexity, ambiguity, and uncertainty. The epistemological and ontological messiness of the world is cleaned up, ordered, collated, and stored in neat packages readied for easy delivery. Lots of money has been made developing mnemonic devices to help students memorize the one true reality of FIDUROD and mainstream ideology. When students are tested on their improved performance on particular standardized tests devised to measure their memory of such simplified, deracinated data, their improved test scores "prove" the superiority of such memory work and scholarly reductionism. Here an unexamined juvenile epistemology supports a childlike pedagogy. There is nothing complicated about knowledge and learning—we simply input straightforward, trouble-free data into young minds. What about interpretation? No need to worry, we focus on simply what is overtly observable and measurable—no muss, no fuss. If the student does poorly on the post-tests, it is simply because he or she is lacking in mental ability—end of story (Barr & Tagg, 1995; Bruner, 1996; Weil, 2001).

Knowledge in this configuration is an unequivocal canon, a corpus of "the known." The notion of mind that necessarily accompanies these epistemological dynamics is a filing cabinet type mechanism that stores facts, pictorial memories, data, and rules that correspond to particular phenomena in the external world. Thus, a correspondence epistemology morphs into a correspondence psychology. In this drunken orgy of correspondence, a correspondence pedagogy is conceived that operates to stuff the data processing mechanism—the computer-like brain—with the "right stuff." Thus, students are taught what to think, just as a computer is programmed with particular databases. Thus, in an insidious, often unconscious, always deniable manner students are trained to accept a FIDURODian reality. The idea of the existence of vastly different worlds constructed by people from other times and places is never even brought up for consideration. The worlds that students themselves create are denigrated to the point that most of us are embarrassed to even let anyone know about them.

"Mature consciousness" and the epistemological and ontological views that accompany it demands that we see nothing beyond the one true cosmos of FIDUROD. The fact that this world relies on secondary sources, the "normal" reality of the discipline's normal science should give us pause. As we have discussed throughout this book:

- What has been overlooked?
- Whose views are validated, whose are not?

- How do the conditions under which knowledge was produced affect what is deemed truth?
- What are the epistemological and ontological assumptions on which the knowledge being learned is grounded?
- How do we know we are aware of all levels of the one true reality?
- Whose interests are served by passing along a culturally and ideologically truncated view of the world?

The transmitted *answers* formulated by the expert knowledge producers and their unquestioning teacher deliverers are far more important in the FIDURODian curriculum than such *questions*. The only questions that are tolerable in the reductionistic pedagogy that more and more dominates Western societies are convergent inquires that can be answered by reference to textbooks or pre-packaged pedagogical guides. No matter what the field—from physics and biology to history and sociology—there are correct answers to these convergent questions. There is simply no room to analyze the conditions under which curricular knowledge was produced and certified for canonical inclusion (Bruner, 1996; Norkus, 1999; Weil, 2001; Bereiter, 2002; Nelson, 2004).

The "enforcer" of the epistemology and pedagogy of FIDUROD is standardized testing. With the life experiences and familial relationship with school that students from racially oppressed and lower-socio-economic backgrounds face, it is not surprising that standardized testing reinforces a hierarchal view of different groups' academic ability. From Austin, Texas to Red Deer, Alberta I watch schools and school districts become obsessed with raising test scores. Thus, I talk to teachers and principals who are forced to spend much of the school year getting prepared for the tests. This provides a great regulatory function in the everyday life of schools and the knowledge demands of the dominant power bloc. All pedagogical energy in schools increasingly goes into learning how to take standardized multiple-choice tests and memorizing the data such tests exact. This testing frenzy provides a wonderful technical rationale for excluding the issues of power, knowledge, and ideological regulation discussed here.

There is no way to teach more than what the tests require, many teachers complain, when all that matters to the academic success of students and the career success of teachers are test scores. In this way critical teachers can be kept from raising issues of power, justice, and difference in their classrooms. All the while the technocrats who force teachers to comply with such rules can commit grotesquely blatant acts of ideological regulation under the cover of the demands of the testing establishment. Not only does the classroom forever change in the regime of testing, but also the everyday actions of teachers morph into something one would witness in the schools of the most totalitarian governments. Those who express the desire for teaching to involve more than preparing students for and teaching to the test are viewed suspiciously. Indeed, there is something devious and corrupt about such longings. Since the testing-driven culture of school is a society of surveillance, teachers who think such impure thoughts can be scrutinized and dealt with appropriately.

As the testing regime engulfs more and more school systems and schools around the world, there is less and less reason for teachers to be educated. There's no room for a rigorous and critical teacher education program that works to engage teachers in the analysis of educational purpose in a democratic society, the questioning of how students learn, the examination of educational research, the exploration of what constitutes pedagogy in **hyperreality**, the politics of knowledge, etc. Why in a testing regime where teachers are positioned as information deliverers would such deskilled practitioners need to know any of these things? As I have argued previously (Kincheloe, 2006a, b), if teachers are reduced to mere information deliverers then all we need are teachers who can read at about the ninth grade level—so they can read the scripts given them to read to the students—and who are physically large and possess military training to better make sure students pay attention, behave, and properly prepare for the tests.

