

Joe L. Kincheloe

Explorations of Educational Purpose 1

Knowledge and Critical Pedagogy

An Introduction

 Springer

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EXPLORATIONS OF EDUCATIONAL PURPOSE

Volume 1

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In today's dominant modes of pedagogy, questions about issues of race, class, gender, sexuality, colonialism, religion, and other social dynamics are rarely asked. Questions about the social spaces where pedagogy takes place - in schools, media, and corporate think tanks - are not raised. And they need to be.

The *Explorations of Educational Purpose* book series can help establish a renewed interest in such questions and their centrality in the larger study of education and the preparation of teachers and other educational professionals. The editors of this series feel that education matters and that the world is in need of a rethinking of education and educational purpose.

Coming from a critical pedagogical orientation, *Explorations of Educational Purpose* aims to have the study of education transcend the trivialization that often degrades it. Rather than be content with the frivolous, scholarly lax forms of teacher education and weak teaching prevailing in the world today, we should work towards education that truly takes the unattained potential of human beings as its starting point. The series will present studies of all dimensions of education and offer alternatives. The ultimate aim of the series is to create new possibilities for people around the world who suffer under the current design of socio-political and educational institutions.

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*To Marisa Terrenzio-El-Jaoui,
Administrative Officer of the Department
of Integrated Studies in the Faculty of
Education, McGill University. A brilliant
woman, a gifted administrator, and a
treasured friend and colleague.*

Preface

We live in an era of disinformation—self-interested data distributed by those with the most power and resources. One need look no farther than the debate over how the U.S. and Great Britain came to initiate the bloody, unnecessary, and geo-politically damaging Iraq War. Every few days a new book is published about the “bad information” that was developed and then circulated by Anglo-American political operatives. From the testimony of those who were the most privy to the construction of this knowledge of the certain existence of weapons of mass destruction, yellowcake uranium, Iraqi complicity in 9/11, secret al-Qaeda-Iraqi connections, ad infinitum, we begin to learn quite amazing lessons about the production, validation, and deployment of knowledge at the end of the first decade of the twenty-first century. And the lessons are disconcerting and even frightening.

This book emerges from these types of concerns. I am profoundly interested in analyzing in a way that a wide audience can gain access to the multiple and complex factors that shape contemporary knowledge and the concurrent production of ideological consciousness that results. I come from the critical pedagogical tradition that understands that people around the world constantly have to deal with modes of oppression emerging from dominant power. This means that those of us who are not part of such oppressive power networks have to constantly struggle to develop the skills to cut through the knowledge jungle created by power wielders to perpetuate their own privilege and suppress the possibility of challenges such as the one outlined in this book. I believe that a thirst for knowledge is a central dimension of being alive and active in the world. In the neo-liberal, market-dominated, corporate media saturated, globalized world of the contemporary era, I have never been so parched for the pure water of transformative information. *Knowledge and Critical Pedagogy: An Introduction* is a quest for such water.

The central figure in the founding of critical pedagogy, Paulo Freire, wrote of the necessity of what he called an **epistemological** curiosity. This notion lays the foundation for this book. The great Brazilian educator’s notion of an epistemological curiosity was quite a simple concept that was profoundly complex in its application in the politics of knowledge and in education both in a media and a schooling context. When we possess such a curiosity we are not content to learn about an object in and of itself. We have to understand how it came to be deemed sufficiently

important to find its way onto the media or to be part of a certified school curriculum. Whose interest does such information serve? What was the process of its production? What is its reason for being? One can quickly understand how such an epistemological curiosity and the questions it raises changes forever our relationship to knowledge and the way we think of it in both a media and schooling context. With such a concept in mind we could never again just simply transfer fact A into mind B without appreciating the complexity of all the factors that have shaped an information fragment (a factoid) into certified knowledge for public consumption.

In this context reporting on or teaching about poverty does not simply involve providing statistics on how many people in a particular society are poor. In a critical context fueled by Freire's epistemological curiosity we would study why poverty exists, what it is like to live on a day-to-day basis in poverty, and what can be done to alleviate poverty around the world. Thus, there is a profound difference between a traditional understanding of poverty and a critical understanding of poverty. The same is true of a traditional and a critical understanding of any phenomenon we can imagine. There is far more about knowledge and its production and certification than we can presently imagine. This is where we begin to understand one of the major themes of the book: the notion that our epistemological curiosity moves us to search for diverse sources of information. We don't just take our data from the elite knowledge producers who publish in the most prestigious academic journals—we look for knowledge in a variety of places. Many of these locales in the dominant matrix of power are low-status places. Indeed, it is in these low status places that we often find the most transformative of insights that change ours and many other people's lives.

Over my 35 years of being a teacher, professor, speaker, cultural worker, and researcher, I've been asked many times: "where did you come up with the perspective on schools or media that you used in your article or speech—I've never heard such a point of view before?" Oftentimes my answer involves telling the inquisitor that I simply listened to people who had been deemed failures by the larger society or by the schools they attended. Such individuals, I have learned over the years, often possess some of the most compelling insights into what is actually happening, into how people are seriously harmed by institutions ostensibly constructed to help them improve their lives. Such an emphasis on the power of **difference**, on gaining new perspectives from individuals who come from a different locale in the social web of reality is central to my purpose here. This power of difference—or as Paulo Freire (1997) articulated it, "a viable novelty"—is key to an ever-expanding sense of criticality. This evolving criticality is dedicated to a never-ending search for new ways of seeing, for new social and cultural experiences that provide novel concepts that we can use to better understand and change the world in a progressive way.

Central to this evolving criticality is humility. Here we realize that we do not know, and in our fallibility we work with people from diverse socio-economic classes, genders, sexualities, races, and ethnicities both at home and around the world to overcome our ignorance. In this context our humility is balanced by a confidence that with the help of diverse others we can know better what we don't now understand. In this process, we can develop forms of transformative, critical

knowledges that at present do not exist. Thus, a key dimension of this book is to provide the conceptual basis for the construction of critical knowledge networks that connect individuals from all geographic areas and social domains. Such networks move us away from the oppressive dimensions of the so-called information age where knowledge is produced and transferred via media and schools for the benefit and legitimization of transnational capital. In the critical knowledge networks that make use of the transformative understandings of knowledge, its production, certification, and deployment outlined in this book, such information is used to bring together a wide variety of oppressed peoples.

Workers in de-unionized, free market workplaces, women, racially subjugated individuals, indigenous peoples, colonized peoples, poor people, sexually oppressed peoples, and many others can join in these critical knowledge networks in ways that contribute to their empowerment and emancipation. At McGill University Shirley Steinberg and I have put together The Paulo and Nita Freire International Project for Critical Pedagogy which attempts to build a critical knowledge network that connects individuals interested in critical pedagogy and transformative socio-political and pedagogical action around the world. A key dimension of this project involves the effort to move critical pedagogy out of the Americas into various parts of the world, in the process listening carefully to what critical individuals from these diverse places interested in social justice have to teach us. If successful the project will decenter critical pedagogy from its North American locale, changing not only its geographical position but expanding the critical canon beyond North America and Europe.

As the project creates a global network of critical knowledge workers, it is archiving and then digitizing an open, free access virtual database of key figures in critical pedagogy from around the world. The archive will contain the personal papers of diverse critical theorists/pedagogues, videos of their interviews, speeches, projects, essays, etc. In addition we are creating a Critical Pedagogy Virtual Research Network with forums and blogs that link international critical activists and their endeavors. Also, the Freire Project will host a critical WIKI—a virtual encyclopedia with community-generated entries on critical actions, movements, people, events, and student work. One of the most important dimensions of the project involves the archiving of subjugated, oppressed, indigenous knowledges with special respect and reverence for its producers. Here special emphasis is given to becoming allies with subjugated, oppressed, and indigenous peoples.

Steinberg and I believe that a profound understanding of such “dishonored” views of the world can help critical theorists/pedagogues not only help subvert oppression but also rethink the nature and production of knowledge and selfhood for individuals from diverse backgrounds. I believe that there is a special transformative power to these knowledges produced by subjugated, oppressed, and indigenous peoples. As individuals face domination, they often develop modes of consciousness that allow them to discern features of dominant culture invisible to more privileged peoples. W.E.B. DuBois, the great African American scholar, described this ability as a form of double consciousness (DuBois, 1973). The ways of seeing, the ways of being, and the affective dimensions (ways of feeling)

developed in these subjugated contexts can change the world. This book asserts that they can become powerful forces that move us to a new domain of human possibility, scholarship, and creativity. Thus, the Paulo and Nita Freire International Project for Critical Pedagogy is working to construct a global knowledge community to fight contemporary forms of oppression and the political economics of knowledge control.

In this context Freire's "viable novelty" can become a global reality where critical, transformative knowledges produced by diverse peoples in divergent locations synergize one another. The possibilities engendered by such interactions, such a global knowledge community are limitless. One of the first tasks of such a community is to set up a countervailing force to the power of the globalized, neo-liberal market and its knowledge producing legitimation machine. As free marketers such as the Rupert Murdocks of the world capture more and more of knowledge production—from newspapers, to school textbooks to television and radio stations—it is incumbent that progressive forces fighting for social justice develop new forms of critical knowledge work. Without the funds to match the neo-liberal, free marketers and their global knowledge machines, we must start in any way we can and hopefully gain momentum with our message of social justice, rigorous knowledge work, global commitments, environmental concerns, human dignity, and radical love.

Biography

Joe L. Kincheloe is the Canada Research Chair in Critical Pedagogy in the Faculty of Education at McGill University. He is the author of numerous books and articles about critical pedagogy, the social construction of knowledge, cultural studies, education and social justice, racism, class bias, and sexism, issues of cognition and cultural context, and educational reform. His books include: “Teachers as Researchers”, “Toil and Trouble”, “Getting Beyond the Facts: Teaching Social Studies/Social Sciences in the Twenty-first Century”, “The Sign of the Burger: McDonald’s and the Culture of Power”, “The Critical Pedagogy Primer,” “Rigour and Complexity in Educational Research: Conceptualizing the Bricolage” (with Kathleen Berry), and “Changing Multiculturalism” (with Shirley Steinberg). His co-edited works include “White Reign: Deploying Whiteness in America” (with Shirley Steinberg), “Metropedagogy: Power, Justice, and the Urban Classroom” (with Kecia Hayes), and the Gustavus Myers Human Rights award winner: “Measured Lies: The Bell Curve Examined” (with Shirley Steinberg and Aaron Gresson). Kincheloe is very concerned with the politics of knowledge as it relates to the socio-cultural, political, psychological, and educational dimensions of contemporary life. In this context he utilizes multiperspectival research methods (bricolage) and multiple theoretical frameworks to study these issues.

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Part 1
Introduction To Knowledge Production
And Its Relation To Education

Chapter 1

Introduction: What We Call Knowledge Is Complicated and Harbors Profound Consequences

In the bizarre world of the twenty-first century where the U.S. and its Western allies wage wars of empire and transnational corporations pursue economic policies that transfer money from the poorest nations to the richest individuals in the wealthiest, the control of knowledge becomes a bigger and bigger issue. As smaller numbers of wealthy individuals and corporations control most of the “certified” information we can access, many people are exposed on a daily basis to counterfeit justifications for malicious military, economic, political, and cultural behaviors. While there are many troubling issues about George W. Bush’s Iraqi War, one that is rarely discussed involves concerns about the production, transmission, and reception of knowledge in contemporary societies.

Supporters of the war used the imprimatur of expert science and rigorous research to spew a wide range of lies about Iraq’s threat to the world and the necessity of immediate military action. Millions of people in the U.S. and even around the world swallowed such falsehoods in their totality. In retrospect the lies seem quite obvious to many, but nearly one-third of the U.S. population still believes such claims as Saddam Hussein possessed weapons of mass destruction, was responsible for 9/11, and was preparing to launch an attack on the U.S. and its allies. Such realities tell me that something is amiss. When the politics of knowledge surrounding the Iraqi War are combined with tens of thousands of other informational issues, we begin to realize the extent of the “knowledge problem” of our age.

This book looks at these issues from numerous perspectives, in the process taking the reader into a world of knowledge production that is rarely discussed on the public stage. Literally, there is no area of Western and increasingly international society that is free from the damage caused by a distorted politics of knowledge. This issue should be on the front burner of our consciousness, a central part of any curriculum, and a subject discussed and debated in the political process. Yet, it seems strange to many individuals to raise these issues, as the purpose of say, becoming educated, is to simply commit knowledge to our mental filing cabinets. The idea that a central purpose of a democratic curriculum might involve exploring where knowledge comes from, the rules of its production, and the ways we can assess its quality and the purposes of its production often doesn’t resonate with individuals living in an era of standardized tests and student/school rankings. *Knowledge and Critical Pedagogy: An Introduction* explores the diverse and often

hidden locales where these knowledge issues operate. In the process we explore alternatives to the “knowledge status quo.” It is a fascinating and complex story that must be understood if just social change is to take place in the coming years.

Of course, a key question raised by the book involves the role of education in a globalized, corporatized world grounded on a distorted politics of knowledge. A regressive politics of knowledge helps produce a technicist education that is more concerned with “how to” than “why” questions. In such a regressive education the distorted politics of knowledge produces a body of data that must be transferred to passive students. Thus, the most important question for teachers is how to best get this data into their heads. Why they might need to know this information as opposed to other information is simply not a relevant issue. These learners are not in technicist schools fueled by **neo-liberal**, free market, corporatized ideologies to become scholars who use their knowledge and skills to do good things in the world, to relieve the human suffering that plagues the planet. Far from such a goal, the purpose of schools in the dystopian world that confronts us is to *train*, well-regulated and passive students to accept *what is*.

Imagining *what could be*—a central goal of any critical pedagogy—has no place in such regressive schools. In these educational institutions no one questions the ways knowledge is produced or whose interests it serves. All that counts is how much of the “infallible” standardized content is memorized by students. In contemporary schools in the U.S., for example, the quality of schools is solely based on how much of this content is committed to memory. Of course, this is measured by the lifeblood, the *raison d’être* of contemporary education—the high stakes test. Paulo Freire (1970) wrote of this transfer of certified knowledge 4 decades ago—he called it the banking model where knowledge is deposited in the minds of students. Still, the banker managers badger us with their insistence on unexamined deposits.

The concept of educating scholars who can answer more complex and compelling questions about knowledge is not important in the neo-liberal empire of the first decade of the twenty-first century.

- How knowledge is produced?
- Where does it come from—who produces it?
- How does it find its way into the curriculum?
- Who benefits from students parroting it back to the authorities?
- In what ways does it serve the needs of the neo-liberal empire?
- What is the role of interpretation in the confrontation with this knowledge, what does it mean, what does it tell us about the worldview of those who produced it?
- How does such knowledge relate to who we are now and who we might become?
- What are alternatives to such information that come from other places and ways of seeing the world?
- How do we produce better informed, more rigorous knowledge?

The important question posed by the imperial educational leaders and politicians of the contemporary dominant culture has nothing to do with such silly inquiries. It simply involves “how do we best get the knowledge that serves our interests into the heads of our young people?” Any educational or socio-cultural research that

fails to answer this question is thrown out like the smelly garbage at a Brooklyn restaurant.

Framing Knowledge in a Global Context: The Twenty-First Century Global Politics of Knowledge

Any book on knowledge and issues of justice written in the contemporary era must deal with the last 500 years of oppression and power differences between European colonizers and the colonized peoples around the world. One of the central dimensions of Western colonial domination has involved its production of “universally valid knowledge” that worked to invalidate the ways of knowing that had been developed by all peoples around the world. In the name of modernization, salvation, civilization, development, and democracy, colonial powers have made and continue to make the argument that they know better than colonized peoples themselves what serves their best interests—and they have the knowledge to prove it. Universalism, the idea that all scientifically produced knowledge is true in all places and for all times, is a key concept in our discussion of knowledge and its relation to critical pedagogy and its concern with power and justice. Many Westerners after the scientific revolution of the seventeenth and eighteenth centuries believed that because European science followed the proscribed rules of knowledge production its findings are indisputably universal.

This universality has also been “proven” by the “disinterestedness” of Western science. From the critical pedagogical perspective Euroscience’s so-called neutral search for truth is better understood as an ethnocentric justification of self-interested and exploitative colonial actions. Indeed, such actions have consistently involved the creation of unjust social structures and cultural relationships grounded on scientifically produced hierarchies of human worth. In the same way slavery was rationalized by the scientific view of Africans as childlike and thus in need of paternalistic oversight, colonial expansion was justified by the view that Westerners were bringing the benefits of their superior culture to the inferior natives. One of the great failures of Western science from a critical perspective involves its reluctance and/or inability to engage in self-examination. When criticalists have raised the notion that Western science and its universal truth often lead to oppression, the scientific establishment has greeted them less than warmly. Such defensiveness and anger continues into the contemporary era.

With the development of corporate owned media in the last 30 years, the ability of power wielders to inculcate this Western **colonialism** and its colonial knowledge in every corner of the world has dramatically expanded. With the proliferation of Western owned entertainment and news into African, Asia, Latin America, and other geographical locations the universal truths of Western science are pounded into the consciousness of diverse peoples. Of course, the good news is that such peoples—like many peoples everywhere—don’t accept the truth of such universal truths. Nevertheless, corporate power wielders know that a sufficient number of

people will buy into them to justify the expenditure of hundreds of billions of dollars a year on such promotion. It is not hard to discern the ways that Western science is used in these contexts to promote national interests and the objectives of particular corporations.

“We know what keeps you healthy,” corporate produced messages based on Western science inform the world. The Nestle Corporation’s promotion of its infant formula as a scientifically-validated more healthy baby food than breast milk, to give just one example, kills approximately one million babies per year. The company and the media know the consequences of such promotions but continue their “educational” efforts year after year (Bar-Yam, 1995). My point here is to shock readers into understanding that the politics of knowledge is not some arcane, academic dynamic, but is a phenomenon that means whether millions of people throughout the world live or die. Any understanding of knowledge production or of education/curriculum development that ignores these colonial and power related dimensions of these processes is bankrupt.

It may sound radical to those unfamiliar to critical modes of analyses, but those who fail to deal with these power-related issues in such domains simply devalue human life and the survival of the planet. It is so vitally important that those who work in spheres that deal with issues of knowledge and education listen carefully to the insights of colonized peoples—the victims of Western scientific universalism. What stories the African mothers who have lost children to diseases that the antibiotics present in breast milk could have prevented can relate. What stories the children of Aboriginal parents in the U.S. can tell us about the way their children were classified by psychological tests and the subsequent ways they were treated by the schools. What stories the relatives of victims of the gas (methyl isocyanate) leak from the Union Carbide plant in Bhopal, India in 1984 could tell us. So far, the leak has killed over 20,000 people and seriously sickened over 120,000. To this day Union Carbide has suffered no criminal penalties for the disaster. The fact that most Americans know nothing about such tragedies is testimony to the power-driven politics of knowledge that motivated me to write this book (Mignolo, 2001, 2005; Orlowski, 2006, *The Bhopal Medical Appeal*, 2007).

Getting Started: Studying Knowledge and Its Production

The stories of such mothers and relatives of victims of Western universal knowledge combined with descriptions of transnational corporate greed are not important in the education of educators. Indeed, in professional education during this frightening neo-colonial era whether it is for teachers, nurses, social workers, or journalists, knowledge about practice is often recast in the form of guidelines or procedures. While guidelines and procedures may have their place, advocates of critical pedagogy and its critical appreciation of how data comes to be called knowledge understand that this proceduralization may simplify the educational activities in question by decontextualizing them. What is being addressed here is an epistemology of practice and how it

differs in the standardized, test-driven curriculum of the present and in critical pedagogy. I will use the term epistemology throughout this book. While I will go into more detail about what it means, think of it right now as a simple concept: the study of knowledge and its production. Critical pedagogy is a perspective toward education that is concerned with questions of justice, democracy, and ethical claims. My notion of critical pedagogy combines these concerns with the effort to produce the most mind expanding, life changing education possible.

In the standardized education that dominates North American and Western schools in general, the world is viewed as a mechanical entity that is governed by fixed and discernible laws. Teaching and the educational process are viewed in this epistemological context as relatively simple notions that can be described by universal generalizations—for example, no matter where you operate this teaching method will work. Traditional Western educational science reveals to practitioners the correct way to teach and the right way for students to learn. In the context of this traditional Western knowledge (epistemology) these ways of teaching and learning are true in all places and in all times. The standardized curriculum we teach is in the era of No Child Left Behind basically a celebration of Western knowledges and ways of being human. The role of the teacher is to learn “best practices” from the experts and to put their dictates into practice. In this knowledge context the idea of the teacher becoming a well educated, scholar-researcher, and thus highly respected professional is nonsense—why bother? The experts will pass the truth about education along to teachers in a step-by-step procedural form.

The simplified and decontextualized epistemology of practice (a view of professional knowledge, how it’s produced and used) employed by proponents of No Child Left Behind-like standardized curricula undermines the professionalism of teacher work. In this uncritical knowledge context teachers are reduced to rule-following information deliverers who have no need for scholarly abilities. In various top-down mandated centralized curricula from Calgary to Dallas we can clearly trace the influence of this deskilling epistemology of practice. The purpose of many of these standardized educational reforms is to take away as much professional discretion from teachers as possible.

Teachers are told what to do by experts in state/provincial departments/ministries of education without any evidence that such government mandates will improve the quality of education. Such a technical epistemology of practice has provided many educational policymakers the justification to take control of the curriculum and instructional practices of schools. The idea of teachers possessing the prerogative to build a curriculum around the neo-colonial activities of Nestle or Union Carbide is strictly forbidden in the standardized curriculum of such schools. The anti-democratic actions of such standardized education policies threaten the academic freedom of teachers around the world. This threat is not an unintended side effect of such strategies but a celebrated tactic of dominant power’s goal of social regulation.

Such simple, politically charged mandates ignore the complexity of all curricular, instructional, and knowledge related decisions in education. When political and educational leaders mandate standardized content and teaching practices for all teachers

they again ignore the complexity of the profound diversity of school conditions and student backgrounds. As teachers ask me over and over again: how can we teach the same material in the same ways to students with different backgrounds and academic skills? These teachers understand what many advocates of standardized reforms do not: that the educational process is too complex to mandate standardized procedures and outcomes. Given the context in which they are operating, good teachers know that they must diagnose short- and long-term student needs and constantly adjust and modify their educational goals and pedagogical methods.

The complexity of teaching demands a teacher education, an epistemology of practice, and a critical view of knowledge in general that is worthy of such conditions. In critical pedagogy teachers must not only understand subject matter in a multidimensional and sophisticated manner but must also be able in diverse settings to view such content from the vantage points of culturally and psychologically different students. The ability to accomplish such a complicated task successfully cannot be mandated by top-down edicts. Pedagogical directives that do not recognize educational and epistemological complexity cannot help teachers in such situations, they cannot prescribe the ways that rigorous teachers monitor students' progress via an ongoing exchange of thoughts and concepts with them.

Lost in their epistemological fragmentation of the teaching act, top-down standardization mandates cannot facilitate teachers' efforts to produce students with the disposition to become scholars concerned with learning for their own development and the social good. They cannot help teachers understand the social, economic, and psychological factors that shape such dispositions. To achieve excellence in education teachers must know more and get more help in learning more. Here rests the purpose of this book: to explore the nature of knowledge production, its certification as worthy of being included in the curriculum, and the view of teachers, students, and the world in general such knowledge promotes. A critical understanding of the ways power shapes knowledge and the role such certified knowledge plays in constructing forms of consciousness that accede to the needs of dominant power is my central concern here. Before going any further a brief introduction to critical pedagogy is in order

What Is Critical Pedagogy?

No matter how long I teach and write about critical pedagogy, I always find it difficult to define the term in a brief and compelling manner. The reason for this difficulty involves the fact that critical pedagogy is a complex notion that asks much of the educators and students who embrace it. Teaching a critical pedagogy involves more than learning a few pedagogical techniques and the knowledge required by the curriculum, the standards, or the textbook. Critical practitioners find it necessary to appreciate not only many bodies of knowledge but also the political structure of the school, wider forms of education in the culture—for example, TV, radio, popular music, movies, Internet, youth subcultures, etc., alternative bodies of knowledge

produced by marginalized or low-status groups, the ways power operates to construct identities and oppress particular groups, the *modus operandi* (MO) of the ways social regulation operates, the complex processes of racism, gender bias, class bias, cultural bias, heterosexism, religious intolerance, etc., the cultural experiences of students, diverse teaching styles, the forces that shape the curriculum, the often conflicting purposes of education, and much more. Advocates of critical pedagogy issue a challenge to teachers, to educational leaders, and to students to dive into this complex domain of knowledge and knowing and social action it requires.

Critical pedagogy believes that nothing is impossible when we work in solidarity and with love, respect, and justice as our guiding lights. Indeed, the great Brazilian critical educator, Paulo Freire always maintained that education has as much to do with the teachable heart as it does with the mind. Love is the basis of an education that seeks justice, equality, and genius. If critical pedagogy is not injected with a healthy dose of what Freire called “radical love,” then it will operate only as a shadow of what it could be. Such a love is compassionate, erotic, creative, sensual, and informed. Critical pedagogy uses it to increase our capacity to love, to bring the power of love to our everyday lives and social institutions, to rethink reason in a humane and interconnected manner. It is important to note in this particular book, knowledge in this critical context takes on a form quite different than its more accepted and mainstream versions. A critical knowledge seeks to connect with the corporeal and the emotional in a way that understands at multiple levels and seeks to assuage human suffering.

Thus, critical pedagogy works to help teacher educators and teachers reconstruct their work so it facilitates the empowerment to all students. In this context critical educators understand that such an effort takes place in an increasingly power-inscribed world where dominant modes of exclusion are continuously “naturalized” by power wielders’ control of information. What does this have to do with teacher education, critics may ask? We live in a democracy, they assert. Why do we have to spend all this time with such political issues? Isn’t our focus teaching and learning? But democracy is fragile, critical educators maintain, and embedded in education are the very issues that make or break it. Are teachers merely managers of the predetermined knowledge of dominant cultural power? Is teacher education merely the process of developing the most efficient ways for educators to perform this task? Do teachers operate as functionaries who simply do what they are told? Contrary to the views of many, these questions of democracy and justice are not separate from the most fundamental features of teaching and learning.

The following chapters of *Knowledge and Critical Pedagogy: An Introduction* pick up on and expand these themes of critical pedagogy in relation to issues of knowledge. Attempting to answer questions of democracy, justice, and scholarly quality in a critical pedagogical context will shape this book. Obviously, there is nothing neutral about these issues, and, of course, I hold particular perspectives on the purpose of schooling, the nature of a just society, and the quality of different knowledges. These viewpoints shape what follows. Please be aware of my biases, but also remember that all texts are biased—the trouble is that many authors don’t admit to their biases. All texts should be read suspiciously—especially the ones that

claim an objective and neutral truth. As I tell my students, whenever individuals tell me they are providing me with the objective truth I guard my wallet. As critical pedagogy maintains, little in the world and certainly little in the world of education is neutral.

For the purposes of introduction the following are the basic concepts that constitute critical pedagogy. Critical pedagogy is

- Grounded on a social and educational vision of justice and equality
- Constructed on the belief that education is inherently political
- Dedicated to the alleviation of human suffering
- Concerned that schools don't hurt students—good schools don't blame students for their failures or strip students of the knowledges they bring to the classroom
- Enacted through the use of generative themes to read the word and the world and the process of problem posing—generative themes involve the educational use of issues that are central to students' lives as a grounding for the curriculum
- Centered on the notion that teachers should be researchers—here teachers learn to produce and teach students to produce their own knowledges
- Grounded on the notion that teachers become researchers of their students—as researchers, teachers study their students, their backgrounds, and the forces that shape them
- Interested in maintaining a delicate balance between social change and cultivating the intellect—this requires a rigorous pedagogy that accomplishes both goals
- Concerned with “the margins” of society, the experiences and needs of individuals faced with oppression and subjugation
- Constructed on the awareness that science can be used as a force to regulate and control
- Dedicated to understanding the context in which educational activity takes place
- Committed to resisting the harmful effects of dominant power
- Attuned to the importance of complexity—understands complexity theory—in constructing a rigorous and transformative education
- Focused on understanding the profound impact of neo-colonial structures in shaping education and knowledge

Thus, a central dimension of critical pedagogy involves its understanding and use of knowledge. Here rests a key intersection around which this book is constructed: any critical pedagogy has to appreciate a variety of perspectives on the way knowledge is produced and deployed. Contrary to the comfortable assumptions of mainstream education, knowledge is always a site of contestation and conflict. What does it mean to produce rigorous knowledge for the social good? This is a complex, multi-dimensional, value laden question. Advocates of critical pedagogy maintain that a compelling answer to such a question demands that critical scholars work hard to gain insight from various cultures and knowledge producers. There is much to learn and think about in this context, but the task is certainly doable. Thus, critical pedagogy issues a challenge to scholars and social activists to push the boundaries of knowledge, to go to new epistemological places, and to employ the insights gained for the larger social good.

What Does This Mean for Education and Classrooms?

Getting beyond the mechanistic view of knowledge to a critical pedagogy holds profound implications for not merely those who think of education in the broadest sense but also for those who face students in elementary, secondary, and university classrooms on an everyday basis. Indeed, the point of this book is to make the argument that epistemological understandings are ultimately practical and can help teachers and individuals in a variety of domains with new and better ways of conceptualizing and implementing their professional activities. Scholarly, empowered, and well-organized teachers can overcome the aforementioned mandated mechanistic perspectives and the colonizing pedagogies they support. Critical teachers informed by a critical epistemology refuse to accept standardized, externally developed, scripted curricula that appeal to the lowest common denominator of teacher and student ability.

Critical teachers maintain that students should study the world around them, in the process learning who they are and what has shaped them. In this context students as odd as it might sound become epistemologically informed scholars. As such, they are challenged to analyze and interpret data, conduct research, and develop a love for scholarship that studies things that matter to the well being of the people of the world. Critical middle school math teachers in this counter-hegemonic context see their goals as cultivating a love for math, developing student interest in discovering more and more uses for math in their lives, finding applications for math that improve the lives of oppressed peoples, and producing a passion for students to know more about the subject.

No discussion of an epistemologically informed, counter-hegemonic classroom teaching would be complete without the insights of Paulo Freire the great Brazilian educator. Freire (1970, 1985) and Ira Shor (1992) have studied curriculum development in this context, employing the concept of “generative theme.” The generative theme is topic taken from students’ knowledge of their own lived experiences that is compelling and controversial enough to elicit their excitement and commitment. Such themes are saturated with affect, emotion, and meaning because they engage the fears, anxieties, hopes and dreams of both students and their teachers. Generative themes arise at the point where the personal lives of students intersect with the larger society and the globalized world.

One can observe similarity between Freire’s generative themes and John Dewey’s progressive education. In the early decades of the twentieth century Dewey advised teachers to build their classroom lessons around the life experiences of students. Only by starting with information based on such experiences, Dewey maintained, can we ever reach higher forms of knowledge and cognition. Starting with student life experiences and devising generative themes that connect to them, critical teachers can help students to question their experiences and to ponder the important points where those experiences intersect with larger social, political, scientific, aesthetic, and literary concerns. In an epistemological framework Freire and Dewey were both moving beyond schooling as a form of transference of previously

validated data from the curriculum guide to the teacher and then to the student. Knowledge, both scholars understood, was far too complex to treat it in such a degraded manner.

For example, beginning with a generative theme taken from students' fears of terrorism in the U.S., a critical teacher and her students could construct a semester's curriculum around the reasons for terrorism against America in the first decade of the twenty-first century. In this context students could explore the origins of the Muslim rage toward the United States fermenting in many areas of the world (see Kincheloe & Steinberg, 2004, for an expansion of this theme). Is the reason for such anger as simple as George W. Bush explained it after 9/11? "They [the terrorists] hate our freedom." Are Islamic terrorists motivated by simply an irrational religious fanaticism that has nothing to do with a larger historical context? What do we find when we study the colonial histories of many Muslim countries? What is the American relationship to these colonial histories? Is it anti-American, as many claim, to study American imperialism in the Islamic world and the actions that fan the flames of Islamic anger? Such studies begin to open a new world to teachers and students about the complex and power-saturated ways that knowledge is constructed in the contemporary era.

In light of this generative theme and these questions, students and teachers could develop historical curricula that explore the relationships between Islamic countries and the U.S. They could develop lessons that explore the human, physical, political, and economic geography of particular areas. In this context they could explore literature, novels and short stories that depict particular elements of life in these settings. They could develop political science lessons that study the different political positions of government officials in relation to responding to terrorist threats. Activities within these lessons are limited only by the imaginations of teachers and students. Not only would such lessons engage student interest, but students would also gain valuable research and analytical skills.

In addition students would learn not only about the topic at hand but the value, uses, and complexities of knowledge production in disciplines such as history, geography, literature, political science, anthropology, cultural studies, etc. In the epistemologically mechanistic, test-driven, standardized, and scripted classrooms of the present era students learn that school is not connected to the world around them. They learn that there is nothing complex or problematic about knowledge—it is produced by faceless experts and it is our job as students to learn it. Why, many students "reared" in such mechanistic educational contexts have asked me, would we want to question it. As they endure such indoctrinating classrooms, students sense the absurdity of the process and relegate their enthusiasm and passion to other non-academic dimensions of their lives.

Such generative themes and the lessons they support help students not only acquire and question knowledge but also learn about who they are, where they stand on the issues of the day, and how one-dimensional dominant cultural knowledge shapes these dynamics. A counter-hegemonic classroom frees students from the indignity of being told who they are and what they should know. It gives them the right to direct the flow of such inquiries on their own terms. This doesn't mean that students make

all the decisions about what they should learn and simply teach themselves. Instead, it means that students make some of these decisions in negotiation with an expert teacher who constantly works to help them develop their analytical and interpretive abilities, their research skills, their epistemological consciousness, and their sense of identity as empowered democratic citizens. In this context students gain the capacity to distinguish between oppressive and liberatory ways of seeing the world and themselves. In this way students are able to identify forms of faux-neutrality that permeate the epistemology of mainstream schooling. Here they are empowered to pick out the distortions, unexamined assumptions, and hidden philosophical beliefs that shape the official standardized curriculum of the contemporary epoch.

These are the core skills of the epistemologically conscious critical pedagogy classroom. Students with such skills are able to identify the fingerprints of dominant power on the pages of particular textbooks and in the requirements of mandated curricula. They deploy their literacy of power. With such skills they unmask the ways that ostensibly commonsense modes of seeing undermine their own and other people's best interests. Teachers and students operating with these counter-hegemonic skills are undoubtedly dangerous—threats to the status quo. Indeed, we are the types of scholars who question the problematic ways that students are categorized, differences between students are represented, educational purposes are defined, schools are organized, and relationships between communities and schools are developed.

In the counter-hegemonic classrooms of a critical pedagogy, teachers reframe the ways that school looks at students, in the process discovering student talents invisible to most everyone at school. Here teachers use such talents as bases of opportunity to which they can connect academic skills and affective dynamics. As a middle school and high school teacher I did this numerous times, making use of students' interests and talents in everything from motorcycles to rock music. In these situations I would have the student develop a reading/resource list and devise a curriculum that could be used to teach other students and teachers about the topics in question. Such students learned so much, developed better reading and writing skills, and often gained a new relationship with both learning and schooling. For once they were the experts with the valued knowledge, teaching those around them about something they understood better than anyone else.

Danger Ahead: Teachers and Students Beware

What we label knowledge, the ways it is arranged and presented, the ways it is taught and learned, and what is considered an appropriate display of having learned it is inseparable from the way we view the world, the purposes of education, the nature of good society, and the workings of the human mind. Such issues are connected to issues of power and questions of who is entitled to promote his or her view of the world. Thus, the contemporary effort to hold educators accountable—a key feature of current discourse on educational reform—is not some simple process

where experts simply decree the proper instrument to measure the quality of teaching. Instead, it is part of a larger struggle between proponents of various worldviews, social visions, and conceptions of what it means to be human. A critical pedagogy maintains that in order to contribute to the effort to improve education, teachers, students, parents, politicians, and community members must gain a more textured understanding of the momentous issues being discussed here.

The worldview and epistemology that support standardization reforms assume that absolute forms of measurement can be applied to human endeavors such as education. The teaching and learning processes, advocates of standardization believe, are sufficiently consistent and stable to allow for precise measurability. The strategies that educators use and the factors that produce good and bad student performance can be isolated and even expressed in mathematical terms. Therefore, because questions based on students' acquisition of selected bits of knowledge can be easily devised and we can determine a student's and a teacher's competence with little difficulty because such measurements can be accurately made, advocates of reductionist standardization see little complexity in the effort to hold teachers accountable. Critical educators want to move beyond this simplified model, to help all parties understand the multiple contexts that shape in diverse and sometimes conflicting ways what is going on in such a process. Despite the pronouncements of many experts, the evaluation process is more complicated than simply designating the mastery of a fragment of content as an objective and then determining if it has been achieved.

Regardless of critical pedagogy's recognition of the complexity and loaded assumptions of this evaluation process standardized reform movements continue to hold sway in the public conversation about education. One reason for this may involve the simplification process referenced here—they are easy for everyone to understand. Simplicity sells, complexity doesn't. "We can keep close tabs on student performance at the school level," the proponents of educational standardization tell the public. Using our mathematical measurement of student acquisition of content, they continue, we can compare the performance of schools, school districts, states/provinces, and nations regardless of the contextual differences that make them unique. All of these measurements and comparisons are guided by a *faith* in the value of standardized, content-based tests and the knowledge they produce. The faith in the meaning of what is measured by such tests is not grounded on some form of rigorous empirical evaluation.

The idea that such tests measure student achievement or ability and teacher effectiveness is an interpretation—nothing more, nothing less. Obviously, advocates of those of us who embrace a critical pedagogy have no trouble with interpretations—all knowledge is produced by an interpretive process. The problem here is that advocates of standardization do not reveal the interpretive aspects of the testing process; they present the data and its meaning as scientifically validated truth. A rigorous analysis of how such truth is produced reveals many interpretive (subjective) steps in the process. A critical understanding of knowledge induces us to ask that the reasons for particular ascriptions of test meaning be provided. Concurrently, such a critical stance moves us to abandon claims of objectivity in such an accountability process.

Guided by a leap of faith in what tests tell us about the educational process—Is the district wealthy? Are there many formally educated parents? Does every child come from a family whose first language is English? ad infinitum—advocates of

standardized reforms have unleashed a process where students and teachers will be ranked and ordered to an unprecedented degree. Once students are placed in the low rankings, it becomes extremely difficult to get them out. Thus, reductionist educational reforms along with the testing, and the ranking that accompany them are willing to construct an entire educational system including its purposes, rewards, and punishment structures on a faith in the worthiness of an unexamined mode of knowledge production and standardized testing process. In the norm-referenced measurements used in this context there must be winners and losers.

The fact that there are losers “proves” the system’s rigor. Students are pitted against one another in a fierce competition for restricted rewards. As teaching and learning are reduced to knowing what, meaning is lost. Tragically, particular patterns begin to emerge involving which demographic groups tend to succeed when schools are arranged in this manner. Often students who come from lower socio-economic and non-white homes do not have the benefit of a parent who has a college degree. In homes where parents perform low-skill jobs, families may not see schoolwork as important as upper-middle class, white, English speaking students. Studies of the social context of schooling point out that poor and racially marginalized students have learned to view academic work and the testing of technical standards as unreal, as a series of short-term tasks rather than activities with long-term significance for their lives.

Without such compensation or long-term justifications, such students may display little interest in academic work. Their poor performance on the tests and subsequent low ranking is viewed in the context of standardization as a lack of ability and academic failure. Their faith in the testing process moves them to issue a scientifically validated assessment of cognitive inferiority to such students. Such a decontextualized, reductionistic view of the complex process of schooling and students performance in unacceptable—indeed, it is socially dangerous as it contributes to an unfair, unjustifiable sorting of the haves and the have-nots. Teaching is simplified, teachers are deskilled, and students who fall outside particular “mainstream” demographics are severely punished. Even students from the mainstream are subjected to an inferior, simplified education. Even despite the fact that many of them may succeed in the system of rewards, their scholarly abilities are undermined and their view of themselves and the world obstructed. A critical pedagogy that understands these epistemological dynamics takes on an urgent importance in this social context, as it attempts to rectify the human damage caused by an uncritical view of knowledge.

Three Licks: Critical Knowledge and the Definition of Epistemology

Just to make sure that we understand the meaning of epistemology, I’ll periodically expand the definition. Epistemology constitutes the branch of philosophy that analyzes the nature of knowledge and what we believe to be true. Epistemology asks how do we analyze knowledge? How do we know it’s true? How do we produce knowledge

and what is the status of that knowledge in the world? In other words, how do various individuals react to the knowledge we produce? An educational epistemological question that emerges in this context involves what do we consider valid and important knowledge and which parts of it should become part of a curriculum? How do we figure out what to teach and is the knowledge we choose of any worth?

Thus, we're dealing in this book with questions of knowledge/epistemology and the ways we might evaluate knowledge and its role in schools and the larger society. Many people view academic writing as a pain in the ass and I profoundly understand why—the effort to speak to only a small, informed group who speaks the same language, the frequent pomposity that promotes the retreat to disciplinary jargon in lieu of compelling explanation, and the lack of respect for those not properly initiated into the community of the learned. Thankfully, not all academic writing is like this but too much of it is. With that said I want to make *Knowledge and Critical Pedagogy: An Introduction* as widely accessible as possible without simplifying the complex ideas to a point that their meaning and relevance is lost. Please cut me some slack as a writer as I try to make a complex and very important topic as readable as possible.

Just how does one make power and knowledge production in an educational context accessible to a wide audience? I want to push the boundaries of our understanding of knowledge, challenge the prevailing (and unstated) assumptions about knowledge, and illustrate how this all relates to schooling, what we think we know about ourselves and world, and ultimately who we are as human beings. Thus, I believe that the issues addressed in *Knowledge and Critical Pedagogy: An Introduction* not only provide us with a new understanding of education but also can actually change the world—speaking of pomposity, yikes! I understand the danger of such an assertion, but I'm glad to take my punishment if I fail to convince my readers.

For those of you who haven't read my work before, I'm a hillbilly from the mountains of East Tennessee. I was reared in a tiny community in the mountains so fundamentalist Protestant and so poor that as a child I found it difficult to imagine any other way of being. When I was eleven my parents sensing the possible negative effects of my environment—with its serial murderers and prevailing illiteracy—moved into the small company town of Kingsport, Tennessee. Every aspect of Kingsport was run by the Eastman Kodak company which had built a huge plant in Tennessee in the second decade of the twentieth century to gain the benefits of the area's cheap, non-union labor. Management was much easier, Eastman executives learned, in Kingsport, Tennessee than in Rochester, New York. Without labor distractions it was much easier to show larger quarterly profits.

I quickly knew that I didn't want to be a fundamentalist Protestant. The condemnation of the Jews, Muslims, Hindus, Buddhists, and even the Catholics to the eternal fires of hell just didn't make sense to me. But when we moved into Kingsport, I realized after having met the aspiring middle/upper middle classes for the first time, that I didn't want to be one of them either. By 1963, a year of town living had moved me to seek some different way to *be* along with different things to know.

School provided little help with my concerns with being and knowing; indeed, it was the bastion of the upper middle class values I found so empty, unchallenging, oppressive and, to be frank, boring. I saved pennies to buy myself an eight transistor radio—I realized that at night I could pick up stations from points north, some of which were playing rock music. Being agrarian people my parents were in bed by 10:00 at the latest—usually 9:30. Their early bedtimes gave me an opportunity to listen to my transistor through my lone earphone deep into the night. I listened to several stations, picking up the trends in rock in the early 1960s.

One station that intrigued me, however, was a powerful Tennessee broadcaster, coming out of Nashville. WLAC at 1510 on the AM dial was a “black radio station” that catered to the African American community in Nashville and beyond, playing the Rhythm and Blues (R and B) of the era and featuring the black artists that had shaped and were shaping rock music. In between wonderfully produced commercials for Randy’s Record Shop and Royal Crown Hair Dressing (“the light, bright modern way to keep your hair in style”), I listened to James Brown, Howlin’ Wolf, Muddy Waters, Chuck Berry, Billy Holliday, Etta James, Johnny Lee Hooker, Ruth Brown, ad infinitum. Sometimes I would get so entranced in the music that I would look at my night-glow radium, carcinogenic watch to find that it was 2:15 in the morning. Some nights I couldn’t make myself go to sleep and would turn the radio back on and listen for another hour.

I had to learn to play this music. But where did a white boy go to learn the blues? I tried two-dollar-a-week piano lessons, but when I told my teacher that I wanted to play rock and the blues, she laughed out loud. I don’t think you want to learn that kind of trash she told me, as she directed me once again to play “Country Gardens” from my piano workbook. My heart sank. Where could you learn something viewed as so debased and worthless as rock and the “nigger music” it appropriated? Lucky for me as I was asking these questions, I discovered a local African American blues band playing many of the same songs as I was listening to on WLAC. I was entranced by the Baddaddies and went by myself to see them wherever they played around Kingsport.

I watched the keyboard player intently as he made the sounds, the blue notes that were so central to rock and blues piano. To my adolescent mind the sounds were sacred mysteries—I had no idea how to produce them. Desperate to learn I realized I had but one choice: I would have to go and watch the Baddaddies practice. While in the contemporary era that might not sound like too difficult a feat, for a 12 or 13-year-old hillbilly kid in a racially segregated place and time it was quite transgressive. Finding out where the band practiced, I walked a couple of miles one Saturday afternoon to in the racist language of Tennessee in the early 1960s “nigger town.” I knocked on the door and finally one of the band’s friends let me in. “Can I watch the band practice?” I asked. Suspicious and surprised by the presence of a white kid in this circumstance, the young man nodded for me to come back to the practice room. I felt like I was in the inner sanctum of some forbidden temple. I spotted the piano player and sat on a box as close to him as possible.

Everyone looked at me with the same apprehensive gaze of the guy at the door. The room smelled like stale cigarettes, beer, and pot. I watched for hours as the

band added new songs to their playlist. No one spoke to me and I spoke to no one. I was simply thankful that my presence was tolerated. When the band decided to end the practice I thanked each of the musicians for letting me watch and listen. For the next couple of Saturdays I followed the same ritual, trying to observe everything that the keyboardist did during the songs and its relation to what the rest of the band was playing. At the end of the third practice, the piano player turned and looked me in the eye for the first time since my curious appearance. Though no words had been spoken about the music or me, he had discerned that I was interested in playing the piano. “You wanna play the blues piano?” he asked me with a laugh—a snicker that said to me “you seem kind of serious about this, white boy.” Realizing that this was the chance I had been hoping for, I stood up and mimicked his manner and look at me. “Yes,” I said with all the gravitas filtered through a cool irreverence that I could project.

The next 10 minutes changed my life. He showed me the basic “theoretical” structure of the blues. Then he paraded a few blues piano “licks” (a short combination of notes, a musical phrase) that involved sliding off one note to another and making discordant sounds by concurrently playing notes that were only one-half step apart. In a matter of moments the hidden structures of the blues and rock were revealed to me like the Apostle Paul on Highway 61. I mustered all my powers of concentration to remember every spoken word and every played note of the hallowed insights—the subjugated musical knowledge—granted to me. The lesson ended when the piano player’s “woman” came into the practice room. “Well, well,” she said looking at me with her dark brown eyes, “who do we have here?” The pianist diverted her attention away from me, pulling her to him and kissing her passionately. There was another lesson to be learned here, I remember thinking, but it was best taught sans my alien presence. I ran all the way home, going over in my mind everything I had learned. I rushed through the door and sat down at my mother’s ancient piano and practiced the licks for hours.

The three licks formed the grounding for everything I have subsequently done on the piano in 42 years of playing rock and blues. More importantly, this experience of becoming a researcher of knowledges not necessarily respected at a particular historical moment by dominant culture helped shape my understanding of both epistemology and pedagogy. Though, it took me years to find the language to articulate what I had learned that spring day with the Baddaddies, I tacitly understood that it was about the intellectual power and libidinal energy of subjugated knowledges. I found myself applying the lesson to all aspects of my life, as I struggled to learn from difference, to gain what I would label years later as multilogical perspectives on the world. I would also find that there—especially in formal education—was a price to be paid for such a quest. What I came up with was generally not valued or even remotely respected in most schools.

Spiritually, I became very interested in diverse religious traditions; intellectually, I wanted a curriculum that transcended the fragments of “safe” and “conformity producing” knowledge of school; ideologically, I sought insights from “dangerous” sources such as the Frankfurt School of Critical Theory and the writings of colonized and indigenous peoples around the world; ontologically, I wanted examples of

being that transcended what I considered then and consider now the self-serving, low-affect, libidinally impoverished disingenuousness of many of those from the white upper-middle class. Obviously, there are people from this background who amazingly overcome this sweeping characterization and do glorious things in and for the world. From such great people I have learned so much. But, generally speaking, I wanted to become someone who didn't simply reflect the dominant behaviors of such a group. While I was pursuing these subjugated knowledges, I was obsessed with developing a humility that accompanied the search. Having been around intellectuals, artists and professionals from a variety of fields whose arrogance and race, class, and gender biases were impossible for me to abide, my goal was to carve out a learned, unique identity that was modest in respect to the brilliant (and often unrewarded) achievements of so many other humans in diverse locales.

Thus, *Knowledge and Critical Pedagogy: An Introduction* is about the efforts of humans to move beyond the truncated insights of the present, to find new (and old) knowledges that inspire us and change the nature of our being, and to produce new wisdom in light of our understandings of the failures of the past and present. I passionately believe that such an effort is not merely desirable at this historical moment but is necessary to human survival. Indeed, the prevailing Western globalizing epistemology and the education, religion, and politics that grow out of its phosphate soaked soil are destroying the world. Whether it is the globalized free market economic policies or the geo-political military actions of the "American Empire," the people of the world—especially the poorest among us—are not well served by our ways of seeing and being. Something has to change. Epistemology is a central dimension of that alteration as it lays a foundation for the human carnage, environmental destruction, ethical insensitivity to those harmed by macro-political economic policies, educational institutions that stupidify more than edify, and ethnocentric world views that undermine the growth of our consciousness.

Assumptions About Knowledge Insidiously Shape and Limit Our Realities: On the Road

To become a seeker of new knowledges and new ways of being we must be willing to sometimes be seen as the fools of the gods. In a Western culture that moves many of us to become obsessed with popularity and the approval of others, this becomes a lot to ask of a twenty-first century student or teacher. But a critical pedagogy must, nevertheless, ask it of such individuals. One must also be willing to take to the road, in much the same way Jack Kerouac did in the 1950s. Taking to the epistemological road in this critical pedagogical context may certainly take the form of geographical travel. It might not mean spending the night in a Mexican whorehouse as did Kerouac's characters—although I wouldn't want to rule it out. But it also might mean traveling the path laid out by subjugated knowledge, exploring a wide variety of data sources excluded by the standardized elementary and secondary school curriculum and the corporatized university course of study.

I have always been blessed to be profoundly excited by the mere fact that I'm alive, and like Kerouac's youthful protagonists Sal Paradise and Dean Moriarty to find as much enlightenment and *jouissance* in the process of living as humanly possible. When Jim Morrison of the Doors in 1967 screamed "We want the world and we want it now," I understood so clearly what he was referencing. Take us to another hidden dimension of this planet, allow us to engage with the world in ways no one in our time and place deems appropriate. Hell, "when the music's over, turn out the lights." There's no reason to go on without that pounding aesthetic to push us on down the road. For some reason I always loved the title of the old soap, "Search for Tomorrow." That's what *Knowledge and Critical Pedagogy: An Introduction* and its epistemological road trip are about—acting on the belief that the future will be different, more just, less violent, more respectful of the panoply of inspired knowledges that people from diverse cultures have produced.

But to get there we have to find a way to engage the attention of diverse individuals languishing in the trance of Western imperial epistemology. How do we get the attention of teachers and students anesthetized by consumerism and hyperreality's saturation of information and marketing iconography. I want to write for this audience in the style of a detective writer (epistemology noir?), a boy's adventure writer, an author of girls' romance novels, a beat poet, *Lame Deer's* memoirs, or Stephen King penning a horror story all rolled into one. Anything to get them to think about these issues of knowledge and the ways they shape our lives and the everyday existence of people around the world. Western regimes of epistemology are in the twenty-first century so taken for granted that even the most accessible researcher/writer sounds like she is sending communiqués from the Planet Womp in the Spiral Galaxy.

The persuasiveness and pervasiveness of contemporary Western ways of producing knowledge and consciousness in some ways constitute nothing more than usual Western practice. People in every epoch of Western history have believed that their knowledges were unequivocally and ubiquitously true. This has been the case even though what they believed to be fact in one era had completely changed 50 years into the future. In other ways, however, this belief in the West's extant truths is unusual. Indeed, the power to promote such epistemological perspectives and use them for imperialistic purposes has never been greater with the help of the technological innovations that sparked the globalization process and its enhanced process of social and political economic exploitation. Thus, in the long course of Western epistemological history, we find ourselves in an unenviable Sisyphean position. Our new regime of truth merely replaces—not improves—the one that preceded it (Foucault, 2002).

The deficit laden and disempowering views of mainstream psychology and education push us to become mere onlookers to the lived world. The idea that knowledge production and learning can be on-the-road kinds of libidinal adventures has long retreated from Western thought. Those who have only experienced an adventureless standardized education often ask me how it is possible to get so excited about the possibilities of pedagogy. The implication is—and I understand why such an inference would be drawn—that I'm weird. The young must feel the

passion of connecting with the world and not only learning but also producing new knowledges about it. There is no reason that early elementary students cannot produce unprecedented knowledge about the world. As we critique the epistemological foundations of certified Western knowledges, we begin to search for new ways of constructing knowledge that help us develop new ways of living together synergistically on this orb (Goswami, 1993; Smith, 1999; G. Jardine, 2005; D. Jardine, 2006).

Knowledge and Critical Pedagogy: An Introduction is obsessed with getting beyond the multilevel limitations of traditional Western epistemologies and subsequently moving to new multilogical regimes of knowledge production. Such a process demands that we become rigorous scholars who learn the often invisible rules that certify particular bodies of information and delegitimize others. With this insight we can better resist the disinformation produced by dominant power wielders that operate to subvert our quest for justice, freedom, happiness, creativity, and connectedness. Our encounter with critical knowledges induces us to ask: How did I get stuck with this body of knowledge and these lenses through which to see the world? How did I find myself ensnared in an epistemology that tends to ignore the concepts that connect the physical world, other people, and myself?

As we ask these questions we begin to develop ways of escaping these distorted and fragmented ways of comprehending world and self. In the critical context in which I operate, one of the key reasons—although there are as many justifications as our imagination allows—we ask these epistemological questions is because they help us address the reality of human suffering in the world. As the great Brazilian educator Paulo Freire always reminded us, central to our work in critical pedagogy is the effort to end the grotesque reality of human suffering. There is nothing I can do as an epistemologist or an educator that is not informed by Freire's reminder. As we stand at the edge of a socio-political abyss, we look at real life scenes of a contemporary forgery of Hieronymus Bosch's hell. Monitoring the broadcast of images from Iraq, Darfur, the Congo, Uganda, Angola and other Ground Zeroes, I wretch at the smell of the European colonial deficit-laden epistemology infiltrating each horrific scene. Every war-ravaged place previously mentioned has been led to the abyss by the multidimensional forces of both old and new forms of colonialism.

Playing With the Queen of Hearts: The Joker Ain't the Only Fool in FIDUROD

As we approach the end of the first decade of the twenty-first century, more and more people around the world are beginning to understand that Western civilization and the epistemology that supports it constitute nothing more than a house of cards. The Western world at this historical point in time is like a man leaning back in his chair as it slips out from under him. Please, give the man another Prozac to help dull that panicky feeling in his guts. The old order is now at the beginning of its end. This may not seem the case as the U.S. wallows in a neo-conservative fundamentalist militaristic haze, but we all understand the cliché about the darkest hour. Rethinking

the way we produce knowledge and understanding the process by which such informational distortion deforms our perception of self and world may be the most practical ways to hasten the crack of that new dawn. As we teeter on the cusp of a cognitive, cultural, and epistemological catastrophe, we understand better than ever before the consequences of the irrationality of what we have called reason.