Obviously, it will be a struggle to subvert the juggernaut of the FIDUROD-grounded testing regime. Those of us who believe in and attempt to enact a rigorous, critical, multilogical pedagogy are already being viewed as dangerous and unwanted intruders in a smooth functioning educational system. Indeed, such a system serves several masters of the status quo and needs no detractors. The corporate community knows that minimal competence in the performance of a limited array of skills facilitates the need to have low-paid workers who can better follow directions. When the corporate community talks about educational reform that enhances our "global competitiveness," this is the point. They are not particularly concerned with knowledgeable, imaginative workers who understand a wide variety of perspectives and harbor, oh my god, concerns about ethics and social justice. The corporatist neo-liberals view schooling in the dehumanized context of human capital and those teachers, principals, and school systems that don't deliver the capital—that is, high-test scores—must be sanctioned. If schools were Muslim countries and the sanctions failed to work, I guess a preemptive military strike would be necessary by the FIDUROD testing regime's armed forces.

In the outcomes-based rhetoric of the regime, it has become commonplace to hear the words, "results matter." What this means in the epistemological world of reductionistic schooling is that there is a need for more frequent standardized testing (Saul, 1995; Metcalf, 2002; G. Jardine, 2005). No matter how fervent the outcry from some teachers and parents and critical pedagogy professors, the corporate community admonishes its political allies to make sure that testing and test-driven education flourish in the coming years. In such a context math education, for instance, becomes little more than deadening workbook-type exercises that must be performed in only one correct, predetermined manner and within a pre-designated timeframe. Here we have entered an epistemological and educational Gattaca, and in this regulated world a critical complex epistemology and a critical pedagogy offer us an escape route. FIDUROD and the standardized education it supports are frighteningly successful modes of epistemological, pedagogical, and thus political control. Critical pedagogy's ability to understand and fight these power formations must evolve in quantum leaps just to keep pace with the mutating forms of hegemony they produce.

In the twenty-first century we are placed under more sophisticated forms of surveillance, regulated in more concealed ways, and manipulated to coordinate our life goals with the political economic interests of corporate power wielders. An analysis of the test-driven curriculum that is in place in the U.S. and more and more Western and Western-dominated societies completely ignores these disconcerting issues of power and social regulation. The curriculum presents such a simple-minded, obfuscating view of how power operates in twenty-first century societies that those teachers and students who take such a pedagogy seriously are rendered childlike and naïve in their understanding of the forces that move world events and shape their view of selfhood. Entering many of the most regulated contemporary Western and Western-dominated schools, I am overwhelmed with a sense of impending doom. I sense that I am standing of the ledge of an epistemological abyss where social regulation reaches new degrees of intensity. In these moments of despair I seek the shelter of critical pedagogy and the critical complex epistemology. We are in our darkest hour—I believe that criticality can help bring a new dawn of epistemological, pedagogical, and ideological awareness. It simply must.

Glossary

Angel of history — in the work of critical theorist Walter Benjamin the witness to the ongoing catastrophe of history.

Autopoiesis — the self-construction of life forms in tandem with their environments.

Bricolage — the French word, bricoleur, describes a handyman or handywoman who makes use of the tools available to complete a task. Some connotations of the term involve trickery and cunning and are reminiscent of the chicanery of Hermes, in particular his ambiguity concerning the messages of the gods. If hermeneutics came to connote the ambiguity and slipperiness of textual meaning, then bricolage can also imply imaginative elements of the presentation of all formal research. I use the term here in the way Norman Denzin and Yvonna Lincoln (2000) employ it in *The Handbook of Qualitative Research* to denote a multimethodological form of research that uses a variety of research methods and theoretical constructs to examine a phenomenon (see Kincheloe & Berry, 2004).

Constructivist — an epistemological position that maintains that the knower personally participates in all acts of knowing and understanding. Knowledge does not exist "out there" in isolation from the knower.

Dependent variables the actions affected by the independent variable. They are observed and measured before and after the administration of the independent variable.

Discourse community a group of individuals who adhere to a set of often tacit rules about what can be said about particular subjects, who can say it, and how it can be said.

Enactivism a theory of mind developed by the Santiago School where the mind is viewed as a self-creating organism that produces meaning instead of merely processing information as mirror images of an external reality. Cognition in such a context emerges from the interaction, the relationship between the mind and its context—its external environment. This emergence is an enacted phenomenon—enacted in the interaction of mind-environment—that leads to an entity's awareness of its self and the context around it.

Hyperreality French social theorist's Jean Baudrillard's conception of the contemporary cultural landscape marked by the omnipresence of electronic information. In such a landscape individuals begin to lose touch with the traditional notions of time, community, self, and history.

Independent variable a variable whose value determines the value of the dependent variables. In much educational research the pedagogical techniques used to raise student standardized test scores would be the independent variables. The standardized test scores would be the dependent variables.

Path analysis a method for studying the direct and indirect effects of independent variables on dependent variables.

Subjectivity in a critical context the term is used not as merely the opposite of objectivity but more as the characteristic of being a subject—a socially constructed individual whose identity is always connected to the shifting effects of power relations.