The catastrophic processes that Western reason has set in motion from global warming to the transformations of humans from cooperative, community centered people to “fiscal entities” with their profit-based, consumption-oriented consciousness threaten the very structure of our being. Our collective intuition about the calamities awaiting us is discredited by corporate-driven education including both the formal schooling wing of the pedagogy and its media driven phalanx. The epistemology that supports the production and dispersion of such knowledge is a contemporary version of what has been historically labeled as **positivism**. As I have written elsewhere positivism is an epistemological position that promotes what it calls objective scientific knowledge produced in rigorous adherence to the scientific method.

Positivism identifies knowledge as worthwhile to the degree that it describes objective information that corresponds to or reflects the world. The trouble with using the word positivism is that many scholars claim that the positivist epistemological position has been thoroughly discredited and is no longer a force in the twenty-first century. While it is true that many philosophers of science have dismissed positivism, important aspects of the epistemology continue to exert their influence in the way we produce knowledge and value knowledge in various institutions from the military, the economic, to the educational. Almost every dimension, for example, of the No Child Left Behind reforms in the U.S. rely upon positivist epistemological assumptions: the way data is chosen for inclusion in the curriculum to modes of evaluation on standardized tests. Thus, to avoid the arguments and misunderstandings that emerge from my use of positivism, I have created another term, FIDUROD—an acronym for the basic features of a contemporary mechanistic epistemology that is used sometimes unconsciously to shape the knowledge that permeates Western and Western-influenced cultures. We will come back to this definition of FIDUROD throughout the book.

FIDUROD is an epistemology that stands for knowledge that is

- *Formal*—produced by rigid adherence to a particular research methodology that never changes no matter what new circumstances are encountered, no matter how much these new circumstances might lend themselves to rethinking the mode of inquiry one is using.
- *Intractable*—grounded on the assumption that the world is basically an inert, static entity. What we find today about, say, childhood will be true in all circumstances and will remain true indefinitely. Here childhood (in the same manner as limestone or the chemical composition of salt) is assumed to be a fixed, never changing concept. Of course, such an epistemological stance doesn’t account for the ever-changing nature of the world and the observers who study it.
- *Decontextualized*—constructed by researchers who have removed a phenomenon from the diverse contexts of which it is a part and that grant it meaning.

Without these contexts—e.g., the lived world of a student who takes an I.Q. test—the knowledge produced is distorted as it gives a misleading partial picture. The I.Q. tested student may come from a home where her parents were not first English language speakers and had no formal education, characterized by dire poverty where most energies are directed toward survival not school performance. Might these contextual factors make a difference in the girl's I.Q. test scores? Do they have anything to do with some genetic, inherited notion of intelligence?

- *Universalistic*—what inquirers discover when strictly following the correct epistemology and the research methods it supports applies to all domains of the world and the universe. In pre-Einsteinian physics, for example, gravity was assumed to remain constant in all domains of the cosmos. Einstein's work in the General Theory of Relativity undermines the universality of gravity as it delineates special circumstances where Sir Issac Newton's notion of gravity does not work as he postulated—black holes, for example, where nothing can escape the depression in space caused by the concentrated mass of the black hole. There are countless examples one could provide in the social, psychological, and educational sciences to illustrate this same concept. Going back to our I.Q. example, how valid is an I.Q. test in a culture that operates on socio-epistemological assumptions that are profoundly different from Western culture. Another central dimension here is the decontextualization that comes from colonialism—both traditionally and in its new, reconfigured format—that decontextualizes knowledge produced in colonial centers of power by dominant power blocs that dismiss and degrade the knowledges and well being of marginalized, colonized groups.
- *Reductionistic*—focusing on those factors that lend themselves most easily to measurement, research/knowledge produced in this context fail to account for the multitude of factors that shape the nature of knowledge produced: the belief and value structure of the researcher, the structural forces that create particular ideological and cultural climates in which the research process operates, the discursive practices of the research community involved in the process, the perspective of numerous individuals from other cultural settings about the phenomenon in question, to name only a few. Such reductionism provides a parochial, limited, and deceptive body of knowledge.
- *One Dimensional*—shaped by the belief that there is one true reality that can be discovered and completely described by following correct research methods. Such an epistemological orientation posits that the waking dimension of human consciousness is the only state worthy of study and use in our daily existence. Thus, the reality that Westerners have depicted via their knowledge production over the last 350 years is a certified reflection of the way the world really is. Anyone that would suggest differently has been labeled as crazy, deranged, anti-American, an enemy of Western civilization, or at least a bad scholar.

In Part 2 of the book, I will provide a detailed understanding of the epistemology of FIDUROD and its effects on the world in general and education and the production of consciousness in particular. In the last section of the book I will focus on

rigorous and liberating alternatives to the one-dimensionality and reductionism of FIDUROD.

Glossary

- Colonialism** in its simplest articulation occurs when a stronger nation or group of nations exploit a weaker one. Such exploitation usually involves the appropriation of the weaker nation’s assets and natural resources for the enrichment of the colonizers.
- Neo-liberalism** is both an orientation to economic policy and a philosophy that has become widespread in the U.S. and other Western societies over the last 3 decades. We can see neo-liberal philosophical orientations in the way neo-liberals view the market as a mode of social organization. Market imperatives, not ethical or humane considerations, drive social, political, economic, and educational policy in neo-liberalism. Advocates of the position tend to see the world in relation to market metaphors, imposing “market solutions” on national economies around the world via the International Monetary Fund, the World Bank, and the World Trade Organization. From a critical perspective the result of these actions is to make the rich richer and the poor poorer. The “neo” in neo-liberalism comes from proponents’ efforts to reintroduce the “discipline” of the market on global economies.
- Positivism** an epistemological position that values objective, scientific knowledge produced in rigorous adherence to the scientific method. In this context knowledge is worthwhile to the extent that it describes objective data that reflect the world. The term “positivism” began to be used widely in the nineteenth century. French philosopher August Comte popularized the concept, maintaining that human thought had evolved through three states: the theological stage, where truth rested on God’s revelation; the metaphysical stage, where truth derived from abstract reasoning and argument; and the positivistic stage, where truth arises from scientifically produced knowledge. Comte sought to discredit the legitimacy of nonscientific thinking that failed to take “sense knowledge” (knowledge obtained through the senses and empirically verifiable) into account. He saw no difference between the *ways* knowledge should be produced in the physical sciences and in the human sciences, and he believed one should study sociology just like biology. This had a dramatic impact on the way we would approach the social, educational, and psychological research. Social knowledge and information about

humans would be subjected to the same decontextualizing forces as the study of rocks.

Social and behavioral scientists would pull people out of their cultural setting and study them in laboratory-like conditions. Society, like nature, Comte argued, is nothing more than a body of facts governed by immutable laws. Therefore, social actions should proceed with lawlike predictability. In a context such as Comte's, education would also be governed by unchanging laws; the role of the educator would be to uncover these laws and then act in accordance with them. For example, educational laws would include universal statements regarding how students learn and how they should be taught. The positivist educator, in other words, sees only one correct way to teach, and scientific study can reveal these methods if we search for them diligently.

Chapter 2

The Politics of Epistemology, the Politics of Education

Since epistemology is not a topic that is typically reported on the 24 hour TV news cycle of the contemporary era, the assumptions that shape what is done in schools and classrooms are typically hidden from public view and discussion. *Knowledge and Critical Pedagogy: An Introduction* is obsessed with the nature of these assumptions about knowledge (epistemology) and their effects on everyday teaching practice. As previously mentioned my work here is grounded on a set of theoretical assumptions emerging from the critical pedagogical tradition—a way of viewing education that searches for occluded forces that shape lived experiences. I am particularly interested in the notion of an evolving **criticality** that listens carefully to feminist, anti-racist, anti-colonial, and indigenous voices and incorporates their insights into the critical canon. In this context this book provides essential but often ignored insights into why educational leaders, politicians, teachers, students, and the public view teaching and learning in particular ways.

Before we go any farther, it is important to explain precisely what I mean by an evolving criticality in the concepts of critical theory and critical pedagogy. Critical theory/pedagogy—in the spirit of this evolving criticality—is never static as it is always evolving, changing in light of both new theoretical insights and new problems and social circumstances. Thus, an evolving criticality draws not only on the Frankfurt School and European critical theory but also explores diverse global theoretical traditions that expand our understanding of criticality and demand an understanding of diverse forms of oppression including class, race, gender, sexual, cultural, religious, colonial and ability-related concerns. In this context critical theorists/educators become detectives of new theoretical insights, perpetually searching for new and interconnected ways of understanding power and oppression and the ways they shape everyday life and human experience.

Thus, criticality and the knowledge production it supports are always evolving in relation to African, Asian, Latin American, and indigenous peoples' insights, always encountering new ways to irritate dominant forms of power, to provide more evocative and compelling perceptions of power and oppression. Operating in this way an evolving criticality is always vulnerable to exclusion from the domain of approved modes of research. The forms of social change it supports always position it in some places as an outsider, an awkward detective always interested in exposing social structures, discourses, ideologies, and epistemologies that prop up both the

status quo and a variety of forms of privilege. In the epistemological domain white, male, class elitist, heterosexist, imperial, and colonial privilege often operates by asserting the power to claim objectivity and neutrality. Indeed, as discussed in Chapter 1, the owners of such privilege often own the “franchise” on reason and rationality. Proponents of an evolving criticality possess a variety of tools to expose such oppressive power politics. Such proponents assert that critical theory is well-served by drawing upon numerous liberatory discourses and including diverse groups of marginalized peoples and their allies in the non-hierarchical aggregation of critical analysts (Humphries, 1997; Clark, 2002; Bello, 2003).

Obviously, an evolving criticality does not promiscuously choose theories to add to the bricolage of critical theories. It is highly suspicious of theories that fail to understand the malevolent workings of power, that fail to critique the blinders of Eurocentrism, that cultivate an elitism of insiders and outsiders (“we understand Foucault and you don’t”), and that fail to discern a global system of inequity supported by diverse forms of hegemony and violence. It is uninterested in any theory—no matter how fashionable—that does not directly address the needs of victims of oppression and the suffering they must endure. Critical theory and critical pedagogy to survive must listen carefully to peoples from diverse cultures around the world. If they don’t listen and act in relation to such voices, critical theory/pedagogy will be little more than a blip on the historical screen. We cannot allow the power of criticality to atrophy as it falls comfortably into a role as a North American discourse that reinscribes—albeit in the name of justice—a Eurocentric, male, heterosexual, and colonial view of the world.

Critical educators maintain that the Cartesian-Newtonian-Baconian (Rene Descartes, Isaac Newton, and Francis Bacon) ways of seeing the world (the historical predecessors of FIDUROD) that emerged with the birth of the scientific method in the seventeenth and eighteenth centuries have always been grounded on an epistemology that locates truth in external reality. Teaching and producing knowledge in this context often has become little more than an effort to accurately reflect this reality. Indeed, this Cartesian thought has been seen as simply an inner process conducted in the minds of autonomous (abstract) individuals. The thoughts, moods, understandings and sensations of the individuals are separate from their histories and social contexts. If thinking is to be seen merely as a mirroring of external events, the need for an analysis of the epistemological foundations of teaching is as irrelevant as the need for interpretation. *Knowledge and Critical Pedagogy: An Introduction* argues that such analysis is an essential dimension of educational knowledge.

FIDUROD supports an education where the ability to conceptualize has little to do with culture, power or discourse, or the tacit understandings unconsciously shaped by them. Moreover, from this reductionistic perspective the curriculum becomes merely a body of finalized knowledge to be transferred to the minds of students. More critical observers may contend that this is a naïve view, but the naïveté is recognizable only if knowledge formation is understood as a complex and ambiguous social activity. The human mind is more than a mirror of nature. A critical complex epistemology assumes that the mind creates rather than reflects, and the nature of this creation cannot be separated from the surrounding social world.

Thus, knowledges constructed by colonized peoples in, for instance, South America, India, Africa, and parts of the Islamic world reflect what might be called the colonial divergence, that is the impact colonialism made on seeing the world and being in the world. In this context, peoples who have been subjugated and classified as “inferior” by colonial political, economic, and epistemological systems of classification will produce different knowledges that those who come from societies implicated in the colonization process. Again, a critical complex epistemology listens carefully to what those subjugated in this ever-evolving colonial system have to tell us. Historically, when Westerners have addressed epistemology and knowledge production as well as curriculum development, this colonial divergence has been erased. Aware of the power of the colonial divergence, critical pedagogues can begin to decolonize the knowledge they encounter.

Critical Educational Knowledge

Critical educational knowledge emerges neither from subjects nor from objects but from but from a dialectical relationship between the knower (subject) and the known (object). Drawing from Jean Piaget, this dialectical relationship is represented by the assimilation-accommodation dyad. Employing these conceptualizations, critical teachers conceive knowledge as culturally produced and recognize the need to construct their own criteria for evaluating its quality. This constructivist sense-making process is a means by which teachers can explain and introduce students to the social and physical world and help them build for themselves an epistemological infrastructure for interpreting the phenomena they confront.

Thus, an educated person in this context begins to construct her own meaning-making structures, her own interpretive strategies, her own criteria for producing and consuming knowledge. Critical constructivists (those who argue that knowledge is socially constructed and that dominant power plays a key role in shaping the form the constructions take) realize that because of the social construction of knowledge, their interpretations and infrastructures are a part of the cosmos but they are not always in the cosmos. As a result, when the recognition of need arises we can always modify our viewpoints—we can accommodate (Kaufman, 1978; Brooks, 1984; Benson, 1989; Rose & Kincheloe, 2003; Kincheloe, 2005a).

In this conceptual context the traditional notion of truth and certainty is fundamentally questioned by a critical epistemology. We can never apprehend the world in a “true” sense, apart from our selves and our lives. As living parts of the world we are trying to figure out the world from *within* the world. In such a situation we can only approach this task from the existing cognitive infrastructures that shape and obviously restrict our consciousness. Limited in this way, we can see only what our mind allows. With this restriction we are free to construct the world any way we desire. This is not to say, however, that the outcomes of our constructions will not be confused—they may even be destructive. We may, for example, adopt a worldview such as that of the medieval Europeans. In this view of the world, sanitation was irrelevant and thousands

of individuals died as the result of the Black Plague. Obviously, this was not an adequate construction of the nature of the world. This recognition confronts us with calls to develop a way of determining valid constructions of reality. In response to such a call, a critical epistemology lays out some guiding principles for judging more adequate and less adequate constructions. Such means of evaluating knowledge become a central dimension of an epistemologically informed curriculum.

The traditional epistemological view of the self cannot stand up to the critical reconceptualization. Taking the concept of knower-known inseparability one more step, critical pedagogical analysis examines the socially constructed dimensions of language and discursive practices. French social theorist Michel Foucault (1990) observed that discourse referred to a body of regulations and structures grounded in power relations that covertly shape our perspectives and insidiously mold our constructions. Russian cultural theorist and philosopher Mikhail Bakhtin (1984) complemented Foucault's observations, maintaining that power functions in a way that solidifies dominant discourses, in the process erasing the presence of unorthodox or marginal voices (Shields, 2007). Critical teachers learn much from these theories. After Foucault and Bakhtin, the notion of the autonomous self, free from the "contamination" of the social is dead; as language-utilizing organisms we cannot escape the effect of the ways discursive practices construct our ways of seeing ourselves and the world.

With these epistemological insights, critical teachers direct student attention to the study of discursive formations in the classroom. They are empowered to point out specific examples of how power shapes particular discursive formats and the ways that power subsequently works to construct consciousness (McLaren, 1995, 2000; Thayer-Bacon, 2003). For example, consider a critical history teacher who alerts students to the male-centered construction of American history textbooks and school district curriculum guides. The teacher uncovers an approach to teaching American history that revolves around the principles of expansionism, conquest and progress. The westward movement of America is a central organizing theme that serves to focus the gaze of the student on the "impediments to civilization," for example, natives, "unusable" land, other nations such as Mexico and England, and so on. In this epistemological context student consciousness is constructed to ignore the ethical and moral dimensions of empire building, to identify those different from us as the "other," as inferior enemies. A nationalistic consciousness is constructed that not only exonerates the sins of the past but also tends to ignore national transgressions of the present.

Critical Epistemology and the Destabilization of Fixed Meanings in Teaching and Learning

The concept of civilization embedded in our history textbooks becomes what French philosopher Jacques Derrida calls a "transcendental signified"—a fixed meaning existing outside of history that is resistant to alternate interpretations. Critical educators

maintain that all texts, all signifiers and signifieds, are open to alternate interpretations. The construction of a text and the laws of its organization are not obvious to the prevailing wisdom, to common sense. As Derrida (1981) puts it in his book, *Dissemination*: “A text is not a text unless it hides from the first comer, from the first glance, the law of its composition and the rules of its game” (p. 63). It is with the rejection of the transcendental signified (the final and intractable construction of the truth about a phenomenon) that deconstruction meets a critical epistemology. Placing the responsibility for meaning making squarely on human shoulders, both deconstruction and critical pedagogy attempt to escape the hot lead enema of fixed meanings. Thus, classroom activities in this epistemological context change dramatically. The emphasis is no longer on the accumulation of data but on the production and meaning of information. Here everything from classroom organization to evaluation procedures moves to another epistemological domain.

As Derrida informs the critical effort to prevent dominant groups from certifying their constructions as final truths, we are better equipped to resist the unwitting construction of our consciousness, the covert shaping of our subjectivity. Thus, via Derrida’s deconstruction, we disrupt the tyranny of the “official text”—the fixing of meaning. As critical epistemologists and educators, we undermine the power of the author or the supervisor or the developer of educational policy or the curriculum-maker to impose authoritarian meaning. If we are unaware of Derrida’s deconstruction, we are vulnerable to the seduction of the traditional view of language as a neutral message system. FIDUROD in its reductionism regards language as a transparent medium through which students and teachers talk to one another from unproblematized abstract selves—their identities are not socially constructed, they are totally separate from the social, cultural and historical contexts in which they developed. We remain ignorant of the tacit social dimensions of language and the power dynamics it reflects in seemingly innocent conversations.

In this context we return again to the importance of interpretation in critical knowledge. Indeed, the teaching of interpretation becomes a central focus of the critical curriculum. Idiosyncratic readings protect students from “correct” interpretations and fixed meanings, as they, in the process, gain practice in recognizing the ways dominant power is attempting to shape their consciousness. Contrary to the pronouncements of some critics, all meaning is not lost by the rejection of many “correct” readings and numerous fixed meanings. If anything is destroyed in such deconstructive analysis, it is not meaning but the stance of the unchallenged superiority of one way of making meaning over all others. Indeed, the interpretative classroom discussions in which critical teachers participate should never end “for good.” This is why critical teachers will study the same texts in different ways in different classes or in different semesters. The critical knowledge they produce in this on going process is central to their ability to move the human mind to new levels of cognition.

While teachers informed by a critical epistemology are interested in diverse interpretations, like good detectives they are interested in the origins of such understandings. The search for the forces that generated the interpretations and constructions of the moment move us into a great cultural conversation—the heart of the critical

curriculum. Through this search, our personal experience is illuminated by our engagement in the cultural conversation, and the cultural conversation is illuminated by our personal experience. We make knowledge through our actions and comments. The critical curriculum leaves us not with a sacred, never-changing set of truths, but with a tentative encounter with the collective consciousness and a lingering uncertainty about the language used in the process.

Critical Knowledge Is Grounded on Critical Social Theoretical Insights: Producing a New Selfhood in a Rigorous Education

A critical epistemology induces researchers and educators to become well acquainted with social theoretical insights to understand the complicated dynamics of self-production. The process of meaning making in a critical epistemological context, for example, involves engagement with texts and diverse experiences for the purpose of gaining a new level of self-understanding. Critical pedagogy's effort to gain insight into personal identity is not, however, a call to narcissism; indeed, it is quite the opposite. Critical educators use these epistemological insights to help them understand the forces that shape them so that—especially in contemporary Western culture—they can become less self-absorbed and individually oriented. In this context they learn to situate themselves historically and socially. With such knowledge they are far better equipped to make conscious decisions about who they want to be and how they will deal with the socialization processes of twenty-first century electronic- and information-saturated societies.

In many contemporary educational settings driven by epistemologically naïve, unexamined top-down standardization, students and teachers are not encouraged to confront why they tend to think as they do about themselves, the world around them and their relationships to that world. In other words, such individuals gain little insight into the forces that shape them—the construction of their consciousnesses. As long as selfhood is not challenged and the status quo is accepted, such education proceeds without concern for the consequences of meaning making. Indeed, uncritical education views cognition as a neutral process that takes place in a vacuum. A critical epistemology helps us appreciate the central importance of these cognitive dynamics in the teaching and learning process. Indeed, a critical epistemology helps educators understand that thinking in new ways always necessitates personal transformation; if enough people think in new ways, social and pedagogical transformation is inevitable.

One reason this situating of self does not take place in such uncritical educational settings is that many of those involved in the educational process do not have the historical, philosophical, sociological and cultural studies backgrounds to delineate what such an act might entail. Insights derived from these domains would help educators discern the ways that dominant power subverts democratic impulses in a variety of venues, including the political, psychological, curricular, epistemological, and pedagogical. Increasingly dominated by private interests, these domains

operate to construct the identities of individuals in ways that were conducive to the needs of dominant power wielders. The standardized education of the twenty-first century attempts to make individuals more compliant with the needs of corporations, more accepting of government by the market, globalized capitalism, free-market ideologies, the irrelevance of the political domain, etc. The ideological deployment of schools as sorting mechanisms for the new corporate order is left unchallenged by this uncritical compliance. Where the self fits in these power-driven dynamics is, of course, irrelevant. An epistemological examination of the origins of school knowledge unveils the hidden dimension of this process.

The political dynamic of self-production is a central concern of a critical epistemology. Of course, the concept of an abstract individual formed outside the boundaries of the social and cultural world is the dominant Western conception of “self-production”. The complex modes of analysis promoted by a critical epistemology maintain that thinking and consciousness themselves cannot be separated from history. All thinking and action take place in continuity with the forces of history. Contextualization is inseparable from cognition and action. A key role of critical education is to bring this recognition to the front burner of consciousness. With such awareness critical analysts begin to realize that consciousness is constructed by individual agency, individual will, and the ideological, discursive and regulatory influences of social forces. The self is both structured by forces and a structuring agent. Thus, “who we are” is not deterministically constructed by sociohistorical formations that totally shape our ways of seeing; nor is consciousness and selfhood autonomously constructed by free and independent individuals unhindered by the burden of history.

Human efforts to make sense of self and the world are dominated by ideological forces that thwart our pursuit of individual goals. At the same time, particular forms of thinking and action reveal a volition and a genuine motivation that transcends the confines of existing social forces. Social theorists have traditionally been guilty of not recognizing this ambiguity of consciousness construction, identity production and social action. Not until the 1980s with the influx of new theories of language analysis and cultural understanding did scholars appreciate the ways power was embedded in language and knowledge and the implications of such inscriptions in the production of the self. Human beings are initiated into language communities where women and men share bodies of knowledge, epistemologies and the cognitive styles that accompany them. These are powerful forces in the shaping of who we are. Thus, the manner in which we come to think about education and knowledge production is inseparable from these language communities. Indeed, the nature of the modes of analysis and the curricula we devise are inseparable from them. An awareness of critical knowledge helps us appreciate these dynamics; it understands that the sociohistorical dimensions of self-production are often manifested on the terrain of language.

These are often foreign and difficult-to-understand concepts for many students schooled in the United States. Because these linguistic, ideological, and epistemological factors are hidden from many of us, we find ourselves removed from even thinking about the process through which our knowledge is produced, our consciousness is

constructed. Our educational experience has focused on the “mastery” (read: memorization) of many bits and pieces of unrelated data for standardized tests—not on the forces that have made us who we are. The schemas that guide a culture are rarely part of an individual’s conscious mind. Usually, they are comprehended as a part of an individual’s worldview that is taken for granted.

In very specific terms a critical epistemology is profoundly concerned with the production of self in the context of the influence of power blocs in contemporary society. Such concern reveals itself in a critical questioning of the social, cultural, political, economic, and linguistic structures that shape human consciousness as well as the historical contexts that gave birth to the structures. Such modes of analysis help students and teachers explore the sociohistorical and political dimensions of schooling, the kind of meanings that are constructed in classrooms, and how these meanings are translated into student consciousness. Naive educators often speak of student and teacher empowerment as if it were a simple process that could be accomplished by a couple of creative learning activities. One thing our ideological critique of self-production tells us is that the self is a complex, ambiguous and contradictory entity pushed and pulled by a potpourri of forces. The idea that the self can be reconstructed and empowered without historical study, linguistic analysis and an understanding of social construction is a trivialization of the goals of a critical and rigorous education. A central goal of *Critical Education* involves making this process transparent.

In a critical epistemology a rich, nuanced understanding of the self is necessary for a rigorous form of knowledge production and research. Such a sense of self provides the researcher with the tools necessary to escape the pseudo-objective, one-dimensionality of FIDUROD while concurrently not slipping into some relativistic, uncritical, simple-minded notion of knowledge production. With a historically grounded notion of self, researchers can begin to examine the specific ways their own and other scholars’ work is shaped by the socio-cultural conditions and epistemes in which they operate. Such insight about selfhood and research—the knower and the known—moves us to a new level of rigor in knowledge production as well as the interpretation of existing knowledges.

Such self-knowledge helps us escape from the tendency of knowledge producers in all Western historical epochs to believe that they had discovered the truth. Such a tendency can cause tremendous problems, as it causes true believers to dismiss the insights of all other knowledges and the genius of all other knowledge producers. It is important to note in this context that we all stand at a particular place in the web of reality and are profoundly shaped by the multiple dynamics surrounding that location. Nevertheless, there is nothing deterministic about our “positionality”—we do not have to be racists, for example, just because we grew up in a racist culture. There are always discourses, ways of seeing and being that resist the dominant forces that shape selfhood.

This absence of **determinism**, for example, allows some men to become feminists even though they were conditioned by their socio-cultural locale to buy into patriarchal/dominant masculinist assumptions about gender. This is not to say that they won’t possess male privilege; it is just to argue that context does not determine consciousness.

Thus, whether one comes from a dominant or a marginalized (or a complex combination of both) social location, an individual has the agency to embrace more emancipatory (the effort to attain freedom from the repressive social norms of one's historical context) positions. With these critical understandings we are better equipped to move toward provisional, multidimensional insights about the world and self that facilitate our efforts to fight for justice in the world, to become more just and ethical individuals, and to develop into humble scholars who understand the often ignored multiple dimensionality of knowledge production (Harding, 1998; Nowotny, 2000; G. Jardine, 2005).

Humans as Hopeful, Exploring Creatures: FIDUROD's Effort to Squash the Imagination

Understanding the way FIDUROD-produced knowledges shape the self can be a disconcerting realization for many Western peoples. It is fascinating and profoundly saddening to watch excited first graders run to school with libidinally soaked images of learning embedded in their consciousness, only to see them 7 years later dreading every minute of school. They have learned the lesson that too many of us know: FIDUROD knowledges are not especially useful and are overwhelmingly boring. Indeed, such reductionistic knowledges combined with pizza delivery pedagogies pound the love of learning right out of us. All too often students in middle and high school who retain their motivation pull it out of a desire to succeed, to gain credentials that allow them passage to financial gain or high status employment. Rarely do I converse with students who are motivated simply by an interest in the information middle and high school provides. The critical epistemology promoted here is grounded on a vision of human possibility and grandeur and magnificent hope in the depths of despair.

As we study lost modes of consciousness of vanquished peoples and the inspired knowledges they produced, criticalists come to understand the limitations of FIDUROD, the complex relationship between the knower and the known, we begin to question the view of reality that has been beaten into us by Western institutions. Just as my encounter with the Baddaddies alerted me to forms of musical possibility that transformed my lived world, the understanding of new modes of consciousness and the encounter with new levels of reality profoundly shakes our entire outlook. In this context cold despair is replaced with radiating hope, as we understand that it is more possible than we previously thought to reinvent the world. From my perspective that's a damned exciting concept—one worth living for and celebrating every day of my life. Here we begin to appreciate the importance of the way we choose an epistemology.

Obviously, I want to choose one that opens up previously unexplored dimensions of humanness to complex questions of meaning, ethics, and purpose. As Sandra Harding (1998) puts it: our epistemological choices provide “the kind of map we need to get us where we want to go” (p. 163). Such maps are created when we are

privity to diverse knowledges and ways of seeing the world. In this magical intersection we begin to ask new questions that in turn promote new forms of inquiry. With the insights we gain in the process, we are empowered to rethink what we are presently doing in schools and in our conceptions of education in general. Indeed, it is possible to not only remake the world, but also to do something far more difficult—reinvent schools. In such schools we would transcend the provinciality of FIDUROD and move to encounters with diverse dimensions of reality, to the hidden forces that shape our behavior, to the distortions of corporate produced knowledges that induce us to act in the best interests of their profit margins. In the process we recover our imaginations from the Western imperial monster's trash heap.

Thus, in critical pedagogy we fight the monster—obviously not a task that one is often rewarded for in the contemporary epoch. In our fight with the monster we revise our view of ourselves as researchers in light of our critical epistemology. We are no longer scholars/researchers who stand behind one-way mirrors to distance ourselves from the “objects” of our research so we can avoid FIDUROD's so-called subjectivity and distorting perspective of the researcher. Instead, we work with those we might study as co-researchers, as allies who could help them improve their lives. In a critical pedagogical context we are informed by the work of Paulo Freire and his literacy and political research/activism with the poorest of the poor in Brazil. The goal of our critical knowledge production is not to simply count frequencies, establish numerical correlations, or merely describe. We are more interested in socio-political change than in predicting how our subjects/co-researchers will perform in school (Bettis & Gregson, 2001).

In such research/political and pedagogical deeds we use our critical epistemological insights to help us see from other peoples' perspectives. Critical epistemology and the research and education it supports are profoundly committed to the concept of fairness and accuracy. An example of such fairness and accuracy involves our effort to gain insights about a topic from multiple sources and to listen carefully and consider the particular contextual insights such informants bring to the process. It does not involve embracing some FIDUROD-based, naïve notion of objectivity, that expunges our own concerns and the benefits derived by the uniqueness of our own situatedness in the world. Thus, as humble critical researchers we understand that we are coming from some particular place in the web of reality. No matter how much we might understand the forces at work in the shaping of that historical and social place, we appreciate that none of us who do research and pedagogical work are impartial, distanced, and dispassionate in the FIDUROD sense of objectivity. Joe Kincheloe is not an objective researcher or teacher—and neither are you.

Thus, because of the limitations of our situatedness in the world, our views of any topic are partial and incomplete perspectives. In our humility we turn to the perspectives of a variety of other observers from different times, places, and epistemological locations to contribute to our understanding (McClure, 2000). This is profoundly different from FIDUROD's arrogant notion that we have produced a final truth by carefully following the correct steps of the research procedure. In light of our efforts to retrieve our imagination, our critical epistemology demands that we use our mind's eye to construct new, life-changing insights from the multiple

sources we have brought together about a phenomenon. In a critical epistemological context the knowledge we produce is rarely obvious; critical knowledge emerges from our imagination and our rigorous pursuit of diverse perspectives coming from divergent locales.

As we delve deeper and deeper into these divergent viewpoints from around the world, we come to realize a disconcerting piece of information: Western science since its inception has waged a holy war against other epistemologies and ways of seeing the world. Knowledge that comes from other cultures, the colonized ones in particular, and other paradigms has always been suspect. Non-Western perspectives and peoples must be discredited—for example, in the largest selling book on cognitive psychology in history, *The Bell Curve* (1994), Richard Herrnstein and Charles Murray provide “rigorous scientific proof” that Africans have an average I.Q. of 75. Elsewhere, employing the term bricolage, I have written about making use of diverse viewpoints from diverse disciplines, social theories, research methodologies, and cultural perspectives (Kincheloe, 2001, 2005a; Kincheloe & Berry, 2004).

Here the bricolage intersects with Walter Mignolo’s (2001) concept of diversity to initiate for a new epistemological negotiation between Western and non-Western knowledges. Here, new forms of understanding, scholarly rigor, critical knowledge, cultivating the intellect, and action for social justice can be devised. Taking the bricolage and the insights of diversity into account, we move to a new scholarly, research, and pedagogical domain—a venue where we see connections and interrelationships between various dimensions of the socio-cultural, psychological, political, and pedagogical world that lead to revolutionary changes. Indeed, such changes may even help us better address and act on the effort to alleviate human suffering. Here we run head-on into the politics of epistemology, the politics of education.

Knowledge Regression Therapy: The Birth of Epistemology

Critical epistemology understands that knowing in a complex and ethical sense always understands knowledge is more opaque than Western science originally believed. Language is much too ambiguous to provide some clear reflection of the nature of the reality that surrounds us. Indeed, it is with these understandings and the additional recognition that it is the human who knows and produces knowledge that we move away from the blinders of FIDUROD. Knowledge in this critical epistemological context does not come directly from things in the world. The notion that knowledge comes to us without the filter of our socially constructed consciousness is one of the great fallacies of traditional Western science and FIDUROD. All knowledge runs through the subjectivity of human perception—without this step in the process what we understand as knowledge simply doesn’t exist.

When we read a poet’s rendition of fog along the coastline of British Columbia, we are not reading a simple reflection of what the fog is. Instead, we are reading how the fog is interpreted by the consciousness of the poet. Move this notion into

your own consciousness. How would you describe fog? What images of it come in to your mind as you consider it? Do you think those impressions are the same as peoples from other places and times? Is it possible that you have a lot to learn about fog from these diverse perspectives? Could it be that you might never think of fog in the same way after encountering some of these perspectives? What is your relationship to fog?

At the moment we recognize the socially constructed and interpretive dimension of a phenomenon such as fog, the cosmos gives birth to epistemology. Epistemology rushes through the conceptual birth canal at the exact instant we realize that humans don't possess some immediate and straightforward access to knowledge. It's far more complicated, and as we change the diaper of the epistemological infant we embark on a new journey to appreciate the mystery, grandeur, complexity, and ambiguity of this conundrum we call existence. If you have all the answers to questions about this mystifying dimension of being, then burn this book immediately—you don't need it. The prevailing epistemology of the day—or as Michel Foucault labeled it, the episteme—insidiously fashions what we believe to be real and how we might come to know it (Foucault, 1990; May, 1993; Inayatullah, 1995). For example, is a metaphor real? Is an interpretation of history real? Is a relationship between being a hip hop artist and being a great teacher real? The answer, of course, rests in which epistemological baby we claimed as our own. In *Knowledge and Critical Pedagogy: An Introduction* I'm trying to feed that restless, needy, and earsplitting epistebaby.

One of the reasons that caring for the epistebaby is so important in twenty-first century society involves the politics of epistemology and pedagogy. Central to every page of *Knowledge and Critical Pedagogy: An Introduction* is the political understanding that contemporary dominant power uses FIDUROD's scientific capital to do bad things—thank you for smoking, if you will. “Our experts have concluded after conducting rigorous scientific research that Exxon is doing no harm to the environment. The data just do not support the accusation of these radical environmental groups.” “After examining the contaminated area, the scientists employed at Monsanto Chemicals—excuse me, we changed our name to Solutia Inc.—have determined Solutia is not responsible for the cancer cluster in the county. Have a good day.” “How do we fight the scientific experts?” victims of corporate social irresponsibility ask. Scientific experts are expensive, poor and even middle/upper-middle class citizens can't just go out and hire their own. We can begin to see why knowledge is power.

In epistemological politics public knowledge becomes little more than the propaganda of privately financed interest groups. Watch how often network news reporters rely on such phony information in their segments on “over the counter pharmaceuticals and your health” and the like. The corporate-paid scientists, or more accurately the epistemological prostitutes, give us their scientific twaddle or “peppermint frenchies with happy endings” to defend the monetary interests of their financiers (Johns). Their epistebabies are little Chuckies from the “Child's Play” horror movie series, who terrorize the world without conscience or remorse. Even many scholars in the world's increasingly corporatized universities sell their

minds/bodies/souls to their commercial pimps. Far too many university presidents and administrators see no problem with this debased politics of knowledge, as they encourage researchers to cozy up to the forces of the market. With these money-changers secure in the temples of knowledge production, the Chuckie epistebabies run amok undermining the university's humane, serve-society tradition—as problematic as it often was—leaving knowledge production in all domains in the hands of the highest bidders.

Thus, the myopia of FIDUROD and the economic pimps who employ it jeopardizes us all. Many indigenous peoples consider the consequences of their actions for seven generations into the future (Wildcat & Griswold, 1999). Yet the “superior” producers of the modern knowledges of FIDUROD don't find it important to discern the effects of their scientific endeavors on the year ahead. If this is the epistemological status quo, then how does it affect educational institutions? How does it work to shape the consciousness of the students we graduate? Whose “take” on the world is being taught? Who benefits from that particular viewpoint?

In a war-swollen, screwy America caught in an indefinite season of death, our sanity rests on how we answer these questions. In the contemporary West one can fight against the certain curricular knowledge at a moral level: we shouldn't teach about oral sex in our anti-HIV program; teachers should avoid subjecting young students to discussions about war; we should not teach *Of Mice and Men* in high school English classes. But when it comes to questions of science—with only a few exceptions, there is literally no argument. Science has proven, one often hears in education-talk, that standardized tests can be improved by raising students' emotional commitment to the testing process—for example, holding pep rallies to generate commitment. The authority of science frightens everyone away from questioning such fatuous data. From a critical epistemological perspective the knowledge produced in this context is grounded on a set of assumptions about the validity and importance of standardized testing. Acting on our critical knowledge, we question the authorities.

The Politics of a Correspondence Epistemology

A critical and intellectually complex epistemology demands that we understand dominant conceptual structures and the nature of knowledge production. In such analysis we can obtain compelling insights into the ways such structures and knowledge production support the interests of dominant power blocs. Dominant groups use these dynamics to forge “perfectly reasonable” policies that inevitably shape the lives of marginalized peoples in deeply negative ways. Schooling testing policies and the township's commissioned study of where to locate the dump—right next to the poorest neighborhood in town—can obviously undermine the quality of oppressed peoples' lives and destroy opportunities that might have been available to them. Obviously, there are serious flaws in FIDUROD and other dominant conceptual structures—e.g., the dismissal of contextual concerns such as the well being

of low status groups of people. To disregard such contextual issues that involve the lived experience of human beings is, indeed, a serious flaw.

FIDUROD is an epistemology without foreplay—here scientists give you the “facts” without contextual or ethical lubrication. Indeed, FIDUROD employs a correspondence epistemology that validates information when it demonstrates exact correspondence between research findings and the one true external reality. Of course a critical epistemology questions the assertion that there is one intractable external reality that is uncovered by following the correct steps of scientific methodology. With the tenuous faith that many scientists hold on to concerning the value of their work and with so many dominant economic interests riding on scientific findings, one can easily understand how dangerous a critical epistemology may be. But yet, questions about FIDUROD should seem natural after the blows correspondence epistemologies suffered from Einstein’s theories of relativity, quantum physics, Heisenberg’s uncertainty principle, the analysis of language used in scientific inquiry, and many other factors since the early twentieth century.

Indeed, in the minds of some scholars from physics to education the designation of truth is more inexact than once believed. In this context it is important to make the point that our critical epistemology issues a direct challenge for researchers and educators to address the flaws and shortcomings of FIDUROD. Especially in light of the imperial socio-political, military, and educational policies of the U.S., critical epistemologists see this expose as a form of intellectual decolonization. Indeed, epistemological colonialism—the delegitimization of the knowledges produced by individuals and groups from subjugated social locales and the substitution of FIDUROD-based knowledges—is another dimension of the dependency theories that have been employed in the subjugation and exploitation of poor nations. Critiques of such a colonialist epistemology have, of course, come from both scholars from colonized nations and from the West itself. Both groups of scholars have carefully delineated the limits of Western reason and knowledge production as well as their political effects, and our critical epistemology has much to learn from both sets of analysts. The need to get beyond the imposition of a correspondence epistemology and the numerous ways such an act contributes to political oppression is long overdue (Harding, 1998; Knobel, 1999; Mignolo, 2001; Barros, 2004).

To accomplish such a feat we must all become epistemologists—we must all understand the factors that shape what we come to believe to be true. Such an understanding, I would maintain, becomes a central dimension of any curriculum. A central question in this epistocurricular context involves how did this society—or at least the dominant power bloc in this society—come to promote this body of knowledge as the official curriculum. As we better understand correspondence epistemology as well as the challenges to it, we begin to appreciate just how important it is to understand the connection between knowledge and power. Because power has such an important role in the way we see and make sense of the world, we can more clearly understand the way that humans make their own world (Van Manen, 1991; Harding, 1998; Bettis & Gregson, 2001). Once again, this reminds us that we have far more power than ever imagined to shape our own destiny, to alleviate human suffering, and to imagine what we might want the world to become.

From a Critical Epistemology to a Critical Complex Epistemology

Many observers have come to the conclusion over the last several decades that the oversimplification of a correspondence epistemology and the dominant forms of knowledge it produces do not meet contemporary social needs. The web of reality is composed of too many variables to be taken into account and controlled in the FIDUROD model. Scientist Illya Prigogine labels multiple variables, “extraneous perturbations,” meaning that one extraneous variable, for example, in an educational study can produce an expanding, exponential effect. So-called inconsequential entities can have a profound effect in a complex nonlinear universe. The shape of the physical and social world depends on the smallest part. The part, in a sense, is the whole, for via the action of any particular part, the whole in the form of transformative change may be seen. To exclude such considerations is to miss the nature of the interactions that constitute reality. The development of a critical epistemology does not mean that we simplistically reject all empirical science—that would be ridiculous. It does mean, however, that we conceive of such scientific ways of seeing as one perspective on the complex web we refer to as reality.

Reality is too complex and multidimensional to lend itself to fixed views and reductionistic descriptions. Understanding the tendency for reductionism in some of the traditional modes of thinking about curriculum, Kenneth Teitelbaum (2004) maintains that forms of positivism have subverted the effort to gain a more relational perspective on the activity of teaching. In Teitelbaum’s estimation such a relational perspective would connect our understanding of individuals to their social and historical contexts. Teachers’ understandings of students in such a conceptualization would be far deeper and more helpful in the teaching process. Researchers understandings here would produce modes of knowledge that would be far more helpful to the complex everyday life of the teacher in the classroom.

Critical educators who take complexity seriously, Stephen Fleury (2004) writes, challenge the reductionistic bi-polar true or false epistemologies. As complex critical teachers and researchers come to recognize the complexity of the lived world with its maze of uncontrollable variables, irrationality, non-linearity, and unpredictable interaction of wholes and parts, they begin to also see the interpretative dimension of reality. We are bamboozled by a FIDUROD science that offers a monological process of making sense of the world. Critical complex scholars maintain that we must possess and be able to deploy multiple methods of producing knowledge of the world. Such methods provide us diverse perspectives on similar events and alert us to various relationships between events. In this complex context we understand that even when we use diverse methods to produce multiple perspectives on the world, different observers will produce different interpretations of what they perceive. Given different values, different ideologies, and different positions in the web of reality different individuals will interpret what is happening differently. Indeed, we must understand this complexity in order to appreciate the complications of gaining knowledge, Charles Bingham (2004) argues. Humans beings are not atomistic in

their ability to acquire knowledge—they must receive help from others to engage in learning.

Bingham's notion of the relationship between knower and known changes the way we approach knowledge, learning, teaching, and research. Indeed, critical knowledge work in this complex process is not something employed by solitary individuals operating on their own. Critical scholars use language developed by others, live in specific contexts with particular ways of being and ways of thinking about thinking, have access to some knowledges and not others, and live and operate in a circumstance shaped by distinct dominant ideological perspectives. In its effort to deal with previously neglected complexity, the critical epistemology offered here appreciates the need to understand these contextual factors and account for them.

Individuals who employ a critical complex epistemology in their work in the world are not isolated individuals but people who understand the nature of their socio-cultural context and their overt and their occluded relationships with others. Without such understandings of their own contextual embeddedness, individuals are not capable of understanding from where the prejudices and predispositions they bring to the act of meaning making originate. Any critical pedagogy that attempts to deal with the complexity of the lived world must address these contextual dynamics. Critical scholar Patricia Hinchey (2004) illuminates one of the myriad of consequences that occur when the complexities of context are ignored: individuals don't understand the origins of the racial, ethnic, and other forms of prejudice that are unconsciously picked up from their lived contexts. Thus, the transcendence of a reductionistic FIDUROD and passage into a new domain of critical complexity possesses profound consequences.

Many scholars in education and other disciplines have argued that the recognition of complexity in the epistemological domain would undermine our ability to defend the validity of the knowledge we produce because we would have no universal criteria to invoke that was untainted by the context of its production. Thus, the knowledge we produced would be useless. Of course, the critical epistemological answer to such arguments is that we have never had a set of pristine, transcultural/transhistorical epistemological criteria to serve as the final arbiter of truth. What a critical complex epistemology is doing is freeing us from the delusion that such untainted standards exist—a profound contribution to human efforts to understand the world and self. Knowing this, we can operate in a far more humble domain, become far more insightful about the forces that shape our own and other people's constructions of reality, gain the ability to understand the dynamics that limit our understandings, appreciate the value of other people's and other cultures' ways of seeing, and discern how to avoid the pitfalls of reductionism.

As we go back to the foundations of Western science in the seventeenth and eighteenth centuries, we see this reductionism manifesting itself in the work of Rene Descartes and Sir Isaac Newton who both saw the world as a giant machine. In this context Newton laid out a universalistic theory of causal determinism, an ultimate mode of reductionism that posited that all motion in the world can be predicted

precisely when we know the laws of motion, where a phenomenon is located, and the speed at which it is moving. Thus, it is possible in this framework to predict the future of everything from the largest masses to the smallest objects. One can see that a critical epistemology's concern with complexity runs at odds with the Western epistemological tradition. Nature and human behavior do not operate as a machine, they are both grounded on a complex matrix of interrelationships. Here rests the nature of *being in the world*. **Ontology** is the study of being in the world—and the phenomena we study are always ontologically complex, parts of diverse larger processes and contexts (Goswami, 1993; Harding, 1998; Thayer-Bacon, 2000, 2003).

As an ontological being I don't stand alone in the world, abstracted from social and historical forces. I am inseparable from such forces—where they end and I begin is a blurred line. The machine metaphor—also an ontological concept—looks like a small child's view of the world when complexity begins to be appreciated. Thus, as a critical epistemologist I am challenged as a writer/researcher to convey this complexity to wide group of readers. Individuals and groups around the world in order to move beyond the violence, economic exploitation, pollution, and bankrupt pedagogies of our contemporary era need to understand this critical complexity. Fundamentalists of any faith, are much less prone to forms of naïve certainty that lead to hatred of the other and war when they understand the complex nature of knowledge production itself, the world around them, and their own construction as humans. Such an educational task must be accomplished if the world is to survive.

The critical complex task in question—as it alerts us to the social construction of the world with dominant power playing a central role in such productions—makes no claim to an a magical epistemological elixir that channels us the truth. Critical epistemologists make no claim to knowing the world in some intersubjectively (verified by a group of impartial assessors) valid manner. We have no claim to some privileged vantage point. Thus, the way critical epistemologists might state one of their goals could involve generating knowledge that is not as “badly off the mark” as much of the knowledge produced in education by a FIDUROD epistemology. This realization is central as we move from a critical epistemology to a critical complex epistemology.

We will never find some final epistemology that allows us to get the whole story. The history of the twenty-first century will look very, very different to a twenty-sixth century historian than to those of us living it in. The trends and issues that we think we clearly understand now will be viewed in profoundly different way in 2542. The world and the knowledge we produce about it are complex and ever changing—get over it! As I write this I find myself in the bizarre predicament of being alive. Yet, no one in biology or psychology in the first decade of the twenty-first century even knows what it means to “be alive.” And the meaning of being alive is a question that seems to me very basic to thinking about the nature of the world and our “selves.” At this historical juncture we are mere epistemological babes in the big, bad, complex, power-driven world.

Eurocentrism: The White Man’s Epistemological Burden—Providing Truth to the World

The recovery of the Western—especially U.S.—crusade to dominate the geo-political, economic, and cultural world is constructed on the Eurocentric view that Western science is the sole source of refined and sophisticated knowledge. When it comes to epistemology the West is the referee as to what counts as truth around the world. Our critical notion of knowledge rejects this form of Eurocentric epistemological fundamentalism and the cultural and educational sense of superiority that accompanies it. This historical carbuncle of the Western positivist tradition is one of the many Western beliefs and actions that infuriate numerous individuals in so-called Third World countries. When Americans, for example, ask “why do they hate us?” this Eurocentric/Americentric epistemological sense of supremacy provides a unique look at one aspect of the answer to that question (Said, 1978; Kincheloe & Steinberg, 2004). While many brilliant Western scholars have worked hard over the last 4 decades to undermine this long tradition of epistemological arrogance, still a large percentage of the knowledge produced about non-Western peoples and their knowledges and cultures falls into the category of an epistemology of othering.

Thus, Western/American epistemological structures—in a world in which many Third World peoples refuse to be simply “othered” by power-driven regimes of knowledge—begin to crumble in the still emerging global rebellion against multiple forms of oppression. This rebellion against Eurocentrism/Americentrism and its multifarious manifestations around the planet will continue to intensify, even though much of the U.S. population is unaware of the unrest and rage that surrounds them. In this context FIDUROD is being exposed by peoples outside and inside the formal research community who no longer believe the “truths” Western academics, governments, and other knowledge producers and deliverers provide the world.

Many of these individuals from the poorest nations as well as the poorest backgrounds in the West have come to appreciate that the epistemology the dominant culture in the West promotes is deeply embedded in the interests and the actions of Western elites. Because of this the dominant institutions of the West often promote such a perspective without even thinking about it. Schools, for example, in the last half of the first decade of the twenty-first century typically teach a curriculum that employs the Eurocentric knowledges and ways of seeing so smoothly and confidently that few can envision what information that emerged under a different epistemological set of assumptions might even look like (Coffee et al., 1996; L. Smith, 1999; D. Smith, 2003). When media and government are added to this institutional Molotov cocktail we begin to appreciate the raw power of dominant Western epistemology.

The epistemological environment created by FIDUROD and the purveyors of its knowledges have created a curtailed learning environment for contemporary Western peoples and those they influence around the world. While priding themselves on being the most educated, informed culture in history, Western monolithic epistemology is creating a crisis of thinking. Indeed, because of the monocultural knowledges produced and promoted, it becomes more and more difficult to encounter

the cosmos with curious, excited, novel vantage points. Truths are merely passed along to us—compelling knowledge is not something we are constantly formulating and constructing. I remember that by the fifth grade no matter how burning my desire to learn, to go beyond the frontiers of human understanding may have been, I was so put out with the memory work of school that I wanted to scream—or at least *howl*. I intuitively sensed that the simplified, certified knowledges that we learn in school and in the cultural curriculum actually shape us into limited, parochial people with restricted insights into self and world.

The critical knowledge that is central to this book is intent on identifying the nature of these dominant epistemological limitations—knowledge boundaries that dominant culture teaches us so well despite its multitude of other pedagogical failures. Such epistemological restrictions have evolved so effectively over the past 350 years of Western culture, as dominant power through its knowledge structures and diverse forms of pedagogy was able to induce numerous individuals to regulate themselves, to buy into the epistemological strictures of the historical moment (Foucault, 1980; G. Jardine, 2005). In this context I am reminded of how mobsters now operating in the U.S. while engaging in profoundly violent and anti-social acts supported the George W. Bush administration’s portrait of the motivations of Islamic terrorists on 9/11 and the dominant view of America as an innocent, virtuous member of the world community. Even sociopaths buy into particular dimensions of the dominant “truths.”

The Historical Foundations of the Dominant Epistemological System

During the Middle Ages, what Europeans thought of as science was grounded on a Thomist-Aristotelian synthesis of faith and reason. The main goal of the synthesis was to understand the nature of natural phenomena. But when the Black Death swept across Europe, killing about one fourth of the population, many realized that the medieval way of seeing was inadequate. Under the pressure of such catastrophic sickness, Western scholars began contemplating a new way of perceiving the natural world—a way that would enable them to understand and control the world (Leshan & Margenau, 1982; Fosnot, 1988; Kincheloe et al., 1999a).

With the coming of the Scientific Revolution, or the Age of Reason in the sixteenth and seventeenth centuries, nature was to be controlled, “bound into service and made a slave”. The basis of this control was founded on the epistemological separation of knower and known. This bifurcation legitimates the assumption that the human perceiver occupies no space in the known cosmos—the world is simply “out there” and the contexts humans “know in” are absolutely irrelevant in this objectivist construct. Thus, knowers are untainted by the world of opinions, perspectives, or values. Operating objectively (without bias), the knower sets out on the neutral mission of science: the application of abstract reasoning to the understanding of the natural environment. Reason told the pioneers of science that complex phenomena of

the world can best be understood by reducing them to their constituent parts and then piecing these elements back together according to laws of cause and effect. Here rests an important clue in our effort to understand the separation of method, knowledge, and the lived world in education. Such an isolated approach reflected a larger fragmentation tendency in Cartesian-Newtonian and ultimately reasoning shaped by Descartes' progeny in FIDUROD.

Rene Descartes' separation of mind and matter, his *Cognito, ergo sum* (I think, therefore, I am) is central to our understanding of Western knowledge. This view led to a conception of the world as a mechanical system divided into two distinct realms: an internal world of sensation, and an objective world composed of natural phenomena. Building on the Cartesian dualism, scientists argued that physical and social systems could be uncovered objectively by researchers operating in isolation from human perception with no connection to the act of perceiving. The internal world of mind and the physical world, Descartes theorized, were forever separate and one could never be shown to be a form of the other (Kincheloe, 2003a). We understand now after centuries of analysis, but could not have understood then, that this division of mind and matter had profound and unfortunate consequences. The culture's ability to address problems like the Bubonic Plague undoubtedly improved, as our power to control the "outside" world advanced. At the same time, however, Western society accomplished very little in the attempt to comprehend our own consciousness, "inner experience," and the assumptions behind knowledge production (Leshan & Margenau, 1982; Allen, 2000).

Sir Isaac Newton extended Descartes' theories with his description of space and time as absolute, regardless of context. Clarifying the concept of cause and effect, Newton established the scientific tenet that the future of any dimension of a system could be predicted with absolute certainty if its condition were understood in precise detail and the appropriate tools of measurement were employed. Thus, the Cartesian-Newtonian concept of objective science was established with its centralization, concentration, accumulation, efficiency, and fragmentation. Bigger became better, as the dualistic way of seeing reinforced a rationalistic, patriarchal, expansionist, social and political order, welded to the desire for power and conquest. Such a way of seeing served to despiritualize and dehumanize as it focused attention on concerns other than the sanctity of humanity (Fosnot, 1988; Kincheloe, 2005b).

Along with Sir Francis Bacon, who established the supremacy of reason over imagination, Descartes and Newton laid a foundation that allowed science and technology to change the world. Commerce increased, nationalism grew, human labor was measured in terms of productivity, nature was dominated, and European civilization gained the power to conquer in a way previously unimagined. The rise of modern science was closely followed by a decline in the importance of religion and spirituality. An obsession with progress supplied new objective values to fill the vacuum left by the loss of religious faith. Even familial ties were severed as the new order shifted its allegiance to the impersonal concerns of commerce, industry, and bureaucracy (Bohm & Peat, 1987; Aronowitz & Giroux, 1991; Kincheloe & Berry, 2004). Rationality was deified, and around the scientific pantheon the credo of the modern world was developed: the world is rational (logocentric), and there is only

one meaning of the term. All natural phenomena can be painted within the frame of monolithic rationality, whether we are studying gunpowder, engines, dreams, politics, or learning.

This scientific view of knowledge, this one-truth epistemology affected all aspects of Western life, all institutions. Education was no exception. Since knowledge (like a small child's conception of her place in the world) is predefined, waiting to be discovered, "out there," what use is it to teach speculative and interpretive strategies? Schools of the post-Enlightenment era emphasized not the production of knowledge but the learning of that which had already been defined as knowledge. Students of science's one-truth epistemology are treated like one-trick ponies, rewarded only for short-term retention of certified truths. The typical teacher learns in her "educational science" courses that knowledge is acquired in a linear skill or subskill process. Pre-identified in the context of adult logic, this linear process is imposed on children in a manner that focuses teacher/parent attention away from the child's constructions of reality, away from the child's point of view. Thus, children's answers are often "wrong," when actually, given their point of view, the wrong answer may indicate ingenuity. In FIDUROD and the contemporary global society this view of knowledge still prevails.

Seduced by its claim to neutrality, scientists and educators employ this Cartesian-Newtonian epistemology in their quest for the higher ground of unbiased truth. In this context the ideal educator becomes the detached practitioner, an independent operator who rises above the values of special interests. The detached practitioner occupies a secure position immune from critique. He or she has, after all, employed the correct methodology in reaching his or her position. If pursued "correctly," there is no questioning the authority of the scientific method. Thus, the educational status quo is protected from critics, such as John Dewey, Theodor Adorno, Paulo Freire, or Maxine Greene, with their "agendas," and value judgments. Their critiques are not deemed scientific; they are "mere opinions" (Codd, 1984; Harris, 1984; Kincheloe et al., 1999b).

With the recovery movement Western societies over the last three or so decades have witnessed a reconfirmation of modernism's one-truth epistemology. Reacting to the threats of social change and the critique of those concerned with the underside of dominant Western, epistemology mainstream educators sought educational solutions within Cartesian-Newtonian boundaries. Spurred by the educational reforms over the last 3 decades, governments legislated technocratic reform packages emphasizing modernist scientific testing and evaluation procedures and a standardized curricula.

As the century turned, these various technocratic reforms came together under the flag of the standards or quality education movement. Critical educators opposed this movement not because they were against high quality education and rigorous standards but because of the standardization, rationalization, and fragmentation of the curriculum it required.

There seemed to be a consistency to the reforms that revolved around the assumption that teaching, learning, and thinking are generic—that, like polyester stretch pants, one style, one size fits all. This view of teaching and knowledge

continues to hold sway as we move toward the second decade of the twenty-first century. Teaching practices that teacher-directed or do not hold knowledge transference as a primary goal, do not fit into the reform schemes.

Educators who are concerned with improving student thinking skills, who attempt to connect schooling with life, who value the knowledge that students bring with them to school, who take seriously the cultivation of civic courage and citizenship cannot be evaluated until they conform to the vision of teaching tacitly embedded in the reform proposals. Only learning outcomes that can be measured by standardized tests or teacher behaviors that lend themselves to quantification, such as time-on-task measurements, count in the assessment of a teacher. Pedagogical dimensions, such as a teacher's knowledge of content or a teacher's understanding of the knowledge that is produced when student experience collides with the concerns of the subject matter disciplines are irrelevant, inadmissible evidence in the teacher's attempt prove self-worth as a professional.

This technical Cartesian reform fails to understand the complexity of the teaching act because it requires not only direct instruction by the teacher but a narrow academic focus, drill and recitation, little student choice of activities and materials, large group as opposed to small group instruction, truncated exploration of conceptual knowledge, and emphasis on convergent questions with short correct answers. Such strategies privilege a fragmented, unconnected form of thinking that tends to match Jean Piaget's description of concrete cognition (D. Jardine, 2006). Undoubtedly, it is easy to measure whether students have "mastered" this type of thinking, and it is hard for school leaders to resist the facile, commonsense justifications that play so well in the media and the political arena. The only problem with such an education is that it does not challenge students with anything significant; it trivializes education, rendering it a meaningless game, a fatuous rite of passage into adulthood (Jones & Cooper, 1987; Steinberg & Kincheloe, 2006).

Conclusion: Reiterating the Warning

The epistemological foundations of this view of education along with other factors have led to a deterioration of logical and ethical thinking. In such a domain of thought it becomes easier for political leaders to manipulate the public and this leads to an increased control over individuals from around the world. People in this regime of truth are less likely to question knowledge and the conditions of its production. In the same way we have entered a dangerous ecological era, we have also entered a precarious epistemological epoch—and the two domains are not unrelated. This call for critical knowledge is an effort to confront this dangerous condition. The politics of knowledge and the politics of education are inseparable. If we ignore the epistemological issues addressed here and the education they help generate, the most important political values that many of us profess to support—for example, freedom, democracy, liberty, etc.—will soon fade from our historical memory.

Glossary

| | |
|--------------------|---|
| Criticality | having to do with critical theory or critical pedagogy. |
| Determinism | the belief that identifiable causes and laws predetermine all physical and human processes. The scientific method in this context can be used to predict the exact ways these processes play out. |
| Ontology | as the study of being in the world, ontology involves both the being of humans and phenomena. |

Chapter 3

From Reductionism to Critical Knowledge

Thus, in the contemporary era we are still staggering from the hangover of the history of Western epistemology. The aforementioned epistemological theory of causal determination set in motion a mental image of the world as a well-oiled machine from which we have never recovered. *Knowledge and Critical Pedagogy: An Introduction* is a call to get beyond this epistemological prison and to move to more rigorous, more insightful modes of knowledge work. Indeed, whether we are teachers, journalists, social activists, or whatever, we need the wisdom to resist the knowledges produced by FIDUROD and technologies of dominant power it creates and certifies. Obviously, this complex act of resistance will not be easy, for we have been inducted into it in insidious ways that permeate different dimensions of our consciousness. Yet, when we gain the ability to step back and observe the impact of such ways of seeing on humans around the world, the physical environment, and the purpose of education, we understand the importance of our task.

FIDUROD, Political Economic Considerations, and the Complexities of Resistance: Dealing with Oppression

The impact of dominant Western knowledges and ways of knowing become increasingly powerful as globalization spreads Western epistemology around the planet. Western economic forms and “reforms” profoundly shape the nature of daily life from Namibia to northern Thailand. In the name of economic development and democratization the West colonizes in yet another way the poorest nations on the planet. There is no doubt that historically many of the advocates of Cartesian-Newtonian-Baconian epistemology believed that a scientific epistemology could undermine the power wielders of the seventeenth and eighteenth centuries—the Church and the monarchies. The cruel irony of epistemological history is that the same resistance-oriented knowledge system of a past era is employed today by the sci-tech servants of dominant corporate power to provide rationalization for the destructive actions of their benefactors (Saul, 1995).

Critical resistance to these injurious power plays of contemporary political economic moguls draws on knowledges produced by diverse regimes of truth.

One insight that many of us have gained over the last several decades involves the realization that different conditions produce diverse ways of thinking about and producing knowledge. Those who live in dissimilar places on the planet find that they develop unique ways of engaging with both the physical and social worlds. In these engagements they attend to differing phenomena and ways of conceptualizing their effects on their culture's or sub-culture's well being and survival. Thus, in this context critical educators begin to understand the importance of studying diverse socio-cultural traditions. The insights gained in such analysis provide us a plethora of new ideas about how we might confront dominant epistemology and the grotesquely unfair political economic arrangements that continue to emerge with its support in this **Zeitgeist**.

Dominant power always generates in the minds of its subjects ways of subverting it. Some women, although operating in the grips of patriarchal power, have, for example, challenged dominant masculinist representations of the way their bodies and minds should look and operate. This does not mean, of course, that such resistance to dominant power always emanates from the oppressed—resistance comes from many socio-cultural and political economic locales. Subjugated experience, however, is one place we can look for clues to pragmatic and epistemologically rigorous modes of fighting domination. To exacerbate the complexity of resistance, it is important to note that even when we examine particular forms of subjugated experience and the knowledges produced from it, we still have to carefully ask what experiences and knowledges are relevant to the problem at hand. As much as I wish I could tell you something different, there is nothing simple about understanding all the ways knowledges from diverse settings—not only geographical and cultural—can enhance our standing as educated people.

Diverse forms of knowledge have their benefits and limitations in relations to the issues we are facing. Critical researchers and educators have to understand when and how to use particular knowledges in their inquiry and pedagogy. Subjugated or indigenous peoples in their relation to Western epistemologies possess the power of the distanced onlooker—a perspective that can provide unique insights into numerous issues. Western institutions such as education, for example, have not been constructed around the needs of the poor, racial minorities, women, or indigenous peoples. With diasporic movements of peoples and urbanization, and other social changes, such individuals no longer stand apart from Western societies but are the “others” within. In this context the perspectives they bring to education, science, politics, and other dimensions of the social order are more important than ever—not only for their own well being but for the new insights they bring to understanding the physical, social, and psychological worlds.

It is important to note that throughout *Knowledge and Critical Pedagogy: An Introduction* I will discuss the importance of subjugated and indigenous perspectives to the construction of a just and rigorous critical epistemology. Critical observers understand that much of the power of the contemporary West rests upon the oppression of these subjugated and indigenous peoples—indeed, their land, labor, and resources have been used to establish the very foundations of Western power. When scholars begin our social, political, psychological, or educational

inquiries from subjugated peoples' standpoints in the web of reality, we begin to discern problems and concerns that were previously dismissed by individuals working in these domains. Post/anti-colonial theory, feminist theory, and other critical theories begin to appreciate the importance of subjugated perspectives in re-thinking the assumptions, conceptual frameworks, and epistemologies behind dominant cultural practices. From Africa, Asia, Latin America, indigenous peoples around the world, and subjugated peoples now living in the West, we have been provided fresh perspectives on the nature and effects of Western epistemological assumptions.

Thus, critical knowledge is developed in collusion and solidarity with subjugated and indigenous peoples. Our critical epistemology works to produce a rich, multidimensional, thick form of data that resists the decontextualized, universalist knowledges of FIDUROD. Critical knowledge is neither objective nor relativist, as it reveals its socio-political influences and interests. It makes no effort to speak for the subjugated and indigenous even though it is committed to their well-being and freedom from oppression. Moreover, critical knowledge co-constructs new insights about the world, paying homage to and learning from the unique intelligences non-Western, colonized, and indigenous peoples have given the world. Critical knowledge is informed by the stories, the oral histories, the insights of the elders and the women from subjugated and indigenous circumstances.

From recollections of oppression, values and conceptual structures, understandings about the land inhabited by generations to ways of being that provide alternatives to Western status based and consumer driven ontologies, subjugated and indigenous peoples inform those of us interested in social justice, the expansion of human potential, constructing a transformative system of education, saving the planet from environmental catastrophe, and resisting the imperial designs of contemporary corporatized Western power wielders. FIDUROD grounded knowledge simply ignores these valuable epistemological resources, viewing questions raised by the intersection of traditional Western knowledges and subjugated/indigenous knowledges as irrelevant. Even the effect of power relations among diverse groups of knowledge producers is not a germane issue in FIDUROD epistemologies, for there is virtually no interest in studying the forces that have shaped our views of self and world.

This is particularly problematic when we understand Western epistemology's assertion that its objectivity, disinterestedness, rigorous methodology, and superior reason constructed the basis on which it claimed the superiority of its knowledge over all other knowledges produced around the world. The collapse of FIDUROD's epistemological house of cards, of course, is attributable to the realization by diverse observers from many socio-cultural and scholarly locales that such Western claims are empty. As will be discussed in subsequent chapters a critical epistemology seeks to attend to this crisis of knowledge by beginning social, cultural, political economic, psychological, and pedagogical inquiry from the perspective of the subjugated.

Beginning our inquiries in this way raises issues and questions that lead us in productive and just new directions in the way we understand, say, education.

As a result of such new awareness we begin to appreciate the forces that have always shaped what is “known” and how ever changing socio-economic, political, and cultural realities continue to influence our ways of seeing. As numerous observers have pointed out, Western science is in many ways just as much a local knowledge as the indigenous knowledges it has viewed so condescendingly. This Western dismissal of subjugated and indigenous knowledges persists even long after peoples from around the world have recognized the unique viewpoints, discursive frameworks, and knowledge production approaches they bring to the epistemological table (Harding, 1998; L. Smith, 1999; Semali & Kincheloe, 1999; Bishop & Glynn, 2006).

Epistemological Naivete

At this point in the book I think it’s obvious to many of us that knowledge production and the evaluation of knowledge is far more complex than is typically assumed in Western societies. A final notion of truth is more of a fantasy than Western science has believed—the closer we think we get to it, the farther away it seems to move. Contrary to epistemological proclamations of the early nineteenth century German philosopher G.W.F. Hegel, we do not ride an epistemological escalator that as time passes takes us to a higher and higher realm of truth. A critical epistemology is not convinced that our ability to produce knowledge is constantly improving and will soon provide us a faultless and total understanding of the various aspects of the cosmos. Such a belief to the critical epistemologist is abjectly naïve.

In addition, we cannot completely escape the cultural and historical forces that influence how we think and the knowledge we produce. FIDUROD wants to produce knowledge from “nowhere”—“we’re on a road to nowhere” the Talking Heads may have told us but that transcultural/transhistorical point doesn’t exist in the epistemological universe. Every place in which we operate—or at least so far as we have been able to imagine—occupies cultural and historical spaces. Each of these places is inescapably shaped by the power relations that permeate these cultural and historical domains. Of course, these dynamics always leave their mark on the research we conduct and the knowledge we produce. A pivotal aspect of a critical epistemology involves carefully delineating these influences, these contextual marks of the beast, conscientiously discerning the hidden ways epistemologies and regimes of truth manage the sense making process.

Contemporary Western epistemological naivete allows the political economic empire building of the U.S. to proceed relatively unchallenged. Indeed, the new geo-political/globalized empire is an epistemological as well as a political economic domain of control. Thus, it must be studied and resisted as much around questions of knowledge as much as political inquiries. The deficiencies of the truth claims of the imperial knowledge machine must be exposed in the global quest for justice and human dignity. Given the knowledges produced by the imperial machine, observers begin to discern a form of epistemological violence in its

representation of the history, culture, and psychology of the U.S. and the “others.” Of course, it is this irrational dimension of Western rationality that formed one of the major tenets of the Frankfurt School of Critical Theory as it was articulated by Theodor Adorno, Max Horkheimer, Walter Benjamin, and Herbert Marcuse. In such a context a regime of truth could be more accurately labeled a system of lying. Student development in contemporary schools in the U.S. and other Western countries is complicit with their enculturation into this irrational epistemological domain. A successful initiation to this scholarly mode of seeing is what I am labeling here as epistemological naivete. To get from reductionism to critical knowledge, this epistemological naivete must be addressed.

In the imperial epistemology the natural world has been constructed as a passive and inert entity that needed to be classified and ordered for the purpose of domination. FIDUROD-based contemporary educational reforms refine this domination impulse and reinsert it into the sphere of teaching and learning—in both traditional educational spheres (schools) and the pedagogical spaces of hyperreality (media). Indeed, in this context all teachers and learners must be classified as effective/intelligent or incompetent/slow. To preclude the possibility of teacher incompetence, all teaching must be ordered—that is, standardized and controlled.

In this ideological framework new forms of inequity are produced, as educational research about inequality is brushed aside as are forms of teaching and curriculum development that work to promote educational and social justice. Thus, the educational reforms for the empire create an intellectual climate where the U.S. and other Western societies have become increasingly uninterested in questioning themselves. This allows for the growth of a neo-conservative/neo-liberal epistemological absolutism that promotes the West-is-best—particularly the U.S.-is-best—mindset devoted to free market economics, globalized economic imperialism, geo-political expansionism, and education as a celebration of Western supremacy and moral superiority (Procter, 1995; Bogle, 2003; Foley & Voithofer, 2003; D. Smith, 2003; Kitts, 2004; G. Jardine, 2005).

The notion that Western/U.S. economic, geo-political, epistemological and educational policies are all interrelated and mutually supportive is central to the empire’s cultivated naivete. The goal of educating critical democratic citizens who ask hard questions about the ethical and epistemological dimensions, for example, of both the U.S. role in the world and its global and domestic economic policies simply doesn’t fit the imperial mission. In fact the work of democratic, epistemologically informed citizens in general does not fit such a mission. In the rhetorical universe of the empire’s recovery movement asking hard questions of dominant power is deemed an “anti-American activity” or “an act of irrationality.” The empire’s politics of knowledge are vicious and deadly serious about subverting critique of dominant power’s actions both domestically and around the world.

A quick example of imperial knowledge politics is in order. In the first years of the George W. Bush administration newly appointed leaders of the Department of Education issued orders to delete material from the 30-year-old Educational Resources Information Center (ERIC) database that didn’t support the general philosophy/epistemology of No Child Left Behind. Every assistant secretary of education

was directed to form a group of departmental employees with a least one person who “understands the policy and priorities of the administration” to scrub the ERIC website. Such action ran counter to the original intent of the website established in 1993 to construct a permanent record of educational research for students, teachers, citizens, educational researchers, and other scholars. Concurrently, such information deletion raised the stakes of imperial knowledge politics to a new level, as subsequent official U.S. government data on education supported only particular ideological agendas produced with specific epistemological assumptions. Such actions, of course, constitute totalitarian knowledge policies (The Memory Hole, 2002; OMB Watch, 2002; Lather, 2003).

In place of the “discredited” research found on the ERIC website and many other locales, the Department of Education’s Institute of Education Sciences in August of 2002 created a web-based What Works Clearinghouse project. The project was promoted as a one-stop source of so-called evidence-based (epistemologically pure) teaching methods required by NCLB. Here educators now gain access to this exclusive pristine data in an ideological effort to shape the conversation about education as well as educational practice itself (Street, 2003). One will not find analyses of the politics of knowledge or the relationship between larger geo-political policies and Bush Administration’s educational agenda here. Indeed, one will be hard pressed to find anything about the social, cultural, political, or epistemological context of education. Such analysis does not fall under the category of acceptable scientific research about education in the imperial regime of truth. Epistemological naivete makes sure that few ask the types of questions about such knowledge practices raised in *Knowledge and Critical Pedagogy: An Introduction*.

Thus, under the cover of FIDUROD’s objectivity the George W. Bush administration’s policies on scientific research shaped and controlled knowledge, worked to disempower teachers, and positioned education as a source of indoctrination for the empire (Hartman, 2002; Kitts, 2004). Such policies were profoundly successful in the eyes of their creators, as fewer and fewer opportunities now exist in U.S. schools to employ education as a means of assessing the status quo or of questioning the intersection of imperial geo-political and epistemological strategies. These Bushian policies have helped to guarantee a monolithic curriculum that subverts the inclusion of multiple knowledge forms and epistodiversity in the development of curriculum. Teachers in this epistemological/ideological configuration are reduced to distributors of pre-packaged information—not producers or interpreters of knowledge. They are functionaries who are told how and what to teach—canon fodder in the grand imperial plan.

If everything works as planned, teachers, broadcasters, and other individuals—even those opposed to imperial indoctrination—still promote the knowledge work and produce forms of public consciousness conducive to the best interests of the empire. Indeed, the Eurocentrism and corporatism of such dominant modes of information have already erased sources that could challenge the thanocentric, violent, exploitative policies of geo-political and economic globalization. When one examines what is actually being discussed “on the ground” of schooling in the U.S., for example, these epistemological concerns seem to come from a setting far, far away. Indeed, much of the conversation about schooling involves developing better modes of

accurately assessing how much of the “correct” data students have memorized. As the leadership of the American Federation of Teachers puts it:

Whether you look at the medical boards that prospective doctors must pass, the bar exams for lawyers, or the time trials for drivers to qualify for the Indianapolis 500 performance is never dealt with in the abstract. For example, Indy racers are not simply told that “very fast driving” will qualify them for the big race. They know exactly what times they need to beat, and they plan their strategies accordingly (1997).

Comparing learning outcomes with measurements of car racing time trials may be as revealing an example of epistemological naivete as is needed to make the point clear to all readers.

“Girl, There’s a Better Life for Me and You”: The Move to a Critical Complex Epistemology

There’s got to be more than this. Obviously, there are many things that Cartesian-Newtonian-Baconian epistemology did and has done to make the world a better place. I am always reminded of this when a friend’s or a loved one’s life is saved by Western emergency medicine. But when it comes to the complexities of the social, psychological, and pedagogical domains not to mention the infinite dynamics of the physical universe, the lofty plains of theoretical math, and even in medical science the province of wellness and healthy living, I think we agree that FIDUROD has its limitations. As the student who went to visit the Baddaddies, I knew there was more to the picture than mainstream culture and schools were telling me. That which was promoted as *normal* seemed (and still seems) quite bizarre. Surrendering to the knowledges of school, I believed, was like handing the key to your consciousness over to a bevy of unknown characters with suspicious motives. If school knowledge reflected a final reality, if school epistemologies the only game in town, then I wasn’t particularly interested in the education gig. Somewhere, I’m not sure where or why, I sensed that there was an alternative to the unchallengeable verities laid out in the classroom and on television.

I was madly ambitious when it came to finding out what those alternatives could be. Such a revelation of mad ambition would have profoundly surprised my teachers and other people in my life, for they viewed my discomfort with the normality of it all as some form of an unsavory “bad attitude.” Indeed, I am proudly a HWA—a hillbilly with an attitude. Such a bad attitude moves me to ask what are the loftiest and most noble ways of seeing and being that a human can achieve. As a teacher-researcher I wanted to know what it was possible to know. I was buoyed by the thought that as I grew older became a credo: if “mere existence” is possible then anything is possible. There are unexplained mysteries in the world, enigmatic wonders that once understood totally change our conception of self and cosmos. Returning to my musical story in Chapter 1, my entire conception of music and being were changed by my exposure to blues and rock; surely, similar circumstances could be found in countless other venues.

As I became a more mature scholar, it was then that I began to realize that such a venue involved epistemology. The assumptions behind our knowledge production, the origins of our questions about the world, what counted as legitimate data and what didn't were all concerns that led to new epistemological universes. With these issues articulated in my mind's inner idiom, I understood that my task was to discern what brilliant people had posited as the next step in the journey to new epistemological possibilities. With an understanding of many of these insights, I asked myself what did I have to contribute to the conversation? What was the next step in constructing a new, more just and inclusive, more useful epistemology?

Of course, in the world of academia I found that those who engaged in such behaviors were often viewed as epistemological desperados. "Why don't you come to your senses?" Don Henley might have asked them had he been their dean. My mad ambition to understand drove me on. I pondered the nature of the pedagogy one would have to develop in order to engage students and other individuals in such an undertaking. I understood that I was asking much of students, for I appreciated that an individual has to be ready to deal with the ambiguity and loss of certainty that accompany an epistemological shift. There is nothing easy about moving into a new dimension where things are not as they once seemed. I understood that my pedagogy would intimidate and frighten as it induced students to reconsider and, my god, act on the insights gained in the new dimension.

This epistemological conversation cannot be separated from the future of the human species. Thus, it percolates into the depths of our humanity, our being in the world, raising disconcerting questions that offend individuals who have bought into some form of authoritarianism—whether its source is religious, political, or philosophical is irrelevant. In this hidden but powerful domain I wanted to help develop a view of knowledge sufficiently evocative to move people to concurrently weep and metaphorically pee in their pants as they brought together logic, emotion, and action. Hell, I wanted an intellectual aphrodisiac that put libidinal energy into a staid domain run by an elite crowd who looked down their collective nose at passionate behavior—an epistemological Viagra that was unafraid of flashes of scholarly arousal that last more than 4 hours. Lord, they loathe high affect. A critical complex epistemology is dedicated to bringing individuals who had been traditionally excluded to the scholarly conversation no matter how *déclassé* such an objective appears to the privileged epistemological trolls at FIDUROD Bridge.

Thus, a critical complex epistemology knows that many of its adherents are not going to come from the "superior strata" of academia. Indeed, they may come from diverse corners of the world, from individuals who occupy the race, class, gender, and sexual peripheries of dominant Western cultures or who stand totally outside the West. Of course, the perspectives of such individuals are central to a critical complex epistemology based as they are on the ability of such people to detect the contradictions of and the wounds inflicted by dominant epistemology. A critical complex epistemology calls for a revolution in the way we see the world and produce knowledge about it. Such an epistemological revolution reveals hidden passageways to original modes of employing the human mind that allow us to recognize the power of unfamiliar relationships to the world and other people.

The recognition of such relationships and the new meanings they produce permits us to view old information in a different epistemological matrix. Here we understand that something that seemed blatantly familiar to us can be seen anew from another conceptual angle. From this new horizon we recognize things about the world we had previously looked past. As a young child I remember one of my uncles pointing out the woman in the moon—a turn of the twentieth century “Gibson girl” with her dark hair piled high on her head looking up to the left. It took me a while to see her, but once I did the moon never looked the same to me. The moon had not changed, I had. Or more momentously, Albert Einstein and his General Theory of Relativity’s new understanding of gravity as a relational, geometric concept—not a “thing” such as a graviton or a gravity wave—changed the way physicists understood time, space, and mass. For those that studied the theory it changed the way we saw the universe, leaving in its wake a Newtonian view of the world that in retrospect seemed in some ways childish in its unawareness of the bizarre nature of the cosmos with its bent space and black holes. Of course, our present understanding of the universe will undoubtedly look immature and simple-minded to our progeny in the twenty-seventh century.

Gravity as it was repositioned in Einstein’s new conceptual and epistemological schema not only modified our understanding of this particular phenomenon but provided a conceptual window that opened a completely new way of thinking about the cosmos in which we find ourselves (Kincheloe et al., 1999a). Critical theory seen in this context is the social universe’s “General Theory of Relativity” in that it allowed us to appreciate the way that the social world is not simply made up of abstracted individuals working in their self-interest that conveniently, almost magically, serves the greater good. With critical theory coming from the Frankfurt School of social theory and numerous other sources around the world, we began to see that both the way we viewed the social world and the social world itself were irrational and hurtful to so many. A few thoughts on critical theory are in order before going any further with these ideas.

The Critical in Critical Complex Epistemology

Critical theory is central to this book and the epistemological transformation it promotes. The term, critical theory, is often evoked and frequently misunderstood. It usually refers to the theoretical tradition developed by the Frankfurt School, a group of scholars connected to the Institute of Social Research at the University of Frankfurt. However, none of the Frankfurt school theorists ever claimed to have developed a unified approach to cultural criticism. In my work in critical theory and critical pedagogy I work to expand the origins of critical theory to diverse cultures, to move beyond the concept that it is simply a “Western thing” looking to Africa, India and other Asian locales, the Islamic world, and indigenous cultures around the planet.

In critical theory's European beginnings, Max Horkheimer, Theodor Adorno, and Herbert Marcuse initiated a conversation with the German tradition of philosophical and social thought, especially that of Karl Marx, Immanuel Kant, G.W.F. Hegel, and Max Weber. From the vantage point of these critical theorists, whose political sensibilities were influenced by the devastations of World War I, post-war Germany with its economic depression marked by inflation and unemployment, and the failed strikes and protests in Germany and Central Europe in this same period, the world was in urgent need of reinterpretation. From this perspective, they defied Marxist orthodoxy while deepening their belief that injustice and subjugation shape the lived world. Focusing their attention on the changing nature of capitalism, the early critical theorists analyzed the mutating forms of domination that accompanied this change.

Only a decade after the Frankfurt school was established, the Nazis controlled Germany. The danger posed by the exclusive Jewish membership of the Frankfurt School, and its association with Marxism, convinced Horkheimer, Adorno, and Marcuse to leave Germany. Eventually locating themselves in California, these critical theorists were shocked by American culture. Offended by the taken-for-granted mechanistic epistemologies of American social science researchers, Horkheimer, Adorno, and Marcuse were challenged to respond to the social science establishment's epistemological faith that their research could describe and accurately measure any dimension of human behavior. Piqued by the contradictions between progressive American rhetoric of egalitarianism and the reality of racial and class discrimination, these theorists produced their major work while residing in the United States.

In 1953, Horkheimer and Adorno returned to Germany and reestablished the Institute of Social Research. Significantly, Herbert Marcuse stayed in the United States, where he would find a new audience for his work in social theory. Much to his own surprise, Marcuse skyrocketed to fame as the philosopher of the student movements of the 1960s. Critical theory, especially the emotionally and sexually liberating work of Marcuse, provided the philosophical voice of the New Left. Emerging in the 1960s, the New Left was politically influenced by the anti-colonial liberation movements breaking out in Africa, Latin America, and Asia. The group supported the Civil Rights Movement in the U.S. and opposed the Vietnam War and American imperialism abroad. Concerned with the politics of psychological and cultural revolution, the New Left preached a Marcusean sermon of political and personal emancipation from the conventions of dominant power.

Many of the New Left scholars who had come of age in the politically charged atmosphere of the 1960s focused their scholarly attention on critical theory. Frustrated by forms of domination emerging from a post-Enlightenment culture nurtured by capitalism, these scholars saw in critical theory a method of temporarily freeing academic work from these forms of power. Impressed by critical theory's dialectical epistemological concern with the social construction of knowledge/experience, they came to view their disciplines as manifestations of the discourses and power relations of the social and historical contexts that produced them. The "discourse of possibility" implicit within the constructed nature of social experience

suggested to these scholars that a reconstruction of the social sciences could eventually lead to a more egalitarian and democratic social order. Our educational orientation, critical pedagogy, clearly reflects these dimensions of critical theory.

Critical theory questions the assumption that societies such as the United States, Canada, Australia, New Zealand, and the nations in the European Union, for example, are unproblematically democratic and free. Over the twentieth century, especially after the early 1960s, individuals in these societies were acculturated to feel comfortable in relations of domination and subordination rather than equality and independence. Given the social and technological changes of the last half of the century that led to new forms of information production and access, critical theorists argued that questions of self-direction and democratic egalitarianism should be reassessed.

In this context critical researchers informed by the emerging new theories (e.g., **postcolonialism, critical feminism, poststructuralism, discursive analysis**) came to understand that individuals' views of themselves and the world were even more influenced by social and historical forces than previously believed. Given the changing social and informational conditions of late twentieth and early twenty-first century media-saturated Western culture, critical theorists have sought new ways researching and analyzing the construction of individual consciousness and identity and the role of power in the process. It is in this theoretical context that our transgressive epistemology emerges. In this critical project we begin to understand the social location and some of the purposes of a critical complex epistemology.

FIDUROD's Reductionism: Understanding the Western Data Input Spigot

Thus, to build a critical complex epistemology we use critical theory with indigenous and worldwide input as our foundation, add feminist theory, complexity and chaos theory, a significant sprinkle of cultural studies, and our own pedagogical and hermeneutic (the study of interpretation, meaning making) insights. In this context we think of producing useful knowledges that resist domination and oppression while engaging in activities involving freeing oneself and subjugated groups from regulation, helping to end human suffering, contriving new ways to undermine contemporary forms of colonialism, devising new forms of connectedness, and developing unprecedented ways of seeing the world that take us to new levels of reality. Here we make use of what I often call the power of difference or epistemological multilogicality. In this context we draw on the benefits of multiple ways of seeing and conceptualizing a phenomenon. Perspectives that emerge, for instance, in diverse spaces in nature, historical eras, discourse communities, cultures, and epistemological regimes give us distinctive insights into how we imagine any mode of operating in the world.

Such epistemological activities free us from the black hole of reductionism. There is no doubt that a critical complex epistemology bewilders those who are looking for easily demarcated borders between us and them, this and that. Those who already *know* the difference(s) between, say, humans and animals will ask: why are we bothering with such epistewhatever questions. I expect that in the next century we may have developed a very different answer to a question concerning the difference between humans and animals, as we uncover more dimensions to and abilities of both. Complexity can make a reductionist quiver in his boots and run for epistemological cover. As critical complex cultural workers and knowledge producers know more about dominant epistemological frameworks, we not only learn more about why we see the world as we do, but we also understand how dangerous complexity can be to dominant power.

The certified epistemology (FIDUROD) shapes the lives of the dispossessed in ways that sometimes go unseen by dominant cultural knowledge producers. On so many occasions I have sat with a distraught mother, father, or family member from a non-dominant cultural background who was simply devastated by their daughter's failure in high school. The school leaders and even some of the teachers involved with the daughter's academic failure never had any idea what pain their assumptions and actions precipitated. The ability to understand not only the effects of their actions but also to appreciate the oppressive power of the epistemological structures that led to the criteria used to evaluate the girl as a failure are central to educators who appreciate a critical complex epistemology (Lapani, 1998; Harding, 1998; McClure, 2000).

FIDUROD has constructed an invaluable epistemological tool to subvert a general understanding of the world's complexity. In a figurative way dominant reductionist epistemology has fabricated a spigot for data input. This spigot is an epistemological valve that controls the quantity and type of information allowed to attain status as certified knowledge or even truth. A critical complex epistemology focuses on this data input spigot, monitoring the way it works, picking out patterns of what is cut off and what gets through, and the human effects of such activity. Information, critical observers note, based on scientific induction usually gets through FIDUROD's data spigot. Scientific induction is grounded on the belief that if a teacher, for example, executes A (teaches in a particular manner) then B (students will learn the basic facts of European history) will always result.

Using such an epistemology, scientists can induct that whenever a teacher does A the result will be B. This is often referenced as Western science's invariance principle: under similar circumstances A will always result in B. Obviously, there are questions that arise about terms used in this example. What, for example, constitutes the "basic facts of European history?" Does Europe's colonization of and subsequent slave trade in Africa and its killing of around 100 million Africans in the process make it through the spigot as a basic fact? In the same manner do we account for the fact that A and B never take place in the lived world outside of a socio-cultural context? Does it matter that we're teaching A in a Southeast Asian country? What does matter in this educational example? A plethora of issues in diverse contexts can affect any pedagogy, any student outcome. The invariance principle, to say the least, has problems from the critical complex perspective.

The data input spigot moves criticalists to point out the complexity of interpretation of any knowledge FIDUROD produces. In this context a critical complex epistemology moves from FIDUROD's overarching interest with measurement and frequency to an enhanced concern with being and meaning—ontology and hermeneutics. This is an important act in opening the reductionistic data input spigot, as a critical complex epistemology moves us to research designs and pedagogies that focus on the difficult, complex, and learned process of interpreting and acting in the world. One has to be a well educated and multidimensionally informed person to construct compelling interpretations.

The development of such critical interpretive abilities, however, challenge not only the reductionism of FIDUROD but the reductionistic tendencies of standard modes of qualitative research—conventional ethnographic designs and methodologies that devalue the interpretive dimension in particular. Focusing on interpretation and the critical action that emerges from such elucidation, the critical hermeneutic element of our critical knowledge production increases the flow of knowledge from the data input spigot. In this epistemological and ontological context our critical hermeneutics forces us to re-evaluate both what traditional Western science has labeled “reality” and just who the hell we are in our connection to it.

In our critical complex epistemology's reconsideration of what the dominant culture and its scientific collaborators call “true reality,” we begin to identify and unlearn the epistemological assumptions of FIDUROD—in particular the workings of the data input spigot and its dismissal of what are often the most important elements of social, psychological, and educational research. FIDUROD in its allegiance to objectivity attempts to protect science from cultural effects. An act that our critical complex epistemology asserts is exactly the opposite of what an intellectually rigorous science should be doing. Indeed, it is a phenomenon's multi-level interaction with cultural context that provides it with its meanings.

The multi-layered interface connecting knowledge, meaning, mind, and reality places knowledge producers and educators in a humble position, as they are faced with new levels of complexity in the analysis of what at first glance might have seemed to be a rather simple matter. For example, generations of Western researchers have carried on their explorations of, say, indigenous peoples and their socio-cultural institutions without giving a thought to the ways hidden power structures insidiously dictated the questions they asked, their research designs, the biased assumptions about Western superiority embedded in the research process, the benefits of their data to the colonial venture, and the worthlessness of such data to the research subjects. As we think about the hidden dimensions of FIDUROD, this example reminds us of the diverse ways that colonialism has inscribed dominant Western epistemology and in turn, of course, the information it produces (Coffee et al., 1996; Harding, 1998; Mutua & Swadener, 2004).

In this context I become more aware that no matter how hard I work to produce rigorous knowledge, I may be way off base according to someone's criteria for good research. I sit on student doctoral committees and while I've seen dissertations that range in my opinion from weak to strong, I watch some colleagues critique student work in ways that to me seem quite arbitrary. Some sections of student

research that I think quite ingenious, a colleague on a doctoral committee deems unacceptable, even irrational. The complexity of the entire process and the epistemological assumptions that tacitly and most often unconsciously guide the research act slap me up side the head. Critical complex epistemology understands its own and other knowledge producers fallibility.

No epistemological standard, tenet, or procedure can be applied outside of numerous contexts and with many hermeneutic decisions (consciously or unconsciously) to be made about their meaning in a particular situation. We know how difficult and untidy such decisions can be. We also understand how difficult to detect just how ideologically loaded specific epistemological decisions can be. The idea that in the twenty-first century that Eurocentric, for example, epistemological decisions are simple and recognizable acts of prejudice no longer works to explain all of the ways that Eurocentrism in knowledge production or pedagogy actually asserts itself. Even those who overtly express their abhorrence of Eurocentric practices may still unintentionally promote it in their knowledge work. Such individuals, myself included, need to continue exploring the way culture inscribes their cognition, their ways of being in the world, and their pedagogy and/or research (Thayer-Bacon, 2000, 2003; Steinberg, 2001).

Moving to the 57th Dimension: Appreciating Diverse Knowledges and Ways of Seeing

With these ideas in mind a critical complex epistemology sets us up to move to a new domain of knowledge, understanding, interpretation, and pedagogy. The critical knowledge we are promoting here comes from another dimension (I'm not sure if it's the 34th or the 57th) of human consciousness and reality, as it points out what is presently invisible and sometimes repressed by the representatives of dominant power. While deeply aware of oppressive power relations and the way they lead to human suffering, our critical epistemology and the knowledge production it generates emerge as eroticized (in a life affirming, connected, sensual sense) dynamics dedicated to engaging in informed, liberating action. Such 57th dimensional, eroticized knowledge pushes us to become epistemological adventurers who explore the edges of the cosmos, the most hidden dimensions of human ability, the resistant power of radical love.

Education and knowledge production far too often provide little real challenge to those engaged in them. In this context we should escape the disempowering conventionality of FIDUROD and jump head first into the bloody fray. Are we content to just fade away into monodimensional boredom, to blow away as the existential dust produced by the most thanocentric impulses of the species? A critical complex epistemology constructs hot knowledge (*conocimiento caliente*, *connaissance anime*) ready to work its magic on its readers. It is unafraid of its own eroticism, commitment to resistance, and vaudevillian recognition of the humor of dominant cultural gravitas. Indeed, in the midst of life changing insights critical knowledge

understands the joke involving its inability to understand it all. Laughter may be the best medicine but it also sure can be a subversive act in many epistemological and educational circumstances. As a hillbilly elementary student I was paddled scores of times for laughing in school.

In the midst of the resistant laughter FIDUROD still manages to erase the diverse levels of reality that help shape political, economic, social, cultural, psychological, and educational life. Such epistemological erasure leaves us cognitively impoverished and intellectually provincial, as we are at a loss to understand where we might begin our examinations of the forces that shape both us and the world. Our critical complex epistemology removes the cataracts that obscure our view of the complexity, multidimensionality, multilogicality, and power-constructed nature of the social, psychological, and educational domains. In its new appreciation of various types of experience and hidden structuring agents, critical knowledge keeps us in touch with the multiple levels of our settings, tearing down the retaining walls erected by the decontextualized, one-dimensional knowledges we encounter.

As we traverse these epistemological walls we study diverse cultural traditions that have valued not only the diverse levels of reality but also the divergent states of human consciousness from which new insights can emerge. In this multistate notion of consciousness we study what the peoples from diverse cultures and historical eras have learned via trances, yogic states, shamanic passages, dreams, meditation, *ad infinitum*. With its focus on the monostate consciousness of the conventional Western notion of being awake, FIDUROD-based research loses even more insights into the possibilities of human knowing. A critical complex epistemology is not particularly impressed, as you might guess, with the insights derived from this focus on a monostate model of human consciousness. What FIDUROD refers to as high status knowledge, and the educational system and standardized curriculum that are grounded on these epistemological perspectives.

We can do better than this. We can open the reductionist knowledge spigot of dominant Western epistemology. Einstein, Werner Heisenberg, Max Planck, and many other others provided us the basis of an epistemological shift in the first third of the twentieth century. If we think about the epistemological implications of merely Einstein's General and Specific Theories of Relativity, Heisenberg's Uncertainty Principle, and Heisenberg's and Planck's work on quantum physics we understand that knowledge could never be viewed in the same way again. Mind is inseparable from what we refer to as reality. As it explored the nature of the atom, quantum physics maintained that sub-atomic phenomena could best be appreciated as links in a series of processes. At the end of these processes we find the mind of the observing physicist. The implications were literally astounding for epistemology: what we see at the atomic level depends of what questions the observer asks (Frye, 1987; Kincheloe et al., 1999a).

Thus, operating in the field of physics Einstein, Heisenberg, and Planck threw a rock at Western common sense, maintaining that what we see in the world is not simply what we see but what we *perceive*. Their point was central to critical knowledge in that the information the world yields always has to be interpreted by human beings who are part of that cosmos. The basic idea of Heisenberg's uncertainty

principle was that the human observer cannot be removed from any experiment—divergent observers will view the world differently, thus producing uncertainty. Thus, the classic Cartesian-Newtonian-Baconian notion of objectivity does not exist. The quantum physicists could only find the heads and tails of the quantum warthog—the rest of its body was lost in the previously mentioned ultra-thick British Columbian fog. One of the many surprises encountered by those who developed and those who subsequently have studied quantum physics is that the epistemology it produces is more like those of ancient non-Western civilizations than like FIDUROD. This was a humbling finding for those moderns who viewed history as one long Western story of progress.

Here resides a central point of this book: the contrast between dominant Western epistemology and the critical complex epistemology proposed here. (And I don't even have to use a social science or a humanity to illustrate it—the point can be made in the hardest of the hard sciences, physics.) Newtonian physics maintained that the world is made up of small particles that fragment the world into its discrete components. Thus, electrons in Newtonian physics look exactly like the red balls that represented them in the models of the atom still sitting in classrooms around the world. What a misleading picture of physics such models promote. And, concurrently, what a deceptive depiction of epistemology they advance. The understanding of electrons that the quantum physicists provided us over 80 years ago was an entity (not a particle) that possesses a constant existence but keeps coming in and going out of our perception. Indeed, the electron can never be seen as a separate unit, for it can never be separated from the spatial context surrounding it. For over 80 years in physics we have known that objects in FIDUROD's rearview mirror may not be anything we can explain using traditional Western scientific and epistemological constructs (Bohm, 1987).

In light of this data—not to mention infinite examples in the social world—an avalanche of questions slide down the mountain toward our comfortable cabin that was constructed on a Western epistemological foundation. Just for example, do we really understand the nature of matter—the “stuff” of the universe? Nothing in Western history exemplifies what is called “reality” better than matter. Yet, quantum physics raises the question that matter may be far more complex than originally thought. Matter may be less a discrete substance and more an entity that is never disconnected to space, time, and human perception. The implications of this possibility will be explored in more detail in Part 3 of this book. Suffice it to say at this point, the universe is not the relatively simple machine that many thought/think it was/is. The social, psychological, and educational worlds are far more complex than many could have ever imagined. Again, we are epistemological babes feeling our way around an infinitely complex world.

As we attempt to get our minds around the scope of this complexity, critical knowledge demands that we maximize variables in our studies of the world rather than engage in FIDUROD's effort to minimize them (Knobel, 1999). The more we use the miraculous epistemological tools that human beings possess such as our imagination, intuition, and affective/emotional sensibilities (as well as our more scientifically validated reasoning capacities) the more variables, the more dimensions

of the world we will discern and the more we will be empowered to do. Yet, there is great danger for knowledge producers who employ these imaginative, intuitive, and affective capacities (Thayer-Bacon, 2000).

Even as we approach the end of the first decade of the twenty-first century, the guardians of FIDUROD deem these capacities unscientific and even primitive. Here the dominant Western epistemology acts like a coach of a basketball team who refuses to let her players use their hands or open their eyes during a game. Some of our most treasured, unique, and powerful dimensions of humanness are treated like the hands and eyes of our fantasy basketball team. No matter how valuable we may consider them in our everyday lives, when it comes to producing valid knowledge we can't use them. Once again critical theory's notion of the irrationality of many aspects of dominant Western rationality peaks through the epistemological keyhole into our research laboratories, our centers of knowledge production. I think I hear subversive laughter.

Critical Knowledge and Informed Practice: How Do You Get to Carnegie Hall? Praxis, Praxis, Praxis

If wishes were pigs, it would be harder to keep kosher. In the same twisted way, advocates of a critical complex epistemology cannot just wish that the producers of validated knowledge would simply change their epistemological ways and open new ways of thinking about how we see and report on the diverse phenomena surrounding us. There are too many power interests invested in those ways of seeing and validating information. Thus, the epistemological issues we are dealing with here can be articulated by the phrase "the politics of knowledge." Such a phrase helps us realize that what might seem to some arcane philosophical issues are far more relevant to everyday life. The epistemological issues we are addressing here constitute some of the most momentous political issues of our time. Such matters demand that criticalists act on our understandings. Thus, once we gain the insights of a critical complex epistemology, we use them to reshape education and to help alleviate the human suffering that is caused by the epistemological status quo.

In the traditional vocabulary of critical theory action that is informed by social theory for emancipatory outcomes is called praxis. Thus, this book is a praxis-based treatise that as it generates understanding lays the foundation for practical action. Many assume that the more one deals with the complexity of the lived world, the political realm, the cosmos in general, education, or epistemology, the less praxis can be expected. Our critical complex epistemology maintains the diametric opposite reading of this situation. A critical complex epistemology demands a hyper-praxis—the formulation of the best informed and thus most potentially successful action we can presently construct. Thus, the more perspectives we make use of, the more we understand the connection between the knower and the known and the socio-cultural, political economic forces that shape the knower, the more relevant research methodologies we employ, the more of our human abilities we employ, the

better off we are. Using these resources, we come to understand the ways that diverse contexts have shaped the phenomena we're studying.

Thus, in this context our research becomes far more rigorous and the knowledge we produce more practical and usable. Indeed, the critical knowledge produced in this epistemologically rich manner uncovers new settings in which it can be applied. Discerning new spaces in which our knowledge can be used is a central dimension of the critical knowledge production process. With our eyes constantly searching for evidence of oppression that leads to human suffering in larger social realms and in the micro-dimensions of everyday life, advocates of a critical complex epistemology seek new ways to better serve the needs and become allies of the dispossessed. Validity in this context comes to involve the effectiveness of the knowledge we produce in addressing diverse issues and solving different problems (Geeland & Taylor, 2000; Nowotny, 2000). As we contemplate our knowledge in this praxiological manner, we begin to ask new questions about what purposes it might serve. Such questions and their answers expand even further the use value of the knowledge production process, as they simultaneously move us into a new dimension where the nature of scholarly activity is reconceptualized.

Glossary

- Critical feminism** a feminist theory informed by critical theory that studies gender issues within a context grounded on a concern with power, ever shifting positionalities, and socially constructed knowledges. A critical feminism always examines gender within a context informed by the way women and other people have been oppressed via race, class, gender, sexuality, language, colonialism, physical ability related issues, and religion.
- Discursive (or discourse) analysis** the study of discourses where a discourse is defined as a constellation of hidden historical rules that govern what can be and cannot be said and who can speak and who must listen. Discursive practices are present in technical processes, institutions, and modes of behavior and in their forms of transmission and representation. Discourses shape how we operate in the world as human agents, construct our consciousness, and, in an epistemological domain, what we consider true.
- Postcolonialism** in the most technical sense the term refers to theories and issues dealing with the period after colonial rule, but there are many dimensions of postcolonialism that transcend this meaning. In a critical context one of those dimensions involves examining and working through the

effects of colonialism in the political, social, cultural, economic, and educational spheres of both colonizer and colonized states and peoples.

Poststructuralism

a social theoretical position emerging from within French structuralism in the 1960s, in response to structuralist claims to objectivity and universalism—e.g., Piaget’s universal stages of child development or Maslow’s hierarchy of needs. Thus, poststructuralism emphasizes the historical and cultural contextual contingencies of all human experience—child development for boys and girls in isolated tribal groups in Botswana may be different than with Swiss boys from the middle and upper-middle classes. In a poststructural context language becomes extremely important as it culturally, socially, and politically inscribes particular situations. As it uncovers these dynamics, poststructuralism fosters resistance to the power they exert in the regulation and discipline of individuals.

Zeitgeist

German term for the “spirit of the times”—the ambiance, the character of a particular historical era.

Part 2
Traditional Western Epistemology
and its Impact on Education: FIDUROD

Chapter 4

The Power of FIDUROD

As more and more individuals around the planet are beginning to learn, dominant Western knowledges, epistemologies, and the actions they support are socially, culturally, politically and ecologically unsustainable. Many scholars and activists have understood this reality for quite a while, but with the power of corporate knowledge machines turning out untruthful rebuttals to attempts to inform the public of such problems many Westerners—Americans in particular—have rejected the warnings. Not only are such ways of seeing unsustainable, but they are also intellectually and ethically impoverished. Indeed, such perspectives are leading the West down a dangerous path that takes the people of the world and the planet itself to the precipice of a multidimensional catastrophe.

True Lies: The Emergence of Western Epistemological Supremacy

We must move beyond FIDUROD's belief that one true reality exists, beyond the one-dimensional view of a physical/social world driven by laws of cause and effect and discoverable by empirical testing of scientific hypotheses. If knowledge producers are objective, FIDUROD's story goes, if they suppress their values while conducting their inquiry, they can produce universal axioms that transcend time or place. This is the epistemological mythology that has unfortunately misled the people of the West and the world. When Auguste Comte in the second third of the nineteenth century argued for the application of the logic and methods of the physical sciences to the study of the human realm, a positivist human science was christened. To Comte, philosophical speculation about the social and cultural domains had been an unmitigated failure. Comte's positivist approach or as he labeled it, sociology, became the dominant M.O. for subsequent social science.

Armed with a rigorous scientific methodology in both the physical and social domains, many Western scholars proclaimed even more boldly than those who had preceded them the superiority of the West and the knowledge its sciences produced. In reference to other peoples of the world and the quality of their knowledges, Western European scholars wrote at length about their inferiority. Using our

scientific methods, they announced, we are unequaled in the quality of knowledge we produce. Most of the peoples of the world, Western scientists gloated, are “bestial” and are lucky if they learn to read and write. Indeed, this sense of Western scientific (and moral) superiority was the very basis of the curriculum taught to generations of European and North American students (Griffin, 1997; Fischer, 1998; Sardar, 1999; Bettis & Gregson, 2001).

As Western modernity emerged in the seventeenth, eighteenth, and nineteenth centuries the collective energies of the Renaissance, Reformation, and the Scientific Revolution helped construct a rationalist epistemology. Such a view of reason and validated knowledge was grounded on a debased view of the “irrational others” from Africa, Asia, South America, the Islamic world and indigenous cultures around the world. Thus, Europeans used colonized lands and peoples as part of a great laboratory to gain not only new knowledges but to assure themselves of their own superiority. As the colonizers conducted their “research” on the non-European lab, they transformed lands that were once prosperous and powerful into poverty, they repositioned peoples with learned traditions and great wisdom into what they perceived as incompetent primitives. Indeed, these European colonists/scientists constructed a power hierarchy of world cultures and knowledges that even with significant rebellions on the part of the colonized has lasted into the twenty-first century.

Any effort to understand contemporary politics, economics, social and cultural affairs, education, and epistemology can not be achieved outside of this five century colonial context. Yet, this is exactly what many peoples in Western—especially the twenty-first century U.S.—culture attempt to do: to understand the world, themselves, and the production of knowledge outside of this all important context. When I write here of FIDUROD’s tendency for decontextualization, this is a central dimension of that process. As we think about knowledge and critical pedagogy, overcoming the obscene distortions of this Eurocentric decontextualization is a key objective of a critical complex epistemology. Without such critical insight Western education will continue to produce a dangerous, ethnocentric, and distorted picture of self and world and the relationship between them.

When he published *The Wealth of Nations* in 1776, Adam Smith fused the cultural logic of economic self-interest with this emerging Western epistemology. What materialized in the smoke produced by this explosive cocktail was a mode of economic rationality that legitimated greed. Such greed was manifested in not only *homo economicus*—a being whose life purpose involved the accumulation of riches—but also in the legitimation of eternal economic expansionism in the name of divine destiny and the inevitable march of civilization. We are claiming Native peoples’ lands in the Americas, Australia, New Zealand, Asia, Africa, ad infinitum in order to save these heathens from eternal damnation and to bring them civilized culture, Europeans told themselves. We will *develop* the soil that these savages have left fallow, they asserted, and improve both their lives and our own.

In the spirit of the economics of self-interest the colonizers contended that what is good for us will be good for the savages. We hear the echoes of such hollow justifications across the centuries, as George W. Bush proclaimed in 2003 that he would

invade Iraq to liberate the Iraqi people, bring modern education to them, and help them develop their natural resources. As such noble rationalizations were being presented to the world, behind the scenes U.S. corporations such as Halliburton, Bechtel, Parson's, Fluor, Washington Group International, Shaw Group, Perini, and numerous others (not to mention oil companies such as Exxon and Chevron) were signing contracts worth hundreds of billions of dollars to further enrich the richest individuals in the world (Sardar, 1999; Smith, 2003; Juhasz, 2006). Ah, the spoils of war—excuse me, I mean the mutual benefits of philanthropy.

Resistance—Paradigmatic Questions

Appreciating these “benefits” of traditional and new forms of Western colonialism, we should not be surprised that opposition from many quarters has arisen to what we are calling here FIDUROD. Since the publication of Thomas Kuhn's *The Structure of Scientific Revolutions* in 1962, there has been non-stop conversations about paradigms of research and knowledge production. Defined as simply different ways of conceptualizing and conducting scientific research around a shared worldview, paradigms are central to the study of what is validated as knowledge in particular times and places. This is why I've made such a big deal about FIDUROD in this book, as it serves as the dominant paradigm operating in the Western world today. And though it is, of course, not without challenges from diverse quarters, it provides the legitimated knowledges used by dominant power wielders to create conditions that are in their best socio-cultural and political economic interests.

In the contemporary era scholars debate what paradigms exist, usually coming up with positivism, postpositivism, constructivism, interpretivism, critical theory, feminism, postcolonialism, and poststructuralism as possible candidates (Bettis & Gregson, 2001; Denzin & Lincoln, 2005). As I have referenced previously, I have employed the epistemological term, FIDUROD in order to be very precise about what the dominant contemporary epistemological paradigm looks like. Again, in previous scholarship I have used positivism as the dominant paradigm, but many philosophers of science maintain that positivism is dead. While I am not willing to sign positivism's death certificate, I will admit that positivism in the twenty-first century has had a makeover. Though it is well-coiffed, it still possesses many of the same qualities that granted it power and influence in the past. Indeed, the musty smell of reductionism and ethnocentrism lingers.

Obviously, I am not the first—nor are criticalists in general—to question and resist the power of dominant Western epistemologies and the power they produce. Critiques of positivism are found with the rise of Cartesian-Newtonian ways of seeing and continue until the present. We can find Western counter-positivist sentiments from as early as eighteenth century Italian philosopher Giambattista Vico and nineteenth century German philosopher Wilhelm Dilthey, late nineteenth and early twentieth century sociologist Max Weber to twentieth century scholars such as W.E.B. DuBois, critical theorists Theodor Adorno and Max Horkheimer, social

theorist Antonio Gramsci, sociologist C. Wright Mills, and hermeneutics scholar Hans-Georg Gadamer to name only a few. Around the world critics from Franz Fanon to contemporary non-Western scholars such as Gayatri Spivak, Vandana Shiva, Ngugi wa Thiong'o, Walter Dignolo, Trinh Minh-ha, Russell Bishop, Linda Tuhiwai Smith, and many, many others have challenged Eurocentric epistemology from so called "southern" perspectives. It is important for critical pedagogical advocates of a critical complex epistemology to draw upon both Western and non-Western critics and their unique insights into the issues of power and knowledge production.

Even the great champion of the scientific approach to education, John Dewey, was a critic of what he considered the formal, intractable, decontextualized, universalist, reductionistic, and one-dimensional aspects of science in the early twentieth century. Dewey's critique is invaluable in constructing a critical complex epistemology. Of course, as previously referenced, the Frankfurt School of Critical Theory including Adorno, Horkheimer, Herbert Marcuse, and Jurgen Habermas profoundly informed our reconstruction of epistemology and its relationship to education with the expose of the role of epistemology in oppression. As it produced particular ways of seeing the world that resonated with the interests of dominant power, epistemology from the Frankfurt scholars' perspective became a hegemonic force (Kincheloe, 1995; Bettis & Gregson, 2001; Kincheloe, 2003a).

Key to the development of an alternative, inclusive, rigorous, and justice-oriented epistemology were the anti-colonial rebellions of individuals around the world in the mid-twentieth century. Influencing what would come to be known as the Civil Rights Movement and the women's movement in North America, these anti-colonial insurrections uncovered the race, class, gender, cultural biases built into the allegedly neutral epistemology of Western science. In this context we began to witness the emergence of so-called standpoint epistemologies grounded on the insights one gained from his or her location in the social web of reality (Collins, 1991; Harding, 1998; Lomawaima, 2000; Kincheloe, 2005b). Such perspectives provided rich new insights into the failure of the epistemology on which social, political economic, psychological, and educational research was based. The ability of such research to solve problems in these domains, analysts pointed out, was profoundly limited (Fischer, 1998). It is in this context that a critical complex epistemology becomes committed to the notion of a rigorous but *practical* knowledge that can be used to solve problems, to help address human suffering.

We will discuss critical complex practical knowledge in more detail in Part 3 of this book. As critical knowledge producers, advocates/practitioners of critical pedagogy are not satisfied with generating information that languishes in the recesses of cyberspace or in its brick and mortar manifestation becomes a home for book mites in some library. We should not be surprised that a large portion of the data produced in the academic world collects dust. The knowledge produced under the epistemological auspices of FIDUROD too often offers merely a narrow view of a phenomenon grounded on a misguided notion of numerical measurement of some dimension of its existence. The idea that useful knowledge about a particular phenomenon might involve an understanding of its meaning within

a larger context or in relation to a broader picture of how various dynamics fit together is not a part of epistemology of FIDUROD. Thus, in such an epistemological context we are exposed to an immature view of the physical, social, psychological, and educational cosmos—a juvenile perspective that distorts our work in government, business, medicine, psychology or education.

As the scientific revolution took shape in the 1600s and the 1700s fueled by Descartes', Newton's, and Bacon's theories on method and the astronomical speculations of Copernicus and Galileo, historians discern the emergence of a dominant epistemological and ontological metaphor—the world as machine. Taking nothing away from the genius of their work, these scientists constructed a reductionistic metaphor that for centuries has undermined our capacity to move to a more mature appreciation of the nature of reality and our efforts to produce knowledge about it. The notion of world/person as machine fails to account for the interrelated, synergistic, self-creating, and contextually constructed nature of the physical, social, psychological, and pedagogical domains. The early successes of the mechanistic epistemology created the impression in the scientific community and the Western world in general that the science grounded on it was infallible.

Newton's theory of gravity, for example, seemed to work in every circumstance imaginable. Such triumphs moved scientists in the late eighteenth and nineteenth centuries to reduce all physical and social action to a set of Newtonian differential equations. These mathematical equations supported a cause-effect and deterministic universe bound intractably to Newtonian laws of motion. In such an epistemological context causality could always be discerned and thus the future actions of anything could be predicted. It would take Einstein's early twentieth century insights about gravity to undermine the universality of Newtonian physics. Under diverse conditions—black holes, as an extreme example—Newtonian principles just don't apply. By the last half of the twentieth century, the work of chaos theorists such as Ilya Prigogine was beginning to indicate that the machine metaphor was woefully inadequate. Aided by the insights of chaos and complexity theory, we are beginning to understand that the universe is more like the human mind—capricious, susceptible to the influence of its setting, and always in flux.

Much to the anguish of the devotees of FIDUROD, the social domain and even the physical universe is fickle. After gaining such understandings, research, knowledge production, and education can never be the same (Capra, 1996; Pickering, 1999). Indeed, it's as if the more we know, the more we come to understand that the universe has heart—it does not remain static in a fixed state of being, it is always in a process of becoming. If FIDUROD has it wrong, then so much of what we think we know is off base. With this critical complexity in mind, then all the problems we confront can be reconsidered in a different conceptual framework. In this context, possibilities open up in physics, mathematics, sociology, cultural studies, psychology, and education that were previously unimaginable. These possibilities of producing novel forms of knowledge, becoming new types of people, and engaging in innovative modes of action that leads to social justice, ecological sustainability, and peace are the central issues in *Knowledge and Critical Pedagogy: An Introduction*.

An Epistemological Loss of Purpose: Marooned on FIDUROD's Polluted Island

After all is said and done, FIDUROD's perspective on so-called "objective reality" is riddled by unexplained mysteries, contradictions, and suspect "certainties. Indeed, it has produced a view of the majestic cosmos we inhabit that is devoid of larger purpose and inspirational meaning. In this constructed universe the greatest expressions of our human capabilities—such as the power to love unconditionally—are viewed as relatively insignificant. The need to transcend this bizarrely profane epistemology pushes critical pedagogy to imagine systems of knowledge and curricula produced outside the hegemonic matrix of worldwide domination. Escaping from the handcuffs of profit making at any cost, race, class, and gender hierarchies, and one-truth epistemologies, the goal of synergistic interaction and solidarity among all human beings begins to take its rightful place at the center of educational purpose. With a new valuing of this camaraderie among diverse peoples, pedagogy throws off the mechanistic view of education as basically student absorption of power driven "truths" designed to help elicit modes of behavior and ways of being that lead to higher profits by those in control of existing corporations.

The violence daily perpetrated in all parts of the world is often propagated under the banner of FIDUROD's epistemological stance. As I study the environmental disasters perpetrated on poor peoples on every continent by "well-educated" corporate leaders, it is obvious that they have lost their way. The worldview into which they have been acculturated holds no transcendent purpose, the knowledge they value is that which holds instrumental value in the pursuit of profit and status. To allude to merely one of thousands of examples of the consequences of these ways of seeing that few individuals know about in North America, the story of the way Western oil companies (Shell and Chevron in particular) have polluted the environment of Nigeria is distressing. On the twelve percent of acreage that contains oil in Nigeria, inhabitants suffer from the loss of useable land, and good health as well as mandatory migrations, hunger, and unemployment. None of the immense profits—well over \$30 billion for Shell Oil alone—enjoyed by the oil companies has been shared by the residents of the region.

These residents—known as the Ogoni people—have protested the actions of the Western oil companies to little avail. Leaders of the Ogoni protests have been jailed, murdered, or silenced by a series of Nigerian regimes bought off by Western transnational corporate funds and Western governmental threats. Blinded by their FIDUROD logic, Western economic and political leaders can see Nigeria only in terms of short-term oil profits. The wellbeing of the Ogoni, respect for their social and political liberties, or their right to live in a healthy environment are not important in this context. Even operating on the basis of Western self-interest, the long term political effects of the anger of the Ogoni and their allies throughout the "undeveloped" world is irrelevant in relation to Shell's and Chevron's quarterly profits. Corporate leaders watch as human lives are destroyed, wildlife is wiped out, and oil spills and chemical dumping devastate ecosystems (ICE Case Studies, 2007).

This is just another case where the survival of millions of people—there are almost eight million Ogonis—takes a backseat to short-term oil profits. When such genocidal policies play out daily in thousands of different Western owned industries in thousands of different places, something is deeply amiss. These companies are run by highly educated people with expert knowledges in particular disciplines, not individuals ignorant of what is happening in the world. The epistemology of FIDUROD has supported a so-called instrumental reason. Here questions of “why,” (inquiries into the purpose, the ethics of the task at hand) are dismissed in favor of questions of “how to” (how best to accomplish unexamined objectives).

And because the corporate-run media and the corporate friendly school curriculum are so well regulated, too few individuals know about these abuses in Western societies. Thus, they continue unabated, producing new generations of enemies for Western societies. When they inevitably strike out at Western interests or commit violent acts against Western people, many in North America, the English-speaking world, and Western Europe will ask “what did *we* ever do to deserve such ingratitude from people we’ve done so much to civilize?” The multilogicality, the disposition of critical complex activists to listen and learn from peoples around the world, becomes profoundly important in contexts such as this one. At this point such humble listening becomes an epistemological task central to human survival.

The West in its conceit cannot imagine the unsophisticated insularity of its truth claims. The narcissistic consumerism, the ethnocentrism, and the profit and status obsessions that ooze out of FIDUROD have worked to subvert interest and thoughtfulness about anything beyond the immediate needs of the self. Indeed, it is an epistemology without heart that grounds a social order and education without heart. Scientists often use the passive voice to explain the plundering of poor people’s land and lives: *the Ogoni land was polluted by development*. In such an articulation there are no executives and regional managers at Shell and Chevron making specific decisions that place profit over life. There are no neo-colonial pillagers who literally destroy the land and kill the people in order to fill the corporate coffers. There is no culpability. As many scholars have argued for decades, much of the knowledge produced by, for example, social scientists squeezes the life force, the living essence out of human existence.

The corporate knowledge produced about the Nigerian oil business certainly is bereft of concern for the human suffering that is occurring there. The fact that none of the major TV news networks in the U.S. have chosen to cover this story is also a profoundly important issue in our exploration of epistemology and the politics of knowledge. For many the realization that much Western knowledge is distorted in this and many other ways is a shattering insight. At this point of the twenty-first century, however, we must break the devastating news about knowledge to the people of the West and the world. In this context we must develop ways of dealing with the scarred epistemological landscape, modes of exposing the ways that official knowledge is constructed by dominant power, and new epistemological insights to make sure that the knowledge we produce is not distorted in the same way. Obviously, this is not to say that our knowledge will not be distorted, but we can work to ensure that we are more aware of our biases and limitations.

We can become better informed about the tendency for fragmentation of Western knowledge, as the multiple dimensions of any phenomenon are lost by its relegation to one discipline of study—for example, the view of Nigerian oil as simply an economic issue, not as a political, environmental, social, and cultural issue as well. In this context we begin to understand the inability of dominant Western epistemology to perceive the “complex whole” of a phenomenon (O’Sullivan, 1999). FIDUROD’s specialization pushes us away from the integration of a variety of information sources, perspectives, cultural vantage points, and research methodologies in our effort to produce both rigorous and transformative knowledges as well as a multidimensional education to accompany them. In this context we are left with a reductionistic body of knowledge that is inadequate for the demands of the contemporary era and the effort to move ethically and creatively into the future.

FIDUROD Protects Us From a “Descent Into Barbarism”: Hegemony and Knowledge Production

As a hegemonic epistemological force FIDUROD makes other knowledges produced by different peoples and different paradigms look weak and insignificant. Knowledge work in the social sciences and humanities is often portrayed as a frail imitation of “real” science. Of course, in this dominant epistemological context indigenous knowledges produced by colonized peoples in, for example, Africa or Asia don’t even merit the title of imitations of “proper” science. Here we zoom in on one of the most important yet concurrently most obscured aspects of Western knowledge in its FIDUROD incarnation. Western epistemology is profoundly disturbed by the existence of other modes of knowledge production that utilize different tenets of validity in the research act and draw upon cultural memories and experiences unfamiliar to the West. Thus, FIDUROD produces knowledge, while at the same time renouncing and erasing other epistemologies and the knowledges they produce.

I am immediately reminded of the previously mentioned web scrubbing of Educational Resources Information Center (ERIC) by leaders of the Bush Department of Education in the spring of 2002. This is a good example of FIDUROD’s policy of erasure in a domestic context. This colonial matrix of knowledge/power disallows particular vantage points of seeing the world. Almost any phenomenon looks different if we encounter it from diverse angles. We may argue over what kind of bird we saw if one of us sees it from the back and the other from the side.

“Look, Ms. Hathaway, a tufted titmouse.”

“You must be crazy, that’s a bohemian waxwing you red breasted nuthatch.”

The world looks very different depending on whether comes from a colonizer society or a colonized one. Indeed, from a traditional Western epistemological perspective the world became unimaginable except from the configuration of European-North American knowledge work (Bridges, 1997; Mignolo, 2001, 2005). The ways of

seeing of colonized people became known as magic, pantheism, and primitive folklore—knowledges to be ridiculed in a variety of epistemological minstrel shows sometimes known as anthropology or even a film on The Discovery Channel.

Thus, the knowledges of different cultures and different paradigms of Western epistemology profoundly differ from those produced by FIDUROD. Recall, for example, the discussion in Chapter 1 about the positivistic rules of educational practice emanating from FIDUROD as opposed to the more flexible, context-sensitive critical epistemology of practice. Knowledge in education, criticalists understand, is profoundly sensitive to the distortions of decontextualized and reductionistic epistemologies. It is fascinating that FIDUROD’s knowledge is far more concerned with the functions rather than the purpose of teachers and other practitioners (Shaker & Kridel, 1989). Functions, of course, lend themselves to precisely calibrated measurements; purposes do not. Yet, focusing on functions in this context tends to produce a recipe for the deskilling of teachers. The epistemological issues we are dealing with here illustrate the way the dominant Western epistemology views the bird. The Western teacher is a tufted titmouse—end of story. Here our epistemology crushes our imagination.

This damaging of the imagination is enforced by reference to the efforts of critics to explore the limitations of FIDUROD and dominant forms of Western rationality as an attack on reason. Indigenous and colonized epistemologies, of course, fall into this characterization. Western academics, right-wing analyst Roger Kimball (1996) writes “have reneged on their commitment to truth” in the process undermining “the integrity of many academic disciplines.” The attempt to critique Eurocentric knowledge, Kimball and his conservative allies argue, simply supplants one European viewpoint with another—cultural relativism. The point of the right-wing critiques is that a critical complex epistemology’s effort to decolonize knowledge, to respect and engage information produced by non-Western peoples around the planet is an affront to the West and its superior knowledges. It is a part of what they call a larger “return to tribalism,” that poses great danger to the existing world order.

The right wingers continue arguing that this so-called “descent into barbarism” threatens to undermine all the great achievements of Western civilization while leading the planet’s people into servitude. This promotion of neo-barbarianism, the argument continues, is championed the people who run the education establishment and as a result the conservatives—the defenders of our Western heritage—have a moral duty to take back the classroom (Kimball, 1996; Windschuttle, 1997). The condescending view of the non-Western “savage other” embedded in such perspectives is chilling. Here we view the contemporary arguments that rest at the heart of epistemological hegemony (Roberts, 1998). Once again those knowledges, those ways of seeing that fall outside the tenets laid out by Western science must be discredited and crushed. In these actions we discern a sense of vulnerability among the “defenders of the faith” that is fascinating, disturbing, and revealing.

To protect us from the barbarians, FIDUROD defines truth as either grounded on analytic or synthetic propositions. In the dominant epistemology an analytic truth is based on a proposition’s definition—for example, a pentagon has five sides.

A synthetic truth in this epistemological context is true on the basis of its status as an empirical fact—after the passage of NCLB more teachers teach to standardized tests than before. All worthwhile knowledge in a FIDUROD-based epistemology is either of the analytic or synthetic variety. This restriction effectively eliminates much of the knowledge produced by different paradigms or by many non-Western colonized peoples. This epistemological policing shelters Westerners from the degradation of indigenous and subjugated knowledges and the hollow “jibber jabber” of critical analysis, hermeneutics, and aesthetics (Stanford Encyclopedia of Philosophy, 2007).

In such an epistemological context the critical concepts of historical consciousness and socio-political contextualization are irrelevant and treacherous distractions. Devoid of a critical theoretical foundation such an exclusionary epistemology is disdainful of questions of power, values, and cultural context and the way they shape the consciousness of the knowledge producer. In this process researchers, educators, psychologists and other professionals are rendered oblivious to the ideological/cultural implications of their unexamined epistemological assumptions. As long as the correct methods are followed and particular definitions—for example, analytic and synthetic formulations of truth—are left unchallenged then “universal truth” becomes a reductionistic and potentially oppressive notion.

A critical complex epistemology rejects FIDUROD’s proposition that methodological fidelity ensures truth, concurrently contending that social/cultural/political/educational actions will serve different interests in different moments of history. Bereft of this critical contextualization, the epistemology and thus the knowledge produced by FIDUROD is flawed by an absence of self-reflection, by a lack of understanding of how the ideological construction of the researcher or educator shapes the information he or she produces and transmits. FIDUROD’s rigor is macho bluster—“our knowledge is hard, rigid, marked by stiffness.” Indeed, it is an epistemology on Viagra—even Cialis has too much flexibility with its contextualized notion of “when the time is right.” “Our knowledge is hard,” advocates of FIDUROD tell us, “and it is hard right now.” No ED here—epistemological dysfunction. A critical complex epistemology is not fearful of softness, subtlety, soulfulness, or sensitivity as it makes multilogical connections to diverse dimensions of the world. Indeed, a critical complex epistemology engages in dialogue with the barbarians at the gate, in the process gaining new insights that lead to wisdom and, my god, even peace (Van Manen, 1991; Giroux, 1997; Gabay, 2007).

Naïve Realism and Rationalism: No Escape from the Island

In the epistemological lexicon a naïve realism presumes a singular, stable, external reality that can be perceived by one’s senses; rationalism argues that thought is superior to sense and is most important in shaping experience. Our notion of critical constructivism and a critical complex epistemology contends that reality, contrary to the arguments made by proponents of FIDUROD’s realism, is not external and

unchanging. In contrast to rationalism, the epistemology offered here maintains that human thought cannot be meaningfully separated from human feeling and action. Knowledge, criticalists assert, is constrained by the structure and function of the mind and can thus be known only indirectly. The knower and the known are conjoined twins connected at the point of perception. To delve into dangerous territory, naïve realism and rationalism, as previously referenced, both exclude the reality not to mention the usefulness of different levels of human consciousness.

The fact that FIDUROD's rationalism and naïve realism can't cope with complexity is a central notion in the critical critique of the dominant epistemological position. Rationality in the naïve realist and rationalistic sense is an abstract system that operates in a transcultural and transhistorical manner unaffected by the discourses and the contexts that created it in the first place. The purpose of textual analysis and research in the formalist regime of truth is to determine what, for example, a text or an interviewee *really* means so it can be passed along to those residing outside the gated communities of the experts. Critical analysts point out such reductionism and elitism when they see it and devise modes of analysis and inquiry that are more attuned to contingency and multiple possibilities in the Dismal Swamp of meaning making. The multilogicality that such criticalists bring to such analysis helps undermine FIDUROD's tendency for reductionism, while concurrently revealing the implicit.

Naïve realist and rationalistic data are as ideologically inscribed and contextually grounded as any other modes of knowledge. For all the effort we spend on teaching realist and rationalistic and methods of knowledge production, it is ironic that we live in a social cosmos understood through the filter of narrative devices and strategies. We inhabit a socio-cultural cosmos that is never transparent, never willing to reveal all of the multidimensional dynamics that are constantly taking place. It is profoundly ironic that Rene Descartes' book, *Discourse on Method*—a work that laid the foundation for Western epistemology, knowledge work, and science—came to Descartes in three dreams, including what he called a dream within a dream. In this dream within a dream, the key was provided for making sense of the larger dreams. Of course, this is nothing unusual, as indigenous peoples for thousands of years have sought insight and knowledge in dream states. One of the ways barbarians storm the epistemological gates is by bringing up “embarrassing” dynamics such as Descartes' dreams. Indeed, one of the important functions of FIDUROD is to quash any idea that there are diverse dimensions of physical, social, and psychological reality that we do not yet understand (Grof, 1993; Griffin, 1997).

Despite all of the attributes of wisdom, skill, insight, and awareness that human beings have demonstrated in diverse cultural and historical settings, naïve realism and rationalism have determined that we must remove humanness from knowledge production as much as possible. Research and knowledge production in this reductionistic context are rigorous to the extent that follow the proscribed steps of the process while concurrently making sure that the researcher/knowledge producer is as far removed from the procedure as possible. The idea that a researcher might be committed to addressing particular social problems in an activist not just contemplative manner is a frightening intention. Devoted to science but uncomfortable

with the direction science was heading, John Dewey criticized the intellectuals of the first half of the twentieth century for chasing decontextualized certainties in lieu of attacking the problems facing everyday people (Hyttén, 2004).

Rationalism erases forces such as caring, desire, and fear in the effort to “be rational.” Affective motivations for knowledge work are inappropriate in the rationalistic context. In a rationalist epistemology there is only one form of rationality, yet in the pluralistic critical epistemology promoted here there are many rationalities. Moreover, one of the central tasks of criticalists in this context is to study diverse forms of rationality—from both a cultural and historical perspective—for the purpose of cognitive growth and empathetic understanding that leads to justice. The construction of selfhood and the unexplored possibilities of selfhood are not relevant in FIDUROD. Those of us who study them are deemed to be wasting the world’s time.

Thus, FIDUROD’s knower is the “boy in the bubble”—an individual who is working best when he is the most isolated from himself and the world that has shaped him. Here, knowledge workers often unconsciously produce information that often leads to the degradation of various peoples around the world. Once critical epistemologists induce knowledge workers to examine the invisible forces that shape their employers’ needs and their own consciousnesses, such researchers begin to interrogate the purposes of their work. At this point they may begin to ask themselves: am I here to increase the profits of corporate executives by making their businesses, factories, and offices more cost-effective? Do I contribute to the process of colonization and the consequent dehumanization of the majority of people on the earth? Once such questions are asked about uses of knowledge and knowledge producers, dramatic changes begin to take place (Allen, 2000; Thayer-Bacon, 2000, 2003; Fernandez-Balboa, 2004).

This brings us back once again to a golden conceptual thread that runs through this book. Our ticket off the FIDUROD island (run by the Dharma Project?) involves our critical multilogicality—gaining the ability and disposition to look at the world not from the perspective of the U.S./Western empire but through the senses of the colonized molded by pain and devaluation. The neo-liberal justification of a global empire run by the U.S. and its Western allies is profoundly disturbing to contemporary peoples around the planet. More and more non-Westerners are coming to see the grotesque disparity and oppression that such a geo-political economic policy is producing. Neo-liberalism’s worship at the alter of the free market grounds its approach to modes of social organization and education that regulate and adapt young people to their functional role as human capital and soldiers in the wars demanded by imperial needs.

In such an epistemological/imperial global society rationalistic and naïve realist knowledge production and transmission take an ugly turn. In a truth-is-lies mode of operating, agents of empire such as the operatives in the presidential administration of George W. Bush pass *The Clear Skies Act* to allow corporations to pollute the air in the quest for higher profit margins, *The Healthy Forests Act* to sanction more clear cutting of forests by the lumber industry—even on previously protected National Park land—and, of course, *The No Child Left Behind Act* to justify cutting

funds and resources to the most marginalized students in U.S. schools (Mignolo, 2005; Orłowski, 2006; Steinberg & Kincheloe, 2006). Thus, naïve realism and rationalism with their refusal to examine the ideological dimensions of contemporary life leave the inhabitants of the earth open to a media/school pedagogy of lies. The empire could not operate without such a public educational plan.

Thus, in our study of knowledge and critical pedagogy, we come to understand that Western thinking since the Greeks has tended to assume that the world is based on reason and is explainable by rational or scientific investigation. The propositions such investigations produced would be deemed true or false to the degree they corresponded to “actual reality”—the basis of a correspondence epistemology. The critical complex epistemology promoted here questions the simplicity and rationality of physical, social, and psychological domains and the scientific reductionism on which they are grounded. In this reductionistic epistemology physicists argue that heat is just molecular motion, biochemists maintain that life is merely a metabolic process, geneticists assert that evolution involves simply changing the genome, psychologists contend that love involves only a measurable increase in heart rate and hormonal flow in the presence of the object of affection, and educational researchers posit that teaching and learning is merely the transfer of data from practitioner to student, etc. Here rests the dark core of FIDUROD’s reductionism.

A critical complex epistemology with its focus on power, colonialism, and justice shifts from FIDUROD’s linear reductionistic to non-linear complexity. The idea that there are universal laws of social arrangements, history, cognition, and pedagogy that operate completely outside of dynamic processes and contexts has collapsed under its own historical weight. Such a critical complex epistemology provides physical, social, psychological, and pedagogical scholars powerful new tools with which to make sense of the world while enhancing human possibility. With this critical intervention the knowledge work of contemporary science, especially in the social, psychological, and educational domains, becomes a caricature of the lived world. A lesson from **historiography** (the study of the study of history) is valuable in this context.

Critical historians employing a critical complex epistemology understand that the past can never be understood and experienced “as it really was.” Historians of the thirteenth century Native American history do not possess a phenomenological “feel” for what life was like in that circumstance. Historians, whether or not they want to admit it, are limited by their own phenomenological encounters with documents, artifacts, and in more recent history, peoples’ memories. Even the historical sources they select are shaped by their ideological, cultural, theoretical, and, of course, epistemological perspectives. The linear reductionism of FIDUROD even in historical research fails to account for the subjective complexity of the process of historical knowledge production.

To proclaim one’s work in history—as in any other disciplinary domain—as some form of universal truth is a profoundly misleading act of epistemological reductionism. Historical research and the historical narratives it produces are subjective, contingent, ambiguous, and always open to multiple interpretations. Those historians unaware of this complexity tend to harbor an ignorance of epistemology, adopt naïve research

methods, and produce antiquarian accounts of the past. A critical complex epistemology helps historians and other knowledge producers avoid reductionistic, “infallible,” and universal accounts of human experience (Bruner, 1996; Parker, 1997; Pickering, 2000; Burns, 2002; Alridge, 2003; Villaverde et al., 2006).

FIDUROD and the World “Out There”

This modernist Western view of knowledge, this one-truth epistemology, affected all aspects of Western life, all institutions. Knowledge is out there, quantifiable, measurable, and capable of being purchased, distributed, and acquired. Since knowledge is predefined, waiting to be discovered like a Hollywood starlet, what use is it to teach speculative and interpretative strategies? Why study epistemology at all when we already know our role as professionals who work with knowledge: find it and document the process. This realist/rationalistic dynamic penetrates all aspects of FIDUROD’s knowledge production. We witness this dynamic at work from physical science to fields such as textual analysis in literature. For more realist literary critics, meaning resides in a piece of literature and the reader’s task is to dig it out (Thayer-Bacon, 2000). Thus, meaning here—as in most contemporary, standardized schools—is to be transmitted from a knowledge producer to a passive consumer. The idea of the transaction, the negotiation of meaning between producer and consumer is negated in realist reductionism. The role of the literature teacher in FIDUROD’s epistemological framework is reduced from a meaning making interpreter to an intellectually disengaged transmitter of the “actual meaning” of a poem or novel.

As I was taught as a child in the schools of Tennessee: “What Robert Frost’s poem, ‘The road not taken,’ means is that we have to make hard choices on the ‘road of life.’ We don’t know what would have happened had we made one choice and not another. Write that down, it’ll be on the test.” The idea that literature could possess diverse personal meanings that differed in relation to the experiences and background of the reader did not serve me well as a literature student in this educational context. In fact, I kept getting the meaning “wrong” with bad grades as my “reward.” In this pedagogy we can easily see the consequences of the tradition Western epistemological separation of the knower and the known. The only thing that matters in such a context is the known—and there is only one true version of it. Such reductionism constitutes a form of stupidification, as it shapes the public’s perception of the nature of knowledge. With dominant power’s domination of schooling and corporations’ control of the media in the contemporary era, the influence of this self-interested reductionism is greater than ever before.

As we discussed in Chapter 1 in relation to the epistemology of practice, teachers in this reductionistic configuration are deskilled, molded into functionaries who simply pass the truth that is “out there” to passive student receptacles. There is only one truth in the FIDUROD cosmos, truth for everyone, at every time, in every place. No viable alternative, advocates maintain, exists to this construction, because without this

universalist epistemology no distinctions can ever be made between what's right and what's wrong. In such a situation employing the lexicon of George W. Bush, the terrorists have won. More literally stated, the foundations of Western society will crumble under the weight of such relativism. Our ability to understand the world around us, defenders of the faith conclude, has been destroyed. Over the last 60 years the rapid growth of technology, the revolt of the world's oppressed, the diasporic redistribution of the world's peoples, the emergence of a media-oriented culture, and the reconfiguration of colonialism into a new, more powerful form has motivated many to seek the comfort of the familiar (Bin Sayeed, 1995; Allen, 2000; Thayer-Bacon, 2000).

In this context we have witnessed the rise of fundamentalist religion and its strange conceptual bedmate, traditional Western science. Often seen as diametrically opposed nemeses, fundamentalist religion and traditional Western science play to similar social concerns—a loss of certainty in a rapidly changing imperial hyperreality. Both offer solace to the perplexed—a sense of what is universally true and the key to how such truth might be found. “Whether through prayer or the scientific method, my friend, you can find the truth. And the truth must be found, ambiguity must be eliminated—whether it be in the name of Jesus or of science.” Take your pick—fundamentalism or FIDUROD will save us, will by and by provide answers to all our questions, will ease our pain, and will solve all our problems. And take your pick, both FIDUROD and fundamentalism will rid us of the infidels who challenge the faith. A quick twenty-first century Petit Inquisition can identify the non-believers and purge their nonsense from the record. I'm feeling better already. No more complexity, no more uncertainty—may I bear my testimony and give you these little pamphlets about the “End of Days,” the “End of History,” the “End of Epistemology?” Do you mind if I come in and talk to you, my beloved brothers and sisters, about how you can find the truth, how you can bring the out there in here?

Ecstatic Certainty: Don't Ya Smell That Smell?

In their state of ecstatic certainty the missionaries of FIDUROD forget that it's much harder to discern what we don't know than to document what we think we do know. The thick phlegm of epistemological assurance washes away our awareness of the obvious things we don't know—for example, the way consciousness emerges and the origins of anything at all, not to mention the universe, just for starters. Any epistemology that certifies knowledge and reason in terms of the techniques applied in their construction is too limited to appreciate the diverse dimensions of the attempt to understand and act ethically in a world that exists on so many levels. Emerging from the Western Enlightenment—also characterized as the birth of the Age of Reason and the Scientific Revolution—from the middle of the seventeenth century to the early nineteenth century, this ecstatic certainty led to a widespread confidence in the ability of science to liberate humans from medieval norms and ways of seeing

the world. Rene Descartes was adamant in his faith that the emerging epistemology of Western science would solve human problems once and for all.

It would undermine the tyranny of the divinely sanctioned monarchies that oppressed the peoples of Europe. The promoters of the Enlightenment believed that with the power of science to guide their thinking, common people would move toward democratic forms of government. Scientific thinking would unleash human reason to arrange the best way to manage social and political affairs. There was no limit to the power of scientific rationality, despite the emergence of tyrants such as Napoleon in 1799 after the Enlightenment inspired French Revolution. Nonetheless, the ecstatic certainty of scientific rationality grounded most of the new European societies emerging in the nineteenth century.

In addition, scientific rationality provided Europeans of the era a sense of grounding to their human existence. Descartes' "I think, therefore I am" proclaimed to the world that he and other humans existed as discrete, individual bearers of consciousness. Such an individual existed above history, society, and culture and, thus, was in control of *his*—men were believed to be the rational gender—own destiny. This rational and abstracted (taken out of social context) self was central to the ecstatic certainty of Western epistemology in that neutral, disinterested men could now produce positive knowledge about the world. In this ontological and epistemological framework individuals could know who they were without reference to culture or other human beings. With such knowledge they could remove the distortions caused by various dimensions of selfhood, ushering in an era of scientific objectivity and a *true* view of the world. Subjectivity would now be relegated to other irrational cultures and past historical moments.

But even with the Enlightenment's gift of valid knowledge and the claimed removal of human subjectivity, the utopian dreams of the Enlightenment's ecstatic certainty were left to wither on the epistemological vine. From the vantage point of those who bore the physical and psychological scars of European Enlightenment's colonialism, Western science's supplications at the altar of reason generated disdain and far-reaching distrust. The colonized were the victims of epistemological certainty and the research it sanctioned—research that produced "indisputable" proof that African and non-Western culture's brain size was smaller than European grey matter. Such research could only be interpreted in one way, the European scientists maintained, "*we* are smarter than *them*." Thus, we are entitled to do with them what we want—we can enslave the child-like beasts, rule them, make them our servants, force them to speak our language, and simply take their land and resources without a thought of compensation (L. Smith, 1999; Allen, 2000).

David Geoffrey Smith (2003) refers to this conception of the Western abstract individual producing certainties around which the rest of the world would be classified and regulated as the narcissistic self-enclosure of Western epistemology. Such self-enclosure with its assumption of European superiority leads to violence because ultimately it is ill equipped to appreciate or understand the experience of those who come from other places and possess different ways of making sense of the world. Such self-enclosed ignorance of the "other," holds especially vicious consequences around the suffering of those subjugated by the Eurosystem. As a college student in

the late 1960s who studied the Virginia history textbook used in eight grade social studies classes of the time, I was amazed at the author's description of slavery as a benevolent institution where African American slaves were well treated and happy. When one of my black classmates told our college history class that he found such a characterization offensive, he was shunned and labeled as a dangerous radical. Not only were the slaveholders of the South incapable or at least unwilling to understand the suffering of their slaves, but also their Virginia progeny of a century later still had difficulties with the concept.

Over and over I have witnessed such inability to understand and/or the denial of the suffering of African Americans at the hands of white European oppression. As a professor at Pennsylvania State University in the 1990s, I watched as many racially uncomfortable whites treated African American students in bizarre and degrading ways. As I and a few of my colleagues attempted to bring such treatment to the faculty and administration's consciousness, we were told over and over that "this is not a racial issue." Even after African American students occupied the student union building for ten days in April of 2001 and were assured that "things would change" at Penn State in regard to race, many faculty members and a large segment of the student body rejected any notion that the black students had any legitimate grievances. Situations such as the one at Penn State occur daily garnering little press coverage or interest in the white community. The rational irrationality of Western epistemology is alive and well in the twenty-first century, as many researchers report white reluctance to even entertain the possibility that Western ways of seeing possess at the least an insensitive and at the most a violent underside (D. Smith, 2003; Gresson, 2004).

With FIDUROD's tendency to reduce social research to forms of measurement, understanding the phenomenological, lived, emotional dimensions of, for example, African American student life is rendered irrelevant. Yet these are the dimensions that are so central to appreciating the racial pain many students of color experience in their formal education. These are the very dynamics that teachers and professors need to appreciate in order to provide a more sensitive and meaningful education to this student population. I have watched far too often as the technical and procedural information derived from reductionistic research leads educators in the wrong direction. When it comes to African American—and, of course, Latino, many Asian, and Native American/First Nations students—such modes of research will inform university administrators, for example, that their university has a higher percentage minority enrollment making higher grades than ever before. While such data is obviously not irrelevant, it fails to address the underlying racial problems that may be afflicting an institution. In the case of many universities such as Penn State in the aforementioned example administrators armed with such evidence simply denied the existence of any other racial problem on campus. The data speaks for itself, they told us.

Western epistemology's ecstatic certainty that white researchers possessed both the truth and the proper means of obtaining the truth has plagued European researchers of non-European cultures for centuries. When Western researchers in the universalistic, reductionistic tradition take the time to ask indigenous peoples

around the world how they feel about such inquiry, such researchers are often shocked at the fervor of the responses they get. From an indigenous standpoint such Western research is viewed as an act of exploitation. Such oppression results from the epistemological and cultural constructs of the researchers, their different values and ways of seeing, the power asymmetries that hierarchize the relation between European researcher and indigenous object of research. Such hierarchies place the white researcher above the indigene, as researchers work to categorize and classify the individuals they are studying. Far too often such research places non-white peoples in humiliating locales on the ladder of human development. Of course, indigenous peoples for this and many other reasons view such research as a form of subjugation (L. Smith, 1999).

Numerous other negative consequences surface as we study FIDUROD based research. For example, many individuals who are evaluated on the basis of what Paul Thomas (Thomas & Kincheloe, 2006) calls the surface features of writing—grammar, mechanics, and word usage—come to believe that they can't write. Even though they may write wonderfully and in a conceptually sophisticated manner, the reductionistic research method of counting the number of surface feature mistakes on which evaluation systems are based indicates their failure with language use. Most of the help such writers receive involves little more than efforts to help them conform to these surface features. Here is an excellent example of how epistemology via the research methods it supports ultimately shapes the nature of education and the success or failure of particular students. Instead of devoting more attention to what students have to say and their conceptual facility, such technicist pedagogies attend to the least significant dimensions of the writing process. So often students who have trouble with such surface features are those who come from marginalized backgrounds. Thus, epistemology serves as a form of oppression, as it penalizes those who fall outside the white, upper-middle class, English-as-first-language community.

Historically there are unlimited examples of the way this Western epistemology oppression operates. In the nineteenth century Herbert Spencer and Auguste Comte produced a “neutral” scientific matrix for judging the developmental stages of social progress that was given its highest expression by German philosopher G.W.F. Hegel. In Hegel's detailed delineation of the stages the civilization at the lowest level of social progress was the “Oriental world” and the highest was, no surprise, his own Germany of the early nineteenth century. It was obvious to Hegel that Germany was the most socially evolved nation in the world because it was the most reasonable. All other cultures were merely outposts on the flank of the struggle to socially evolve into Germany. Because of their social backwardness, these lower cultures would soon die off.

This, Hegel posited, was an inevitable consequence of their inferiority, a necessary part of the progress of civilization. These ethnocentric, rationalistic, decontextualized concepts lead directly to **social Darwinism**—a grotesque cultural, racial, and socio-economic class theory that continues to make a strong resurgence in the twenty-first century. Neo-social Darwinism's impact on the formulation of social, political, cultural, and educational policies in contemporary Western nations is

both astonishing and profoundly disturbing. The caricatures of different cultures provided by these perspectives testify to the European lack of understanding of cultures other than their own. The notion that their epistemology was moving them to produce universally valid knowledge comes into sharp focus here. One gets a sense of the ethnocentrism in Charles Doughty's *Travels in Arabia Deserta* written in 1888:

The most venerable image in their minds is the personage of Mohammed... [nothing can] amend our opinion of the Arabian man's barbaric ignorance, his sleight and murderous cruelty in the institution of his religious faction: or sweeten our contempt of an hysterical prophetism and polygamous living—Mohammad who persuaded others, lived confident in himself; and died persuaded by the good success of his own doctrine (quoted in Sardar, 1999, pp. 44–45).

Didn't I hear the Revs. Pat Robertson and Jerry Falwell (from beyond the grave) say something very similar to this last week?

Doughty's work was viewed as a paragon of objective Western scholarship. In this epistemological frame T.E. Lawrence wrote that Doughty "went among these people dispassionately" to provide the reader with "complete realism" (Sarder, 1999, p. 45). So inspired was Lawrence by Doughty's realistic cultural insights that he let the readers know exactly what he thought they would get from the author's writings:

Semites are black and white and not only in vision, with their inner furnishing; black and white not merely in clarity, but in apposition. Their thoughts live easiest among extremes. They inhabit superlatives by choice... They are limited narrow-minded people whose inert intellects lie incuriously fallow... They show no longing for great industry, no organization of mind or body anywhere. They invent no system of philosophy or mythologies (quoted in Sardar, 1999, p. 45).

The message was unambiguous and boldly put forth as a universal truth. All this from Lawrence of Arabia?

In the contemporary American quest for a new type of political economic empire enforced by military muscle if needed, we are not far from Spencer's, Hegel's, Doughty's and Lawrence's socio-cultural perspectives. In the Thomas B. Fordham Foundation's (2002) *September 11: What Our Children Need to Know* edited by Chester Finn, William Galston speculates why there is so much resentment of the U.S. throughout the world. With Galston, as with so many other right wing and "centrist" U.S. scholars in the contemporary era, the nineteenth century blindness to what it feels like to be subjugated by a dominant world power is simply ignored. Galston (2002) writes:

Whether we like it or not, the United States is enmeshed in the world beyond our shores and, as the most powerful nation our actions inevitably affect everyone else. We are disliked in some quarters because of the principles we espouse, the policies we pursue and the friends we support. While conducting ourselves with candor and honor on the world stage, we must accept the burden of protecting ourselves against the enemies we cannot help making.

In Galston's perspective we (the U.S.) have done nothing but be good global citizens and because of our virtue we will be attacked. The continuing impact of our historical and contemporary colonial exploitation of other nations is irrelevant. The fact that the U.S. is overseeing the economic transfer of monies from the poorest

peoples to the wealthiest peoples on the planet is beside the point. The West—especially the U.S. Right—has its head buried in the epistemological sand.

In the same volume Victor Davis Hanson (2002) continues Galston's theme, asserting that one of the larger goals of Islamic fundamentalism is to destroy the great benefits betrothed by the West's Age of Reason.

Islamic fundamentalism is a great plague upon the world that would destroy the rights of women, the very notion of religious tolerance, and all the gifts of the Enlightenment.

This is the epistemological continuation to the (il)logic of George W. Bush's "they hate our freedom" as an explanation of why the "hostile" nations of the world and the terrorists want to do the U.S. harm. Such peoples in both the historical and contemporary dominant Western cultural worldview are incapable of changing their primitive ways. Such inferior peoples do not have the cognitive/cultural ability to engage in rational operations. History proves, such scholars argue, that such peoples had produced no original science or innovative thinking. Thus, the contemporary practitioners of FIDUROD are reclaiming the right, nay the calling, to produce and deliver the objective truth to the world. Such epistemological arrogance exerts profound effects on the interrelationships among the peoples of the planet. Unless, such conceit is addressed and countered, the future does not look so bright. Unfortunately, at this point I need no sunglasses.

FIDUROD's Proclivity to Claim Objectivity

Despite the strident pronouncements of dominant Western epistemology that its research is objective when it follows the proper steps of scientific investigation, contextual studies (Harding, 1998) indicate that FIDUROD's knowledge production has always been shaped by the social, cultural, political, and economic assumptions of the *Zeitgeist* in which it was produced. The claim to objectivity is bogus and falls apart when we conduct a modicum of research in the history of science. One can discern this subjective dimension of what is called objectivity in a legal context. When we examine the history of disputes between mining companies and indigenous groups over, for example, companies' rights to mine what is deemed by the indigene as their sacred land, the notion of the trouble with objectivity claims is highlighted. The legal strategy of mining companies around the world is to cite Western scientific judgment concerning the indigenous claim to a land's sacredness. Not surprisingly, the courts as Western institutions are not inclined to recognize indigenous claims of sacredness. Thus, rulings are made overwhelmingly in favor of the corporations with the result of wholesale mining of indigenous land. All the while the objectivity of the legal decision making process is asserted (Allen, 2000; Mychalejko, 2005).

Thus, the socio-cultural and political economic structure of the epistemology grounding the Western legal system is powerful beyond challenge. The socio-cultural and political economic dynamics shaping the courts' rulings are deemed by the decontextualization of FIDUROD to be *external* to the scientific process

employed. At the risk of redundancy, science is the unquestionable grounding of such affairs. The social domain, dominant Western epistemology asserts, has absolutely nothing to do with objectivity and science. European scholars of the Enlightenment were insistent that the human mind was absolutely distinct from the physical world of events and matter, the social world of conventions and traditions, and the body. The consequence of this epistemological division was the belief that knowledge production was designed to produce precise pictures of the phenomenon in question, focusing again on the overt—that capable of being seen. Those unseen structures and processes that shape a critical understanding of an event are irrelevant in these dominant Western epistemological contexts.

Such social dynamics, such cultural biases permeate all dimensions of Western interpretive activities and knowledge production. It is obvious that racial biases against African Americans and Latinos and class biases against the poor have dramatically destroyed any claim to objectivity in legal proceedings over the course of North American history. *Historiographical* depictions of other cultures revealed monstrous prejudices toward a variety of non-white, non-Western peoples. For example, both the European Renaissance (c.1300–late 1600s) and the Enlightenment (c.1650–1800) were profoundly influenced by Islamic scholarship, an understanding that has been conveniently underplayed in the grand narrative of European history. Indeed, the epistemological notion of objectivity has often been used as a smoke screen in the West to disguise a litany of preconceived notions about self and other. A critical complex epistemology moves us to ask why do so many Western scholars and educational leaders fight so hard to defend particular historical interpretations from student questioning.

In such a critical epistemological context we are moved to ask what are the forces that have shaped us and why do we hold certain myths as objective truth. We can never view knowledge in the same way once we understand that traditional dominant Western epistemology sees no interaction between power and objective knowledge. In this epistemological configuration objective knowledge tells us how things really are. Here, knowledge production is not a political function. Such insight brings us to the notion that different cultural groups can often better identify the epistemological constructs that shape what we “know” and believe better than we can ourselves. As previously mentioned, a key goal of a critical pedagogy and critical complex epistemology is to understand as much as possible the forces that shape us in order to help us overcome the dangers of ethnocentrism. As we understand these forces, we gain a better view of the limitations of an uncritical acceptance of objective knowledge (May, 1993; Harding, 1998; Sardar, 1999; Allen, 2000).

The focus on the rationalistic dimension of our intellectual ability points to the power of patriarchy to shape the nature of what we call objective knowledge. Cold reason in Western patriarchy always has trumped what is culturally framed as softer, more feminine abilities associated with intuition, imagination, creativity, and affective insight. Indeed, many of the modes of analysis promoted by a critical complex epistemology come from the insights and theoretical advances of feminist theory. These same “feminine” abilities are often associated with African peoples and indigenous groups all around the world. Indeed, Cartesianism's embrace of

objectivity can be viewed as an escape from the feminine. Boys in the contemporary West still are raised as Cartesians, while girls are provided a more connected, less rationalistic view of self and world. These epistemological factors are profoundly important in shaping masculine ways of being that are more disconnected, separate, emotionally distanced, and objective than their feminine counterparts. In a contemporary imperial world gone mad, a critical complex epistemology is drawn to more feminine modes of connectedness, caring, hope, and the subjective.

The objectivity of the dominant Western epistemology has undoubtedly led to modes of racism, **misogyny**, class bias, and homophobia. The epistemological assumptions that identify white, male, upper middle class, men as the most rational and successful beings on the planet construct Western knowledges as the most objective and valuable information ever produced. While obviously there is much Western knowledge of great worth, there is much that is simply untrue because of egregious epistemological mistakes. In the process of producing such data the dominant Western epistemology has simply dismissed the alternative realities produced by other cultural epistemological frameworks as primitive and irrational superstition. Thus, Western knowledge is always defined as the preferable objective alternative to the constructed other (Gresson, 1995; Harding, 1998; Thayer-Bacon, 2000, 2003).

“Objective” Portrayals of Islam and the Trouble They Generate

Epistemology and ontology can never be kept entirely separate. What we know and what we think we know are inseparable from whom we think we are. In the case of knowledge production and the learning that emerges from this epistemological dimension, Westerners when they confront peoples from other cultures have tended to have a rather strong sense of themselves—i.e., a sensation of superiority. Several scholars from non-Western cultures have referred to this dynamic as the white-man-as-god syndrome (Obeyesekere, 1992; Sarder, 1999). Such a figure plays a prominent role in the history of Western interaction with non-Western cultures as well as lore about such encounters. The white man is the adored teacher to the lovable (in a cute and cuddly sense) but ignorant child of color. Such a child provides unreserved affection for the teacher, thus, fortifying his sense of worth. A theme running through Western literature/cinema involves the white man being mistaken for a god—for example, in Rudyard Kipling’s story transformed into film by John Huston in *The Man Who Would Be King*, T.E. Lawrence’s *Seven Pillars of Wisdom: A Triumph* that was used as a conceptual foundation for the movie, *Lawrence of Arabia*, as well as the more recent Indiana Jones films.

As with popular culture in all eras these creative products reveal a culture’s subconscious and can be read as a psychiatrist interprets a dream. Books and movies either consciously or unconsciously portray dominant epistemologies and ideologies that in this case explain and advance the inherent supremacy of the West. In his best selling book, *What Went Wrong: Western Impact and Middle Eastern Response*,

Bernard Lewis (2002) provides a contemporary twist to knowledge designed to promote Western supremacy. Lewis’s highly influential work “documents” Islamic inferiority, barbarism, and failure as a culture. Having first coined the term “clash of civilizations”—a phrase used by the neo-conservatives in the George W. Bush administration to justify preemptive wars against Islamic countries—in a 1990 article in *Atlantic Monthly*, Lewis argues that contemporary Muslims want someone to blame for their failures and have irrationally chosen the guiltless U.S. America, according to Lewis, has never done anything to harm the Islamic world. We now have no alternative to war, Lewis concludes.

The evidence pointing to this inevitable conflict with the barbaric Muslims demands that the U.S. must fight the Islamic world and establish control over it—a central argument Lewis made in his successful effort to promote the U.S. invasion of Iraq in 2003. From Lewis’s perspective Islamic inferiority to the West reveals itself in diverse circumstances such as Muslims inability to “dine” as opposed to merely “eating.” According to the prominent Professor Emeritus of Near Eastern Studies at Princeton University and trusted adviser to Dick Cheney, such inferior beings do not possess the intellectual and aesthetic capacity to understand the genius of Western music (Lewis, 2002; Shivani, 2002).

Where is the disinterested objectivity in this geo-political and epistemological context? Is it possible that Lewis’s location in an ideologically conservative Western context has had an impact on the knowledge he produces about the Islamic world? Such misinformation and ideological distortion of knowledge hold profound consequences, as the U.S., Great Britain, and the “coalition of the willing” have subsequently learned in the horror, lunacy, and slaughter of the Iraqi War. The white-man-as-god portrayed in Western literary and film history has changed from the explorer-teacher into the FIDUROD-based knowledge producer who provides the objective insights of physical and social science, technological wonder, and ways for the non-Westerners to escape their depravity. The crude Muslim, the unenlightened African, and unrefined indigenous peoples from around the world are simply unable to generate their own enlightenment.

Obviously, my point here as it relates to knowledge and critical pedagogy is rather obvious: dominant epistemological perspectives when synergized by domineering ideological and cultural biases undermine any claim to objectivity. Subjugated groups are viewed through power-saturated filters and are judged and categorized via the categories of the ascendant. Lewis, for example, never deals with the impact of Western colonialism/neo-colonialism on the relationship between the Islamic world and the West. How can one examine such a relationship outside the boundaries of the Western control of almost all Islamic peoples in the late eighteenth, nineteenth, and first half of the twentieth centuries and the “artificial” carving out of nations that accompanied such political domination? (Coffee et al., 1996; Shivani, 1999). The answer is simple: if Western researchers want to gain any just and ethically useful insight into the relationship between the West and the Islamic world, they can’t. I look simply to Iraq, Iran, Palestine, Afghanistan, Pakistan, Lebanon, Somalia, and many other Muslim states to see the trouble with Western knowledge production.

Indeed, the outrage of the victims of objective Western knowledge production can be seen in the Islamic and many, many other parts of the world and groups of people. As norms of “proper” behavior and deportment are discerned via FIDUROD’s data bank, subjugated peoples are “normalized” and controlled. In the twenty-first century scientists of all stripes and disciplines who follow the rules become part of a larger process of neo-colonial hegemony. The objections of scholars such as myself and the victims of such normalizing of Western standards are dismissed as the protestations of special interest groups and enemies of human progress. One is objective as long as she serves the interests of dominant power. One is subjective when her work does not fit its immediate purposes. Dominant power’s irrational need to regulate and classify everything and everyone it encounters cannot be explained by objective modes of measurement. Such explanations are the province of critical hermeneutics and critical **phenomenology** with their interest in affect, pain, feeling, and many other forms of subjective experience (Harding, 1998; Kincheloe & Berry, 2004; Tobin & Kincheloe, 2006).

Yet, those with a fidelity to the epistemology of FIDUROD who often call themselves scientific skeptics—doubters of everything but the faith in objectivity on which Western science has been grounded—reject the knowledge produced by such research methodologies. Such skeptics are dubious about everything but those concepts that are validated by dominant power. When it comes to the tenets of FIDUROD they are “people of faith.” Such profession of credence and actions based on blind faith in FIDUROD will continue to produce dire consequences for the West in the coming years and decades. The world outside of the West—as well as those cultural groups, women, and poor people living within Western societies—have had enough of the arrogance emanating from such power-soaked constructs. Increasing numbers of peoples in all of these different groups believe they can discern their own paths without the dictates of the West and its objective truths about the cosmos and the people living in it. Until Western peoples understand this, 9/11 and the “insurgency” in Iraq will represent only the beginning of long term, worldwide mayhem.

Glossary

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|-------------------------|---|
| Historiography | the study of the study of history, including historical research methods, epistemological and ontological issues, and schools of historical interpretation. |
| Misogyny | the hatred of women. |
| Social Darwinism | a social theory that connects the natural selection principles of Charles Darwin’s Theory of Evolution to the social order. Such an adaptation has produced a social way of making meaning that promotes the “survival of the fittest.” Such a theoretical concept is used to justify the existence of social inequality and is grounded on a distortion of Darwin’s ideas. |

Chapter 5

Questions of Power and Knowledge

FIDUROD and the traditional Western epistemology have often operated to enhance dominant power blocs by treating specific, contextualized knowledges as if they were generalizable and universal—a key point in understanding how power and dominant epistemology operate. Thus, in education FIDUROD develops universal teaching methods. In business management (Whitley, 1995) we witness the same phenomenon, as managerial techniques are proclaimed universally valid no matter what the cultural or even economic structures may be. Those with the clout to decree what is universally valid find their power dramatically enhanced, as they are able to set up the “rules of the game” to reflect their own situations and requirements. Such a capacity is central to the purposes of this book. If I can make the universal rules as to what constitutes intelligence, I can name my cognitive predispositions as the markers of a great mind; I can use the characteristics of my culture as the criteria for what constitutes a civilized culture. Can you feel the power?

Power Blocs, Universal Definitions, and Knowledge

The term power bloc was coined by John Fiske (1993) to account for the social and political economic constructs around which power functions in contemporary Western societies. Using the phrase in the same way Antonio Gramsci, the Italian political theorist, and Stuart Hall, the British cultural studies scholar employ it, Fiske maintains that those who exercise power do not constitute a specific class or permanently defined socio-political group. Power blocs are more like a constantly changing series of both strategic and tactical partnerships. Such coalitions are positioned unsystematically any time circumstances crop up that jeopardize the “allies’” socio-political advantages. Power blocs are socially, culturally, historically, and issue(s) specific, as they arise and fragment depending on the exigencies of the moment. Such power alignments are often constructed around socio-cultural formations involving race, class, gender, ethnicity, religion, or epistemology in the struggle for access to specific rights and resources.

Fiske maintains that power “is a systematic set of operations upon people that works to ensure the maintenance of the social order...and ensure its smooth running”

(p. 11). It seems to logically follow that those individuals and groups who profit the most from the perpetuation of the extant social order ally their interests with those of the dominant power schema and work hard to keep it functioning efficiently. Fiske wraps up his argument with the idea that power blocs can be explained more precisely by focusing on what they do rather than what they are. In this matrix the notion of “the people” involves those who fall outside the power bloc and are “regulated” by it. Falling outside the power bloc does not mean that such a person possesses no power. The power such outsiders have is a weaker power—Fiske calls it a “localizing power”—than that of the power bloc. Such a localizing power can be cultivated, fortified, and often deployed successfully.

In respect to the domains of race, class, gender, sexuality, relation to colonialism, etc., individuals can concurrently fall within the borders of one power bloc and outside another. While no final delineation can explain the way an individual will relate to power blocs vis-à-vis their **positionality**, such dynamics do shape people’s relationship to power-related socio-cultural constructs. Here it is important to note the complexity of these power-driven dynamics. In many situations individuals are pushed and pulled in many directions in relation to power. An African-American man may be quite disempowered in his relation to the racial dynamic of white supremacy yet may also reap the political advantages of being a man in a patriarchal power bloc or an upper-middle-class male in an economic power bloc.

Thus, men and women move in and out of empowered and disempowered positions. In our critical pedagogical framework understanding the fragmented nature of power is a key concept; yet such fragmentation and complexity of power alignments in no way reduces our understanding of and focus on the human suffering that is caused by an individual’s existence outside a dominant power bloc. Critical complex scholars and activists appreciate that there is little ambiguity to the pain, shame, and dismay that women suffer from the battering of men acting in complicity with the patriarchal power bloc or that the poor experience as the result of the economic power bloc’s insensitive fiscal politics, or that African Americans or colonized peoples experience as the result of the white supremacist power bloc’s racism and Eurocentrism.

These hurtful examples starkly demonstrate a fundamental aspect of the way power operates: power generates inequalities in the capacity of individuals to delineate and realize their material and affective needs. Educators and other cultural workers who are unaware of this socio-political dynamic will be perpetually limited in their efforts to understand, provide for, and facilitate the empowerment of their subjugated students and clients. The dominant power bloc works to eclipse such insights; moreover, it tries to preclude any encroachment of its boundaries by localizing powers. Such infringements of the borders of dominant power blocs have become common occurrences in Western societies. Public debates over affirmative action, minimum wage legislation, access to health care, the building of a fence between the U.S. and the Mexican border, how to deal with terrorism, and the role of race in school curricula are all examples of clashes at the front door of the dominant power bloc.

The response of the dominant power bloc as expressed in the forceful pronouncements of racist elements in the society indicates a feeling of peril, a sense of threat from alien

others. The George W. Bush administration's successful deployment of fear of Islamic terrorists to gain the support of American voters is an example of the exploitation of the dominant power bloc's feeling of peril. From a colonial perspective it exposes a challenge to geo-political knowledge of Euro-American supremacy in the world. From a racial perspective it exposes white people's perception of a challenge to white supremacy. This Eurocentric whiteness with its culturally constructed standards of excellence, its "entitlement" to exploit the resources of peoples' around the world, its right to engage in preemptive wars in the name of world peace, and its one-truth epistemology that produces the knowledge needed to support the dominance of hegemonic designs is a good example of a dominant power bloc fending off challenges to its "much deserved" supremacy.

In the last half of the first decade of the twenty-first century one formation of the contemporary dominant power bloc unites numerous groups:

- Ascendant economic and political elites concerned with building good business climates to increase quarterly profit margins—free market economics, these individuals assert, will create unprecedented wealth
- White working class and middle-class groups who feel that their white privilege is under assault by undeserving non-white groups
- Christian fundamentalists who feel that groups from non-Christian backgrounds and atheists are attacking their belief systems—for example, Fox News's Bill O'Reilly's assertion that there is a "War on Christmas"—and God-given "traditional values" such as love of family; these threats are coming mainly from immoral African Americans on welfare, the gay community, and feminists
- Neo-conservative empire builders who in league with corporations such as Halliburton and Bechtel have fanned the flames of fear in their effort to garner support for the U.S. and its allies to control the world, its peoples, and its resources
- Advocates of the supremacy of Western science and a reductionistic epistemology (FIDUROD) who often produce knowledges that are above reproach and that support the needs of those power wielders who pay for them

While such a power bloc constantly aligns and realigns depending on the matter in question, some groups obviously are more predisposed to join the coalition than others. It is fascinating that among the groups that come together in the contemporary dominant power bloc both fundamentalist Christians and advocates of the supremacy of Western science. Discerning readers may object, correctly, maintaining that these groups are often in conflict with one another around educational issues such as evolution/creationism, abortion, and the role of the divine in everyday life. While such conflicts exist, it is fascinating to note the way both groups often align around the support of other issues in education (the teaching of the Western canon as "truth"), politics (neo-colonialism), cultural dynamics (unquestioned Euronorms/whiteness), and economics (the free market). This illustrates the ever-shifting nature of power blocs. In understanding knowledge and critical pedagogy, it is important to understand the ways the power bloc is supported by scientific and educational/media knowledges. It is also essential to understand the dystopian world of sorrow, unnecessary death

(often as some of its members proclaim a so-called pro-life position), and oppression this power bloc is well on its way to creating. Hello Mad Max, welcome to the Thunderdome.

Knowledge for Poggle the Lesser's Death Star

The positivist tradition has always been characterized by a darkness, a lack of respect for the life force—an embrace of critical theorist's Herbert Marcuse's (1955) notion of thanatos (death instinct) in lieu of his eros (life impulse). The workings of historical positivism and its contemporary manifestation in the epistemology of FIDUROD leave me cold. In their presence I feel like someone who just received a bad decision at the Last Judgment. A critical pedagogy that constructs knowledge and formulates action based on eros with its drive to alleviate human suffering serves as a counterpoise to the empire's positivistic thanatos. In contemporary life FIDUROD's truth is not just "validated" and thus beyond questioning, but it can also be imposed given its position in the dominant power bloc. In the recent past the scientific "proof" that African Americans were inferior to white people could be enforced by policies that subverted their right to vote, sit on a jury, go to particular schools, marry who they wanted, ad infinitum.

While such policies have been legally overturned there are still a plethora of tacit rules that are enforced in relation to the "truths" produced about African Americans and, of course, many other cultural groups. The scientific truths produced about students in contemporary schools concerning standardized test scores are enforced via accepted forms of monitoring, surveillance, and control (G. Jardine, 2005). In compliance with the rules of enforcement of these truths, students are tracked, counseled into leaving education, or pressured (with plausible deniability, as the CIA puts it) to drop out. Such educational policies grounded on a FIDUROD based form of knowledge, standardized testing, constitute a form of domestic epistemological colonialism. Copious evidence exists (Pepper, 2006) that after several years of NCLB marginalized students are being severely damaged and larger numbers of such students are entering an uneducated labor force for the service industry.

This process is labeled internal colonialism because it constitutes a domestic reflection of Western world imperialism where the U.S. and other Western nations have controlled and control many aspects of the world in order to enhance the profits of the richest individuals in the U.S., Canada, Great Britain, Germany, etc. It is a continuation of the West's historic search for cheap labor and natural resources no matter what the human costs—a manifestation of the Western thanocentric impulse. As it has exploited marginalized students, NCLB has channeled public monies to corporate educational enterprises, private tutoring businesses, and school vouchers. A good example of this transference of public school funds to the private corporate sector involves the public subsidies provided directly to Sylvan Learning Centers—a company whose profits have accordingly jumped by tens of millions of

dollars since the passage of NCLB. Concurrently, since the launching of NCLB in 2001, even the sales of printed materials used to support standardized tests have tripled. Such funds are directly removed from public school funding, for no new monies have been diverted to such expenditures (Pepper, 2006).

Once again the politics of knowledge combined with the epistemology of FIDUROD work together to shape the socio-political dynamics of education and economics for the benefit of the empire. The observations of those individuals who are the closest to students and their lives—teachers—in this politico-epistemological world are irrelevant. If such accounts were respected, teachers would gain too much power and could not be as efficiently controlled. Indeed, they might develop their own curricula with knowledges that didn't necessarily serve the best interests of the corporate kingpins. Education that serves thanatos must be an act of regulation and control. The mind must be regulated, not expanded; curiosity must be crushed not enhanced. In a regulated, colonized, thanocentric society individuals need to be in their proper place, at the expected time, doing what they have been told to do.

As many school principals I have watched operate put it in the standardized educational systems of our era: "When I come into your classroom tomorrow, Ms. Reeves, I expect you to be on the page of the textbook you've designated here in your lesson plans." Obviously, teachers in this frightening pedagogical cosmos are nothing more than deprofessionalized rule followers. The knowledge they are mandated to inculcate into the brains of their students is inert lifeless data—information that serves only to perpetuate the regulatory process. The administrative "guardians" in this system see teachers with intellect and initiative as threats. They are told time and again that "they just aren't team players"—"Mr. Brewer, you just don't fit well here at Cedar Grove Elementary School." The purpose of such schools is obvious: to produce knowledges and engage in pedagogies that tame the mind, that subvert the impulse to question that which seems inconsistent with the larger social goals espoused by allegedly democratic societies. The politico-epistemological Death Star has focused its giant laser beam on the destruction of schooling that cultivates the intellect and educates for democratic citizenship.

The idea that contemporary schools might produce individuals excited about learning who produce unprecedented knowledges and pursue an eros that treasures higher levels of insight is an absurd notion in the curriculum of thanatos. In the paint-by-numbers pedagogy that dominates the standardized one-size-fits-all irrationality of contemporary schools, all teachers and students no matter who they are or where they come from teach/learn the same knowledges in the same way. In the name of accountability and excellence, standardized tests are peddled as the only way to determine if quality education is actually being achieved. It is not coincidental that curricula driven by such tests contain standardized knowledges that, unsurprisingly, feature no information that would engender questions about the sanctity and legitimacy of the dominant power bloc. Again, not unexpectedly, the corporate community in the U.S. has worked tirelessly to make sure that standardized tests shape the curriculum (Metcalf, 2002; G. Jardine, 2005; Thomas & Kincheloe, 2006).

In the *Star Wars* movies Poggle the Lesser developed the Death Star to destroy planets with a single shot of a super laser beam. Bush the Lesser has developed a

educational weapon that like the Death Star attempts to destroy educational systems *and* the young minds of the present generation. Such a thanocentric madness cannot be allowed to win the day. Critical pedagogy challenges all of us to fight in its Rebel Alliance to terminate the pedagogical/epistemological planet killer. This corporate-supported brain gobbler cannot be allowed to render us, as Allen Ginsberg (1956) put it so nakedly in *Howl*: “bleak of brain [and] drained of brilliance” (p. 10). As psychically excruciating as a hot copper facial peel, the lobotomizing drumbeat of standardized schooling with its pyrite knowledge fools many into believing that it is worthy of respect. Indeed, such knowledge constitutes little more than the detritus of the empire, the space junk of hyperreality—but it does its job.

Knowledge for the Empire

In twenty-first century hyperreality the U.S. Empire is a strange animal. It is an epistemological as well as a political economic phenomenon. It claims that it and it alone is the sole producer of real truth while concurrently using its universal truths to further its colonial interests. Such epistemological violence is highly efficient as it intimidates the imperial subjects into doing the empire’s bidding. It is the next step in the evolution of the mob—Tony Soprano, Paulie Walnuts, and Silvio Dante on epistemological cocaine collecting protection money not just in New Jersey but also around the world. In the twenty-first century American empire, a seventeenth century epistemology, free market economics, white man’s burden, and Christosupremacy run head on into a globalized multicultural cosmos populated with individuals who in varying degrees are imbued with a growing anger about the empire’s long-standing abusive conduct and its inequitable distribution of planetary assets. Such individuals from around the world are getting increasingly irritated with the concept of “civilization” being equated only with the West and the U.S.

Non-Western colonized peoples chafe under the Euroamerican assumption that Westerners have been entitled by their superiority to classify, rank, and know them under the banner of salvation. For example, George W. Bush argued that America invaded Iraq not to conquer or occupy the country but to grant its people freedom and progress, to make the nation a model for democracy in the Islamic World. The foundation for civilization began not in Africa or Babylon or India or China but in ancient Greece, and the West—as the imperial story goes—has been moving unilinearly toward and successfully achieving civilization ever since. Intellectual, aesthetic, political, social, and ethical accomplishments that originated outside the West are often seen as too different from “authentic cultural achievement” to be seriously considered legitimate contributions to human development. Despite the anger, the pain, and the degradation that has come from this epistemological colonialism, it has achieved renewed allegiance from many Westerners, especially Americans, in the twenty-first century empire (Sardar, 1999; Mignolo, 2001, 2005; D. Smith, 2003). Thanatos is alive and well, as it were, in the contemporary era.

A false impression of the West's "franchise on cultural success" has been adeptly constructed over the past few centuries. Here is another instance with the political economy of empire, the control of global knowledge production, and the epistemology of FIDUROD come together to produce new modes of social regulation and neo-colonial discipline. FIDUROD's ability to produce an imperial epistemological and rationalistic matrix that other cultures could refuse to accept only at great risk, has provided the Western empire with a hidden and often seamless method of colonial control. We're not oppressing you, imperial agents assured their subjects: we're saving you from your irrationality and uncivilized behavior. In this imperial epistemological context Western universal ways of seeing the world that claimed transcultural and transhistorical status replaced indigenous knowledges grounded on a people's specific experience with local circumstances.

These local "folk knowledges" despite the unique insights they provided into domains Western scientists knew little about were consistently devalued and dismissed until the late twentieth century when Westerners understood there was gold in the "primitive information" of the colonized. Although there is evidence that European explorers had always stolen indigenous knowledges, in this late twentieth century context many corporations sent their scientists back to colonized areas to study and appropriate newly recognized marketable knowledges possessed by the indigene. New scientific insights developed during this period indicated to the Western scientists and entrepreneurs that indigenous pharmacological and even mathematical knowledges were even more valuable than originally assumed (Harding, 1998). Even though they saw the usefulness of indigenous knowledges, many Western corporate scientists viewed such value only in an economically exploitive manner.

Respect for indigenous people's sciences and ways of seeing were still devalued, even as their fiscal potential was ardently recognized. Indigenous knowledges concerning, for example, crop cultivation, fabricating a fishnet, harvesting seeds, the uses of particular plants for industrial production, medicine, cosmetics, food preparation and storage, ad infinitum were promiscuously stolen without regard for ownership or compensation. Over the past 3 decades, thousands of efforts to protect indigenous peoples and their knowledge from Western corporate exploitation have emerged. Battles over indigenous knowledge rights have become an increasingly important issue in international trade and global politics (Harding, 1998; Chambers & Kambu, 2004).

Imperial Knowledge: The Raw and the Cooked, the Enlightened and the Irrational

Even many of the great anthropologists of the Western scholarly pantheon still viewed indigenous and other colonized peoples through the condescending Eurocentric gaze. Claude Levi-Strauss (1955/1973), for example, in his beautifully written *Tristes Tropiques* was intrigued by the body tattoos of the Caduveos people

of Brazil. He interpreted the intricate geometric body adornments as devoid of reason since the tribe had no sophisticated social institutions. Because of the Caduveos's primitive superstitions, the celebrated French anthropologist concluded that the tattoos were gratuitously complex without deeper meaning or symbolic value. It never occurred to him that the significance of such body decoration might be a form of sacred knowledge that the tribe decided to withhold from outsiders.

Research such as this has played the profoundly important imperial function of representing and circulating the image of the childlike colonized other who needs the colonial civilizing influences of the benevolent and well-intentioned West. How can the Caduveos take care of their own affairs when they are blighted with archaic and foolish belief structures? They need the assistance of the West; and if the colonial powers profit from the appropriation of their resources and knowledges in the process, that's a small reward for the civilizing blessings they bestow. How can a virtuous people, the colonizers have asked, not provide the primitives with the only epistemology that can provide a true view of the world, that can wash away their superstitions. To hold back such superior perspectives in this context would be an act of inestimable cruelty. The white man's burden is here to stay, albeit in new and improved packaging.

Even in the domain of politics knowledges from non-Western cultures were simultaneously looked down on and exploited. Seeing Islamic world as a unified whole, many Western scholars have scoffed at the insights into the meaning of human rights produced within diverse Islamic cultures. The fact that there are numerous examples of Muslims, Christians, and Jews living together relatively peacefully under Islamic rule before the Western Crusades or colonial intervention should be a central domain of study in global political history. In addition, the Ho Dee Noe Sho Nee people—the so-called Six Nations who were tagged by the French as the Iroquois Confederation—exist today as the oldest extant participatory democracy on the planet. These peoples living in the northeastern part of North America about eight centuries ago produced political institutions grounded on the assent of those being governed. As Benjamin Franklin and Thomas Jefferson, in particular, worked on what would become the basis of the U.S. government, they “borrowed” heavily from the Ho Dee Noe Sho Nee (Johansen, 1982; Lueg, 1995; Hussein, 2001).

Over and over again Westerners have asked why the “natives” or whoever was being colonized were not grateful for the favor. In the Shah's regime in Iran after the CIA-directed overthrow of the democratically elected Mossadegh government in 1953 (see Kincheloe, 2004a for a detailed description of this event), U.S. efforts to “modernize” the country were opposed by numerous Iranians. American commentators were highly offended by such a “primitive” opposition. The tone of many of such reactions was exasperation, as Americans spoke of their benevolent effort to bring Iran and Islam out of their archaic state. The Iranians, many Americans argued during the hostage crisis of 1979–1981, don't have the same types of human feelings that “we” do.

Journalists, both print and video, maintained that Iranians simply didn't understand the value of Western modernity. They just didn't appreciate the rational and

scientific superiority of the West. As many argue, they possess a “bazaar mentality” that limits their ability to examine the long-term consequences of their actions. Like children, many Western analysts contend, they can only think in terms of short-term satisfaction or gain. Indeed, this tendency may give rise to their fanaticism, a tendency for extremism that is essential to their culture. “They” are unlike “us,” because in the Western self-image no propensity for fanaticism is seen at its foundation. In this self-image the “war on terror” is at its core a struggle of Western enlightenment versus Islamic irrationality (Said, 1981; Hippler & Lueg, 1995; Kincheloe & Steinberg, 2004). FIDUROD is on the march—and it is vigilant.

In the context of the West’s colonization of the Islamic World, contemporary American scholars and policy makers have rarely contemplated the impact of colonialism on Muslim societies. In the textbooks and the dominant media’s analysis of everyday events in the interaction of Western and Islamic states the concept that most Islamic countries were only recently Western colonies is erased from historical memory. In numerous ways such knowledge changes the way we might look at West/U.S. and Islamic relations over the last century and, of course, during the present war on terror. Western colonialism had a dislocating impact on Islamic societies. Muslims under Western colonial rule had never experienced such condescension and exploitation. In this context they found it unseemly to emulate the oppressors, while concurrently sensing profound discomfort with modern Western values such as the separation of religion and politics.

Muslims were uncomfortable with the Western replacement of religious faith with nationalism. To Islamic observers such nationalism was complicit in the two world wars in the first half of the twentieth century, the Holocaust of the Third Reich, and the Gulags of the Soviet state. In this light Islamic observers were suspicious of Western claims that the more scientific and rational the peoples of the world became, the more peaceful and charitable they would be. When Western parliamentary systems were imposed on Islamic countries, many citizens saw this as little more than an imposition of an alien system that operated to undermine their worldviews and core values. As numerous groups in diverse nations raised objections to the mandated parliamentary systems, the West interpreted the opposition not as a matter of cultural self-assertion but a manifestation of Islamic irrationality. As many Western scholars maintained, the rejection of European democratic institutions illustrated Muslim inferiority. They are not a rational people, the story goes, for they find it difficult to comprehend the basic precepts of cause and effect (Said, 1979, 1981; Armstrong, 2002).

This Western view of Islamic irrationality is seen also in Western constructions of Africans, many Asians, and indigenous peoples in North America and around the world. All individuals who reject modernity and traditional Western epistemology, are in immanent danger of slipping into fanaticism and illogicality. Such a perspective helps to explain the fervent response to critics of FIDUROD who search for more rigorous and multidimensional modes of research and reason. Those of us who promote a critical complex epistemology fit into such a category—we are the scalawags living in the West who, in the opinion of the defenders of the faith, want to destroy all the accomplishments of Western civilization. Again, the contemporary

war on terror becomes more understandable in this epistemological context. Terror is a manifestation of non-Western irrationality, thus anything that critiques the West's ownership of the concept of rationality represents far more than a mere academic judgment. From the "fundamentalist" Western perspective, such views can help bring down the walls of Jericho upon us. Western reason and epistemology are the only things that separate "us" from the "psycho-Semites," as Eric Bronner (1993) put it in *The New Republic* after the First Gulf War.

This brings us back to Middle East scholar and Iraqi invasion promoter, Bernard Lewis (2002) and his degradation of the Islamic mind. The neo-**Orientalism** of Lewis and the writers of numerous world history textbooks with sections on the modern Islamic world punctuated by pictures of Bedouins on camels (MESA, 1994) illustrates the consistency of the Western view of the inferiority of Islamic thought from the seventeenth to the early twenty-first century. This view of Arab Muslims as roaming, camel-riding, nomadic peoples merges conveniently with the Zionist slogan of "a land without people for a people without land" (Progler, 2005) and the garnering of Anglo-American support for an Israeli state in the late 1940s. The dominant power bloc creates and uses knowledge in ways that serve its interests. When such a process takes place under the flag of FIDUROD's objectivity, it presents a profoundly difficult adversary to disarm. How can we see the treatment of the Palestinians, for example, as problematic after years of "objective portraits" and images of "landless" Bedouins roaming through our unconsciousness? Love and marriage, horse and carriage, power and knowledge. Hegemony at work—our consent to mainstream U.S. foreign policy objectives has just been won.

Constructing Knowledge for Eternal War in a Globalized World

In the star spangled shock (and awe) of the empire's eternal war on epistemological and other forms of terror, we move into a new historical era. The new *Zeitgeist* is marked by a growing crisis of Western epistemological legitimacy. Such a predicament is profoundly disturbing for the contemporary Western power bloc, as the crisis is emerging right at the time the expanding empire needs peoples around the world to accept the validity and universality of its knowledge. Mainstream Western historiography posits that before the emergence of Western modernity, people in the "undeveloped" world drifted along in an unchanging juvenile state. Like the headhunters and the wild men of Borneo who delayed the efforts of Western explorers to bring civilization to the most remote corners of the world, childlike "natives" in diverse venues have not understood the benefits of Western science and technology. Threats to the West's "innocent" assertion of neo-colonial hegemony are simply not examined from the perspective of the colonized.

The implications of the grotesque imbalance of control of national resources and the inequitable distribution of global wealth in favor of the U.S. and the West seems to have little relevance for the champions of empire. The inevitable conflicts that

will emerge as a result of these disparities and the ecological tragedies that accompany them are not yet a part of the consciousness of the dominant power bloc. The achievement of such a critical consciousness has been blocked by Eurocentric modes of knowledge production that views non-Western “natives” as part of nature, living outside of *human* history. As with the Western view of Palestine and the Palestinians, the lands these individuals occupy are empty wildernesses in need of political economic development that only the West can provide. Thus, the superiority of the West—in the language of critical theory—is reified, made to appear natural as if no other way of seeing the situation exists (Said, 1981; Harding, 1998; Koechler, 2002; D. Smith, 2003).

In Chester Finn’s collection of essays for teachers published in the Thomas B. Fordham Foundation’s (2002) *September 11: What Our Children Need to Know* one sees the empire’s pedagogical expression of Western/U.S. supremacy. One of the contributors to the collection, John Agresto (2002), makes sure everyone understands the basis of the contemporary imperial curriculum.

If your students wish to draw conclusions about the stark diversity of outlooks given us by September 11th—that there is something to the distinction between civilization and barbarism, for example, or between decency and evil—do no stand in their way. *Teach America*. It’s not very helpful to understand other cultures and outlooks and not understand our own country and what it has tried to achieve. What is it that has brought tens of millions of immigrants to American, not to bomb it, but to better its future and their own? What is it about the promise of liberty and equal treatment of labor that benefits both you and your neighbor, of an open field for your enterprise, ambition, determination and pluck? Try not to look at America through the lens of your own ideology or political preferences but see it as it truly is. Try, perhaps, to see the America most Americans see. That can be a fine antidote to smugness and academic self-righteousness.

Agresto might want to audition for the role of poster boy for our Eurocentric FIDUROD. According to him, when we look at America objectively what we witness is the innocent, virtuous, well-intentioned nation that most Americans already see. Teachers, he asks, don’t confuse the facts with the perspectives of non-Americans or the colonized or even those miscreants in academia who smugly and self-righteously study the viewpoints of diverse peoples around the world. This is not what the children of the empire need to hear. The goal of the Fordham Foundation has little to do with providing a compelling interpretation of the reasons for 9/11 or the contemporary geo-political scene. The objective is simple: get young people in the U.S. ready for an era of eternal war against an irrational and evil enemy. No choice exists; you are either with the Fordham authors or against them. The “U.S. is the best” ambiance of Agresto’s and the authors’ pieces is chilling in the dark shadow of the Aryan proclamations of superiority of the Third Reich. I well understand the danger of making comparisons of contemporary perspectives and actions to Nazi Germany—but in this case the frightening similarities outweigh the risks.

When knowledge as ethnocentric and perverted as this moves into the political and educational mainstream, the purpose of *Knowledge and Critical Pedagogy* becomes crystal clear. Ethical citizenship demands that such knowledge and the arrogant and colonialistic ideology that supports it must be challenged. Left unchallenged—as it is

in school districts around the U.S., Canada, and other Western nations—it will help shape the consciousness of a militaristic and dehumanized empire. Left to its own devices a militaristic, economically exploitative, epistemologically arrogant empire will create conditions that lead to unprecedented human suffering. To promote the imperial agenda, Agresto's and the Fordham Foundation's curriculum is grounded on the belief that the modern world is just too much for many non-Westerners. In their frustration they are lashing out at America and the West—a corollary to the “they hate our freedom” school of explanations of why some people around the world hold a negative view of the U.S. Outside of the West few contributions to mankind's progress have been made. Without Western science and its epistemological foundations most of the world's cultures have sponsored ignorance and suffocated intellectual development. Such ignorance has spawned a zealotry that must be confronted and destroyed in preemptive wars. We have no choice but to kill the heathens, the imperial knowledge producers inform us.

Colonizing and Decolonizing the Mind: Corporate Media at Work

As FIDUROD and imperial aims intersect, we begin to understand the key role education plays in neo-colonialism. And while schools are important, the key educational agency in the colonialism of hyperreality is the media. Many students of dominant corporate media maintain that the general public has an inadequate understanding of the media's function in providing education for the empire. The media's role in this imperial process is complex and ambiguous, as knowledge produced and transmitted in this context is not simply imposed on passive observers. Even though the dominant imperial power bloc may transmit specific meanings or modes of viewing the world, viewers may receive such perspectives in diverse and even resistant ways. To begin with, the knowledges of corporate media are not one-dimensional and, in addition, the effort to produce identities, ideological perspectives, and values is never accomplished in some final manner. Nevertheless, media pedagogy is still sufficiently powerful in its effects that corporate agents of empire spend billions of dollars in the effort to produce consumers who don't question corporate practices and the governmental imperial policies that support them.

The use of the term, indoctrination, does not convey the complexity of media pedagogy. Such an education involves less a one-way transfer of knowledge from producer to consumer and more a negotiation between audiences and media corporations. The importance of this process of give and take always involves what a media audience brings to the “conference table.” How well do they understand the socio-cultural context in which the media operates? Are they aware of the political economic dynamics involved in the pedagogical process? To what degree are they media literate? (Aronowitz, 1993; Macedo & Steinberg, 2007). In such a complex context contemporary scholars of critical pedagogy and cultural studies analyze diverse dimensions of contemporary electronic media culture. I have examined the

imperial educational role of McDonalds as a producer of knowledge that wins peoples' consent to the power bloc's dominant ideologies (Kincheloe, 2002). Shirley Steinberg (2004) has explored the patriarchal dimensions of Mattle's Barbie and contemporary media depictions of Muslims (Steinberg, 2007).

In this same context, Henry Giroux (2004) has studied the way Disney movies portray themselves as safe and harmless texts that present no need for any form of cultural or ideological analysis. Critical pedagogy and cultural studies scholars such as Giroux, Macedo, Steinberg, Joao Paraskeva, Kathleen Berry, Doug Kellner, Rhonda Hammer, Ozlem Sensoy, Peter McLaren, Pepi Leistyna, and many others expose the imperial educational dimensions of movies, popular music, TV, video games, and many other media forms, in the process linking them to the dynamics of colonial consciousness production, identity construction, ideological perspectives, and social justice. Such media productions both reflect and shape U.S. and world politics, the goals of empire, and global social, economic, and cultural policies. What is amazing in contemporary Western education—again, in the U.S. in particular—is that in spite of such compelling ideological influence, most educational leaders oppose proposals for media literacy. Of course, such literacy does not serve the interests of the dominant power bloc as it exposes the ways that power is deployed in contemporary societies.

The knowledges and perspectives of corporate produced popular culture are not simply products but are concepts about political structures and the beliefs and values that circulate around them. Such notions form the ideological core of the hegemonic ideology of the twenty-first century U.S. and Western empire in hyperreality, as they insidiously contribute to the ways people around the world make sense of their race, class, gender, sexual, and colonial roles. Here, media supply roadmaps of socio-cultural meaning of the cultural dynamics that exist in the everyday life of the empire (Lull, 1995; Orłowski, 2006; Leistyna & Alper, 2007). In this context critical scholars of knowledge production and hegemony analyze the nuanced interrelationship connecting pedagogy, media culture, meaning making, identity, and the production of ideological consciousness. Via its production of pleasure and affective infotainment, the media shapes people's relationship to power by way of its ability to elicit emotional investment. This means that the way individuals in hyperreality look at the world can be shaped unconsciously as they "consume" corporate media productions.

Such insights place a new spin on our understanding of the nature of knowledge production and hegemony. Never before have dominant power wielders had such a capability to shape who we are in ways that serve their own best interests. Thus, a central project of critical pedagogy and a critical complex epistemology becomes a form of ideological decolonization of the mind. This doesn't mean that we just simply substitute Western critical theory for dominant Western hegemonic knowledges with their oppressive hierarchies and self-interested ideologies. In the multilogical mode of criticality promoted here, ideological decolonization demands that Western critical theory and critical pedagogy enter into a respectful and egalitarian dialogue with individuals from around the world. In such a context Western criticalists listen carefully to what their brothers and sisters from Africa, Latin America,

Asia, and indigenous cultures have to say. They learn from the insights such individuals bring to the discussion and rethink criticality in the process of these conversations. Critical theory has much to offer the people of the world—but *only in dialogical relation to the unique insights such individuals bring to the transformative discourse*. Obviously, this dialogical, evolving notion of criticality—as previously referenced in Chapter 2—is central to every point made in this book.

With this multilogical dynamic in mind, critical educators carefully study the ideological forces that are created in contemporary corporate media's amalgamation of entertainment and knowledge. Such a synthesis is central to the globalization process and the restructuring of capitalism that accompanies it. Here the political economic dimensions of neo-colonialism and the production of knowledge merge in the effort to legitimate the free market and its unsavory activities in nations all around the world. This deployment of infotainment to hegemonize consciousness and legitimate corporate/colonial greed is tragic, especially when one considers the power of infotainment to achieve transformative educational goals. Nevertheless, in the new American empire the production and dissemination of knowledge play a more important socio-political role than ever before.

This Just in: Capital Holds Knowledge Captive

As capital employs technology to redesign itself so that it can better penetrate every aspect of contemporary life, it exacerbates the power of dominant power. With this thought we again brush up against one of the most important themes of this book: an evolving critical theory/critical pedagogy vis-à-vis a critical complex epistemology must organize an effective resistance to such a concentrated and thanocentric power. Obviously, it would be wonderful if education could play this role—but it is being held captive by the empire's logic of capital. In such a state of seizure it serves as a form of labor control in its corporate-directed job training (see Kincheloe, 1995, 1999 for an expansion of this theme) and a disseminator of knowledge that serves the ideological needs of concentrated capital. In such a knowledge-related role, schools reorganized by standardization policies teach that Western science is infallible, the West/America is superior to all other cultures, and the curriculum is something to respect and commit to memory not a socially constructed entity that must always be challenged and reconstructed (Kellner, 1997; Mignolo, 2001; Kincheloe & Steinberg, 2007).

Obviously, the other institution that plays a key hegemonic knowledge is the corporately owned media. Over the past 35 years the media has become more and more a mechanism to promote corporate interests in Western societies. It is fascinating to study the ways that over the last 3 decades of the twentieth century and the first decade of the twenty-first century, media have grown more and more sophisticated in their ability to manage data in way that the prevailing power bloc is viewed in a more flattering light. Such representations are subtly constructed, many times engaging viewers or listeners in a subconscious process of logical and

affective mobilization. Playing to affective dispositions, “news” commentators such as Bill O’Reilly, Glen Beck, Rush Limbaugh, Michael Savage, to name just a few shape emotional responses to the political, racial, religious, sexual, gender, colonial, and class issues of the day. As media ownership becomes concentrated in fewer and fewer corporate hands, the marginalization of voices opposing the construction of a globalized political economic, military, and epistemological empire becomes an easy task.

With all the cable stations that exist in North America, it is fascinating to watch during an intense period of death and destruction in the war in Iraq what is being covered by America’s corporate media. Last evening at 9:00—prime time in TV land—I wanted to see how the corporate media were covering the day’s bloody events in Iraq and the actions of the U.S. Congress concerning the funding of the war. In addition to their imperial, corporate spin of current events, the nature of the topics covered is absolutely fascinating. On CNN “Larry King Show,” Larry was interviewing comedian Don Rickels; on CNN Headline News Glen Beck was speaking to a number of guests about various movie stars and their new Hollywood movies—the emphasis of the celebrity status of the stars; on MSNBC a guest host on the “Joe Scarborough Show” was also talking about the same celebrity status issues focusing on the “inappropriate behavior” of Rosie O’Donnell on “The View”—the political issues she had raised on the program were quickly dismissed as “irrational”; and on Fox News Sean Hannity and Alan Combs were interviewing conservative shock maven Ann Coulter about her disdain for the Democratic Party’s candidates—the focus was more on gossip dimensions of the candidates’ personas than on their political positions.

I switched from channel to channel for an hour and never heard one piece of news about the military and political events of the day. There, of course, were hegemonic dimensions to the conversations being aired, in the discussion celebrity concerns that went beyond the diversion of attention from the “hard” news of world/national events. The vilification of Rosie O’Donnell’s questions about the legitimacy of U.S. involvement in Iraq, for example, was justified on the basis of her being an uninformed crackpot. Several of the interviewers and their guests made authoritative assertions about the impropriety of Hollywood celebrities making anti-war comments. When I finally did observe a story on the events in Iraq and the Congress on “AC 360” at 10:00 host Anderson Cooper covered them in a most superficial manner. Just a typical evening on the American newscape. The coverage of the news from Iraq and Afghanistan, even years after the 9/11 attacks is still imbued with a fear of everything Islam and the need for the perpetual war on terror. There was no doubt that the dominant power bloc’s established ideological orthodoxy drove such coverage—every reasonable person should buy into the assumptions guiding the way the news is presented. If you don’t you are operating outside the mainstream of acceptable thinking and don’t deserve a place at the discursive table.

When scholars/analysts with a critical perspective are “allowed” on a news program, they are treated with such hostility that they find it difficult to articulate their position. In media interviews I have been asked to participate I have found that I am given about 5 seconds to respond to a question before I’m cut of

by the host. Usually, his (most of my interviews have been hosted by men) response is an uninformed rant about the unreasonable nature of my critical position. My critique of corporate-run knowledge production is met with a charge of “you’re a screwball conspiracy theorist, aren’t you Mr. Professor?” The hegemony flows like a whitewater river in these contexts. This is profoundly important to the shaping of public knowledge, consciousness, ideological orientation, and policy making when many scholars make the claim that the media have become the principal socializing authority in contemporary society (Orlowski, 2006; Valenzuela, 2006).

It is hard to find media perspectives on the war in Iraq, for example, that even raise issues concerning the preemptive invasion as a manifestation of America’s geo-political empire building, the invasion as a form of neo-colonial occupation, the torture, killing, and degradation of the Iraqi people, or the American discounting of international law in the prosecution of the war. The use of fear by politicians such as Dick Cheney and George W. Bush has worked as one of history’s most effective hegemonic devices, as millions of citizens have been mesmerized into supporting the mandates of authoritarian government. Indeed, the politics of knowledge production and transmission has helped create pockets of ignorance, indifference, xenophobia, and compliance to the call to support the government efforts to rid the world of the Muslim evildoers—portrayed so wickedly and in the interests of the needs of the empire in, for example, the movie *300*.

Even with the turbo-charged power of the dominant power bloc’s twenty-first century information machine, these efforts to colonize the consciousness of North Americans and other peoples around the world are never completely successful. The Internet, for example, even with all its limitations has served to provide alternative insights and interpretations of the political scene that oppresses millions around the world. News about corporate/governmental activities that in the Cold War was eclipsed from public scrutiny is now reported by individuals operating around the world with access to computers. The knowledge/ideology-related implications of such a presence is having an impact. Only the future will inform us of how powerful a force for the production of anti-hegemonic knowledge the web will become.

Can Internet knowledge producers successfully counter the empire’s corporate, academic, and governmental agencies of disinformation? Can it alert individuals in North America and around the world to the neo-colonial violence of contemporary American geo-political and transnational economic policies? The way that colonial power is imposed on the “developing” nations of the world and oppressed peoples within colonial borders is often an invisible process that makes use of both an epistemology of instrumental rationality and the political economy of knowledge production and dissemination. Anti-hegemonic efforts on the Internet and other venues must be aware of the complexity of way the empire oppresses. If agents of decolonization of consciousness are unable to get these concepts across to large groups of people, we face a dystopian future characterized by the perpetual war on terror (a.k.a. war of empire), exacerbated marginalization, and more people falling into poverty (Mignolo, 2001, 2005; Breen, 2007).

The Modern and the Rational: I Put a Spell On You

The capture of the university by the corporate-driven forces of the empire certainly undermines our anti-hegemonic knowledge work. Cloaked under the flag of rationality, many universities and academic departments are consumed with the courting of particular market forces and perpetuating the flight to ever more narrow specialties of knowledge production. Such limited subject domains speak only to a small cadre of individuals in the discourse community of the restricted field of study. These knowledge producers pose no threat to the colonial status quo. The corporate agents of power for the empire are in many ways like the sorcerers from an earlier historical era. Because of the power and dissemination capacity of their knowledge work, they have cast a demonic spell on those peoples they can reach with their epistemological/ideological tentacles.

Under this imperial spell individuals and social organizations focus their energies on an egomaniacal obsession with profits and status. They lose their interest in human connections, loving relationships, and a desire to understand the cosmos around them. The imperial market has hired a cadre of voluptuous sirens who whisper to us in our dreams, who take scholars, even critical pedagogues, and corrupt them with careerist motivations and visions of high status in the academy. Using their carefully crafted appeal to human desire, they induce us to peddle their occult, faith based, but official knowledges without even our conscious mind knowing what we're doing. They destroy our sense of humane purpose, substituting a way of thinking and being that leads to an extreme makeover of the planet: an earth devoid of plant and animal life that works to imitate the chic look of the planet Mercury. Using the devil's radio (and TV) they bestow an austere future with a dash of panache, and as critical theorist Walter Benjamin maintained, they commodify the demise of the human race. Turn up that hydrogen jukebox, baby, and together we'll listen to the crack of doom.

All of this prostituted information is produced in the name of the modern and the rational. Who can argue with such signifiers? Who can question the political economic and epistemological dimensions of the process? Critical pedagogy and a critical complex epistemology provide us with a meta-perspective that insists we ask what exactly it is we're doing when we do research. Because we understand this so-called modern and rational dimension of contemporary colonialism, we are equipped to discern the ways that knowledge and consciousness itself are socially constructed. The critical mandate in this context involves appreciating the multiple contexts and the discursive practices that help produce the construction. Such a rigorous counter-hegemonic process rests at the heart of critical theory and critical pedagogy.

The fact that so much of the work of the social, psychological, and educational sciences refuses to let go of a century old conception of positivism is in many ways a mystery. It is particularly ironic that it is physics, the domain in which positivistic ways of seeing emerged a long time ago, which has moved to more complex epistemological frameworks. After a century marked by the theories of relativity,

quantum mechanics, Heisenberg's principle of uncertainty, and the understanding that the observer cannot be removed from the observed, many physicists did not find it hard to relinquish a traditional epistemology. Indeed, unlike many in the social, psychological, and educational sciences, many physicists now understand that what we know about the physical world is far more inexact than physicists believed a century ago.

Many contemporary physicists understand the basic critical complex epistemological notion that scientific knowledge is inevitably shaped by the researcher and the events surrounding his or her inquiry. The knowledge they produce is influenced by the dominant perspectives of the community of inquirers with which the scientists are associated. This epistemological notion is feared and suppressed by knowledge producers working in the service of the empire. They want the knowledge they produce to be thought of as authoritative, as certain, as "the final truth." The more their knowledge is beyond questioning, the more secure their power to arrange the world in the way that best serves their interests. Indeed, the defenders of the empire, the inequitable status quo marked by human suffering equate questioning the certainty of objective science—of FIDUROD—as the moral equivalent of being a Holocaust denier (Kimball, 1996). Such overstatement speaks to a socio-political and epistemological pathology that serves to regulate more than edify. In an era where subjugated racial, ethnic, gender, class, sexual, religious and colonial anger continues to boil such totalitarian positions work to keep the dominant power bloc safe by perpetuating ignorance in the name of certainty (Fischer, 1998; Barros, 2004, Gresson, 2004).

Our critical charge then is to decolonize knowledge and the epistemology that supports it, to open up the community of science to diverse voices from differing paradigms, disciplines, and cultural backgrounds. It matters that Western and U.S. research interest in non-Western cultures has been dominated by commercial, colonial, and military (geo-political) factors. Knowledge produced in such circumstances will take on an entirely different character than data produced in different situations. It is not surprising in this context that non-European subjects of Western scientific research have looked at the so-called scholarly curiosity of Western *men* of science with trepidation. Not only have their research processes and the knowledges they produce served to exploit local resources, but also the Western actions unleashed by such scholarly activities have operated to destroy non-Western ways of life.

In this modern and rational context FIDUROD based scientists have simply ignored the anomalous experiences of non-Western society. In this context, again we see the influence of the knower's experiences and predispositions on what she knows or produces as factual knowledge. If a Western researcher has not had the experience of the non-Western research subject and the experience is especially different from Western perceptions of reality, then it has often simply been ignored. A good example of this epistemological tendency can be observed in Western studies of non-Western medical practices. For decades such medical practices were ignored; now, in the twenty-first century when such practices are being studied, too many of the studies ignore the all-important socio-cultural context in which such

procedures interactively operate and focus only on the material substances an indigenous doctor might employ (Said, 1981; Cocks & Dodd, 2007).

Unless there are materially useful knowledges to be gained that serve commercial, colonial, and military (geo-political) interests of the empire, then research in non-Western contexts is viewed by many Western scientific communities as a waste of time. The way the West is now is still viewed in FIDUROD as the “natural” way a culture should be after it has evolved by effectively using the scientific method. The very idea that other cultures have much to teach the West about a variety of topics, not the least of which is diverse and better ways to be human, is viewed as an attack on the West—a manifestation of irrationality. Little could be more damaging to the growth and evolution of a culture than such beliefs. If we are at the zenith of evolution, then the need for creative thinking about the future is rather moot.

The notion that our present ontological state is our permanent human condition has induced many Western social, cultural, political, religious, philosophical, psychological, and educational thinkers to surrender to the status quo. This realization in light of the vicious political economic and military dimensions of neo-colonialism moves us back to another central theme of *Knowledge and Critical Pedagogy: An Introduction*: an evolving critical pedagogy and a critical complex epistemology assert that both the physical and social universes are too multifaceted for us to arrogantly believe we have all the answers, that we have become all is humanly possible. Humans in every period of Western history after the scientific revolution have believed that they know the universe in some type of final way. Those phenomena that significantly differ from the dominant power bloc’s current “final truth” about the world are simply not recognized as existing. Intellectual and socio-political evolution demands that we overcome such obstructionist dogmas (Griffin, 1997; Kincheloe, 2003b).

Glossary

- Orientalism** traditionally used to denote scholarly knowledge of Asian cultures, languages, and peoples. After Edward Said’s (1979) publication of *Orientalism*, the term has taken on a more specific meaning involving a Western colonial condescending yet exoticized view of Asian peoples and cultures.
- Positionality** the place one finds themselves in the social web of reality. Positionality can concern racial, class, gender, sexual, religious, regional/geographical or ability-related dimensions of one’s identity or subjectivity.

Chapter 6

Down and Dirty: Outlining FIDUROD

While in the following I will lay out in detail the characteristics of FIDUROD, it is important to note that the logic of this dominant epistemology constitutes more than just a list of abstract ideas. The epistemology of FIDUROD comprises material practices in the lived world—the everyday lives of people living in dominant Western societies and the postcolonial societies they have helped construct are in part shaped by the technical rationality of this cultural epistemology. This hyper-rationality of FIDUROD can be found not only in socio-political institutions but also in the life goals of individuals ensnared in the culture of FIDUROD. Thus, the epistemological dynamics laid out here form not only the basis of the way we produce, transmit, and consume knowledge but also the *phenomenological* rhythms of everyday life. This understanding really does make FIDUROD the 800-pound gorilla sitting on the sofa in our living rooms—an entity that helps shape everything that goes on in our lives but is never acknowledged or discussed. In the spirit of our critical complexity this dominant epistemological orientation never determines what happens, but within a universe of ambiguities and contestations to the schema still exerts a profound impact.

For example, one of the key characteristics of FIDUROD is its objectivity. On the surface most Western peoples will ask in the twenty-first century how could critical educators have a problem with such a basic concept. If objectivity in knowledge production, teaching, learning, and numerous other activities was defined simply as the effort to limit the ways our prejudices and predispositions cause us to misread a situation, to identify misleading assertions of particular interest groups, or to be fair in our assessment of a circumstance, then I would have no problem with the concept. A critical complex epistemology has no problem with trying to be fair, unprejudiced, and accurate—as “controversial” as such a position may be! The form of objectivity that criticalists are objecting to in FIDUROD is an “objectivism” that examines a phenomenon outside of its historical or socio-cultural context.

In such an objectivist context the call for objectivity becomes a form of stupidification (Macedo, 2006) that undermines an individual’s ability to appreciate the socially constructed nature of his or her research or perspectives on self and world. Unfortunately, as previously mentioned, it is this objectivist dimension on which the standardized curriculum of recent educational reforms has been constructed. In such educational

contexts objective “facts” become the fetishized “essential knowledge” of the curriculum. While the data that makes it into such essential knowledge becomes profoundly important in the ideological regulation of the population, such disciplinary action is never mechanical and simple. Teachers will resist such a power-driven process and turn such an effort at indoctrination on its head. Students will often resist learning such a curriculum for a variety of reasons, some ideological and some not.

This stupidification of FIDUROD’s objectivity results when the epistemological and socio-political frameworks implicit in constructing the “facts” are either suppressed or ignored. Thus, the notion of developing a historical consciousness from which to evaluate the curriculum or to reflect on the construction one’s own views on a topic is irrelevant in such a context. Without such analysis the subtle interactions between power and knowledge are hidden from perception and the self-interested, ideologically charged pronouncements of power are taken as “the truth.” Operating under the disguise of neutrality, such knowledge accomplishes its ideological dirty work. Research in this context is equally problematic as inquiry is generally confined to controlled material experiences. As such, valid knowledge is reductionistically constructed in a process of observation of that which can be measured in some manner. This excludes a huge number of assorted phenomena from our efforts to produce knowledge—dimensions of the physical, social, cultural, political, psychological, philosophical, and educational cosmos that are often the most important dynamics shaping the nature of human existence.

Thus, we begin to understand the limits of the objectivist notion of human life, lived experience, and meaning making. Mere observation of that which is immediately discernible by our senses should not, critical complex epistemologists argue, take the place of modes of analysis and interpretation that help us see what is *not* right in front of us. Observations themselves are tacitly shaped by matrixes of beliefs and assumptions and are not as replicable as traditional Western science has believed. If you don’t believe this observe and listen to a person from India and one from the U.S. describe a cricket match. One will quickly learn that any description—even a so-called objective one—is dependent on unseen regimes of truth and socio-cultural conventions. Depending on one’s familiarity or ignorance of these implicit rules, different individuals will describe a situation in profoundly and sometimes comically different ways. Thus, the universality (the universal truth) claimed by FIDUROD is specious. Concurrently, it eliminates those knowledges and concepts hidden from immediate observation. There has to be a more rigorous way to produce knowledge (Giroux, 1997; Kincheloe, 2005b).

Fragmentation and Abstraction: What Do You Know?

Shaped by the objectivism of FIDUROD, contemporary elementary and secondary schools do not seek teachers who are expert researchers and knowledge producers or scholars of the politics of knowledge and epistemology we have discussed in the first six chapters of this book. Contemporary teacher education—with important

exceptions—too often *trains* teachers to unquestioningly accept the curriculum, the rules, and the conventions of schools as givens. The idea that teachers should explore the historical, social, political economic, cultural, and epistemological construction of the accepted customs is perceived by many as bizarre—this is the way we’ve always operated in schools, why should we question it now, they ask. The primary tasks of a teacher, the dominant power bloc maintains, is to learn and accept these conventions, know the certified knowledge of the curriculum, and gain the ability to manage a classroom. Why should teachers be asking questions about how such practices came to be is, from the dominant perspective, a monumental waste of time. The standardized schools of the contemporary era are not interested in such reflection and self-criticism.

This absence of reflection and self-criticism goes to the heart of FIDUROD. The abstracted individual unaware of the socio-cultural, historical forces that have shaped his or her consciousness is the assumed target of the standardized school. The individual sans the social dimension trumps every other concept of what makes a person. This is the fragmentation of FIDUROD at the personal level. In the standardized school the individual *is* her test score—a “scientifically valid” pronouncement of just who she is. Such a decontextualized view of the individual creates a sense of both helplessness and nihilism in the face of unnamed social forces and the fragmentation of all aspects of existence. Humans are capable of much more than the fragmented world of FIDUROD tells them they are. A critical complex epistemology is dedicated to exposing the harm of the culture such a way of seeing helps construct.

“I have done nothing to nobody,” contemporary white people often say in relation to colonialism, racism, and ethnic bias. FIDUROD’s view of the abstracted self who lives outside of history and culture in a fragmented world makes it easy for individuals in dominant groups to make such pronouncements. The idea of confronting the past, dealing with over 100 million African deaths in the slave trade and slavery, understanding the racial pain of those who cannot claim whiteness, appreciating the grotesque representations of the “other” in the history of Western knowledge production is not a part of the contemporary ethos of dominant culture. Why possibly would we need to move beyond the “truths” that Western science provides us? Why would we need to reflect on and be self-critical about the forces that have constructed all of this? As Antarctica and Greenland melt and global warming exponentially intensifies in ways unanticipated even a few months ago, might there need to be a critical reassessment of how we’re living our lives on Earth?

This fragmented thinking of FIDUROD has moved us to deal with the environment as if it was made up of isolated parts. In the fragmented epistemological world each one of these natural fragments can be exploited by a particular corporation for private profit. Alienated from the forces that shape us, from nature, from one another, we are in the process of losing ourselves—and our habitat. A central aspect of our critical critique of FIDUROD’s fragmentation involves producing an epistemology, a way of seeing self and world in terms of the connectedness of living things. I don’t use the term, connectedness, in some superficial, namby-pamby

way—I take it seriously, thinking of it in relation to the way we see the world, in relation to reshaping our epistemological structures, in relation to the way we see the process of self-production, in relation to a form of social revolution that takes us to a new and better domain (Goodlad, 1994; Saul, 1995; Gresson, 2004). Critical connectedness is a central concept in this book.

The very concept of FIDUROD’s fragmented and nihilistic view of abstract individuals bouncing around a dead—or at least un-living, zombie—universe is terrifying to me. A formal, intractable, decontextualized, reductionistic, one-dimensional epistemology produces an existential death. In such a circumstance individuals turn to Jesus or Muhammad or Oxycontin or whom/whatever not as an inspiration but as a deadening narcotic to ease their existential pain. In a darkness visible schools do their part to induce a hatred of learning, an unquestioning passivity, and an acceptance of murder as long as it is committed in the pursuit of good business climates. In a changing information environment with electronically transmitted data systems, cyberreality, new forms of knowledge are created and disseminated instantaneously. People around the world, both the colonizers and the colonized, need to know more about the ways this knowledge is produced. The next section of this chapter examines the specific dimensions of FIDUROD and their impact on the people of the planet.

Characteristics of FIDUROD

Anything that can truly be called knowledge is scientific knowledge

This characteristic is very direct and simple: FIDUROD proclaims that only the information produced by a rigorous adherence to the scientific method merits the label of “knowledge.” This is justified by the “fact” that the scientific method is superior to all other methods of research. Using the scientific method correctly, knowledge producers can explain, predict, and control what goes on in the world. The critical complex notion of interpreting and acting to change the world to make it more just has little status among many of those who uphold and employ the principles of FIDUROD.

Western science, advocates of FIDUROD argue, has been successful because it is the one correct way to study the world. The knowledge that science produces can be verified and proven. The term, positivism, was used to describe the epistemology that grounded such knowledge because the scientific method produced knowledge about which we could be positive that it was true. In this construction the more scientific research we conduct, the better we become at the task of producing universal truth. According to FIDUROD there is one correct view of nature—the one produced by science. This one-truth epistemology and its universal knowledge squelch a key dimension of science that advocates of FIDUROD claim to support—rigorous criticism. With only a small group of elite experts having been traditionally admitted to the community of scientists, those individuals who

have fallen outside this domain have typically been ignored. Not surprisingly, these are the people who have some of the most revealing critiques of traditional science: women, indigenous peoples, non-Europeans, individuals from the lower socio-economic classes have been the ones who have least profited from the changes fashioned by science.

Hermeneutic interpretation, for example, is simply not relevant in the epistemology of FIDUROD. Such ways of producing knowledge and understanding move beyond simple cause and effect scientific explanation, labeling them as too reductionistic an approach to understand the complex movement of events in the world. FIDUROD-based science has not taken such criticism well. The reaction of many scientists—especially many scientists within the domain of the social—has been to over-compensate for the fact they are not physical scientists and become more faithful to the methodologies and prejudices of physical sciences than physical scientists themselves. Employing such an epistemological stance, such social, psychological, and educational scientists are adamant in their efforts to eliminate any analysis of the influence of culture and context on their work: their work is rigorous science and thus culture free. In the spirit of FIDUROD, every other form of knowledge production is mere opinion.

Because of this one truth epistemology with its one correct mode of research, FIDUROD-based inquiry has been decidedly insensitive to many human dimensions of social, psychological, and educational affairs. Critical theorists and critical pedagogues argue that such reductionistic forms of knowledge production produce data but not wisdom. In such a situation it is easy to see how the natural world and many of its low status people come to be viewed as resources to be used by the privileged in their quest for the accumulation of short term monetary wealth. When ethicists, political critics, environmentalists, advocates of social justice, novelists, or poets critique such insensitivity, the advocates of FIDUROD scoff at their naïve reflections. They are, after all, not real scientists and the critiques they issue are not authentic forms of knowledge. There is no reason for actual scientists to place any credence in the hermeneutic, the moral, or the literary imagination (Peat, 1989; Saul, 1995; Bruner, 1996; Giroux, 1997; Harding, 1998; Pickering, 1999).

In an objectivist science FIDUROD-grounded knowledge producers are distanced from the subject of their inquiry in the effort to rid themselves of any contamination of human produced value or subjectivity. This objectivist mindset believes that it is simply absurd to address human dynamics such as caring, compassion, and love. Such abstract dimensions of humanness have nothing to do with rigorous scientific knowledge. In this epistemological cosmos social, psychological, or educational researchers who express anxiety about the depersonalized and often unforgiving world of FIDUROD-based science are manifesting a lack of intellectual maturity. The notion that such researchers are seeking a better world is equally inappropriate. Such perspectives reflect the patriarchal dimension of FIDUROD, as objective distance involves not only a separation from but also a domination of the feminine-inscribed emotional and embodied aspects of humanness. This separation and domination element of epistemology is a manifestation of an

authoritarian patriarchy that suppresses feeling while seeking to control both women and nature (McClure, 2000).

It is this same objectivist epistemological emotional distancing that shapes dominant Western culture's mechanistic view of life and death. From this perspective life is little more than a functioning materialist body with a consciousness shaped by nothing more than neurophysiological and biochemical activities in the brain. When there is no knowledge other than scientific knowledge, humans find themselves at an existential dead end in the effort to understand the complex nature of who and what we are. If we operate on the basis of the epistemology of FIDUROD, we gain no insight into the deeper meanings of life. In this context the universe is viewed as mechanistic, vacant, pointless, and desolate.

Indeed, while obviously I have no answers about the mysterious process, the epistemology of FIDUROD would have us believe that the universe emerged from a lifeless vacuum with absolutely no rationale. When there is so much we don't know in the cosmos, to attribute the emergence of the universe to mere mechanical (non-conscious) causes seems to be rather myopic. I find it difficult to accept such a meaningless universe when I've seen the power of love—as Paulo Freire put it, radical love—to change lives and to bring about justice. FIDUROD's delusions help shape distorted ontological and cosmological visions that lead us down a path to nowhere. Such delusions and visions induce many “educated people” in Western societies to ridicule the search for meaning and connectedness. Such a search is viewed as a manifestation of the frailty of the unscientific mind.

Despite its limitations Western scientific knowledge, its promoters claimed, would resolve all disputes between individuals through its ability to discover the truth—once in possession of scientific truth all parties in a disagreement could settle whatever came between them. In this manner universally true scientific knowledge would usher in a new era of human social organization. Of course, a serious flaw in this belief in the power of the dominant epistemology was the faith that scientific principles are not dependent on temporal and contextual factors. We now know such principles are highly dependent on multidimensional aspects of time and place. The historical era and the culture in which scientists are raised exert a profound impact on what questions they ask or the manner in which they might make sense of the information they collect.

An understanding of such complexity demands more rigorous modes of research and more detailed understanding of the forces that shape epistemological assumptions, the methods of science, and the perceptions of the scientist. In an epistemology of FIDUROD it is in these areas of knowledge production that contemporary science breaks down. Such meta-understandings of the social construction of both science and self run counter to FIDUROD's effort to exclude the individual and context from the scientific process. Those analysts concerned with such issues are relegated to the domains of irrelevancy and irrationality. In the dominant Western epistemological cosmos, the laws of nature are sacrosanct—they are mandated by nature itself and followed by the phenomena of natural world. If this is the case, then the detailed study of knowledge, power, culture, and the construction of selfhood undertaken here is a complete waste of time.

The conception of nature in this epistemological and ontological matrix is rather simple and the scientific understanding of them is reductionistic. All is knowable and we can predict everything that might eventually confront us in our “conquest” of the universe. When Sir Isaac Newton formulated the theory of gravity in 1687, he told us that the apple always falls to the ground and that what goes up must come down. No exceptions to these scientific generalizations exist. All humans had to do to undermine the universality of Newtonian gravity was to change the context by only a few miles. A few miles above the Earth the famous apple would not simply fall to the ground. When Albert Einstein developed the General Theory of Relativity in 1905, the absolute truth of Newton’s theory would suffer a fatal blow. Illustrating that gravity was not a material force but a part of the structure of the universe, Einstein carefully demonstrated how Newtonian gravity was based on a faulty set of principles about the structure of the universe. The cosmos was far more complex than Newton ever imagined (Kincheloe et al., 1999a; Allen, 2000; McClure, 2000).

So, reductionistic epistemology claims that scientific knowledge is not simply one type of knowledge, our first principle insists, scientific knowledge is the only type of knowledge that can claim truth. Such an epistemology holds knowledge produced by descriptive, interpretive, or aesthetic methods in disdain. Thus, such ways of knowing in the dominant epistemological context are utter nonsense. Understanding this dynamic helps us to understand why European explorers and colonists thought indigenous and native people were irrational savages. With a little change of perspective coming from these understandings, we can begin to discern the irrationality in the dominant science’s tendency to study particular social/human phenomena in artificial, decontextualized, reductionistic “micro-worlds.”

Such mini-universes were set up for the convenience of the researchers, so they could more easily analyze the phenomenon in question. In the effort to simply the research process researchers came to believe that the micro-world truly reflected larger reality. The processes and multiple contexts of which the phenomenon was an inseparable part were deemed by dominant science to be of little consequence in understanding it. In many ways this equation of the facsimile with “social reality” could be viewed as an irrational assumption. As critical theorists have argued for decades, what is often referenced in dominant Western cultures as “rational” is in fact irrational. In many ways it is a crazy world, a world gone mad—at the heart of the bizarre and hurtful social, political, and cultural cosmos of contemporary Western societies, this rational irrationality of FIDUROD is a central feature (Adorno & Horkheimer, 1979; Horkheimer, 1982; Rouse, 1987; Kincheloe, 2004b).

Numerous scientists over the last several decades have tried to “fix” this problem of dominant epistemology using band-aids that don’t address the basic belief that Western science’s success has been based on the sublime order of nature and scientists’ faithfulness to the pristine steps of the scientific method. Over the first decade of the twenty-first century such attempts are being abandoned as “political ideologists” for FIDUROD have emerged in research funding agencies to make sure only “authentic”—read FIDUROD-based—projects were validated and funded. In American educational research the effort to get public (and much private) funding for inquiry that doesn’t fit into the reductionistic, decontextualized framework is

becoming more and more difficult. This is an overtly political decision that operates to sustain the pedagogical status quo by filtering out diverse knowledges from differing paradigms and cultures.

A critical perspective begins to conceptually come together in this discussion of the perceived superiority of the scientific method. In a FIDUROD-driven psychology, for example, a researcher knows nothing unless she constructs a rigorous experiment with no confusing variables. Such psychological inquiry must include an appropriate statistical framework to access the difference between two reductionistic experimental situations devised by the researcher. There is no other way to study the mind, the cognitive functions, intelligence, or even the complex and elusive process of learning. Here we begin to understand that the critical complex version of epistemology is more “sane” (whatever that may be) less dogmatic than FIDUROD and how it shapes knowledge production. The dominant paradigm in psychology excludes personal experience from consideration in formal research. A psychologist operating in the dominant paradigm cannot “scientifically” compare her idea to other concepts in the field—even those that have been “properly” tested and statistically validated. And voila! In this scientific act alone we have discarded virtually all of the non-Western world’s wisdom.

We are all limited and inadequate human beings. The unrestricted arrogance of dominant science, believing that its disciples know most everything as they operate daily in a cosmos where the world is as Western science deems it to be. Language places limits on what we can know as words (or their absence) reduce our imagination. In the process we are duped into believing that there is no mode of awareness that transcends the reductionistic awareness shaped by the existing language and the dominant science. As we gain new insights in a critical complex epistemology, we realize that a new and better language must be constructed to express and expand such concepts. Language must not be allowed to petrify, further impeding our effort to produce a more powerful knowledge, to move as humans to a better place. The reductionism that emerges in this context reminds us of the data reduction spigot, that turns off much of what confronts us in our physical, social, and lived worlds. In any situation, at any moment of our existence infinite input is all around us: every second witnesses multiple epistemological, social, cognitive, cultural, psychological, ideological, and political economic energies at work. Yet most individuals are cognizant merely of the information that drips through the reduction spigot and is sanctified as “the truth” by the *lingua franca* (common language).

Such truth signifies the end of epistemological history. In the same way that Frances Fukuyama (1992) pronounced that history was over because human political economic achievement had reached its highest expression in late twentieth century American liberal democratic capitalism, FIDUROD has proclaimed that Western scientific knowledge production is based on the best epistemology possible. Human knowledge production can advance no farther. What exists of the pages of *The New England Journal of Medicine* enjoys a one-to-one correspondence to the phenomenon about which the research is reporting—it reflects reality as it really is. What more could there be? Physicists were brought back to earth in the early twentieth century by the amazing work of Einstein. After many scholars in the discipline reported that

the major discoveries in the field had all been realized, Einstein's General and then Special Theories of Relativity followed by the emergence of quantum theory quickly quashed such end-of-history talk. A critical complex epistemology peeks through the holes in the ozone layer to alert researchers of all stripes that the history of science has not quite ended.

The final truth of FIDUROD is expressed in universal laws—this is the central characteristic of the Cartesian-Newtonian-Baconian scientific method. These laws represented the ultimate universal truths about the fixed, inflexible characteristics of the physical, social, educational, and any other world one could study. As long as a researcher accepts an epistemology that seeks cause-effect explanations and context free and value free “facts,” then she is capable of joining the community searching for these universal laws. Since the world is fundamentally rational in the FIDUROD galaxy, it is logical that truth can be expressed in such universal laws. The more mature a science becomes, the more it will rely on the theoretical models it constructs on the basis of its proven laws. Emphasis shifts away from actual encounters with the world to a focus on “whether or not my theory is still intact.” The importance of experience in the world fades away, as scientists become more and more obsessed with the abstracted domain of constructing universal laws (Bruner, 1996; Harding, 1998, Norkus, 1999; Parker, 1999, G. Jardine, 2005).

No speculation on the foundations of FIDUROD are allowed. Yikes, such contemplations may send a scholar up for a session with the Grand Inquisitors. I watch numerous young critical scholars around the world make the Bataan Death March to their dean's office to be told that their research and teaching just doesn't fit what we're trying to do here at, for instance, Brooklyn College. This is, of course, the bourgeoisie manner of informing the professors (all the while with low affect and a smile) that they're not going to get tenure. It's the sensitive, public relations, avoid-overt-conflict-in-every-possible way that Donald Trump would say: “you're fired!” Those of us who get in trouble are the ones who simply can't exclude the social, cultural, historical, political, and economic context from the knowledge production process. “Bring me my social blindfolds, this is my first day as a professor at the university.” The stupidification process is powerful, as many tenure committees and educational administrators demand professorial allegiance to FIDUROD and its mechanistic view of the world. The world of secondary and elementary education is not “as tolerant” of epistemological/ideological diversity among its lower status teachers.

In this elementary and secondary educational world these epistemological/ideological dynamics shape the everyday lives of teachers. If expert-produced scientific knowledge constitutes the only valuable information about education, the proponents of FIDUROD posit, then schooling should be organized so that experts and administrators simply tell teachers how to perform their jobs. And, of course, this is exactly what is happening in the standardized school reforms of the last decade that often seek to deprofessional the teaching profession. In this epistemological context experts do all the thinking, and teachers merely execute their pre-constructed strategies.

In such schools any thought about the purposes of education in a democratic society and the daily work of the classroom remain separate. The dominant epistemological/ideological context denies teachers the prerogative to employ their skills and the conceptualization of teaching act and classroom practice are torn apart. Once deskilled, teachers are provided with teacher-proof materials, and must simply implement lessons prepared in advance by standards writers, textbook companies, commercially produced computer programs, or state/provincial and district supervisors. The teacher is reduced to a proctor in an ACT, SAT, or GRE testing session by reading instructions, distributing materials, regulating time, monitoring for cheating, and answering questions.

Grounded on FIDUROD's assumptions about knowledge, teacher-proof curriculum materials assume that teachers are incapable of making instructional decisions and must be guided through their daily work. Teachers are not scientists who have the ability to construct validated knowledge and thus do not have the capability to develop curriculum. Such educational functionaries are best suited to read from scripted lessons prepared by others. No matter how stupid teachers may be, advocates of FIDUROD maintain, these teacher-proof materials will help them function in the classroom. We can see the contemporary right-wing effort to deprofessionalize teachers in this epistemological/ideological context. Faithful to its narrow ideological agenda, right-wing educational analysts have sought to subvert public education one piece at a time—always, of course, in the name of improving it. During the George W. Bush administration in particular, anti-public education groups had worked for the deprofessionalization of teachers.

Using a FIDUROD-based notion that the only true knowledge is scientific knowledge and a reductionistic epistemology of practice (as discussed in Chapter 1), right-wing groups have made the argument that educational scientists must take control of every aspect of teaching. A key dimension of this strategy involves devaluing the professional complexity of the teaching act—teachers become information deliverers, not highly skilled and respected scholar practitioners. Here we can clearly discern the resonance between right-wing educational proposals, the epistemology of FIDUROD and an imperial politics of knowledge.

A reductionistic mode of educational research that validates only that knowledge produced by quantitative scientific studies propels the deprofessionalization agenda by making teacher deskilling technically necessary. If educators are simply delivering particular truths produced by experts, then there is no need for scholar teachers. In this reductionistic, dumbed-down context schools can hire individuals who read on about the eighth or ninth grade level to recite scripted lessons to students. Such “teachers” should be sizeable and physically intimidating individuals—maybe ex-military men—who can frighten students into memorizing the data presented to them. In such an epistemological/ideological/pedagogical context, scholarly, knowledge-producing teachers are often viewed as undesirables, potential troublemakers. Epistemology matters.

If It's Scientific Knowledge Then It's Empirically Verifiable

An epistemology of FIDUROD insists that when individuals refer to the phrase “scientific knowledge,” they are referencing a form of knowledge that can be verified empirically (through the senses). Empirically verifiable knowledge includes: what the eye sees, what the ear hears, what one can count, what can be expressed mathematically, etc. Critical complex analysts contend to the contrary that many aspects of the social, cultural, psychological, and educational domains defy such empirical validation. Invisible factors in these spheres might include ways of seeing, ways of being in the world, or sets of socio-cultural assumptions. Such imperceptible (at first glance) factors might involve a economically poor student's feelings of hurt or humiliation or the low self-esteem of an abused child or the ideological positions that cause people to join a political movement or the tacit patriarchal structures that provides some men the entitlement to beat their wives. Human factors such as these do not lend themselves to quantification or empirical verification. Indeed, the existence of FIDUROD itself as a force that we “see” cannot be empirically verified. In other words, a reductionistic epistemology cannot scrutinize its own assumptions because they are not empirically verifiable.

FIDUROD's concept of empirical knowledge brings the data reduction spigot back onto the stage. Experimental control—the dismissal of particular “variables” in a study—dismisses a range of factors that are essential to an understanding of a particular phenomenon. In such a reductionistic empirical context we can isolate our subject from those contexts and processes that surround it and of which it is a part. Those researchers who design the research dictate (determine) what factors, what aspects of situation are important and what features are irrelevant. Thus, empirical data may not be as pristine and unbiased as FIDUROD claims. How do the designers of the research determine which phenomena are significant and which are not? Is there a magic objective formula that only scientists who have gone through the initiation ceremony possess? They are mere mortals with only corporeal powers. They come from particular social and cultural locations, live in particular historical eras, and see the world in particular ways. Their delineation of significance is inseparable from these “extraneous” factors that shape their consciousness (Pickering, 2000; Kincheloe, 2003a).

The point that complex critical analysts want to make here is that what FIDUROD calls empirical knowledge is not the only information that matters. Indeed, some of the most important knowledge in the world doesn't fit into such a category. The media knowledge and the curricula that dominate the contemporary politics of knowledge come from FIDUROD's focus on the visible—not the interior logics and social and ideological structures shielded from general view. The dominant epistemology that concentrates our focus on empirical knowledge moves educational researchers to “verify” the most trivial things that we already know, while remaining oblivious to the paisley elephants in the room—that is, the profoundly important underlying structures that shape our consciousness and the world around us. Indeed,

FIDUROD's empirical knowledge often separates what we know about the world from our actual experience of the world.

Time after time educators, nurses, social workers, journalists and other professionals have been made to put away their valuable knowledge of professional practice derived from experiences to learn universal, decontextualized, and abstract "truths" in their professional education. If you don't believe that this is the case just ask practitioners in these fields how they feel about such education. In a political economic context FIDUROD's empiricism creates an epistemological setting where only what you see is what you get. Here what is visible to immediate perception is "reality" itself. Invisible concepts such as power blocs, socio-economic class, neo-liberalism, and the unfettered market have little impact on the world and the research we produce, for example, about schooling and media knowledge. In this epistemological twilight zone we can make assertions of truth only on the basis of observed phenomena, things-in-themselves. Such facts come from instruments grounded on statistical research rather than conceptual modes of analysis that are informed by hermeneutical and historical understandings (Munby & Russell, 1996; Aronowitz, 2003). With these ideas in mind, is all scientific knowledge empirically verifiable? Are there other forms of data?

Also, from a critical complex epistemological perspective, empirical knowledge often ages about as well as mayonnaise left out in the south Georgia summer sun. Asserting their objective empirical knowledge, for instance, British doctors in the nineteenth century customarily performed hysterectomies on women with nervous complaints. A woman's ovaries were visible and medical procedures could be observed in an empirical context. What was so invisible to nineteenth century doctors was the patriarchal construction of their society. In such a patriarchal social order male doctors simply didn't question the prevalent belief that men were cognitively superior to women and the insidious way such a principle could shape the physicians' ways of seeing women and, in turn, affect their medical practices. Understanding this patriarchal power bloc was virtually impossible employing the epistemology constructing the era's medical science (Allen, 2000). Patriarchy was invisible—it was an interpretation of gender relations devised by human beings. The existence of patriarchy is not "discovered" by empirical scientific methodologies.

It is impossible for me to understand how FIDUROD and its positivist predecessor dismissed the importance of interpretation/hermeneutics in the research act. Indeed, in this reductionistic epistemological context that values only empirical knowledge, interpretation is a sign of vulnerability—it is the admission of a small penis in the locker room of macho empiricism. Indeed, interpretation is the strategy of those wimpy researchers who don't have the cojones to provide us with unbiased (fair and balanced?) accounts of pure facts. The great irony here in the smelly epistemological locker room is that interpretation is always present even when the cries of objective empiricism are the loudest. Thus, in a critical complex epistemology interpretation is brought out of the closet, rendered overt, made self-conscious, and subjected to evaluation.

FIDUROD's empirical **observation statements** represent merely the tip of the iceberg of reductionistic epistemology. The underwater part of the iceberg is shaped by a view of truth that arrogantly believes it is capable of conceiving of all future observations of a phenomenon as well as any theoretical structure a future observer might bring to the research process. Once, empirical researchers produced this final truth, there would be no further reason to explore the phenomenon. At that point Dr. Shanley said: "Well, Dr. Kaplan, today we have learned everything there is to know about the brain. I think it's time we moved on to the kidneys." "I agree, Zeb, I'm fascinated with the kidneys" Dr. Kaplan excitedly replied. The mere idea that we can know all there is about anything is naïve and badly informed about the complexity of the world and the nature of human perception.

An epistemology that asserts all "real" knowledge is empirical denies the ways that the world we know and our ways of seeing themselves are socially constructed and thus change from culture to culture and from historical era to historical era. The plethora of perspectives that emerge from different observers in different places and times can never be reduced to one truth about a particular phenomenon. The effort to do so distorts our understanding of the world around us as well as our understanding of ourselves as human beings. In addition it undermines our efforts to reshape the world in a more just and humane manner. When this naïve empiricist reductionism is aimed at living processes, human interaction, and social and educational processes, the ways of seeing that emerge are more complicit with cultural, political, and linguistic meanings than they are with the "accurate" explanation of things-in-themselves (Kimball, 1996; Murphy, 1997; Harding, 1998; McClure, 2000).

FIDUROD's notion of empiricism claims that factual evidence—not the effort to prove a particular theory—drives its knowledge production, its quest for objective truth. Theoretically informed research in this all-real-knowledge-is-empirical context is merely an effort to find evidence for a preconceived position. When, advocates of FIDUROD argue, such evidence is not found, biased researchers are forced to explain away the evidence. Thus, scholars such as myself, the empiricist argument goes, are unable to distinguish between empirical truths about the world and mythology. In response to this outrageous claim I would assert that such one-dimensional researchers simply fail to understand the socially constructed nature of their efforts to produce knowledge. They are uncomfortable with the implications one has to deal with when we study the impact of our historical and cultural situatedness and our ideological investments in our ability to find final truths. Researchers operating within the epistemological confines of FIDUROD want to believe that certainty is within our grasp—they are afraid of complexity and the ambiguity that accompanies it (Kimball, 1996; Windschuttle, 2001).

Indeed, FIDUROD's unexamined and reductionistic empiricism strips away the interrelationships and connections between phenomena, social constructs, and the contexts that shape them in their quest for certainty. Here researchers operate on the unexamined assumption that all phenomena in the world function independently and separately from one another. FIDUROD's empiricists study things-in-themselves not things-in-relationship. This fragmented ontology blinds

reductionistic empiricists to the relational ways that human beings construct their identities. In historical research, for example, the attempt to analyze a historical phenomenon outside of the diverse contexts that produce it or the socio-cultural and political economic processes of which it is a part will undermine the rigor of the research being conducted. It is important to note that in its relationship to these intersecting epistemological and ontological contexts the historical phenomenon gains its consequence and meaning. Historians and other researchers uncover more profound and more illuminating meanings of phenomena, as they expose previously unexamined interrelationships.

In addition FIDUROD's decontextualized empiricism ignores human beings' ability to act on the basis of intentional states—not simply to be acted upon. The fact that humans possess dispositions, impulses, desires, noble motives, and intensions seems to baffle those who believe that scientific knowledge is by nature empirically verifiable. One of the many manifestations of the complexity of all things human involves the inherent difficulty in explaining why people do what they do. There is no way to explain in some final and complete way why a child is not doing well in school, yet FIDUROD-based educational researchers consistently show statistical factors that “prove” some cause-effect process. This, of course, is not to say that such researchers cannot speculate on what factors are at work in student academic performance. In a critical complex epistemological context, however, the answers to such inquiries are always multifaceted and hazy. They are interpretations—compelling ones hopefully, but interpretations nonetheless.

Thus, FIDUROD's empiricism is simply not well equipped to produce knowledge about a living and thinking entity, for such an organism's **intentionality** makes it hard to issue final pronouncements about its nature. Living and thinking things operate outside the epistemological and ontological dimensions of FIDUROD, as researchers hide from questions about the nature of being in the world and the mysteries of life and its purposes (**teleology**). Such contextualizing questions—especially in social, cultural, political, psychological, and pedagogical research—help construct richer and thicker insights and knowledge about social systems and human behavior. Thus, as opposed to FIDUROD's narrow empiricism, a critical complex epistemology supports a more rigorous mode of research that is more reliable—reliable in the sense of providing deeper understandings and a basis for just socio-political, psychological, and pedagogical action.

Such a notion of reliability escapes the powerful gravitational pull of FIDUROD's confusion of reliability with replicability. In this befuddled epistemological space the ability to replicate one's inquiry—to produce the same statistical outcomes and explanatory conclusions in similar decontextualized laboratory conditions—becomes the sole criterion for the rigor of research. Removing the phenomenon in question from its natural setting and the contexts and processes that shape it characterizes, by definition, the core of reductionistic distortion of social dynamics. Here FIDUROD reveals its **monophasic** orientation: it constructs knowledge within one cultural setting, one accepted research methodology, one epistemology, one ontology, and one frame of mind. In this Western monophasia conceptual/epistemological frameworks insidiously reflect dominant cultural schemas.

In order to understand the way such constructs limit our view of the world, they must first be recognized as cultural constructs. Upon such identification, a critical complex researcher can begin to discern the impact of such dynamics on the knowledges that are produced in various socio-cultural and political spaces. FIDUROD's empirical claim of objectivity, disinterestedness, and neutrality ensures the perpetuation of dominant power's ability to tacitly inscribe the knowledge it constructs. If we don't know how such a construction process takes place, there is little we can do to expose it and its political effects to those who need to understand it. Without such epistemological disclosure, research produced under the auspices of an epistemology of FIDUROD serves to simply justify the status quo (Bruner, 1996; Harding, 1998; Nowotny, 2000). It is a political act that allows various forms of oppression to continue without challenge.

For years I have been fascinated with the fields of educational psychology and cognitive studies and their general refusal to understand the socio-cultural and political construction of knowledge in their research. In these fields the psychological life of humans consists of a mechanistic processing of mental representations/symbols of the "real" world. Such a mechanistic perspective removes the study of the mind from its social, cultural, historical, and political contexts. Thus, a critical pedagogy of cognition quickly recognizes that such decontextualization can lead to great harm of individuals and specific social groups. What is far too often described as a cognitive deficit merely reflects the social construction of the individual's cognitive orientation within a variety of contexts. Often the ways that an individual from a particular racial, class, gender, or colonized group differs from people from the dominant cultural settings is viewed not as difference but as deficit. Thus, a very intelligent person of African descent from an economically poor family may be viewed as stupid and incapable of high-level academic achievement.

Here the politics of knowledge of knowledge gets very personal, as it shapes the way we perceive certain individuals. In the process, their life chances, their access to divergent opportunities are undermined. The evaluation instruments and the academic skills they measure can seem profoundly artificial to individuals whose family and peer group have not attended college or experienced socio-economic mobility as the result of education. Thus, their affective investment in such activities may be very different from those who come from more privileged cultural circumstances. In this and many, many other ways, the reductionistic empirical psychological researchers can fall into epistemological traps that hold profound consequences for the students and other people affected by their knowledge production. We can see the fingerprints of FIDUROD on right-wing educational reforms such as No Child Left Behind and the similar standards-based, test-driven programs migrating to many Western school systems.

There are so many ways of seeing, modes of research, models of epistemology and ontology that provide us with different views of these cognitive dynamics (see Kincheloe & Horn, 2006). These perspectives are only one dimension of the multiple possibilities of multiphasic ways of thinking about research and knowledge production. Take the quantum theory that we briefly discussed in Chapter 3, as an example of different assumptions about epistemology—this one in the physical

sciences. As we learn more and more about the cosmos, the ecosystem, the mind, life processes, we better appreciate our inability to discern what constitutes the quantum world and what comprises the classical world. We become less and less sure of how they differ. Does the act of questioning a situation change it in classical reality the same way it does in quantum reality? I don't know the answer to that question, but I do suspect that the reductionistic empiricism of FIDUROD can contribute very little to its answer.

As FIDUROD's one dimensional, reductionistic epistemology shapes the ways researchers study the world around them, it focuses attention so much on isolating and measuring **substance**—things-in-themselves—that it neglects the all-important but obscured forces that give order and meaning to these “things.” Reductionistic empirical methods do not delve into the various modes of order, pattern, process, meaning, and purpose that are hidden in what Western science has traditionally viewed as isolated variables. Studying only, for example, the quantifiable dimensions of a person's life—her educational level, grade point average, I.Q., income, credit rating, cholesterol number, etc.—do not give us any insight into the compelling life she may have led. FIDUROD sees only the things of the world, not the creative dynamics involved in its organization and evolution (Grof, 1993; Pickering, 1999).

Indeed, there's more to research and knowledge production than following the proscribed steps of empirical observation. No matter what the method, whether it be quantitative or qualitative, the point of research in a critical complex epistemology is to provide a compelling interpretation of a phenomenon that sets the stage for transformative action. I have observed far too many ethnography courses where the purpose of the pedagogy involved engaging students in transcribing the triangulated voices of the participants on the page—providing the reader with a literal transcription. While there are definitely times where one might want to present a literal transcription of someone's words, the larger objective in critical complex knowledge production involves getting into “behind the scenes” work with the data one collects in order to construct meanings that can change our lives and worlds. Even the effort to forge meaning from data can aggravate the proponents of reductionistic empirical research. Such creatively and hermeneutically informed **praxis** is irrelevant in the world of FIDUROD.

Methodological Universalism: The Same Methods Used to Explore the Physical World Should Be Used to Research the Social, Political, Psychological, and Educational Domains

As advocates of FIDUROD conflate all rigorous knowledge with the empirical knowledges of science, they begin to see the role of any researcher reflecting the ideal of the white-coated laboratory researcher of the physical sciences. The logic of social or educational research in this epistemological context should merely mimic the classical logic of the nineteenth century physicist, chemist, or geologist. Thus, all genuine knowledge becomes not just scientific knowledge, as previously

asserted by the epistemology of FIDUROD, but knowledge produced in the same way the classic physical sciences were. Thus, there is no difference between the physical and the social sciences. Indeed, the (in)famous “great divide” between the physical sciences and the humanities is a fiction—it should not exist in the world of FIDUROD. According to this reductionistic, one-dimensional epistemology the hypothetico-deductive process—research as the construction of a hypothesis that the researcher attempts to prove or disprove—is the method of any form of scientific knowledge production.

Even though epistemological questions remain the same—What is the difference between a fact and an opinion? How do we know? Is that true? Is this an objective test? Why do you believe that? Is it possible (or even desirable) to achieve a final and complete form of truth in our research? Is history based on fact or interpretation?—there are serious differences in the work of the physical and social sciences. As we analyze the application of the methods of the physical sciences to the social sciences, we can clearly see the importance of epistemology. Epistemology matters because it shapes the way we think, the way we see the world, and even our self-concept. Epistemology is important because it shapes both who we are and the way we perceive the world surrounding us. As the advocates of FIDUROD insist that the logic of their epistemology and the research methods it supports be imposed on social, political, psychological, and educational researchers, we begin to remove such human phenomena from the natural settings that shape them, that make them what they are. FIDUROD’s efforts to explain consciousness and the life force, for example, in mechanistic, cause and effect terms have failed. The use of classical physical scientific epistemology and research design has produced a distorted and misleading body of knowledge about the nature of mind and life.

The consequences of such perspectives continue to haunt everyday life with their tendencies for depersonalization and dehumanization—they work to treat “humanness” as any other variable in a scientific experiment. FIDUROD’s continuing imposition of physical scientific logics on the human sciences provides frail and defective instruments for grasping the complexity and multidimensionality of social and individual experience. As many have argued, the physical sciences have made technological advances that allow humans to “develop” the earth and wage war in highly sophisticated ways, but such science has not concurrently increased our capacity to understand the consequences of our development or the motivations for war. In this context it becomes essential that we rethink our epistemological assumptions and the politics of knowledge that accompany them. Without such epistemological and political reflection we continue to employ problematic physical scientific metaphors that distort our understanding of human beings.

In FIDUROD’s physicalistic *modus operandi* (M.O.) we continue to think of the human body as a clock and human mind as a computer. Both of these metaphors have resulted in profound misunderstandings of the workings of the body and the mind and in the process have caused great suffering for many people. As Rene Descartes (1633) put it in the first half of the seventeenth century:

We see clocks, artificial fountains, mills and other similar machines which, though merely man-made, have nonetheless the power to move by themselves in several different ways.

... I do not recognize any difference between the machines made by craftsmen and the various bodies that nature alone composes (p. 99).

Here the architect of the scientific method has reduced human beings to the status of machines. In the subsequent centuries millions of people around the planet have felt some degree of discomfort with this scientific maneuver. Even in the seventeenth century as Descartes was making this reductionistic, mechanistic argument to his contemporary, Queen Christina of Sweden, he found her quite unimpressed. In response to his assertion that the human body was nothing more than a machine she retorted: "I never saw my clock making babies" (Feitas & Merkle, 2004).

Four hundred years later in the mid-twentieth century cyberneticists working on the prototypes of digital computers developed a model of the brain as a mechanistic electronic circuit. It did not take long for this computer model of the human mind to become the grounding for cognitive science. So close was the relationship of the human brain to a computer, proponents maintained, that thinking itself became synonymous with information processing. Over the last half century one can discern the unquestioned dominance of this naïve physical scientific model of the brain in proclamations about artificial intelligence. It won't be long, scholars of artificial intelligence confidently argued, until artificial brains can work out all the problems that the human mind can now solve. Even in contemporary twenty-first century schools this same type of grotesque reductionism reveals itself in the pedagogical use of computers.

Computers in the classroom are typically used to extend this information processing view of human thinking, as they are used in the same epistemological and cognitive manner a workbook would have been used in the 1940s. The focus of computing becomes the enhancement of students' ability to gain data, as the use of computers is based on the notion that information—not ideas, conceptual formation, or interpretation—is the key to understanding the workings of the mind (Madison, 1988; Capra, 1996). Such perspectives, of course, reflect a disconcerting naivete about the potentialities of the human cognition and the production of knowledge about all things human. In the pedagogical matrix produced by the epistemology of FIDUROD, the memorization of isolated facts trumps the effort to configure systemic relationships.

The systems formed by things-in-relationship are uncovered by devising interconnected patterns. When we study a life form by dissecting it, we may be able to identify a spleen and a stomach but are oblivious to the interconnected patterns and the systemic relationships central to the life force of the organism in question. Here the epistemology as well as the ontology of Western traditional physical science intercedes, deploying its tendency to view phenomena as isolated, decontextualized, discrete things-in-themselves. Life forms, such scientists tell us, consist of the same atoms and molecules as other things in the world and, thus, can be studied in the same way. The epistemological/ontological mistake embedded in such perspectives is that living things are *not* merely particles of matter (Capra, 1996; Kincheloe & Berry, 2004). Just how profoundly the knowledge work of FIDUROD misses the point here and how much farther we can conceptually go employing a critical complex epistemology and ontology can be discerned in these conceptions of mind in particular and humanness in general.

The use of a reductionistic scientific research paradigm to study the experience of teaching and learning in the classroom, educational purpose, and the social and political dimensions of pedagogy is often an epistemological mismatch. Decontextualized statistical research or merely descriptive inquiry—reductionism occurs in both quantitative and qualitative research—do not have the social theoretical tools or concepts to provide insight into these domains. The more we understand the complexity of these socio-political pedagogical processes, the more clamor we encounter to move research to less theoretically informed and interpretive and more FIDUROD-oriented domains. We find this tendency not only in right wing federal government mandates but also among many academic researchers who reduce their task to providing uncomplicated descriptions of observable phenomena in classrooms. Educational practice, a critical complex epistemology maintains, is not this simple. Educational experience involves a plethora of intangible and elusive dynamics including discursive practices shaped by invisible manifestations of power, ways of acting that reflect in particular the values of dominant race, class, and gender groups, unexamined knowledges that are assumed to be true, cultural habits and patterns, prevailing ideological folk wisdom, ad infinitum.

When socio-cultural, psychological, political, and educational research use physical scientific methods of, say, experimental control, social theoretical understandings at the macro-level and individual lived experiences at the micro-level are deleted from consideration. Such experimental control involves the creation of circumstances that isolate a single variable from the panoply of factors that are constantly at work in shaping educational endeavors and the experience of teaching and learning. In this research context individuals with idiosyncratic concerns and often unconscious and thus unexplored socio-cultural and epistemological preconceptions control the design of these research experiments. Lacking an understanding of the social, cultural, discursive, ideological, epistemological, and ontological assumptions that shape their perspectives, such experimental researchers often make arbitrary and unjustified decisions about what data are deemed to be worthy of inclusion and exclusion in the research.

Too often the most obvious and trivial dimensions of the educational process are included while the more opaque and significant are dismissed. Indeed, the more opaque and significant do lend themselves to the reductionistic validation methods previously referenced. At the same time in this epistemological configuration research subjects are rendered inert, depersonalized beings devoid of human agency and volition. Their unique locations in the web of reality are irrelevant to experimental researchers who often see them only as part of larger aggregates. These aggregates often come from grand social surveys that through their discursive use of terms such as control groups, degrees of freedom, normal distributions, etc. reveal an obsession with surveillance, regulation, discipline, power, and compliance to dominant cultural modes of acceptable behavior (Munby & Russell, 1996; Van Manen, 1999; Pickering, 2000). The result of such physical science informed research often involves the **reification** of the status quo with its asymmetrical power relations.

Such ingrained support of the status quo emerges in what physical scientifically influenced researchers from both quantitative and qualitative positions refer to as the “knowledge base for teaching.” Such a knowledge base, unfortunately, most of the time focuses on the most technical dimensions of the pedagogical process, leaving out not only idiosyncratic lived experiences of practitioners but also questions of educational purpose, ideological consequence, issues of oppression around race, class, gender, sexual, religious, and colonial dynamics, and the practical use of such insights in professional preparation. Devoid of these factors and an interest in the multiple contexts that shape the lived experience of education, what we get from too much of the educational research produced every year is of little value in the effort to establish rigorous practice, socially just educational institutions, and new ways of understanding the relationship between larger socio-political impulses and the formation of teacher and student ideological consciousness. Obviously, I find these concerns of critical pedagogy to be profoundly important in the effort to make sense of both what is happening in education and its consequences for individuals, social groups, and the macropolitical domain of the new Western/U.S. empire.

From our critical theoretical/pedagogical perspective I believe that it is safe to argue that profound problems result when researchers transfer the methods of physical science to the analysis of the socio-cultural, political, psychological, and educational domains. A central dimension of FIDUROD-based research in the physical sciences concerns the effort to predict and control natural phenomena. When put into operation in the social domain, physical science methods often employ social knowledge as a device to control and thus oppress human beings. Reductionistic socio-educational scientists fail to appreciate that the physical scientists they imitate enforce their observations on the “object” under surveillance. Such physical scientists do not have to account for the consciousness of their objects of study or the historical and sociocultural settings in which they operate.

Neither do they consider the ideological construction of their own consciousness. Such factors render research on humans significantly different from the study of biological weapons or the making of paper. If we fail to understand this distinction, we overlook the very factors that make us human, that construct our identities and too often restrict our freedom.

Living in a Material World of Substance: Genuine Knowledge Exists in Some Distinct Easily Measurable Quantity

Early in the history of Western science, researchers such as Galileo narrowed the boundaries of empirical research. In the eyes of many of his contemporaries and of a number of scholars ever since, the methodology of science created a dead cosmos. We had to kill the life force of the universe epistemologically before we could destroy it in socio-political and economic actions. This thanocentric epistemology led Western science into a conceptual cul-de-sac in which many researchers have only recently realized they were located. Thus, living things were reduced to phenomena

that could be measured: once again we see the application of physical scientific methods to the social world. Here, the complex process of understanding is demoted to the act of measuring. Finding its inspiration in many dimensions of traditional positivism, FIDUROD is confused about the use of mathematics as a way to describe the world. Of course, there are numerous important questions that lend themselves to mathematical expression, but many researchers operating on the basis of an epistemology of FIDUROD fail to distinguish productive use of quantitative methodologies from reductionistic, inappropriate applications.

In this context, any phenomenon that could be researched was believed to exist in some quantity. When this maxim was applied to the social, political, psychological, and educational sciences, problems resulted. In the study of intelligence, for example, all psychological researchers had to do was come up with an operational definition of intelligence—one's score on an I.Q. test—and then measure how much intelligence one possessed. Many problems exist in such a measurement:

- We don't all agree as to what constitutes intelligence—whose perspective do we use?
- Definitions of intelligence differ from historical era to historical era and from culture to culture—whose definition is correct?
- Numerous social, cultural, political, and economic factors shape one's relationship to what is labeled intelligence—how do we account for such contextual factors?
- The closer one's identity matches the identities of those who constructed the testing instrument, the better chance one has of being labeled as highly intelligent. The more socially different one's identity is from the test makers, the lesser the chance one has of being labeled as highly intelligent—how do we deal with the consequences of such tendencies?
- Dominant definitions of intelligence view it as a phenomenon of individual minds, thus assuming the ontology of the abstract individual (a thing-in-itself) removed from the relationships and process that shaped him or her—what ontological assumptions do we employ as we study and measure intelligence?
- Given these factors intelligence testing tends to rationalize the privilege of the privileged and the marginalization of the marginalized. As many psychometricians have argued, for example, wealthy white people are privileged because they are smart; economically poor African Americans live in poverty because they are not smart—do such pronouncements reflect modes of class and race discrimination that justify inequality?
- Prevailing definitions of intelligence view it in very restricted, narrow ways. Does the operationalization of a definition for such an ephemeral entity demanded by the emphasis on measurability exclude the proclivity of human genius to devise new ways to be intelligent—does this process undermine the evolution of human cognitive ability?
- When we are able to discern the socio-cultural dimensions of the social construction of contemporary meanings of intelligence, how do we rethink the meaning of mathematical relationships between variables? Do they still take on

the same meanings if we don't accept the universality of definitions of intelligence and other terms conceptually surrounding them?

Thus, a critical complex epistemology challenges FIDUROD's notion that we can find positive and final truth about ourselves in mathematical distributions, means, and modes. Of course, these statistical dynamics determine competence and incompetence as well as normality and abnormality. Those of us who come from lower socio-economic class backgrounds, racial classifications different than those groups in the dominant power bloc, oppressed genders and sexualities, and peoples who have suffered colonization especially need to understand these dynamics about modes of social, psychological, and educational measurement because we are the ones who end up with the short end of the power stick. A central purpose of this book involves gaining this ability. Whenever validated knowledge, such as intelligence, is presented to us as irrefutable fact, we must have the epistemological and political analytical ability to expose the assumptions and practices that dominant forms of power have used to legitimize and universalize such "truth." Concurrently, we must be able to use our understanding of epistemology and the politics of knowledge to expose the unequal and oppressive effects of such power plays and what we can do to overturn such insidious modes of subjugation (Foucault, 1980; Capra, 1996; G. Jardine, 2005).

Focusing on our example of measuring intelligence, many psychological researchers have believed that intelligence is a real thing—not a social construction fabricated at a particular time and place. Rarely questioning the reality of the concept, such researchers proclaimed that an individual's mental ability was fixed and unchanging and as easy to measure as her age. Complex, hard to describe phenomena such as intelligence, motivation, creativity, empathy, understanding, love, etc. are material entities in the epistemology and ontology of FIDUROD—all replete with measurable dimensions. A behavioral psychologist I taught with several years ago in a college of education once told me that he had devised an operational definition of love based on physiological factors such as pulse rate, blood pressure, eye movements, etc. Monitoring and recording such physiological factors, he could determine "how much" someone loved another person. His description was chilling in the spirit of a 1950s sci-fi movie where creatures from another galaxy come up with behavioral methods of mind control to conquer the earth.

I am particularly disturbed by the way advocates of FIDUROD oriented research wrap themselves in the flags of democracy and egalitarianism as they pursue their "objective" measurements. For years advocates of the SAT at the Educational Testing Service (ETS) have been arguing that their ability/aptitude/an "A" that stands for nothing—the ETS keeps changing what the "A" stands for in SAT to the point now it represents nothing but the letter "A" itself—promotes opportunity for the marginalized. For example, the head of the ETS and developer of the SAT, Henry Chauncey argued in 1961:

The objective test is a common touchstone. It gives all students who take it the same chance, asks them to run the same race—even though they have had different economic backgrounds, different educational, cultural, and social opportunities (quoted in Owen & Doerr, 1999, p. 42).

Chauncey's lack of understanding of the way that these economic backgrounds and educational, cultural, and social opportunities affect a student's relationship to the test is hard to rationalize. The fact that millions of people continue to promote and believe Chauncey's reductionistic assertion almost 60 years later is especially disconcerting. It also is a testimony to the general lack of awareness of the points about epistemology and the politics of knowledge being offered here. Such insights are central to the future of education, human potential, the quality of research, and democracy itself. The belief in the measurability of all dimensions of the social, political, psychological, and educational world based on their existence as material substances is key to appreciating the mindset that FIDUROD constructs. Matter and consciousness are reciprocally complimentary entities, not as FIDUROD insists discrete substances but interconnected stages in a larger process. Mind is autopoietic (self-creating), self-organizing. If it lacked this self-creating property, matter would not be able to simply construct mind in all its complexity. As parts of a larger process and not discrete substances, the need to measure mind fades away. We begin to look at it not as an engine but as something far more complex.

What we can learn from different minds shaped in different times and places becomes far more important than rank ordering them as to their efficiency and prowess. The measuring dimension of FIDUROD reminds me of a stupid joke about men, a bar, and a smorgasbord—a reflection of the patriarchal competitive obsession. In this context where FIDUROD takes it on faith that physical and social phenomena exist in some quantity and must by nature be measured, all wholes, all holistic processes, and all interrelated things-in-the-world are believed to be reducible to their smallest constitutive component—e.g., as was once believed about the gravitron in the pre-Einsteinian physics of gravity, the cell in biology, the quark in sub-atomic physics, the neuron in the brain, Spearman's "g" in cognitive science, ad infinitum. The will to measure leads us back to FIDUROD's reductionistic data input spigot as information and phenomena that don't lend themselves to easy measurement are cut off from consideration for inclusion in the canon of scientific knowledge. In the process our view of and ability to act in the world are further impoverished (Griffin, 1997; Owen & Doerr, 1999; Reason & Bradbury, 2000; De Quincey, 2007).

In my analysis of FIDUROD's materiality and substance and their inherent measurability, I keep returning to the phenomenon of human consciousness. Even though cognitive psychologists cannot explain how mind and consciousness spring forth from matter, those who play on the gridiron of FIDUROD continue to reduce their study to physical conditions. The concept here is that what is called consciousness is nothing more than a physical property of the brain when it is observed at a particular level. To ignore the amazing and yet unexplained phenomenon revolving around the emergence of human consciousness simply because it doesn't lend itself to a discipline's methods of knowledge production and measurement indicates the seriousness of the problems that beset contemporary Western reductionistic science.

Such problems exhibit themselves constantly in educational practice. When schools, for example, rely on test scores as markers of educational achievement,

they erase the brilliant pedagogies and hard work of teachers who teach in impoverished schools with students from oppressed racial and cultural groups. When parents and politicians count on scientific standardized test scores to determine the quality of the learning and teaching taking place in a school or school district, they may inadvertently be accepting diluted pedagogical quality. As most teachers know, test scores tell us virtually nothing about the quality of one's teaching, as they are shaped by countless contextual factors removed from consideration by the evaluators who administer them. Thus, high-test scores may simply reflect the socio-economic background of a school or signal the inordinate time taken away from substantive teaching to inculcate the tricks of taking a standardized test to students. Both variables have nothing to do with good teaching and learning—indeed, at times they may indicate just the opposite (Goswami, 1993; Ohanian, 1999; Kincheloe, 2003a).

In FIDUROD's epistemology of uncomplicated and trouble-free measurability, we begin to understand the misleading nature of evaluators' (such as the ETS) claim to objectivity and accuracy. In the case of ETS administered standardized tests there is little that is objective about tests that are devised, collected, keyed in, and interpreted by subjective individuals often possessing a particular perspective on the educational process. Such paid graders are told that there is no room for divergent but reasonable answers to test questions. Anyone who thinks differently (often a manifestation of creative genius) from the ETS or interprets a question in a logical but unique manner is simply wrong—and, thus, according to the test of lesser aptitude, intelligence, ability, or whatever the ETS is calling test success at the moment. The ETS is probably measuring conventionality, fidelity to the ways of seeing of the dominant culture, more than it is aptitude, etc. Even the accuracy of this measurement is questionable when we study the wide variations of performance from test to test. Researchers from the ETS itself determine that one person in three who takes the SAT will score more than 33 points higher or lower on her so-called "true score" whenever they take the same test again. And when the format of the test is modified differences of this type become even greater (Owen & Doerr, 1999).

Thus, FIDUROD's measurability orientation can be not only mechanistic and reductionistic when applied to social phenomena but also disturbingly misleading when employed in relation to human ability and the processes of teaching and learning. Humans, obviously, are much more than biological machines with the capacity to think, yet the mechanistic epistemology of contemporary mainstream psychology sees the species in precisely this manner. The fistful of ashes we get from such an epistemology, frames human cognitive ability not in terms of our creativity, aesthetics, love, and great ethical acts but in the reductionistic materiality of brain cells, organelles, and macromolecules. Brain physiology, of course, is a part of the story—but only one of a myriad of parts. The notion that the human mind possesses energies and forces that may transcend the physicality of the brain cannot even be contemplated in the reductionism of FIDUROD.

In many ways such an epistemological reductionism obsessed with measurement becomes a way of not listening to what human beings are saying about their

cognitive experiences in the world—the dismissal of the phenomenological realm. Here the gnomes of FIDUROD cover their ears, as people speak about multiple dimensions of consciousness and the abilities they have developed by emulating elders or by simply attending to the workings of their own mind. Scholars operating in FIDUROD's knowledge construction zone often only know—or allowed to discuss—what drips through the data reduction spigot. While the spigot can be leaky in times of challenge to **normal science**, nevertheless there are numerous reduction valves operating in the pipes of knowledge: the epistemological, the cognitive, the political economic, the cultural, the religious, and the ideological all take part in restricting the flow of dangerous information.

Thus, in its reductionist refusal to listen, FIDUROD doesn't account for these diverse reductionistic processes—in a bizarre way in its focus on easy measurability it chooses not to know about the multiple processes shaping what knowledge is admissible and the often miraculous forces at work in the domain of the inadmissible. In the context of the study of the mind, the characteristics of the parts of what is designated mind cannot be understood outside the template of the larger whole. By embracing critical complex epistemology's turn to the complex, social, cultural, political, psychological, and pedagogical scholars can surmount the restrictions of the reductionistic focus on superficial measurability. Here the epistemological focus moves from the fragments of a phenomenon, to the tenets of emergent/autopoietic organization. Here we enter into a critical complex hermeneutic circle, where we study the whole in relation to the parts and the parts in relation to the whole. Here we understand that measurements that do not take such a process into account are usually conceptually bankrupt (Grof, 1993; Capra, 1996; Griffin, 1997; Thomas & Kincheloe, 2006).

When critical educators armed with an understanding of these epistemological problems run into FIDUROD-produced pedagogical knowledges, we find it quite restricted in what it can tell us about the educational cosmos and the teaching and learning process. Too many times for my own psychic comfort I have encountered school situations and curricula where the most important data, nay, the basic meaning of a body of knowledge or a phenomenon have been carefully expunged from student (or even teacher) access. No curriculum, no evaluation of understanding should fail to account for the ways these epistemological dynamics and the politics of knowledge shape what is designated for teaching and learning. It is here that we begin to expand our cognitive abilities and gain the skills to understand and change the world.

The processes of constructing and regulating knowledge form the “critical pedagogical basics.” In these processes we observe valuable insights about not only how the world works but also how selfhood is produced and hegemony deployed. Once again we are reminded that knowledge is never neutral and disinterested—there's always a story of struggle behind what is designated as truth or “basic curricular knowledge.” It is the job of critical educators to discern and teach about this story as well as the values and assumptions about the peoples of the world it inscribes. In this context the traditional critical concern about whose interests are served by officially validated epistemologies and knowledges and the ways of

measuring their scientific validity and pedagogical memorization becomes the basis of key pedagogical questions. Such questions about knowledge production forge the rocks on which the critical pedagogical house is built.

Glossary

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| Intentionality | a feature of cognitive and linguistic states where an observer understands that they possess content and are <i>about</i> something in the world. This makes living things harder and more complex to study than non-living things. |
| Monophasic | having only one phase or stage. |
| Normal science | philosopher of science Thomas Kuhn’s concept of the work that takes place in the dominant paradigm—the accepted model of producing validated knowledge—using certified methodologies and asking questions emerging from this particular way of seeing. |
| Observation statements | tell us what researchers have done, what they have observed, and make a claim of truth as to the nature of experience. A critical complex epistemology maintains that these so-called objective observation statements are subjective and informed by theory (often unconsciously) in the same manner as all perceptions of the world. |
| Phenomenology | the study of phenomena in the world as they are constructed by our consciousness. As it analyzes such phenomena it asks what makes something what it is. In this way phenomenologists “get at” the meaning of lived experience, the meaning of experience as we live it. In this effort phenomenology attempts to study what it means to be human. |
| Praxis | an activity that combines theory and practice, thought and action for emancipatory ends. The term is commonly used in critical pedagogy. |
| Reification | the tendency of dominant power to make what exists seem as if it could have existed in no other way. The term is often used in critical theory in reference to the power-constructed “common sense” of oppressive situations. |
| Substance | something that can exist in isolation, unconnected to anything else. Substance in this Western ontological context is what makes up other things. |
| Teleology | the branch of philosophy that studies purpose, the end toward which something is working. |

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

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 Maturana and Francisco 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 Prigogine (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 diversity. We will develop this concept of diversity 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 corresponds 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) multi-dimensional 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 Deliverers 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 inquiries 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 on 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.

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| 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. |

Part 3
Developing a Critical Complex
Epistemology and a Critical Politics
of Knowledge

Chapter 8

Knowledge Stampede On Land, at Sea, and in Cyberspace: What Is and What Could Be

In the critical pragmatic spirit of *Knowledge and Critical Pedagogy: An Introduction* our transformative intersection of epistemology and the politics of knowledge moves our scholarly praxis from providing an accurate depiction of FIDUROD's one true reality to a nuanced notion of usefulness in the effort to address inequality and human suffering. Of course, despite the attacks of our detractors, this does not mean we are not interested in obtaining fair, complex, subtle, and compelling insights into the domains we study. This would go without saying except for the fact that so many have accused critical theoretical work of dishonest portrayals of various phenomena; the salient point here is that we are seeking a new scholarly rigor that provides a more insightful and interpretively rich understanding of the subjects we explore. The problem in this quest is that criticalists can simply never see this as some straightforward task—it is always confronted by the reality of multiple perspectives and standpoints.

The researcher's charge is complicated by her knowledge of the existence of diverse ways of interpreting the meaning and significance of what one has examined. Those who dismiss this complexity not only produce knowledge inscribed by unconscious, unexamined assumptions but in the process tragically perpetuate an unjust status quo. No matter how much such uncritical scholars might wish it were so, the phenomenal world does not give up its meaning(s) so clearly. The Greeks who created the mythology of Hermes made this point many millennia ago. All knowledge is contextual, in process, relational, representational, and ideologically relevant. In the mainstream research grounded by the epistemology of FIDUROD, all of these complications are dismissed, swept under the dominant epistemological carpet. In this context criticalists explore the meaning of these dynamics in light of their **normative** dimensions—that is, in the context of “what is” in relation to “what ought to be” (Geeland & Taylor, 2000; Reason & Bradbury, 2000). Paulo Freire (1970, 1978) referred to this as a form of conscientization—or critical consciousness-raising about the nature of dominant power and oppression and the ways the virus infiltrates human affairs.

Tracing the Footprints of Dominant Power: The Complicated Task of a Critical Politics of Knowledge, a Critical Complex Epistemology

Critical knowledge production always involves pointing out faulty argumentation, unsupported generalizations, and unexamined actions of a knowledge community. What separates the critical sheep from the uncritical goats is that a critical pedagogy/epistemology also involves exposing the cultural, epistemological, and ideological assumptions that shape the knowledge individuals produce and the oppressive actions justified by such information. With such a task before us, I guess we just have to give up any aspirations to winning the Miss Congeniality contest. Such work will inevitably anger the guardians of the status quo. Relax, it's our existential burden—go with it. In the spirit of critical theorist Max Horkheimer's (1974) description of critical theory, a critical politics of knowledge/critical complex epistemology understands the social construction of reality. The knowledge position embraced here appreciates in this constructed context the complex socio-political processes that have shaped both the researcher and the researched. Thus, a key dimension of any critical complex epistemology involves the rigorous and difficult task of tracing the construction process. Critical theory—CSI (crime scene investigation).

How did these views of reality, these ways of seeing reality come to be? How did so many in the world, for example, come to believe that an unbridled free market will help improve the lives of people around the world? Might there be elements involving the self-interest of dominant groups at work when such knowledge is transmitted in schools, media, and other venues? I smell bloated corporate profits and very, very well compensated CEOs such as Exxon's Lee Raymond and his malodorous \$400 million golden parachute in 2006 (Seafarers Log, 2007). Or how, to provide another example, have so many people on all continents been persuaded that a standardized, test-driven, dumbed-down education is best for their interests? Again, could political economic and cultural political interests have played a role in this process?

Of course, it is the role of the critical pedagogue to "follow the trail," to go into the dangerous places where dominant power wielders reside, and to be willing to risk their retaliation. Don't worry, retribution is mine says the representative of dominant power—if you engage in such critical knowledge work very long, the goons of dominant power will hunt you down. Remind me to tell you the story about how I was cornered in a back alley by a group of Louisiana businessmen who had just heard me speak on corporate influences in public education. There is nothing easy on any level about following the snow tracks of power in the knowledge it produces, the consciousness it helps construct, and the actions it takes. Can you tell I had fantasies of being a private detective like early TV's David Jansen's "Richard Diamond, Private Detective," William Hopper's Paul Drake on "Perry Mason," or later in my twenties, James Garner's Jim Rockford on "The Rockford Files"? I apologize for this indulgence.

This discussion brings us to one of the key points of this book. An evolving criticality as informed by feminist, post/anti-colonial, complexity theories and subjugated and indigenous knowledges does not seek to produce socially and culturally neutral triangulated delineations of various individuals' perspectives on their lives—that's what a FIDURODian notion of ethnography does. Thus, a critical complex epistemology supports, strengthens, and animates research and knowledge work that interprets, makes sense of, and employs the information it engages for the pursuit of ideological transformation. It listens carefully and respectfully to what marginalized and indigenous peoples have to say—though it refuses to romanticize such information, make it the one true reality, or ignore its own socially constructed features (Harding, 1998; McLaren, 2000; Kincheloe, 2004b; G. Jardine, 2005). In these actions a critical complex epistemology gains the ability to expose oppression, illustrate the ways power can help mold ways of seeing and being, and offer creative interpretations about what is happening in the world and imaginative ways to respond it.

In this context criticality can ask unprecedented questions about the nature of the different levels of privilege people living around the world enjoy or don't enjoy. It can bring dismissed or "dangerous" perspectives to the marketplace of knowledge and transform existing reductionistic views of ourselves and the world around us. As we gain a better, more sophisticated interpretation of the nature and workings of power, we gain the ability to do things that were previously unimaginable. Western societies and their political and educational leaders have been too often blind to the connection between power and knowledge and the profound impact of this covert and sleazy relationship. Power has been meeting knowledge in a fleabag hotel for a long time. Not understanding this sordid connection many Westerners have long been duped by their proclamations of innocence—expressed always in epistemological terms such as objectivity, neutrality, and disinterestedness. With criticality the cat gets out of the bag. With the critical kitty sitting in our laps we begin to understand the way the matrix is loaded, the deck is stacked, socio-political reality is constructed. Indeed, a critical complex epistemology/politics of knowledge can help us gain new levels of consciousness and in the process change the world.

Just to be clear, power and knowledge have always engaged in their illicit affair. The notion, for instance, that a student is not capable of academic work is weighted down with a truckload of ideological and epistemological baggage. How we define what capability means in this context is not a simple, value free, non-politicized concept. Neither is the way we define academic work and the nature and purpose of learning. Also important is the way we deal with or simply ignore the social construction of personhood, not to mention the forces that shape the mind. When we add the "who benefits question" to this increasingly complex potpourri of forces at work in the assertion, one can begin to see the difference between critical complex knowledge work and the one-dimensionality of FIDUROD-driven analysis. In a school district, a college of teacher education, or a policy making institute particular epistemological and ideological perspectives will forcefully shape the nature of the work that takes place. If an unquestioned dominant power with racial, class, gendered, sexual, religious, and colonial dimensions

shapes such institutions it is safe to say that the perspectives emanating from them will rarely be informed by profoundly marginalized and oppressed peoples.

Recently, when I was asked to engage with a right-wing group of scholars in an effort to co-write a book with them on our disagreements about education, I discovered that after several weeks of negotiating we could not agree on even what issues were deemed worthy of addressing in such a volume. When I pressed for questions on, for example, the purpose of education in a democratic society and equity in current configurations of schooling, such topics were rejected as not being relevant to the discussion of major issues in education. I felt like I was from the Bozo Galaxy. In my critically grounded epistemological and ideological framework, these are basic to any discussion of schooling. To leave them out was to accede to the construction of a body of information, that had rejected my basic concerns and assumptions about the educational act. What a great example this “book that was never written” provides in a discussion of the ways that epistemological and ideological orientations—whether one is conscious of them or not—shape knowledge production. What different books my potential co-authors and I would have written had any of us had exclusively determined the questions, concerns, and issues the book would address.

Escaping the Bozo Galaxy, we need to realize that criticalists cannot be silent spectators of the world. By this, I don’t mean that we have to express our opinion on every issue—we must be strategic and learn when to use our voices and when to be quiet and just listen. Excessive verbosity, I think, killed the previously mentioned critical cat. What we are dealing with here involves the effort to reclaim the historical process, to make history. Such an act to shape “what could be” involves a combination of knowledge work and social action. Here again we find critical theory and critical pedagogy’s classic notion of praxis—informed action. In this praxis-based context we gain the ability to change ourselves in ways that makes us better able to confront, explain, and alleviate human suffering.

Freire’s Radical Love: Remaking Ourselves and the World

Paulo Freire’s notion of radical love has permeated all dimensions of my understanding of critical pedagogy and the critical complex epistemology and politics of knowledge that we are addressing in *Knowledge and Critical Pedagogy: An Introduction*. In the context shaped by Freire’s radical love, we begin to build an emotional, scholarly, and activist oriented telepathic global community dedicated to supporting one another and the larger epistemological and socio-political goals of criticality. In education this notion of a connected and loving community has never existed. To my great consternation such a community has never existed among criticalists—critical theorists, critical pedagogues. If we can’t build such an assemblage with Paulo’s notion of radical love, then I really don’t know who can.

Sophisticated theoretical/epistemological understandings generated outside a radical loving commitment to building larger and larger communities of

connectedness around the planet will never change the world. As those of us in the critical community produce transgressive, power-literate knowledge, develop transformative pedagogies, and engage in social action to alleviate human suffering, we must “have each others’ backs” in a world that punishes such critical actions. There are as many ways to express this radical love as there are creative individuals who embrace it. Indeed, one of the central features of any critical work—even transformative efforts focusing on knowledge work and the construction of a critical complex epistemology—is to infuse radical love into the mix. I look forward in the coming years to observing the ways the next generation of critical pedagogues acts on their radical love.

With this radical love in mind it is important that we turn to the role of power-inscribed knowledge to help shape our consciousness and our ability as active human agents to resist such construction of selfhood. Acting on our radical love and critical complex epistemology we can begin to imagine a future unlike the past and the present. Examining my own consciousness I realize that with these ideas in mind and with my belief in the power of human agency, I wake up every morning excited as to how I can reshape myself in new ways, engage in developing new insights, and contribute in some way to the relief of human suffering. Indeed, the future seems like a “great wide open” with yet unimagined possibilities for the remaking of selfhood and socio-political relationships. As criticalists bring together the concept of radical love and the reconstruction of selfhood and society, we obtain a more profound idea of what such activities might mean by using the enactivist notion of “readiness-for-action.” In this context we come to appreciate the fact that knowledge in a critical complex epistemology must be enacted. Here enacted knowledge is thickened and deepened as it is understood at the intersection of human beings’ affect and intellect. Thus, an *enacted* epistemology insists that the knowledge we produce is enacted in relation to our individual and collective struggles. New knowledges and ways of being (ontologies) and acting in the world begin to take shape in this context.

Engaging complexity theory Umberto Maturana and Francisco Varela over the last quarter of the twentieth century constructed the Santiago theory of cognition—known as enactivism. Maturana and Varela’s basic idea here is that living beings constantly remake themselves in their relationships with their environments and contexts. When such an idea is applied to a critical complex epistemology, we can visualize the emergence of a critical ontology—a notion of an autopoietic selfhood where we constantly reconceptualize ourselves in relation to the demands of the contexts in which we operate, social justice, our confrontation with differences of various varieties, and the knowledges we encounter. In this context FIDUROD’s mechanistic psychological notion of individual ability becomes a **de-essentialized** postformal cognition of possibility. This means that we have a far greater ability to increase our cognitive ability than cognitive science has said we have. No essentialized, fixed notion of selfhood can profit from the intellectual possibility offered by encounters with different people, ideas, and epistemologies. Indeed, we can remake ourselves in ways never imagined by mainstream reductionistic cognitive science (Maturana & Varela, 1980, 1987).

As criticalists begin to recognize previously unspecified matrixes in which the self is entangled, the opportunity for remaking ourselves and growing in previously inconceivable ways is dramatically enhanced. As the impediments separating mind from a conscious appreciation of the multiple contexts and processes in which it is implicated are torn down, the possibility for unprecedented modes of autopoiesis unfolds. A more conscious, radical love-committed, and rigorous scholarly sense of self-production emerges, shaking our ontological selves to the core. As critical pedagogues examine selfhood and its connection to others in this process, we begin to achieve a sharper conception of our purpose in the cosmos, especially as it concerns justice, interconnectedness, meaning making, and transformative action. In this critical enactivist mode we inch closer to the macro-processes of the socio-cultural dimension of life and their expressions in everyday living. In this way radical love moves to a new plateau. We make our living, our mere being on this planet, a transgressive, transformative, and damned exciting exercise in and of itself.

As Martin Heidegger (1927/1996) maintains in his great work, *Being and Time*, we have forgotten being, our existence on earth. My interpretation of Heidegger in this context challenges me to develop a critical ontology—a new mode of being—that exists in a synergistic relation to our radical love. Of course, we act on this challenge as we work to disassemble the socio-political and cognitive prisons that Western power blocs have constructed for us. Buoyed by the understanding that major socio-political, cultural, and cognitive shifts have occurred throughout history—often at unexpected times (such as ours)—critical knowledge producers/educators seek out a diversity of marginalized insights to escape the sirens of power and their mind jails. Freed from incarceration we somersault through and far beyond FIDUROD's conceptual vortex where new inquiries slap us in the face with astonishment and possibility. We gain new experiences, stories to tell as we cross the pedagogical bridge back into the constructed matrix of "what is." In many ways our descriptions and narratives derived from our vision of "what could be" helps make these visions a reality. Our critical theorizing spins a new society into being.

If this is the case then the power of critical consciousness becomes far greater than we ever imagined. We are forced to reexamine the relationship between consciousness and what FIDUROD calls reality. What, for example, is the relationship of the mind to socio-cultural, political, psychological, and even physical change? Evidence continues to mount that there is a far more direct relationship than the Cartesians, Newtonians, and Baconians ever imagined. Thus, in our great escape from the pathologies of dominant Western culture and its imperial power wielders, we reconnect with a respect for the wisdoms of subjugated knowledges. Just to mention one of an infinite number of oppressed insights, criticalists in this context begin to pay attention to the way the planet operates, the cognitive sophistication it expresses in astounding and humbling ways.

Thus, a critical complex epistemology infused by radical love, enactivism, critical ontology and subjugated knowledges contributes to the emergence of a new world. I'm not speaking here only in the academic realm (although it is a very important contested site), but a libidinally-enriched, erotic, exciting, curious, transgressive

world where monotony becomes an enemy of the state. Education in such a society studies ways of making connections between self and other, becoming more adept at radical love, and acting in concrete, courageous, down-and-dirty ways to end human suffering. As my childhood hillbilly friends from the mountains of Tennessee put it: “he ain’t one damned bit scared of gettin’ hit.” This was a great tribute to the courage and character of the kid in question. Thus, in the hillbilly vernacular of the mid-twentieth century, I want a critical pedagogy and a critical complex epistemology that ain’t one damned bit scared of gettin’ hit by the goon squads of dominant power. Such critical pedagogues are not afraid to seek a higher dimensional ontology. Such an effort combined with sharpening the actions we take for justice becomes a basis for our life long quest.

Decolonizing Epistemology: Beyond Eurocentrism and FIDUROD

It is fascinating to observe the denials among many North American and Western European scholars in particular that the vestiges of positivism and Eurocentrism no longer play any role in contemporary educational scholarship. As Sandra Harding (1998) puts it:

[E]ven individuals with the highest moral intentions, and with the most up-to-date, state-of-the-art, well-informed, rational standards according to the prevailing institutions and their larger cultures, can still be actively advancing institutional, societal, and philosophic eurocentrism (pp. 14–15).

What both Harding and I are particularly concerned with is this blindness among people who attempt to do good work to the tacit Eurocentric, reductionistic dimensions of their knowledge work. What such researchers and pedagogues don’t sometimes see is that the social assumptions that shape the institutions and scholarly communities in which they operate are saturated with such Eurocentric and reductionistic—not to mention patriarchal, homophobic, colonialist, and class elitist—premises. This tacit dimension where dominant epistemologies, ideologies, and political economic policies work behind the scene to shape what we know and who we are is the “ground zero” of twenty-first century oppression.

My conception of a critical complex epistemology is particularly indebted to critical and poststructuralist enunciations of feminist theory. Such epistemological orientations, such compelling ways of seeing the world have helped reveal not only the patriarchal inscriptions on knowledge but also the way so-called objective science is riddled with unexamined assumptions of diverse stripes. Until such oppressive imprints are exposed and understood by a wide body of researchers and educators, the role of research in addressing the needs of the most oppressed peoples in North America, Europe, and around the planet will remain marginal (L. Smith, 1999; McClure, 2000). The critical complex epistemology imagined here works to create an imagination-generating television

screen in our mind. Such a metaphorical video-feed conveys images of what could be into our social, epistemological, ontological, and pedagogical mind's eye, moving us to develop new ways of making meaning and constructing creative interventions into the world of suffering. In this studio of the psyche the insights of W.E.B. DuBois, Simone de Beauvoir, Zora Neale Hurston, Franz Fanon, Max Horkheimer, Theodor Adorno, Herbert Marcuse, Walter Benjamin, and my beloved Paulo Freire inform us from beyond as we seek to improve upon the radical love, creative intelligence, pedagogical insight, and social actions they provided us.

In this context we come to understand that epistemological challenges to dominant power are some of the most radical—defined here as involving the foundations, the origins, the basic principles—objections to oppressive dimensions of what is thought to be true about the world and the people who inhabit it (Harding, 1998; Lepani, 1998; L. Smith, 1999; Bettis & Gregson, 2001). If epistemological frameworks crumble then fundamental socio-political change can abruptly come to pass. The protectors of the status quo intuitively smell the danger of such an epistemological critique—their actions in response to such analysis seem to reveal such fear. The purveyors of power and FIDUROD don't want anyone to mess with their reality maps. The multidimensionality and multilogicality of a critical complex epistemology not only change the ways we map the world but they also move our minds to a new locale in the complex web of reality. Power wielders will become even more defensive of their epistemologies and ideologies when they understand they impact consciousness exerts on reality. I understand that imagining a scenario is the first step in making it a reality—as previously argued if we can “dream it up,” we can create it.

Thus criticalists in this context become threatening agents. As knowledge producers we become traffickers in dangerous knowledge, epistemological renegades who sometimes have to dispense their radical love on the run. Epistemologically, of course, we are not soothsayers but sooth interrogators who reveal dominant power's castles made of sand. Watch, as they slip into the sea—eventually. As sooth interrogators criticalists focus on the politics of knowledge with its corporate media saturation and the informational haze, the knowledge fog that accompanies it. The distraction, the obfuscation, and the confusion such saturation produces is worth the hundreds of billions of dollars corporations spend to keep the data flowing. It is essential to their maintenance of hegemony. In the fog of oppressive knowledge work the peoples who inhabit the poorest nations in the world are represented as outsiders in human history who don't even “develop” the lands God bequeathed them.

For neo-liberal globalization to work its black magic, its knowledge workers must make sure such individuals are portrayed this way. If their everyday suffering is rendered invisible and they are thought of as merely the wretched of the Earth, then transnational corporations and their governmental cronies have a better chance of getting away with their crimes against them. If North Americans and Western Europeans were intimately familiar with the horrid manufacturing and agricultural work such people do for so little remuneration, things might change.

The contemporary West's "unconscious consciousness" that neo-liberalism works so hard to perpetuate is a form of ideological and epistemological hypnotism—one of the "great achievements" of the West over the last century. Critical theorist, Walter Benjamin (1968) referred to this hypnotism as the "dream-filled sleep" of capitalism.

The epistemological predicament of the West has been apparent to many people around the world for decades and decades. This is another justification of the importance of multiple perspectives from diverse cultural places and positionalities. Without these resources we would lose invaluable epistemological insights that could expand our understanding of the shortcomings of FIDUROD and dominant Western ways of seeing. To encounter the power of the epistemological other is daunting, even frightening to those guarding the brittle "sanity" of the Western conscious unconsciousness. Often when Western knowledge producers engage such non-Western wisdom, they quickly discard it as primitive and irrelevant. Thus, some of the most valuable "gems" of the critical universe are relegated to the status of flotsam and jetsam in the River Styx of the dominant Western epistemology. Thus, one of our ways out of gravitational pull of the neo-liberal trance involves deepening our contact and understanding of these degraded others, those marginalized individuals who have much to teach everyone. An evolving criticality and a critical complex epistemology are grounded upon an appreciation and respect for subjugated knowledges.

Critical Western scholars in the larger effort to decolonize epistemology and the knowledges it grounds must travel into the domains of the subjugated. Unlike generations before us—glamorized in the movies by Harrison Ford's Indiana Jones—who made such journeys into such realms for fame and glory no matter what the impact on the others, critical researchers are allies with the oppressed. They understand the abuses of the past and present and work in tandem with indigenous and subjugated people to first and foremost to address their needs and secondly to learn information that can change the West and ultimately the world. As previously emphasized, such researchers are good listeners and humble knowledge workers. Indeed, we understand our culture's and our own scholarly and ethical shortcomings. In this context we gain insights that catalyze our critical complex epistemology, while concurrently employing such an elastic epistemology in our synergistic interaction with subjugated peoples. The result is a magical transformative conversation that moves everyone involved to a new mindscape.

This new mindscape emerging from the interaction of individuals from differing socio-cultural, racial, gendered, class, and geographical backgrounds changes the domineering theoretical orthodoxies of diverse disciplines. Cultural studies, anthropology, biology, sociology, philosophy, history, nursing, communications, and pedagogy to name merely a few can never be the same. Epistemology and ontology lose their monocultural innocence, as they consider new possibilities in light of their new insights. Our assumptions about "what is" are transformed in ways that lead to new approaches to what could be. As Ray Charles put it in a musical context:

My theory was this: if I found cats who could play jazz, I could fix it so they could play my other little items—the rhythm-and-blues things. If a guy can handle jazz, that means he's a good musician (Charles & Ritz, 2004, p. 148).

The same is true in epistemology. If researchers can understand the synergistic relationships between subjugated non-Western and other modes of subjugated knowledge vis-à-vis the transgressive knowledges of the West, they can move to new levels of scholarly expertise in a variety of domains. They can contribute to the elastic, ever-expanding knowledge galaxy created by a critical complex epistemology. Again in Ray Charles' inimitable, brilliant, and always libidinal lexicon:

Traveling round the world opened up my ears. Between the promoter, my friends, and the women I got next to, I discovered music that I never knew existed (Charles & Ritz, p. 278).

As Brother Ray understood in music, Michel Foucault (1980) appreciated in epistemology: we constantly need to refresh our repertoire of knowledge. The data, concepts, regimes of truth, and theories we learn in living in a particular culture at a specific time mold us in their own image and limit our insights into all there is to know in the cosmos. Again, the power of multilogicality is one of the most important driving forces in shaping a world-transforming critical complex epistemology. As we listen to the stories of indigenous and subjugated peoples around the world—whether they concern their school experiences or their memories of when law enforcement officers came to their communities—questions about dominant cultural practices cannot help but emerge. Alternative insights are produced about the way knowledge is constructed by those holding the other end of the colonial stick, those who feel the scorpion sting of oppressive policies. As careful and respectful listeners in such contexts critical researchers learn that it was the research practices of the hegemonic scholars from dominant cultures that helped legitimate the regulatory policies warping the lived world of the indigenous and the subjugated.

Such scholars were too often oblivious to the ideological and epistemological inscriptions that guided their research among conquered peoples. As Maori scholar Linda Tuhiwai Smith (1999) reports, much of the research conducted by Western scholars in her community was “absolutely worthlessness” to community members, to the cosmological concerns of indigenous people in general. Yet the Maori tribespeople knew how valuable much of the knowledge produced was to the colonial agents who could use it as a weapon against the Maori and other indigenous peoples. Such data, Smith writes,

told us things already known, suggested things that would not work, and made careers for people who already had jobs. “We are the most researched people in the world” is a comment I have heard frequently from several different indigenous communities. The truth of such a comment is unimportant, what does need to be taken seriously is the sense of weight and unspoken cynicism about research that the message conveys (p. 3).

We have no choice in a critical complex epistemology: we must attempt to see the world as much as it is possible through the eyes of the oppressed. Just coming to understand through the words of Linda Tuhiwai Smith and the countless indigenous peoples I've heard express similar sentiments that the indigene are a bit cynical about dominant cultural research changes radically the way I think about knowledge production. Just for starters, I know that I have to consider the power relations between researchers and researched. I appreciate the assumptions about the “correct” ways of

doing things implicit in the behaviors of hegemonic researchers. I begin to question who benefits from the knowledge that emerges from research-based encounters. What might happen if, say, indigenous peoples or other oppressed groups had the prerogative to ask the questions? Because of their diverse spatial, temporal, and ideological locations in the matrix of power, the issues with which such peoples are concerned will consistently surprise individuals from dominant cultural groups who are sleepwalking in the trance of unexamined Western consciousness.

Such surprises can shock peoples from diverse backgrounds into new insights not only about oppressed peoples but the conceptual frameworks, ideologies, and epistemological systems in which they have been ensnared. Exposure to such subjugated knowledge helps us reconceptualize our notion of what constitutes expertise. Especially in a cyber-world where knowledge no longer is produced at one validated site, knowledge and expertise emerging from diverse peoples—the indigenous and subjugated among them—not only should but are already playing a new role in the epistemological universe. The survival, for example, of indigenous people has not come from their romanticized “goodness” or from the aid of their European/North American brothers and sisters. Instead, the continued existence of indigenous peoples is the result of their genius as knowledge producers about the multiple contexts in which they live, the ways of the powerful oppressors who have exploited them and their resources, and their amazing ability to find hidden resources in what appears many times to Westerners as the unusable lands to which they have been consigned.

Indeed, to survive many indigenous peoples had to be meta-analytical researchers and epistemologists—though, of course, they would never have used such terms. They had to understand how Western colonizers viewed them, coveted their resources, the role they played in Western produced histories, and the purpose of the research colonial researchers produced about them. In such a context indigenous peoples knew that their knowledges took on a far greater importance than ever before. The decolonization process involves understanding a different version of history than the ones written by the Western colonizers. It involves developing insights into how the colonizers developed and deployed their power to oppress the indigene. With such knowledge indigenous and other oppressed peoples can work to forge their insights into the power to transform the unjust status quo. There is a lesson here for all peoples committed to social justice—subjugated knowledge grants all oppressed peoples and their allies the ability to resist dominant power and to work toward decolonization (L. Smith, 1999; Nowotny, 2000).

Moving Beyond Eurocentric Knowledge: Knowledge Work for Resistance

Critical pedagogy’s relationship to subjugated/indigenous knowledges is a delicate one. The point of the rapport between them is not to produce universalist knowledge that can then be applied to decolonization processes—if it were only that easy.

The reason for the interaction between criticality and subjugated/indigenous knowledges involves creating a on-going, sensitive, open ended conversation that contributes to the both groups: the decolonization and movement toward self-direction by the subjugated and the indigene; and the effort to persuade Westerners to rethink who they are, their history of oppression, and their relationship to the world and the peoples around them. This involves understanding the emergence of Western epistemologies, ideologies, and ontologies, no doubt, but in particular it involves a cognizance of the histories, philosophies, and social and cultural lives of the oppressed.

Thus, it is in this context critical pedagogues and critical theorists set out to learn the complexities of subjugated/indigenous knowledges. Such a quest is not based on the naïve notion that all oppressed knowledge provides us a “truer” picture of the world or a more complete view of the phenomena under study. The point is that we gain another, and very important, vantage point on the planet—a counterpoise to dominant Western perspectives. Numerous scholars refer to these dynamics as a standpoint epistemology. In such a way of thinking about knowledge criticalists start our explorations of oppression from the *standpoint* of those who have suffered at the hands of the multiple agents of dominant power. Because of their geographical, cultural, colonial, and power-related locations on the planet, subjugated/oppressed peoples develop unique epistemological and often ideological ways of perceiving. These unique perspectives help them produce forms of knowledge that differ from other information constructed in other dimensions of reality. Thus, respecting and take this knowledge seriously allows criticalists to profit from this epistemological diversity (Harding, 1998; Mignolo, 2001).

Thus, from indigenous scholars/leaders/singers, critical pedagogues learn new songs of criticality—a knowledge cum metaphoric music that unveils subjugated secrets and unprecedented ways to use them. When I worked on the Rosebud Sioux Reservation I was a fan of the White Buffalo Calf Women’s Society. In a literal musical sense when they came to public gatherings and made tremolo in celebration of some important achievement of a tribal member, I felt the hair on the back of my neck stand up as the other worldly high pitched sound penetrated my soul. The thoughts, the ideas that such music generated changed my consciousness. What an amazing educational experience, we are discussing here. There are great benefits to experiencing different states of consciousness: discerning different worldviews, understandings of the nature of selfhood, appreciating different modes of relationships with other people and the cosmos, etc. Listening to the White Buffalo Calf Women’s Society make tremolo helped me connect with elemental features of reality with which I had never before made contact. My intellect and affective capacities were profoundly touched by the experience.

Taking advantage of these diverse standpoints, a critical complex epistemology explores what many Westerners from dominant culture would consider unthinkable levels of awareness. Viewing these diverse dimensions of the world is mind altering—beware you can never go back through the stargate once you’ve visited the multifaceted, multilogical landscape. This multilogicality, my friends and neighbors, is a one-way street and one’s perceptions change and new ways of seeing and being come into focus. Thus, the standpoint epistemology of oppressed individuals

provides a great place to start a critical investigation. Divergent geographical and ideological constructions have a profound impact on the ways that knowledge is produced and from this knowledge strategies of resistance are devised. Context and knowledge are inseparable—and this becomes a key tenet within a critical complex epistemology. With these frameworks in mind it becomes harder and harder for power blocs to sponsor their own research or appropriate the knowledge produced by others to help in the colonial task of regulating the lives of the subjugated.

Different groups of people enculturated in widely diverse contexts will be attuned to physical, psychological, and ideological nuances that without intense examination make no sense to one another. A critical complex epistemology promotes the necessity of such intense examination. The sense of place developed by many indigenous peoples is a lost insight in the hyperreality of the last years of the first decade of the twenty-first century. The loss of contact with place is an unfortunate consequence of the “progress” of Western civilization. Taking this notion seriously, I try to build an intimate connection between my “selfhood” and my consciousness and the Laurentian Mountains north of Montreal. Everyday, I try to explore and gain closer connection and insight into some dimension of this unique place on the planet. On numerous levels I understand how important this is to many dimensions of my life, not to mention my efforts to stay sane in the hegemonic, oppressive, disconnected madness of contemporary Western society. In this context we can begin to better understand the mindset of the Uwa Tribe in Colombia who threatened to commit mass suicide if Occidental Petroleum was allowed to drill for oil on their ancestral lands (Pacifica News, 2003).

To many of those who operate deep in the bowels of a FIDUROD-based Euro- and **androcentric** consciousness, our discussion seems ludicrous and remote from their everyday lives. The Uwas, of course, from the dominant mindset are just a bunch of crazy Indians trying to get some media attention. Many of these mainstream Westerners have been thoroughly acculturated to ridicule anything that falls too far from the epistemological mothership. Obviously, such Westerners are casualties of dominant power and its insidious ways of tacitly shaping consciousness. Dominant discourses, institutional practices, public information in television and print news, the political inscriptions in various forms of entertainment are all parts of this insidious process. Consciousness, however, is never simply passive and easily moldable. In this process there are always those who resist, who understand the harm to be done if such practices are left unchallenged, who have a desire to be their own person and not just a clone of the hegemonic forces. Indeed, such individuals who seek to resist the callous and inhumane workings of dominant Western power find one of their greatest resources in the standpoint epistemological positions of people from diverse locales.

Nothing was more important to my growth and development as a critical cultural worker than spending years working with Native Americans. I was constantly reminded of the dominant cultural assumptions I had unconsciously adopted and the ways my whiteness tacitly shaped by actions in the world. It was a humbling learning experience and I owe so much to my Native American brothers and sisters

who were such phenomenal critical pedagogues and loving friends. Creating dialogue between critical Western traditions and the standpoint epistemologies and ontologies of diverse subjugated and indigenous peoples is central to the critical complex project—knowledge work for resistance to oppression. What we are referencing here is a process of global-local interaction, a bricolage of knowledge producing and interpretive practices, the multilogicality produced by studying the intersection of divergent cultural logics and conceptual strategies. The possibilities such epistemological interfacing construct should be exciting to criticalists around the world.

A wonderful thing happens when subjugated, indigenous knowledges intersect with complexity theory. As we understand the multiple perspectives of local knowledges, the multilogicality of concurrent ways of seeing reality, we appreciate the concept that new forms of complexity theory and subjugated/indigenous knowledges relate to one another in a plethora of ways. They synergize one another and in their interaction dramatic new insights are produced. Here criticalists gain even more insight into the multiplicity, the dramatic qualities, the power and possibility of human subjectivity. Consciousness is boundless in the options it opens—no limits exist into what we can become and the forms of community and human interaction we can produce. Such insights change the nature of our relationship with knowledge and being. In so many different domains we find the possibility of synergistic interactions between particular Western and indigenous subjugated knowledges.

Even G.W.F. Hegel understood in the early nineteenth century the insight to be gained from attending to perspectives of the slave as opposed to the distorted views of the master. This simple insight into slave modes of resistance—e.g., appearing lazy as a form of resistance was seen by the master as a less-than-human manifestation of racial/cultural inferiority—led to the development of critical theories of discerning how oppression operates. Indigenous knowledges about the language of nature resonate with many of the central points critical theorist Walter Benjamin (1978) made about the immanence of language in everything that exists. For aboriginal peoples the activity of designating something with a name actually constructs the world, in the process opening once again infinite possibility to go beyond “what is” or as critical complex epistemologists know—what *appears* to be. In many ways the Western critical tradition emerges from this awareness of subjugated ways of seeing and ways of being (Dei, 1995; Harding, 1998; McClure, 2000; Dei & Kempf, 2006). Thus, taking seriously the vantage point of oppressed peoples has led to a wide variety of critical understandings around issues of class, race, gender, sexuality, colonialism, etc. Indeed, standpoint epistemology with its appreciation of diverse perspectives led to the very origins of criticality.

The great Lakota scholar, Vine Deloria, Jr. (1972) argued that Western epistemology never grasped the world from a spatial viewpoint. As the notion of a standpoint epistemology teaches us, people produce information in response to the needs of a specific place (and, of course time) and its challenges. As a result, of course, knowledges from diverse places are idiosyncratic. Again Linda Tuhiwai Smith (1999) is helpful, as she discusses the ways that Maori modes of knowledge production tend to

focus on the processes decolonization, healing, transformation and mobilization. Given the place in which they live and the colonized situation in which they find themselves, we can see how such processes can inform cultural workers engaged in knowledge work and social action in diverse locales. The point, of course, is not that other researchers and activists simply imitate the Maori but that their work *informs* individuals facing similar and dissimilar situations in other places.

Grounding a Critical Complex Epistemology on Decolonization and Pluriversality

The dialogue between critical Western epistemologies and subjugated and indigenous knowledges is central to our construction of a critical complex epistemology. As I have argued throughout the book such a dialogue helps us to move beyond the Eurocentric one-truth epistemology of FIDUROD. In this new epistemological climate our political work, cultural understandings, and pedagogical goals are based on the respectful interaction of many worlds rather than one universe where many sub-domains manage to survive. Here the political economic dimension of knowledge production and its ideological consequences come back into our discussion. The aforementioned dialogue among diverse participants cannot be one where we only use traditional social science to explore the historical dimensions of capitalism.

In a critical complex epistemology such an exploration is necessary but not sufficient. In the dialogue imagined in a critical complex epistemology the colonized gain an equal voice in the conversation providing new insights into the morphing, mutating aspects of capitalism—especially the globalized, hyperreal capitalism of the twenty-first century. Thus, a critical awareness of the “coloniality of power” emerges that has too often been absent. This coloniality of power—that is, the effect of colonialism on multiple dimensions of what happens in the world—is not a part of mainstream research on the political economic domain and its impact on numerous institutions in both the domains of the colonizers and the colonized. More disturbingly, however, it has too often not been a part of *critical* discourses concerning these issues.

This is of central concern to an evolving criticality and a critical complex epistemology. Critical theory and critical pedagogy must develop an intersecting epistemology and politics of knowledge that understands history in planetary rather than simply one-dimensional Western terms. In this ethnocentric history the West is the driving historical force and other parts of the world and its peoples exist at the margins of Western concerns. The multidimensional planetary historical grounding of critical perspectives is a central dimension of a critical complex epistemology. Such a perspective does not allow the exclusion of non-Western, subjugated, or indigenous knowledges from our insights into the world. Indeed, since the 1500s all information that was not produced and transmitted in the epistemological and linguistic frameworks coming from Ancient Greece/Greek and Rome/Latin was relegated to a different level of consequence and value (Willinsky, 1998; O’Sullivan, 1999; Mignolo, 2001, 2005).

If I am not using the epistemological logic of the West with its historic Cartesian, Newtonian, Baconian base and its contemporary expression in FIDUROD, then I am incapable of reasonable thought and sound judgment. In other words, I do not exist in the dominant imperial configurations of education and media. Knowledge and practice in medicine provides an excellent example in this context. Westerners, especially many individuals from the U. S., use progress in medical science with its ability to improve life expectancy as proof of the superiority of Western ways of knowing, the genius of Western knowledge production.

Central to the critique of such epistemologies and ontologies offered here is that at the same time Western medicine prolongs the life of one elderly patient from an upper middle or upper class background, countless thousands of human beings die of curable diseases and physiological complications in the margins of both dominant colonial societies and in poverty-stricken countries. Here we find a central dimension of a critical complex epistemology: such an approach to knowledge work exposes the colonialist tendency of the dominant power bloc to announce and make visible its successes while ignoring and covering up the exploitation that can be found in a holistic understanding of any system it has constructed—medicine being merely one of many.

The inequality that such colonial conditions help create, intensifies human suffering among the marginalized and a discursive field in which such degradation is rationalized. In this situation we find one of many ways that multilogicality (or in this case pluriversality as opposed to FIDUROD's universality) provides invaluable insights into the *success discourse* of dominant forms of contemporary colonial power. The insights of individuals from the margins of contemporary colonialism highlight different perspectives on the totality of the globalized system of power and its effects: for example, Paulo Freire in Brazil, Walden Bello and E. San Juan, in the Phillipines, Walter Mignolo and Enrique Dussel in Argentina, Vandana Shiva in India, George Dei in Ghana, Tariq Ali in Pakistan, Shariati in Iran, Abdelkhebir Khatibi in Morocco, Michael Eric Dyson, bell hooks, Aaron Gresson, and Ernest Morrell in the African American community, Vine Deloria, Jr. and Sandy Grande in the Native American community, Lourdes Diaz Soto in the Latina American community, Linda Tuhiwai Smith and Russell Bishop in the Maori community, to name merely a handful of scholars who have much to teach everyone about the effect of this coloniality of power on the margins of the globalized world.

Such viewpoints, of course, teach us not only about the margins but provide priceless understandings into the distorted knowledges and the brutality the colonial center produces. Such information plays a pivotal role in a critical complex epistemology and its effort to decolonize the colonial mind. In this decolonization process those of us from Western backgrounds begin to understand the restrictions of Western epistemology and ontology when we operate only from within such orientations, in the process ignoring the perspectives of **subaltern** knowledge producers. When Westerners begin to understand the colonial difference embedded in their validated knowledges and the modes of cultural (un)consciousness they produce, the decolonization project will have begun (Bernasconi, 1997; Mignolo, 2001; Grande, 2004, Mignolo, 2005).

The importance of the colonial difference cannot be emphasized enough in our effort to construct a critical complex epistemology and a critical politics of knowledge. The point of a critical complex epistemology is not to resolve differences of perspective between the colonizers and the colonized, the oppressor and the oppressed but to establish a permanent dialogue about knowledge and action between these groups. In such a conversation everyone gains as the colonized gain respect for their perspectives and their multidimensional value and greater sensitivity to their social, political, and economic needs, while the colonizers gain insight into both the lives of the colonized and the ways human suffering has been produced by dominant power's epistemologies, ideologies, and ontologies. In this colonizer-colonized interaction the epistemological gaze is turned toward the cultural mores and folkways of the Westerners. In this maneuver the problems, concerns, political economic interests, academic disciplines, etc. of the Europeans and North Americans do not set the epistemological agenda. Indeed, the colonial difference in this context is acknowledged and employed to gain deeper insights into the politics of knowledge.

In the critical complex epistemology and the critical politics of knowledge that are inseparable from such dynamics knowledge workers become profoundly ambitious. In their aspirations to reshape the world in a more just manner, they seek out the keepers of time—those scholars better known in the West as historians. Critical epistemologists understand the way colonialism has had the power to arrange and position occurrences and individuals in a timeline, a so-called linear sequence of significant events. Epistemology and the politics of knowledge are always tacitly historicized—there are always time dimensions that reflect particular social, cultural, political, and economic forms of power. Thus, “world histories” produced by Western scholars who construct a chronological history of powerful men from ancient Greece to the contemporary North Atlantic region could be used as instruments of power. Such official histories worked to exclude non-Western individuals, the poor, subjugated and indigenous peoples from diverse locales, women, non-Christians, people with physical disabilities, etc. from consideration as citizens of the world. Thus, the ambitious proponents of a critical complex epistemology seek to promote the rethinking of the history of knowledge (Parker, 1997; Mignolo, 2001, 2005; Villaverde et al., 2006).

While we have just lived through an era where many claimed that “history has ended” in the achievement of Western neo-liberal democracies and the political economic globalization policies they promote, a critical complex epistemology maintains that history must be reconceptualized by the world community. In this reconceptualization epistemology, ontology, and ideology are viewed in a dramatically different manner. In epistemology FIDURODian universal truths crumble, in ontology Western ways of being no longer set the standard by which human worth is measured, and in ideology new ways of detecting political arrangements that are designed to reward the colonizers and undermine the colonized are developed and put into practice.

Again, I go back to the radical nature of a critical complex epistemology. Unlike other reformist, even revolutionary, agendas of the last couple of centuries, a critical

complex epistemology addresses the very heart and soul of Western colonialism and the power blocs that are inalterably connected to it. Also, unlike many transformation-based schema a critical complex epistemology does not accept Western “rules of the game”—for example, that contemporary Western modes of “development” are the goals of everyone, everywhere. In addition, the goals of the epistemology promoted here do not involve—unlike other many other transformation-based schemas—the construction of its own monological universal truths.

A Humble Cosmopolitanism: Trading Zones of Knowledge Exchange and the Construction of a Worldwide Critical Solidarity

If the critical complex epistemology is taken seriously, everything is open to change, as the comfortable Western assumptions about knowledge, being, and socio-political and economic arrangements no longer hold. In such a critical geopolitics of knowledge the West loses its status as *the* locus of certified knowledge production. Criticalists in this context begin to think of the South as the metaphorical notion that helps us understand the way colonialism has produced human suffering at the periphery of the empire. It is not insignificant, anti-colonialists maintain, that 20% of the planetary population takes home 80% of the world’s income. Disaster awaits the earth if such disparity is allowed to persist.

Thus, contrary to the conventional wisdom colonialism is not merely economic and political—it is also epistemological and pedagogical. Thus, it is the task of critical pedagogues and other critical knowledge workers to reveal the hidden and interacting logics of FIDUROD and of capital in the analysis of both the economic and political dimensions of colonialism and its epistemological and pedagogical dynamics as well. One might label these colonial forces as logics of subjugation insidiously embedded in the discourse of Western progress. In this decolonized, pluraliversal context an evolving criticality finds rich soil in which to grow, as it listens humbly and learns from non-Western, non-patriarchal, and non-class elitist knowledges. Thus, we enter into a new room in the socio-epistemological cave where we work together as humble critical cosmopolitans.

We are cosmopolitan not in the sense that we become callous urbane sophisticates but more in a way that we are informed by a variety of knowledges coming from diverse places. We are sensitive to macro- and micro-political needs of suffering people and the role that we play in the social, cultural, political economic, epistemological, and pedagogical systems that shape such suffering. We learn from Vedic traditions, Islamic insights, the knowledges of East Asia, Hebrew practices, African philosophies, and indigenous ways of making meaning from around the world. These *border epistemologies* help us *change* the knowledges we produce, not simply *invert* them. Epistemological inversion involves the tendency to simply alter one-truth systems. I am not interested in our notion of a critical complex epistemology simply turning FIDUROD on its head and maintaining that all knowledge FIDUROD produced was false and all knowledge the new epistemology constructs is true.

If this were the case, then a critical complex epistemology would simply become the new oppressor. Here comes the new boss, same as the old boss. The point here is that we want to avoid fundamentalisms at all costs—whether they are positivist/FIDURODian universal truths or Islamic, Hindu, Judaic, or Christian orthodoxies. In this multilogical epistemological pluriverse the border epistemology that is created views itself as an agent of connection that builds trading zones for multiple forms of knowledge. Here many social worlds and representations of social worlds mingle in a borderland pedagogical space, where diversity is central but obviously not the only value mutually embraced. Make no mistake, this is a critical space in which the nature of oppression is studied. It is a praxiological space where action based on such study emerges to stop subjugation and the human suffering that accompanies it.

Thus, this critical border dialogue morphs into global solidarity among peoples around the world who support one another in efforts to confront and subvert dominant power blocs and their colonial activities, hegemonic strategies, acts of ecological destruction, and political economic cons that transfer blood money from the poorest to the richest peoples of the world in the name of fiscal progress. Epistemological interaction, intercultural solidarity, and global/local transformative action against oppression are the overt goals of our evolving criticality. Once we engage in a critical form of listening to the life experiences of subaltern peoples, the decolonization of consciousness becomes a real possibility. By attending to both the extra-colonial—those transgressive cultural experiences and insights that emerged outside and before the discipline of colonialism—as well as the understandings that developed in relation to colonialism, everyone can move to a new social imaginary. They can migrate to a new mindscape where a sense of the possible can be recaptured (Eze, 1997; Mignolo, 2001; Kincheloe & Berry, 2004; Shiva, 2004; Mignolo, 2005).

Pigs in Space: Epistemology in Cyberspace

One does not have had to monitor the public conversation over the last 15 years or so very long to hear much talk about the knowledge society. Such an epistemological—though in the public conversation the word is not used—space involves three new dynamics relating to knowledge: (1) the increasing speed at which knowledge evolves; (2) the total number of people who will be expected to be involved in the knowledge work that involves such an evolution; and (3) the development of new cyber-tools with which to engage the new information terrain. A critical complex epistemology cannot ignore such a profound change in the transmission and reception of knowledge and the context in which knowledge is accessed. Thus, the emergence of cyberspace is important to a critical complex epistemology not only because the knowledge terrain has changed but also because of the connections between cyberspace and the control of knowledge in a globalized colonial system. The neo-liberal market is attempting to engulf all media of transmitting and receiving knowledge, and critical pedagogues understand the stakes of a battle over the control of cyberspace. All of the dynamics are central to a critical complex epistemology (Levy, 1997; Franklin, 1998).

Thus, as Doug Kellner (1989) has argued for almost 20 years technological change on the landscape of knowledge cannot be separated from social, cultural, and political economic forces. To help describe the inseparability of capital and technology Kellner coined the term, “technocapitalism.” Such a term takes on increasing importance at the end of the first decade of the twenty-first century, as it helps us appreciate the ways new informational technologies interact with globalized corporatized capital to produce new modes of social regulation and consciousness construction. Indeed, media culture, popular culture, new informational technologies are changing the lived reality of everyday life as well as a new global order. In this changed phenomenological and macro-political world, we have to be constantly mindful of the diverse effects of such changes.

Nothing is predestined in this context; the effects of such forces are still taking shape. While this may be true, it is essential to a critical complex epistemology that we understand the technocapitalistic dimensions of the new information environment, especially around its ability to fuse the information and entertainment sectors in a way that produces an often hegemonic mode of ‘infotainment.’ The achievement of an infotainment culture is a remarkable coup for the power of capital, for such a “cultural pedagogy” penetrates to a geographical breadth and a depth of consciousness never before imagined. Such a dynamic forces us to carefully study capital’s relations of production, corporate ownership of knowledge, and new constellations of collusion between private and state power. The production of colonial knowledge, a critical complex epistemology understands, is no longer simply the province of colonial states but is the product of the intersection of transnational corporations and their governmental allies.

As powerful as the information media of these power alliances may be, however, the jury is still out on how much control of cyberspace this power bloc can marshal. Obviously, this struggle for control of the mediascape and cyberspace is a central battleground in the politics of knowledge of the contemporary era. The dominant power bloc’s capacity to shape public opinion rests on its outcome. Indeed, the role of education in contemporary society in many ways is inexorably connected to these power dynamics. As the politics of knowledge evolves, the types of knowledge and skills that a critical pedagogy promotes in the name of empowerment and justice also change. New types of literacies previously unimaginable—cyber-literacy, for example, emerge in a world that daily grows more complex and mystified (Kellner, 1997; Moore, 1997; Mignolo, 2001). In an era marked by dominant power’s increased capacity for hegemony, how do critical educators employ new knowledge technologies in ways that further resistance to such modes of control while concurrently promoting democratic transformative practices?

A critical complex epistemology understands that in the contemporary era not only that knowledge is produced in diverse places but also that learning now takes place in every conceivable location. In this context critical pedagogues pay close attention to the new educational dynamics of a cybercized society. Advocates of a critical pedagogy understand that a new task confronts them—they must connect with the places and the structures that enable such locales to become sites of

learning. Such venues have little regard for the “antiquated” constructs of the traditional academic disciplines with their long histories of cultural, gender, colonial, and racial biases. In such a context criticality with its power literacy, anti-colonialism, and multilogicality discerns a crack in the disciplinary and epistemological egg that provides an opportunity to change the world. Of course such a critical effort is keenly aware of who has access to these new spaces—the often referenced, “digital divide.” Such a division is nothing new to criticalists, as obviously a central dimension of their analysis of contemporary life involves the dramatic class differences between the colonizers and the colonized, the North and the South, and the oppressors and the oppressed (Marcum, 1998; Sunker, 2006; Kincheloe & Steinberg, 2007).

There is great interest in the social, cultural, political, economic, psychological, cognitive, and educational effects of the knowledge and learning dynamics of cyberspace. Some argue that experience in cyberspace and with popular media undermine the attention span of children and young people. Students who have experiences in these domains lose their ability, such scholars argue, to follow data and concepts in a linear manner. Other scholars maintain that such learning spaces profoundly increase one’s ability to concentrate, to multi-task, to produce meaning from an irregular set of words, pictures, and icons. Such scholars contend that what parents and teachers may perceive as a child’s short attention span may come from her ability to manage multiple forms of informational input very quickly and what is typically provided in “lessons” is relatively one-dimensional and quickly processed. This leaves many cyber-children bored and restless, anxious to get on to a new conceptual hyperlink.

Some research studies (Lepani, 1998) indicate that many indigenous people are more culturally comfortable with multimedia and cyber-based learning materials than with traditional print materials. Many of the most important dynamics of multimedia and cyber-media address not only the analytical capacities of the mind but its affective, aesthetic, and pleasure-based dynamics as well. Addressing these dimensions of the psyche, of course, is central to dominant power’s success in creating desire for consumer products and in cultivating particular empire- and corporate-friendly ideological perspectives. A critical complex epistemology seeks to understand such facets of the interrelationship of knowledge, mind, and new spaces learning in order to engage in praxis and social change for justice.

This is why my work in criticality always involves the domains of:

- Epistemology—to study the production of and logics embedded within knowledge and their uses in the lived world
- Social theory—to understand and produce critical theory(ies) in relation to the multiple discourses that move it/them to more complex understandings of the world
- Ontology—to develop a critical ontology that analyzes the construction of selfhood and the ways we can reconstruct selfhood in a dominant power saturated cosmos
- Cognition—to construct a **postformal** reconceptualization of cognition that understands the ways traditional views of the mind have developed and how we

can move to more self- and socially-aware understandings of cognitive ability that change self and world

- Cultural studies—to understand a discourse that questions the ways academic disciplines are produced and the means by which popular culture is deployed for particular socio-political, cultural, and economic objectives
- Critical pedagogy—to appreciate the ways all of these dynamics shape education and to create new forms of pedagogy that address them in just and creative ways

All of these domains of study must be brought to bear to better understand the new spaces of learning and their impact of general socio-political and educational enterprises. In this process we gain the ability to understand the diverse types of knowledge structures, the **etymology** of their construction, their socio-political purposes, and their educational potential. As we develop the critical complex epistemology and connect it to understanding, shaping, and employing cyberspace, critical pedagogues are not interested in any reductionistic, unreflective acceptance or rejection of it. It exists, it exerts a profound socio-educational impact, and it is used for both oppressive and liberatory purposes. It is impossible at this point to determine what will become of cyberspace, its organizational structures, its power relations, its cultural dimensions, and its ultimate social impact. It is clear that its impact will be profound and far-reaching and that it will change epistemology and the politics of knowledge in unpredictable ways.

So, without technophilic or technophobic pretensions a critical complex epistemology grounds itself on a critical theory of technology (Kellner, 1997) that works to assess the effects of cyberspace and new knowledge technologies. Such a critical theory promotes a multidimensional view that understands the diverse and often contradictory effects of these new pedagogical domains. With this insight criticalists attempt to subvert the oppressive uses of such cyber-terrains and promote work that makes transformative use of the technologies while concurrently helping marginalized groups take advantage of them. Such cyber issues force us to return to our most basic insights about epistemology. What is the impact of the subjectivity of knowers and their location in the social web of reality on the knowledges one encounters and produces? Moreover with the change of positioning of knowers and knowledge in new technological contexts, what social dynamics will emerge that are now unanticipated?

What difference will these concerns about knowledge, multimedia, and cyberspace have to do with the critical goals of transforming society, addressing the empire's new colonialism, and, of course, helping to end human suffering? In the words of Enrique Dussel (quoted in Mignolo, 2001), what does our analysis do to address the lives of the marginalized? What good does it do

for a Hindu beggar covered with mud from the floods of the Ganges; or for a member of a Bantu community from Sub-Saharan Africa dying of hunger; or for millions of semi-rural Chinese people; or for hundreds of thousands poor marginalized peoples in the suburban neighborhood like Nezahualcoyotl or Tlanepantal in Mexico, as populated as Torino?

Of course, the epistemological concerns expressed in *Knowledge and Critical Pedagogy: An Introduction* are simply worthless if they don't lead to insights and actions that

address Dussell's crucial question. I profoundly believe such understandings about knowledge can lead to world changing social action. If I didn't believe this, I would certainly not be spending all this time and effort writing this damned book. Only when we deeply grasp the frameworks and structures of what is called knowledge and are empowered to produce our own can we play a pragmatic role in the critical transformative project to overcome oppression and end human suffering. The new knowledge space demands we reconsider and reformulate our insights into the epistemological domain, not to mention the future of human cognition. Knowledge at the end of the first decade of the twenty-first century is a different animal than it was in the middle of the twentieth century. Indeed, it is no longer presented in a one-dimensional text, for in cyberspace it has morphed into an unstable, interactive, multilogical, symbolic and symbol-generating space that is always vulnerable to the intrusions of dominant power blocs.

In such a domain written text encounters icons, imagery, animated ideographs, new **semiotic** motifs, video, music and other sounds, simulations in forms such as videogames, virtual realities, synthetic life spaces such as "Second Life," ad infinitum. Here the status of knowledge in cyberspace confronts us with questions that artists have been asking for decades. What happens to representations when they are "framed" in diverse ways? Depending on the framing of a painting or in our case knowledge, we tend to make meaning of the representation in quite divergent ways. Where we encounter knowledge, how it's displayed, obtained, reproduced, circulated, and hermeneutically interpreted make a difference in its role in the world. Thus, students of knowledge, its production and reception, its relationship to power, and its effects on the world have entered the cyber-twilight zone (May, 1993; Weinstein, 1995; Kellner, 1997; Levy, 1997, 1999; Franklin, 1998; Dolphijn, 2007; Macedo & Steinberg, 2007).

Contemporary Cyberspace and the Complex Ecology of Knowledge

The **episteme** created by cyberspace and the expansion of dominant power and colonialism points to a world that is growing increasingly complex—a complexified social and epistemological order that is marked by the growth of competing ideological impulses. In this increasingly complex order knowledge doesn't age well, fine epistemological wine turns into vinegar at a quickening rate. Universal assumptions long held sacred by Western scholars crumble into ashes and blow away in the breeze created by a butterfly flapping its wings in a Mormon suburb of Las Vegas. We are all overwhelmed and befuddled by the huge quantity of data in any field or subfield in which we are engaged. Indeed, such a colossal presence of information that we sense we need to know cognitively chokes us, leaving us trembling like a bowl of tomato aspic salad on the mat of the WWE (Worldwide Wrestling Entertainment). We are all inadequate, incapable of getting our minds around the knowledge produced in our tiny little corner of academia, law, medicine,

business, or massage therapy. And higher education, in particular, is set up to inculcate a sense of our own inadequacy into our frontal lobes. Indeed, if we are so defective as scholars/educators how could such incompetents ever have the moxie to challenge the status quo?

Thus, in such an information-saturated hyperreality a critical complex epistemology becomes obsessed with helping ground our efforts to discern what is worthwhile, consequential, and useful in our efforts to live good lives, develop just and environmentally sustainable socio-political policies, to confront multiple forms of oppression, and to help end human suffering. In this complexiverse with these critical goals in mind we must gain the socio-cognitive and epistemological ability to integrate and to discern the systemic interrelationships that connect the knowledges we access and produce. Cyberspace adds to the complex information saturation, while concurrently providing tools that help us accomplish such a daunting task. What we used to label the proficiency of the specialist was greatly respected. In the new complexified cyber-cosmos, however, such a knowledge-skill configuration is grounded on an assumption of a hierarchy of expertise—a know-how that possesses a lengthy shelf life. Such a supposition no longer holds in hyperreality with its constant alteration, elasticity, velocity, and quest for novelty.

Great knowledge-skill innovation in this context will come from bizarre corners of the social fabric—for example, the creation of the personal computer. Here disciplinary knowledge moved much too slowly, became obsolete much too quickly. The arrogance, the misleading sense of confidence constructed by disciplinary cultures induced academic insiders to believe they possessed the truth, the answer to the one central question facing, say, all sociologists of organizations. What, of course, the epistemological and ontological assumptions of such an impulse encouraged such scholars to believe was that knowledge could be departmentalized into one discipline. The problem, for example, with the bureaucratic subversion of the goals of a social service organization is a sociological problem. Obviously, it is a problem of many domains and is seriously decontextualized and reduced when viewed only through sociological lenses. In the complexification of hyperreality problems bombard us holistically—it is merely the conceptual frameworks, epistemological, ontological, and ideological assumptions we embrace that make it appear that we can fragment and isolate such quandaries and resolve them in a linear approach. The world is simply too complex, unstable, and changeable for such FIDURODian assumptions of a fixed and intractable reality to hold (Kincheloe, 1995, 1999; Gee et al., 1996; Lepani, 1998; Kincheloe & Berry, 2004).

In this new ecology of the construction and transmission of data we witness an epistemological/ontological revolution that engineers the fusion of diverse knowledges, a plethora of computer software, email, databases, simulation multimedia, and interactive technologies. The socio-epistemological complexification and time acceleration of hyperreality reveal themselves so profoundly in this context, for during the industrial era knowledge (and its development and distribution) about a vocation or an academic discipline was easily manageable and could be learned in a relatively brief period. Thus, for all individuals attempting to earn a living, develop

their cognitive/affective abilities, do good work, and engage in socio-politically transformative action understandig, making use of these socio-epistemological dynamics becomes an essential meta-skill. The implications for pedagogy in general and a critical pedagogy in particular in this context are acute.

Obviously, the antediluvian No Child Left Behind pedagogies of memorization, inculcation of unproblematized truths, and “factual” recall seem like surreal aspects of a bad acid trip somehow situated in the nineteenth century or a pedagogical horror movie produced and directed by Tim Burton. Certainly, in the midst of the complexities of cyberspace, an understanding of the epistemologies and ontologies shaping knowledge and its usage are central to any pedagogical situation. To understand how who produces knowledge, the nature of its production, the methods and research designs producers employ, the cultural and ideological assumptions embedded in it, as well as the nature of the types of phenomena we study—things-in-themselves or things-in-relationship to the world and its events—is essential in any worthwhile contemporary education. I am deeply saddened by the fact that few venues exist where we can even discuss such pedagogical dynamics. I have often imagined how I would begin a conversation with Western leaders such as George W. Bush, Steven Harper, or Nicolas Sarkozy about these topics. After a few agonizing moments my mind quickly turns to thoughts of baseball.

Central to a critical complex epistemology is the effort to deal with this new complex ecology of knowledge in a way where critical pedagogical and critical political objectives in their present articulation can be not only met but also expanded and reconceptualized in light of cyber-changes and our principles of multilogicality and pluriversality. How do we make transformative use of these new realities? How do we subvert oppressive, regulatory deployment of this new complex ecology of knowledge? How do we position these technological innovations in **emancipatory** ways? A critical complex epistemology provides us with an important “missing knowledge link” in the effort to understand what we know and don’t know and how we might deal with the knowledge dissonance of the present era—an epistemological discord that has trapped many of the people of the planet in a black hole of confusion about the world and their role in it. Thus, this epistemological discussion is designed to explore how cyberspace and the social changes surrounding it can be used in an empowering, transformative community building, pedagogically smart, and democratic manner (Kellner, 1997; Levy, 1999).

It is fascinating to observe the way cyber-technologies are employed in far too many classrooms in the industrialized world. Walking an epistemological and ideological tightrope, many educational leaders and workshop organizers have managed to maintain the status quo while they engage teachers in how to use the Internet and other cyber-tools. Amazingly, many of these computers-in-the classroom lessons are based around using the new complex ecology of knowledge as nothing more than an online encyclopedia with more attention grabbing means of inculcating FIDUROD’s universal truths of the Western empire. Even many educational video games lead students to the correct answers to convergent questions drawing upon the verities of the traditional disciplines. The epistemological issues discussed in this chapter about the new ecology of knowledge and its relationship to ideologies,

paradigms, and pedagogies are not to be found in such a reductionistic educational system. The status quo is not encouraging.

The critical call to fight the power in this context involves taking advantage of the transgressive cyber-venues where critical knowledge can be accessed. In this move the critical complex epistemology helps us appreciate the possibilities offered by these new spaces of contestation and the pedagogies that are inseparable from them. With a more diverse range of data mines with divergent perspectives, we come back again to the types of hermeneutic skills that teachers and students must possess. Being able to use hyperlinks to more resources, engaging in virtual interaction, and exploring new ways of engaging with a topic demand new modes of teaching (Marcum, 1998; Vega, 2001). The mere acquisition of data and the development of evaluative instruments to discern how much of such information has been committed to memory is still a form of pedagogical stupidification, no matter how sophisticated the technology. While a critical complex epistemology is exploring the nature and effects of students and teachers engaged in virtual learning communities, workshop organizers show teachers twelve games to teach them the names of the major generals in the Crimean, U.S. Civil, and Spanish American wars. Turn your back on the complex ecology of knowledge and maybe it will just go away.

Judy in Disguise: Hermeneutics in Cyberspace

Now, none of this is to argue that students don't need to learn particular information in the complex new ecology of knowledge of the globalized society. Obviously, to write about epistemology and the politics of knowledge there is plenty of data that I needed to know. The point, however, is that learning such knowledge is not the be all and end all of my encounter with these issues. In a critical complex epistemology what makes my work with epistemology and the politics of knowledge important or trivial rests on my ability to understand the multiple dimensions of the phenomena, how they relate to peoples' lives, their influence on schooling and educational goals, their impact on our ability to act in the world, and how the insights I produce about them might be used to bring about social justice and end human suffering. With these ambitious, complex, and transformative goals in mind criticalists believe that a critical hermeneutics is central to a critical complex epistemology and, of course, to a change in knowledge production and pedagogy.

In hyperreality one of the key dimensions of any critical pedagogy involves enculturating students and teachers into the ever-changing complex ecology of knowledge. In this zone of complexity a critical hermeneutics becomes not some arcane academic concept but a highly practical skill to help us find out where and who we are. A critical hermeneutics involves developing our interpretative abilities. It is directly concerned with increasing our capacity to make sense of the way the world works and our role in it within a social cosmos where power plays an exaggerated role in shaping knowledge and consciousness. In the socio-cognitive networks provided by cyberspace individuals with these types of interpretive

abilities can engage in shared conversations with peoples from a wide diversity of backgrounds in the process producing an unprecedented collective intelligence and collective action.

In this context a cyber-hermeneutics develops that takes this interpretive ability and moves it into the data-inundated world of hyperreality and cyberspace. In this context cyber-hermeneutics come to understand divergent knowledge structures, how they came to be, the way in which the terms of their production and location shape their meaning and influence, and whose interests they serve. Humans have never been faced with the chaotic informational landscapes they confront in cyberspace—hermeneutics provides us with the ability to navigate such a labyrinth and to take critical action in the midst of the confusion. From epistemological and ontological perspectives where in cyberspace does the real end and the virtual begin? How would one define a virtual space—what is it really? How has it changed since it was first constructed? How do these questions shape how we might think about the purpose of schools in a cyber-era? When all of these issues are contextualized and viewed through a cognitive filter characterized by an understanding of the Western empire's globalized power structures, we begin the processing of mapping the complexity of cyberspace for the purpose of socio-political action.

Such a cyber-power literacy is a central dimension of an evolving criticality grounded on a critical complex epistemology. To think of literacy at the end of the first decade of the twenty-first century as involving only reading and writing print is no doubt a blatant form of myopia. Such skills are necessary but insufficient in our larger effort to develop new critical ways of being while addressing the oppression that produces unfathomable human suffering. In an era where information floods our daily lives and the water is rising, the central task for the knowledge worker involves not just obtaining relevant data, but to sift through the saturated information terrain for meaning, insight, and wisdom. Thus, a critical complex epistemology helps us move to new cognitive domains, a postformal consciousness, where an epistemic consciousness takes us to new levels of complex awareness.

Such an epistemic consciousness is what I'm attempting to create in *Knowledge and Critical Pedagogy: An Introduction*. As you understand by now, this socio-cognitive orientation is a way of perceiving that understands epistemologically how knowledge is produced and politically how power helps construct the nature of this production in the interests of dominant power blocs. Of course, with this insight in mind we move to our critical complex epistemology which grounds our efforts to produce transformative knowledge that leads to pragmatic, transgressive social action. Here the academic and the activist domains can be fused and made into synergistic comrades in the struggle against the empire and for social justice. As previously mentioned, I am so saddened by antagonism and an absence of solidarity between these two groups of cultural workers (Levy, 1997; Lapani, 1998; Marcum, 1998; Vega, 2001; Bereiter, 2002).

These hermeneutic abilities, this epistemic consciousness is so important in the effort to make sense out of the crazy quilt information environment of hyperreality. In the pre-cyber- and electronically mediated era, phenomena in the world—especially

in the correspondence epistemology of traditional science—were differentiated from their representations. In the globalized, mediated, corporate-driven world of the twenty-first century, phenomena, referents, and what are called “real things” no longer exist in the same way. Hyperreality is a society characterized by spectacles: we can no longer have merely “talk shows” on TV, we must have “The Jerry Springer Show”; we can’t have just sports, we have to have the Ultimate Fighting Championship (UFC); we can’t have simply a resort town with gambling, we have to have Las Vegas; we can’t have regular newspapers, we have to have *The New York Post*; we can’t only have wrestling, we have to have the Worldwide Wrestling Entertainment (WWE); we can’t only have religion, we have to have Benny Hinn, Ron Parsley, and James Robinson; we can’t have religious retreats, we have to have Jim and the late Tammy Faye’s now defunct “Heritage U.S.A.” or Orlando’s Disney-fried “Holy Land Experience.” The list goes on and on and on.

The media constantly create spectacles in the process constructing a “media reality.” Such a so-called “reality” from a variety of perspectives could be described as a parallel universe or a virtual reality in relation to other dimensions of the world. In this context, things of the world—political statements, world news events, popular culture, photographic images, etc.—must pass through the hyperreal sieve of electronic media before they become culturally authenticated. I am an insignificant non-entity until I can say: “I’m Joe L. Kincheloe, the entertaining professor, *as seen on TV*.” Obviously, such authentication or certification has profound epistemological implications, as information takes on a new status when it is seen on television. The wretched, hate-filled, right wing paper tiger, Bill O’Reilly of Fox News’ “The Factor,” is one of the most important opinion makers of hyperreality—even though it is quite easy to point out the fabricated, concocted nature of much of what he professes. But O’Reilly and Glen Beck and hundreds of others who know little of the great insights produced throughout the world, throughout history to the present, have their own damn TV shows.

This spectacle-dimension of hyperreality’s new ecology of knowledge takes us back to the previously mentioned infotainment and its ideological importance in garnering support for the neo-liberal, market-as-deity dimensions of contemporary life. Of course, contesting neo-liberal infotainment is one of the great challenges contemporary criticalists face. As most critical pedagogues know, when a teacher induces students’ to ask questions about Disney’s ideological dimensions—the gender politics of “The Little Mermaid” and “Mulan,” the Islamophobia of “Aladdin,” the colonialism of “Pocahontas,” the racial dimensions of “The Lion King,” the white male conquest of the dark-skinned woman in “The Hunchback of Notre Dame,” etc.—great anger can be expected from some quarters.

The pedagogies of infotainment are so powerful that even the suggestion that they are modes of ideological education is in itself a challenge to worldviews that are intimately tied to Disney and other productions of the domain. Indeed, these technologies of entertainment, recreation, and communication both include and reorganize the way we work and play in contemporary society. Traditional forms of play are being appropriated and reconfigured in cyberspace with its Internet and videogames. From a political economic perspective it is fascinating to watch traditional

information and entertainment industry corporations acquire and merge with cyber-companies. Corporate media have engineered enormous amalgamations of organizations that deliver Internet services, cell phones, satellite communication/positioning gadgets, video, and data engines.

With these mergers the concentration of information control moves to a new level, and once again the power of power is exacerbated. Such corporate power wielders know that they must reconstitute themselves in cyberspace if they want to continue to turn profits and control information and infotainment in a way that best serves their ideological and political economic interests—and they have. In such a context cyber-hermeneutics becomes even more complex and challenging. A critical complex epistemology is necessary in such a knowledge era with its political economics, semiotics of power, ideologically inscribed infotainment, ad infinitum. This is not your parents' information environment. Epistemology/the politics of knowledge and the education that accompanies it can never be the same (Kellner, 1997; Levy, 1997; Kalmus, 2007; Macedo & Steinberg, 2007).

Cyberspace, a Critical Complex Epistemology, and a New Socio-Historical Domain

This thunderstorm of knowledge that surrounds us with its new political economic squalls and ideological wind shears has permanently altered the landscape of our individual lives and the larger historical era we inhabit. The knowledge economy of cyberspace interfaces with contemporary modes of social organization, continuing technological innovation, and emerging **culture industries**. The empire's transnational corporate behemoth carefully devises new modes of knowledge production, control, and transmission that lead to frightening forms of social regulation and mystifying cultural pedagogies. Such pedagogies often leave us more confused about the way the world operates and power operates than we were before. The new socio-historical domain has us baffled—we don't even know what to call it. Scholars debate the new era's threats and possibilities. Obviously, the concentration of corporate and imperial state power with their desire to regulate and control poses a threat to human and planetary life. Concurrently, the connective dynamics of the technologies of the new era offer unimagined possibilities to unite people in shared projects for the social good. Thus, we come back to the importance of our multidimensional critical understanding of the complex dynamics of cyberspace that are staring us in the face.

In this cyber-context we begin to consider the importance of human connectedness and the possibilities of the aforementioned collective intelligence and cooperative action. Cyberspace has created a rhizomatic linkage between individuals in diverse geographic locations unlike anything that has ever before existed in human history. The use of the term, rhizome connotes a set of relationships that like strawberries in an open field hold no hierarchies or linear chains of command. Is this what John Lennon had in mind (a premonition?) with his strawberry fields forever? Obviously,

the Internet is a rhizome, a matrix of intersecting nodes and enticing trails. The pluriversal complexity of such knowledge rhizomes is inseparable from the multilogicality of a critical complex epistemology. With knowledge shooting at us from behind every cowboy movie rock and other eclipsed cultural spaces, we are in great need of a connected community to help us interpret the meaning(s) of such an information environment. Indeed, it's just too vast—we can't do by ourselves. Such a rhizomatic collective intelligence is required in the new cosmos we face. Imagine how dramatically the understanding of just this one concept could change the way we conceptualize the purpose and organization of schools.

Such rhizomatic cyber-communities can help us foster interconnections where our socio-political and cognitive possibilities can be moved to new domains of creative action in the world. Always understanding dominant power's intentions and its ability to subvert our transformative use of such tools, information workers and educators employing a critical complex epistemology are empowered to adopt new knowledge identities. Such identities can be developed with the help, of course, of a critical complex epistemology and a critical ontology. In the domain constructed by the intersection of the ways of understanding knowledge and selfhood with the new complex ecology of knowledge, we become more and more attached to the world and its inhabitants. We better understand diverse peoples, see more of what they see, interact with them more, form new types of relationships with them, and construct a synergistic interface with them that makes everyone involved smarter and better able to act in their own and other peoples' best interests.

These communities of difference undermine FIDURODian universalism and absolutism, in the process constructing flexible mindsets that are committed to alleviating human suffering in the most pragmatic manner possible. Here we contribute our cognitive abilities and critical commitments in a manner that moves us to erotic new social imaginaries where education becomes something so exciting and so connected to real issues that motivation takes care of itself. A hypercortex emerges that grows into a supermind with the ability to reach a new level of the videogame of human existence. In our new knowledge identities—our epistemological subjectivities—we grow to better appreciate individuals who possess compelling information about things we don't understand.

Critical theorists and pedagogues see great hope in such new identities and the situations they construct. The "other" in such an anti-**xenophobic** construction is not a threatening agent who "hates our freedom," but is viewed more as an ally, a valuable resource who knows more about many things than I do. The other here is an amigo/a who provides valuable perspectives on who particular groups of people actually are in lieu of who the corporate media has constructed them to be. I can't help but say it—united we can change the world. This is the goal of a critical collective intelligence. It shouldn't be hard with our socio-political, epistemological, and ontological understandings to appreciate the ways that new innovations such as the book and now cyberspace have (and will) influenced human affairs and consciousness. Our critical complex epistemology readies us to deal with and employ the ever-evolving ways that cyberspace shapes the nature and perception of the multiple levels of reality that surround us (de Kerckhove, 1995; Gergen, 1996; Levy, 1997; Lepani, 1998; Cutler, 2002; Manovich, 2002).

The Internet is a form of fractal connectivity that mimics the interrelationship of living things and the planet's ecosystem. In everyday usage a fractal is an irregular geometric shape that can be divided in portions that are from any scale of measurement a smaller replica of the whole. Thus, any part of a fractal will contain within it a representation of the whole phenomenon. The Internet is a fractal as it can be examined from any dimension and it will exhibit the same structures. The user in Kyoto, Japan connects with the web in the same way that one does in Tabor, Alberta, Inverness, Scotland, or Lagos, Nigeria. This fractal, distributed nature of the Internet enables and illustrates its status as a unique type of tool for knowledge distribution and production. In its exceptionality the Internet enables "laypeople" to speak back to the power and expert status of science. John Willinsky's Public Knowledge Project is fueled by concern with such issues, as it examines new and innovative ways to make academic knowledge freely accessible to wider audiences.

Such broader audiences would use the information the PKP helps make freely accessible for the purpose academic knowledge was originally conceived to accomplish: to improve their lives. With such a purpose in mind, importantly, these users can contribute their own expertise and evaluative abilities to contemporary knowledge work, as they provide feedback on the value of particular data while offering their own insights on the phenomenon in question. A critical rhizome is constructed in this context that profoundly changes the knowledge landscape, not to mention the traditions of knowledge work in higher education (Public Knowledge Project (PKP), 2007). FIDURODian science in such situations finds it more difficult to simply announce the truth to passive receivers. Knowing what we know about the self-preserving impulses of FIDUROD, we can imagine the anxiety such new conceptions of knowledge work create in the psyches of the traditional scientific gatekeepers. Indeed, they tell us that it is extremely difficult to maintain objectivity and disinterestedness in such an open access system of scientific knowledge. In order to maintain its rigor and integrity science must be closed off to such amateurs and all of those incapable of producing serious knowledge.

In such a cyber-context the notion of the validity of knowledge—especially the validation process—is challenged. No longer can knowledge only be valid inside a laboratory. In the new ecology of knowledge scientific information must be better able to anticipate the impact a particular body of knowledge will have and the expanding number of individuals who will play a role in such a validation process. This public participation in knowledge production opens a new door in the history of epistemology. A fascinating interaction is now taking place among technology, science, and socio-cultural life in hyperreality. Most scientists operating in the FIDURODian epistemological universe have missed these dynamics, as they have believed that they and they alone speak in the name of science. Despite quantum physics, television and other forces that were undermining the epistemological "common sense hegemony" of dominant modes of knowledge production, reductionists owned the "scientific franchise."

In such a context the scientists of FIDUROD attempted to make sure that knowledge and power flowed from top to bottom. Cyberspace, of course, operates in a way that often turns this hierarchy on its head, as knowledge and forms of power sometimes flow from bottom to top. When such a reverse flow occurs

cyberspace is beginning to work toward a democratization of knowledge and power. As authoritarian, universalistic, reductionistic science faces this cyber-challenge, it realizes that it may be the final stronghold of high culture. Thus, a cyberspace synergized by a critical complex epistemology can work to decolonize research in ways that produce knowledges from diverse domains better suited to the needs of the subjugated. Thus, in cyberspace we have an opportunity to move both into a new episteme and a new socio-historical domain where the nature of knowledge and its uses are dramatically altered (Griffin, 1997; Levy, 1997; Nowotny, 2000; Mignolo, 2001).

Developing Literacy of Power in Hyperreality: Heaven and Hell in Cyberspace

Thus, we can begin to discern a great struggle for the control of the information technologies of hyperreality in general and cyberspace in particular is raging in the contemporary era. Corporate knowledge producers know that more powerful information tools have never existed and they want to use them to make sure the world's people are narcissistic, materialistic jerks who look out only for "Number One" and support an unbridled free market. In the world of the corporate power wielders, greed is good and compassion really is a force that undermines the efficiency of the market. Like any space where knowledge is produced the information technologies of hyperreality and cyberspace are sites of struggle. Knowing this, critical cultural workers and educators work to resist efforts of dominant power to turn these locales into just a few more places where dominant ideology is disseminated. With all the transformative, critical possibility such sites harbor, critical pedagogues cannot allow dominant power blocs to use them to transmit knowledge and skills that corporations use to colonize, expand, oppress, and regulate.

A cyber-literacy of power like literacy in general is about the construction and transmission of meaning. Such a literacy is less about "mastering" information than engaging and "doing" knowledge. As we "do" knowledge, we literally create interpretations and ways of analyzing the forces of the production of cyber-knowledges as we encounter them on the Internet and other media. Thus, with authorship and methods of knowledge production often eclipsed in cyberspace, we are all forced to make instantaneous decisions about the way power is at work in these situations. With our power literacy operating in a critical complex epistemology, we can use cyberspace in the effort to expose the dimensions of dominant knowledge production as well as dangerous information typically hidden from the view of the public. Modes of accountability emerge in cyber-communities that subject governments, transnational corporations, individual power wielders, the corporate media, and scientists to unprecedented public scrutiny.

The knowledge produced in this cyber-accountability process is a public form of critical knowledge—a body of information necessary to counter the knowledges

capital produces that circulate so freely in hyperreality. A critical pedagogy takes the countering knowledges very, very seriously. The fact that such knowledges exist and thrive in cyberspace is almost miraculous from the perspective of the critical complex epistemology. As criticalists have watched corporate power and its logic-of-capital inscribed information expand over the last several years, we find it astounding that despite all the efforts of dominant power blocs to control cyberspace large segments of the virtual domain still remain relatively free from commodification. Thus, the fight to decolonize cyberspace continues with successes and failures, but criticalists can now smell what can be (May, 1993; Kellner, 1997; Lepani, 1998; Sunker, 2006; Valenzuela, 2006).

Glossary

- Androcentric** male centered.
- Culture industries** forms of popular culture such as movies and popular music that work, according to critical theorists Theodor Adorno and Max Horkheimer to help discipline individuals in a way that induced them to act in ways that further the interests and needs of dominant power.
- De-essentialized** complex notion that social, cultural, and political constructs must avoid an essentialism that positions particular groups (women, aboriginal peoples, Muslims, African Americans, Vietnamese, etc.) as perpetually possessing an intractable set of characteristics. Essentialism is defined here as the philosophical view that all elements of a specific grouping of phenomena possess fixed transhistorical, transcultural characteristics that differentiate them from other entities. A complex criticality is both anti-essentialist and strategically essentialist, as it avoids fixed, unchanging definitions of, say, a cultural group of individuals; concurrently, it is strategically essentialist as it understands that particular groups of people may be perceived in particular ways or suffer forms of oppression that are unique to the group in question.
- Emanicipatory** practices that have to do with emancipation. Those who seek emancipation attempt to gain the power to control their own lives in solidarity with a justice-oriented community. In an emancipatory context critical theory and critical pedagogy attempt to expose the forces that prevent individuals and groups from shaping the decisions that crucially affect their lives. In this way greater degrees of autonomy and human agency can be achieved and new forms of human being, interconnection, and community can be developed.

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|----------------------|--|
| Episteme | the view of knowledge that dominates in a particular socio-historical period, an epistemological era. |
| Etymology | the study of the origin of words and concepts. |
| Normative | in a critical context the term has to do with issues of judgments and values concerning “what should be.” |
| Postformalism | a critical theory of cognition that blurs boundaries separating cognition, culture, society, epistemology, history, psychoanalysis, economics, and politics. Postformalism transcends much of the cognitive theory typically associated with Piagetian and many other theories of cognitive development. While more positivist cognitive science has associated disinterestedness, objectivity, adult cognition, and problem solving with higher order thinking, postformalism challenges such concepts. In this context postformalism links itself to the concept of alternate rationalities. These new rationalities employ forms of analysis sensitive to signs and symbols, the power of context in relation to thinking, the role of emotion and feeling in cognitive activity, and the value of the psychoanalytical process as it taps into the recesses of (un)consciousness. In the spirit of critical theory and critical pedagogy, postformalism attempts to democratize intelligence. In this activity postformalists study issues of purpose, meaning, and value. Postformalists ask hard questions concerning the relationship between cognition, knowledge, social justice, and praxis. Do certain forms of cognition and cognitive theory undermine the quest for justice? Do certain forms of psychological research cause observers to view problematic ways of seeing as if they involved no issues of power and privilege? |
| Semiotics | the study of the nature and influence of signs, symbols, and codes. |
| Subaltern | Italian critical scholar Antonio Gramsci’s appropriation of a military term to define oppressed, subjugated, and marginalized groups. Indian social critic Gayatri Spivak later employed Gramsci’s use of the term to signify those who are doubly subjugated, for example colonized women. |
| Xenophobic | having to do with the fear of foreigners, fear of the “other.” |

Chapter 9

The Long March to a New Knowledge Space: Constructing a Critical Complex Epistemology

So traveling through critical space, pluriversal space, and cyberspace we make our way to the new dimension opened by a critical complex epistemology. Here much more is possible, self and world can be changed in almost any way that we can imagine, new human abilities can be developed and cultivated, forms of radical love can be nurtured, knowledge production can become a far more nuanced and creative process, and pedagogy can become something that students and teachers are excited about as they observe the impact of their actions on self and the larger society. In this new epistemological pluriverse we can develop new states of consciousness from which to engage in our work, in the process coming to see aspects of reality never before perceived. For example, as criticalists understand the ontological insight that phenomena exist as things-in-relationship not merely as things-in-themselves, they begin to focus on web-like conceptual connections between things-in-the world that before looked like empty space.

Recognizing this “in-between,” this non-material consciousness-produced connective “tissue” changes the world. The “true reality” of Western waking consciousness that all contemporary Westerners have been acculturated to see (and see exclusively) is merely one dimension of the multiple realities perceived by diverse cultures and peoples in different times and places. Thus, the more we know about such cultures and times, the more we can sense about the world around us, the more we can imagine different ways of being both at an individual and social level. Again, I am profoundly excited by this trek into an evolving consciousness, the pluriverse, a world where dominant power is challenged, an education more exciting than any theme park ride, and a critical complex epistemology. The socio-pedagogical ride I’m describing involves more than an exploration of our consciousness—although this is a key part of it; it entails more than being involved in a political movement to end human oppression and suffering—although this is a central dimension of it. It involves both a journey inward and a journey outward. It cannot exist without the synergy of both tasks, as they are brought together conceptually by the critical complex epistemology and operationalized in an evolving critical pedagogy.

Thus, a critical complex epistemology blasts open the windows of awareness that had been nailed shut by FIDUROD and the positivist tradition. As we open the window, we might gain the ability to envision consciousness, for example, as

a liquid concept that contains within it spatial and temporal features. Imagine that as we perceive something we bathe it with such a fluid that then flows to other entities connecting them to one another and to our minds. Indeed, such a liquid consciousness flows from one individual to another in both the contemporary world and through time to individuals long deceased who have left various artifacts including the objects they created, their writings, and audio and visual recordings. As the fluid of consciousness flows over these individuals and their artifacts, its contents grow richer, packed with ingredients that blend together like spices in a rare cuisine.

In this way a synergy is created that makes the totality of the liquid consciousness greater than the sum of its parts. Thus, an ocean of consciousness is slowly formed in which we are all invested, to which we all have made contributions. Such an ocean of consciousness represents the connections that unite us and that move us to act in the best interests of everyone. Again, transforming such a metaphorical notion into a social, cultural, political economic, and pedagogical reality is one of the goals of a critical complex epistemology. Thus, we return to a central concept of *Knowledge and Critical Pedagogy: An Introduction*—in this critical complex epistemological milieu we go beyond FIDUROD’s correspondence epistemology that assumes that reality is “out there” in a never changing, intractable format completely unconnected to the miracle of human consciousness and all its known and yet unknown capabilities to engage multiple realities (Lepani, 1998).

As Albert North Whitehead (1968) maintained decades ago, Western epistemology began its exploration of human possibility in a profoundly non-empirical manner. Instead of asking what human beings have experienced, reductionistic scholars asked what we *can* experience. In this context such epistemologists dismissed before they began their research a plethora of abilities that humans had reportedly possessed in different historical eras and cultural settings. Such reductionists bought into the Western positivist notion that human beings have very limited communication and connection to the external physical world. Thus, in this conception the world exists in a fixed, one-dimensional configuration and humans have little to do with it. A critical complex epistemology rejects such a deadening, nihilistic view of the cosmos and human possibility. It rejects FIDUROD’s mechanistic notion of the universe and its human and other living inhabitants. It understands that epistemological history did not abruptly end with the development of the scientific method and a correspondence epistemology and that with hard work and a cultivation of the imagination epistemological history is much closer to the beginning of the birth of knowledge than to the *last days of knowledge*.

On an affective level—a domain deemed embarrassing and irrelevant in our contemporary neo-Puritanical educational era—the critical complex epistemology becomes even more important. As I walk through the halls of many contemporary schools—I think of many of these halls as valleys in the shadow of death—I can tap into the fear of libidinal energy and affective notions of joy in the surrounding classrooms and administrative offices. I find my connection with this fear to be quite painful, and I empathize with the nervous students who are being taught to accept a rational irrationality as they prepare for the next standardized test. In such

thanocentric places the worth of an expanded consciousness of epistemology and the politics of knowledge is akin to the value of a dead rat found in the school's basement. The notion that we know little about the nature, power, and potential of human consciousness is irrelevant in these places. When we consider just a few features of one alternate reality—the quantum domain, where like in Strawberry Fields nothing is real in a FIDUROD sense—we get how far we have to go and how much epistemological history is left. Characteristics of quantum reality include:

- A quantum entity such as an electron can exist in more than one location at the same time.
- A quantum object seems to exist in another spatial and temporal cosmos until we observe it as a thing-in-itself, a particle.
- A quantum entity will cease to exist in one particular space and will abruptly move to another location—without traveling through the Newtonian physical space that supposedly separates them. This is typically referred to as the quantum leap.
- As our presence as observers induces one quantum entity to reveal itself, we find that its non-local, interconnected twin object will be affected by our actions as viewers. This will occur no matter how great the distance between the two objects (Goswami, 1993).

Now, your assignment class is to explain why such phenomena take place in the quantum domain and how such activity fits into a FIDURODian epistemology. Please take no more than 20 minutes in preparing your answer.

The traditional Cartesian-Newtonian-Baconian assumption of linear causality crumbles in this quantum reality. What was a FIDURODian mechanistic cause-effect universe morphs into a domain of reciprocity and holism. Reciprocity refers to the reciprocal (give-and-take) relationship between knower and known. The known is always shaped by the knower; the knower always shapes the known. Holism, of course, alerts us to the notion that a dynamic cannot be understood by simply reducing it to smaller units. A phenomenon, a thing-in-relationship, can only be appreciated by understanding it as a connected and integrated whole. Such an epistemological insight strikes at the heart of FIDURODian reductionism—it cannot survive in such a textured zone of complexity. Thus, we make one small epistemological step that can turn into a giant leap for humanity. In this domain rests a profundity that stretches back into the far distant past and forward into the infinity of the future. Indeed, both domains may be less far-off than Western ways of knowing ever imagined.

Our historical research in this epistemological space becomes more important than ever before, as we discover a past that lives in multidimensional ways in the present. Concurrently, we understand that our imaginations operating in what we perceive as the present hold dramatic implications for the future. Here past, present, and future collide in an epistemological and ontological space that sabotages forever our limited FIDURODian notion of selfhood and reality (Burns, 2002; Villaverde et al., 2006). In such a context we might turn to aesthetic domains of cognition that help us conceptually develop and articulate/communicate the ideas that begin to churn in our expanding mind. In my own effort to develop my epistemic understandings

and cognitive abilities, I have often turned to the aesthetic domain. For example, I've long been fascinated with the mind-expanding power of surrealist art.

In the surrealist domain, art provided a peek at both alternative epistemologies and alternative rationalities more like a dream experience than a formal mode of analysis. In lieu of proceeding via linear argumentation obtained from validated data or logical precepts, surrealism used metaphorical modes of analogy that maneuvered to reconceptualize experience in diverse contexts including the affective and emotional domains. Here new modes of epistemology and ontology were developed that led me to new ways of conceptualizing and confronting both scholarly concepts and my lived experience. My desire was to do research and develop pedagogies that approach the relationship between the world and knowledge in a way similar to bees making honey with pollen. Indeed, the way barley is transubstantiated into scotch in the age-old distillation process in Scottish Highlands helps me conceptualize a critical complex epistemology as a process that turns simple observations of the world in to aesthetic and often life-changing interpretations.

To gain entry into these metaphorical but undoubtedly real spaces we must do the best we can to develop a socio-historical perspective on what we're doing—that is, how our social and historical situatedness, our placement in larger cultural patterns helps construct everything we are and all that we do. We'll never appreciate all of these dynamics, there's just too many of them to comprehend—but the more we know, the better start we can make as knowledge workers in changing the pollen to honey and the barley to scotch. This is why it's so important to view the social, psychological, and pedagogical worlds from different scales—both the phenomenology of everyday life and a macro-historical understanding are central to our efforts to produce a more compelling understanding of the way the world operates, its significance for its inhabitants, and its implications for crafting more workable strategies for changing the world in the critical ways described in this book.

One of the hardest dimensions for many to understand about the knowledge work emerging from a critical complex epistemology involves a very basic hermeneutic dynamic. The data collected in, for example, a critical complex ethnography do not constitute some objective body of truth about a particular culture or sub-culture. A critical complex ethnographer knows that what her subjects said about their lives are not to be viewed as inviolable truths but more like interpretations of their lived experiences, social theoretical ruminations about the stuff of daily existence. Their consciousness, too, has been socially constructed and as a result their descriptions of themselves and those around them are colored by diverse assumptions and worldviews. In other words, they are just like all the rest of us. If we were asked similar questions about our lives, our responses would be shaped by comparable forces operating in our contexts. The naïve realism implicit in the belief in the transparency of ethnographic or phenomenological narratives is disconcerting in its artless reductionism.

This weak form of knowledge production, created around the banner of scientific rigor is one of the many reasons we need a critical complex epistemology (Goswami, 1993; Harding, 1998; Parker, 1999). In this context we are unafraid to pitch our epistemological tent on a paradigmatic fault line running through the mechanistic

landscape of contemporary science. As we study the fault line we begin to discern lost, emerging, oppressed, and fresh levels of awareness of whom we are and our role in changing the world. In this context we uncover even more evidence that the world can be reconstructed in socially just, erotic, ecologically sustainable, and creative new ways. As we enter into the last section of the book, we will focus on this reconstructionist dimension, focusing, of course, on our critical complex epistemology. This final part of the book will outline in the same way I did in Part 2 with FIDUROD the characteristics of a critical complex epistemology.

Characteristics of the Critical Complex Epistemology

Knowledge is socially constructed: World and information co-construct one another

In a critical complex epistemology knowledge is not simply a representation of an independently operating reality—the world and human consciousness are much too complex to be explained by such a simple correspondence epistemology. Since knowledge is a social construction, the point of a critical complex epistemology is to understand the nature and the consequences of the constructive process. Beginning with the understanding that the physical and the social worlds do not exist “out there” waiting like belles at an antebellum Mississippi ball to be discovered by charming scientists, a critical complex epistemology appreciates the way human minds shape such realities. This critical constructivist view harbors compelling consequences for research and pedagogy. In this context critical complex knowledge workers know that divergent constructions of the nature of the world will be created as times, contexts, *Zeitgeists*, and thus perceptions change. Thus, as I have maintained throughout the book, educators and researchers who embrace a critical complex epistemology are profoundly uncomfortable with those who would offer final truths about any topic.

Unlike an ever-evolving critical complex knowledge FIDUROD’s knowledge can be stored in the barrels of Western civilization, transferred intact to new locations when it is needed, and be bought and sold. In FIDUROD’s correspondence epistemology such knowledge can be transmitted from one mind to another—as Paulo Freire (1970) put it, such data can be deposited in the students’ minds like money in a bank account. In a more constructivist epistemological orientation knowledge is not a substance that can be transferred from locale to locale but is constructed in a complex process in a larger socio-cultural context inseparable from the minds of individuals operating therein. Thus, in a critical complex epistemology—or as I have referred to this epistemological phenomenon elsewhere as critical constructivism (Kincheloe, 2005b)—the individual as part of a larger social context constructs the reality she encounters. Unlike in an epistemology of FIDUROD, her cognitive processes are not simply efforts to properly reflect “true reality.”

Understanding knowledge as a social construction, a critical complex epistemology realizes that much more attention must be granted to the study of the complexity of the subject-object relationship. What is going on when individuals coming from a particular place and time encounter a phenomenon? At the very least, it is important to realize that there is nothing simple about this encounter; there is nothing simple, straightforward, and linear going on in the knower's consciousness. Indeed, in this complicated process individual knowers stare into the intangible abyss created by conceptual chasms and defects in FIDUROD's mechanistic ways of seeing and being. Such a confusing observation demands whether observers want it or not a reassessment of what the term, reality, actually means. In addition, such innocent bystanders caught up in the complexity of the cosmos, are struck with the realization that they must come to terms with the nature of the connection between subjective consciousness and the so-called "real world." Coming to terms with the notion that knowledge is a social construction is part of the existential dilemma of being human, of being thrown into a world that is so complex and confusing (Capra, 1996, 2007; Geeland, 1996).

Contrary to all FIDURODian commonsense we live in a world that is not only socially constructed but also in a mindspace shaped by this constructed reality. The world that we occupy and the mindsets that we bring to it are both products of a particular time and place and derive their character and meaning in these domains. For example, it is difficult to understand in Western and other cultures of only a few centuries ago—a very short wink in historical time—what motivated alchemists in their efforts to make sense of the world. Arising in the context of different times and places many of the socio-cultural dynamics that drove alchemists are lost to minds constructed in a different *Zeitgeist*. This is one of many reasons why historical research is much more complicated than many think. With these concepts in mind we gain a deeper insight into the complexity of knowledge production not to mention teaching and learning. This understanding highlights the simplification and reductionism of the epistemological world of FIDUROD where all can be easily known and merely passed along to passive students. All phenomena studied from a different vantage point take on different meanings, are constructed in new and divergent ways. This is a central dynamic in understanding the social construction of all knowledge from a critical complex perspective.

Of course, a central element of a critical complex epistemology involves understanding that these constructions of knowledge are always shaped by power. Foucault (1980) argued that the concept of truth was a phenomenon of this world, and as such is constructed by the dominant episteme of any era. Such power dynamics in the construction process bring us back to our concern with the colonization and decolonization of knowledge in the critical domain. A critical complex epistemology understands the diverse and ambiguous nature of these colonizing dimensions and works to cut a swath through the Everglades of the power/knowledge swamp. The decolonizing practices of the critical complex epistemology involve exposing the dominant cultural and ideological assumptions that tacitly construct knowledge, the values embedded the construction process, and the political economic dynamics that help establish who benefits from the activity. In schools working in collusion

with the power-knowledge nexus of dominant culture, students come to understand that “becoming educated” actually means committing such data to their minds without the higher order cognitive functions of, no kidding, questioning where it came from and how it was certified as truth (Mutua & Swadener, 2004; G. Jardine, 2005).

Any scientific construction sooner or later loses its utility in promoting the evolution of knowledge. Knowledge producers view the same phenomena but construct their meaning and relevance for the problems that face them in entirely different ways. In Western society, for example, Einstein understood that gravity was an attracting force in the same way as Newton. The point relevant to our conversation here was that he constructed its etymology from a different conceptual framework and in relation to a variety of physical processes unknown to Newton. Thus, gravity seen in this new light could never be thought of in the same way and, very importantly, held implications for rethinking the way we understood the universe as a whole and the way knowledge was constructed in particular. Shifting to an imperial context, we can take the same insights we appreciate in Einstein’s work in physics and move them into a new epistemological approach.

If the colonized are excluded from the community of knowledge producers, from having a voice in the way knowledge is constructed, and from offering a critique of the exclusive colonial cultural dynamics of the knowledge industry, the knowledges of the colonizers begins to rot from lack of exposure to diverse constructions of the world. Colonial hegemony is perpetuated, as the most compelling critiques of dominant constructions of knowledge are excluded from consideration. Advocates of a critical complex epistemology study dynamics such as these and conclude that knowledges of the human domain are constantly changing constructions, vulnerable to the needs of power, and without claim to a secure foundation. Understanding that knowledge is a social construction may be quite disconcerting for many who felt that by their young adulthood they had figured out the way the world operates. The concept of multiple realities and divergent ways of seeing producing diverse constructions of the world of which we are an inseparable part can undoubtedly induce anxiety. A critical complex epistemology, however, maintains that it is better to get the shock waves behind us and move on to the task of building new knowledge, ways of seeing, ways of being, ways of researching, and ways of educating that make the world smarter, more equitable, more just, and more exciting.

Our constructions are nothing if not tenuous and delicate, always operating in the middle of an avalanche prone terrain. For humans to escape the colonial, corporate power-driven disparate, war-ravaged, fragmented, rationally irrational insane asylum that is twenty-first century globalized society, we must begin with an understanding that we are characters operating in a socially constructed matrix. A pedagogy that works to inform the world of the notion that humans make the world through the knowledges they produce about it is no easy task in an era marked by religious fundamentalism, senseless nationalism, hatred for the other, and a defensive of “my society” right or wrong. Critical pedagogues retreat from their schools to mend the wounds and psychological scars inflicted by the defenders of traditional epistemologies and the ideological status quo. Teaching and researching from a critical complex epistemological perspective is not for the faint of heart. The men and woman

who engage in this activism, this pedagogy must be tough and, as mentioned earlier, ready to take some hits (Harding, 1998; Geeland & Taylor, 2000; Bettis & Gregson, 2001).

Thus, knowledge is a social construction that is always linguistically spawned and socially navigated in a world marked by complexity and multiple causes. No matter what the advocates of FIDUROD tell us, they do not (they cannot) eliminate subjective human inscriptions—anxieties, interests, objectives, cultural assumptions—on the knowledge they produce. Language is so important in this context, for it is in part through language that we encounter a world already under construction. Obviously, this constructive process is ongoing and incomplete, as it waits longingly for a critical complex epistemology to make it something better than it presently is. As we discussed in Chapter 2 the world is made of language. In a process that many indigenous cultures refer/referred to as magic, language brings forth the world.

Contemporary epistemology is just now catching up to indigenous understandings of language, some of which were developed millennia ago. Thus, the smarter we become in a linguistic context, we not only gain the ability to express ourselves in a more compelling way but we also become more capable of constructing a better, more intelligent and socially just world. The cosmos is in part a linguistic entity. Shifting discursive constructions are constantly shaping and reshaping the world and the individuals who populate it. Critical magicians study the specifics of these dynamics and use them to perform epistemological and ontological prestidigitation. Thus, for example, language is transformed from something heard to something seen and felt. As we develop our linguistic abilities and symbol systems, for instance, using our existing alphabet with iconic images from videogames and cyberspace to create a more expressive language, our power to remake the world intensifies.

The reason we work to understand that knowledge is a social construction is not because of some arcane academic need but because it is one of the multiple pathways to restructuring the world. In this way critical cultural workers and critical pedagogues employ the synergy between indigenous knowledges and contemporary social theory to move to levels of insight and praxis. What appears to be unexplainable in one linguistic community may in another be easily articulated. Once again the need for multilogicality, multiple perspectives, multiple methods, and multiple languages rears its head. An emotional notion, for example, that is hard to express in psychological language may be effortlessly articulated in an aesthetic context. And again, once such an emotion is expressed, it exists. The artist has created it—and it lives albeit in idiosyncratic way among those who view the picture or read the poem. In this context the importance of poets, novelists, painters, musicians, and other artists can be conceptualized in a fresh context.

Knowledge workers in such a critical complex epistemological context are not mere functionaries of the dominant power bloc, but are creators of the universe. If educators understood the epistemological and ontological importance of the knowledge production process, I believe they would approach it in a different pedagogical framework. Thus, amazingly the linguistic dynamic cannot be separated from the epistemological and ontological dimensions. As previously argued, in a critical

complex epistemology if we can think it and articulate it we can bring it into existence. The world is stranger than we thought. In this analysis of the social construction of knowledge it is important to note that modes of knowledge production and the social contexts that shape them co-evolve. There is no one-way flow of causation, e.g., language does not simply construct reality, for reality is always constructing language. In this context a pre-formed world does not merely create language; language and the world co-construct one another. Thus, the linguistic magic we are playing with here is a co-constructed phenomenon. Historically, we can explore this dynamic in the process learning more about how we became what we are and, of course, what we might become (Rouse, 1987; Van Manen, 1991; Harding, 1998; Gale, 1999).

It is in a way humbling to understand these co-constructive dimensions of knowledge and culture. As humble cultural workers and educators we realize that we (all of us) have latent powers that are quashed by the logic of Western civilization and especially its educational institutions. In our work informed by this dimension of the critical complex epistemology we learn to use our latent powers and employ them for addressing oppression and ending human suffering. We ask why in the present culture of knowledge do scientific questions important to dominant power blocs and their profit margins take precedence over questions relating to pressing human needs. Contrary to prevailing “commonsense” social, cultural, and political economic forces help determine what science actually does from the beginning—how it works and what goals it seeks to accomplish. Scientific methodology—although one might not know from an examination of the way we educate researchers—always deals with issues of values, politics, ethics, and modes of representation (Bettis & Gregson, 2001). In this context, questions of the way power helps construct science and the knowledge it produces should always be raised. In a critical complex epistemology, they are.

Consciousness Is a Social Construction

Human consciousness is such a complex and bizarre phenomenon that many social and psychological scholars have literally ignored it, arguing that since it doesn't lend itself to empirical measurement it doesn't exist. One of the most understudied dimensions of human and social life over the last four centuries of Western science has to be human consciousness and its formation. While human consciousness like knowledge is a socially constructed phenomenon, this does not mean that consciousness is not a miraculous force that concurrently helps to shape the universe in which we live. Again, the notion of co-construction appears. In a FIDUROD-based research and educational context researchers, educators, and students simply don't analyze why they think about themselves in particular ways, the world in which they live, and their connections to that world. In FIDUROD's construction of consciousness men and women are not aware of the socio-cultural and epistemological

dynamics that shape them. As long as a “normal selfhood” remains unchallenged and the inequitable status quo is tolerated, contemporary education plods on without concern for the consequences of the way society constructs consciousness.

Indeed, a FIDURODian epistemology and the education it supports view cognition as a neutral process that takes place in a vacuum. A critical complex epistemology understands that thinking and acting in new ways always necessitates personal transformation; if enough people think in a new modality, social transformation is inevitable. This notion, of course, works in diverse and multifaceted socio-political ways. Knowledge and knowledge spaces help shape consciousness—and vice-versa. As we discussed in Chapter 8, these knowledge spaces—as in cyberspace—are constantly morphing in unexpected and profoundly influential directions. One aspect of a critical complex epistemology involves understanding the specific process by which such evolving spaces construct consciousness and the ways such dynamics affect how we engage the world and produce knowledge about it. Indeed, understanding this process is a key dimension of critical knowledge work.

Western commonsense induces us to think of our fellow humans as solitary, bounded entities, when in actuality we are rhizomatic beings who connect to everything around us via tentacles invisible to our naked eyes. Thus, consciousness is formed by everything with which we engage in the world. The notion hits us yet again, we are more complex social beings than Western science ever imagined. In contemporary hyperreality we are profoundly influenced by communications from commercial sources that help produce multiple selves in each one of us. As we are shaped by these forces, the boundaries of what has been viewed in the West as an inviolable selfhood begin to fade like a child’s chalk writings on a sidewalk during a summer downpour.

Here, we become more and more aware of the social construction of consciousness and the limitations and distortions of the Western notion of the abstract individual. Under the flag of individualism, students are taught the “me-first” curriculum of self-gratification that makes us vulnerable to the sirens of capital with their consumption cosmology. Consumption as a *raison d’être* in a world of self-gratifiers subverts critical notions of civic courage, democratic citizenship, loyal friendship, radical love, and egalitarian sexual relationships. Through capital’s filter of consumptive self-gratification all of these notions are altered in a way that makes them more about us than the relationships they necessitate. As a critical complex epistemology helps produce a meta-awareness of the way consciousness is constructed, we become better equipped to critically analyze the nature of the individual, individualism, and the possibilities of interdependence.

One reason this situating of consciousness and its social construction does not occur in a reductionistic epistemology is that many of those involved in the knowledge production and educational processes do not have the historical, philosophical, sociological and cultural studies backgrounds to delineate what is involved in such practices. Concepts derived from these areas of study would help knowledge workers and pedagogues discern the ways that dominant power subverts self-awareness and politically democratic impulses in numerous places, including the social, epistemological, psychological, curricular and pedagogical. In the Western

globalized empire, representatives of dominant power operating in these domains work around the clock to construct the consciousness of individuals in ways that serve the interests of the dominant power bloc. Such power operates to make individuals more acquiescent to the needs of corporations, more accepting of market-driven governments and the needs of globalizing economic orders that benefit North America and Europe.

Understanding these political dimensions of consciousness construction is central to a critical complex epistemology. The notion of an abstract individual shaped outside the borders of the socio-political world is the tacit FIDURODian conception of “self-production.” FIDUROD’s abstract individual can reason, possesses individual autonomy, and can pursue *his* economic self-interest free from any socio-political and cultural constraints (L. Smith, 1999). It is this type of thinking that sees I.Q. as a realistic, objective depiction of an individual’s innate ability—socio-political factors such as race, class, and gender in this conception and the oppression that surround them have nothing to do with I.Q. in this model. The complex modes of analysis promoted by a critical complex epistemology maintain that consciousness cannot be separated from history.

All human thought and activity take place in continuity with the forces of history. Contextualization is inseparable from consciousness and action. A central dimension of a critical complex epistemology involves bringing this understanding to the public. With such insight critical theorists begin to realize that consciousness is constructed by individual agency, individual will, and the ideological, discursive and regulatory influences of social forces. Yet again we return to co-constructivism: the self is both structured by forces and a structuring agent. Thus, consciousness is not constructed by socio-historical formations that wholly shape our ways of seeing; nor do free and independent individuals unhindered by the burden of history autonomously construct their consciousness.

Michel Foucault (1980) was always profoundly insightful in delineating the way that power blocs and epistemes operated in tandem to construct the way we engage on a daily basis with the world. In this context Foucault described a nuanced process of how individuals shape their own identities while concurrently being influenced by the power/knowledge they encounter. Western societies realized in the 1700s that it was much more efficient and effective to use power to shape individual consciousness in ways that resonated with the needs of the ruling class than to physically force citizens into compliance with the dictates of the regime. Thus, power shaped consciousness in what Foucault called its capillary expression—that point where power connects with the heart and soul of individuals, disciplines their bodies, shapes their attitudes, their language, the ways they learn, and their phenomenological level of existence. In such a disciplined society power wielders would not have to use violence as often, as they could count on citizens’ individual consciousnesses to mold their behavior, their allegiance to the dominant power bloc.

It is much easier for those who come from cultural locations and social backgrounds different from our own to see the process of our consciousness construction. Because of the blinders crafted by our racial backgrounds, class location, and gender

awareness, we find it difficult to perceive this intricate process. It is always hard to see ourselves as others see us (Grof, 1993; Levy, 1997; G. Jardine, 2005). Though one of the goals of a critical complex epistemology is to accomplish this feat as much as is humanly possible. Yikes, self-consciousness is always in a fight to the death with ethnocentrism. Self-consciousness triumphs as we come to realize that our ways of seeing and being, our theological contemplations, our notions of ethical behavior are not the *only ways*. Thus, a critical complex epistemology pushes us to adopt a humble multilogicality that appreciates the power of difference. Employing our humble multilogicality, we cut our socio-psychological umbilical cord to the Western epistemology of FIDUROD. You are now free to move around the cabin—to explore the possibilities of reshaping human consciousness and our collective future.

I'm excited by the idea that an education guided by a critical complex epistemology becomes in part a genealogy of consciousness where students and teachers study the forces and the processes that produced their consciousnesses. No matter what the grade level, students from elementary school to graduate school can become scholars of the genealogy of consciousness. Our critical complex genealogy is a key step in our efforts to become more epistemologically savvy. Leaving behind our epistemological childhood, we move to a new level of self-awareness that is buoyed by its insight into the influential rhizomatic connections we make with the world. In my own personal genealogy I understand how much my interaction with the Baddaddies—referenced in Chapter 1—helped construct my consciousness.

After connecting with the affective power of the Baddaddies' music and the soulful dimensions of the early rock and blues coming out of the African American community of the era, I wanted something (an ontology?) that transcended the low-affect, often arrogant, bourgeois culture of the upwardly mobile who were supposed to be the models for those of us who didn't possess dominant cultural capital. I didn't want be like them and I didn't want their unreflective consciousness—hell, I still don't. I'm on the lam, still avoiding those who would attempt to construct my consciousness in this dominant cultural way. I still want to know how I can be something different and hopefully better. I still want my critical pedagogy to help shape self-conscious students who gain the capacity to imagine modes of consciousness that earthlings have never before imagined.

Political Struggles: Power Plays an Exaggerated Role in the Production of Knowledge and Consciousness

Throughout this book I have made the point time and again that the domain of epistemology cannot be separated from the politics of knowledge. The “critical” dimension of the critical complex epistemology revolves around the notion that epistemology cannot be conceived apart from the ideological and political domains. That power shapes epistemology on multiple levels, in the process creating modes

of knowledge and knowledge production, holds profound consequences for everyone who comes into contact with such information. Advocates of a critical complex epistemology understand that epistemic disputes are not only debates about knowledge produced concerning the nature of reality but are part of larger political struggles. All knowledge most criticalists now agree is produced within power-driven social and cultural practices and cannot easily be removed from the denotations and connotations that power renders attainable in a particular historical moment. A critical complex epistemology works to expose and challenge the might-makes-right dimensions of knowledge production in a colonialistic, corporate-driven, globalized empire.

Contrary to many critiques of dominant power's impact on science, a critical complex epistemology maintains that external influences of power—for example, a philanthropic funding agency that subsidizes studies that are in the best interests of corporate or patriarchal arrangements—are only one dimension of the way such forces shape knowledge production. FIDUROD's versions of scientific knowledge emerge in conjunction with these power relations rather than in resistance to them. As argued throughout *Knowledge and Critical Pedagogy: An Introduction*, power is implicated in the assumptions on which the Western reductionistic science is constructed. In this framework power often times is like a quantum entity, in that its location is ever elusive and is hard to locate in one particular domain of scientific work. Furthermore, it cannot easily be pinpointed as resting in the hands of one specific knowledge producer. It is web-like, distributed, and always seeking to hide itself from critical analysts. This is why it is so easy for powerful organizations and their representatives to deny their complicity in the exercise of dominant power and the oppressive knowledge it so often produces. Its web-like, rhizomatic nature makes it appear to be everywhere and nowhere at the same time—a great way to protect the power of power.

There is no doubt that dominant power blocs can and often do use epistemological power to quash those individuals who promote knowledge that is perceived as a threat to the status quo or to promote those whose information seems to support the interests of dominant power blocs. While these dynamics are essential to understanding a critical complex epistemology and the politics of knowledge, they do not address the way that dominant power is implicated—via the characteristics of FIDUROD, for example—within scientific knowledge production. Such internal effects of power on scientific knowledge production are particularly important because they are invisible to most observers of the scientific process and consumers of knowledge. Thus, dominant power operates in both the internal scientific processes of research design and methodology as well as in the external processes of censoring or promoting the knowledge that science produces. In both cases these activities result in the production and transmission of ideological knowledges, official propaganda for powerful interest groups, that perpetuate oppression and the dominance of the multiple power blocs that operate in the contemporary era.

In the information climate of the twenty-first century it is becoming increasingly rare to hear from spokespersons on the corporate media who are not the sanctioned

voices of a powerful organization. As they spin data about the issues with which they are concerned, they promote the narrow self-interests of their institutions. In such situations information is not disseminated as much as it is deployed to promote their agendas and influence. The growth of so-called think tanks has furthered disturbing trends in the relationship between power and knowledge as representatives of such foundations use their access to corporatized media to spout not measured research on particular issues but ideological justifications of the policies promoted by those who finance them. At the end of the first decade of the twenty-first century dominant power has produced a crisis of public knowledge. We see the effects of such knowledge production and dissemination in elementary and secondary schools with their standardized knowledges and indoctrination pedagogies that subvert open and unrestrained explorations of important scientific, social, and historical issues.

In higher education we see similar processes occurring with the privatization/corporatization of the knowledges produced and taught in such venues. What we call truth cannot simply be conflated with power, but certified truth and dominant power are always quite cozy in their illicit relationship. The politics of truth are always hanging over the head of those concerned with oppression and social justice. For those of us who operate in universities the aforementioned corporatist influences turn the overhanging politics of truth into the sword of Damocles dangling by a single horsehair over the head of academicians. I know that if I am too successful in raising these issues about the power dimensions of epistemology and the politics of knowledge the metaphorical sword is ready to do its bloody work. Indeed, if critical scholars provide too much interference in the corporatist, imperial university's effort to provide universal definitions that support their benefactors, they know they are nothing more than expendable commodities in higher education's twenty-first century logic of capital (Rouse, 1987; Saul, 1995; Ward, 1995; Harding, 1998; Fenwick, 2000; Steinberg & Kincheloe, 2006).

David Geoffrey Smith (2003) argues that in this contemporary corporatized, imperial context epistemological logics morph into their opposites and become a "Great Inversion." In this inversion corporatized knowledge production becomes incapable of addressing the broader grotesque realities unleashed by the new globalized empire. In this imperial knowledge order everything is rendered measurable by FIDURODian methods. Despite the growing disparity of wealth, corporate quarterly profits rise; despite an effort to use schools to stupidify the public, test scores increase; despite the political economic colonization of a poor nation, its Gross National Product (GNP) goes up. None of these measurable quantities tell the whole story. There is an underside, a hidden dimension in all of them that benefits dominant power while harming the least powerful. Certified knowledge in these and thousands of other contexts becomes a vehicle for promulgating great untruths (Saul, 1995; D. Smith, 2003). A critical complex epistemology recognizes dominant power's creation of a global knowledge crisis and is dedicated to bringing it to the international public's attention—and to the process by which their consciousness is constructed.

The Necessity of Understanding Consciousness—Even Though It Does Not Lend Itself to Traditional Reductionistic Modes of Measurability

One of the most important blind spots of traditional science, FIDURODian epistemology, and even mainstream cognitive and psychological studies themselves has been in the effort to come to terms with consciousness. In a critical complex epistemology it is necessary that we gain a deeper and thicker understanding of consciousness than presently exists in the scientific establishment. Thus, criticalists understanding the centrality of consciousness to every dimension of critical pedagogy and knowledge production focus much attention on this dynamic. Always prescient, Francisco Varela (Scharmer & Varela, 2000) understood early in his career that special research methods needed to be devised to study the bizarre, unpredictable world of consciousness. We know about the physiology of the brain, he maintained, but we don't know about the nature of consciousness—and consciousness may be the most sophisticated dimension of being human. What an epistemological irony this is: the most amazing phenomenon yet discovered is often dismissed because its makeup doesn't fit with our mechanistic epistemological assumptions and thus our research capabilities.

Several decades before Varela's work, the great Russian psychologist Lev Vygotsky was also concerned with a science that had not developed either an interest or methods of studying the development and nature of human consciousness. In this context Vygotsky maintained that the study of consciousness must involve more than traditional empirical notions of "direct evidence." The psychological student of consciousness must be more like a crime investigator and make use of indirect evidence and circumstantial insights such as the manifestations of consciousness in aesthetic productions, literary work, philosophical treatises, and various forms of anthropological data (Kozulin, 1997; Vygotsky, 1997). The implications of Vygotsky's contemplations for a critical complex epistemology in general and the study of a phenomenon such as consciousness in particular are profound. Even at the end of the first decade of the twenty-first century such 80-year-old ruminations can revolutionize the way we explore consciousness.

The point is so obvious that it should not have to be made here—but this is unfortunately not the case: consciousness is central to what it means to be human. Phenomenologists have traditionally argued that the study of consciousness within traditional science has been limited by two central factors: (1) consciousness is unlike any other phenomenon found in the cosmos; and (2) most dimensions of consciousness cannot be appreciated using the mechanistic epistemology of positivist science and the methods of direct observation and measurement it sanctions. Indeed, consciousness cannot be studied in the same way a structural engineer might examine a bridge (Husserl, 1970; Steward & Mickunas, 1974; Schwandt, 2000).

Varela is again helpful, here, as we are faced with the development of a method of studying consciousness. In his work on consciousness Varela drew upon sources as diverse as phenomenology and Buddhism to construct a method he labeled, suspension.

Varela uses the term, suspension, to refer to humans' amazing ability to take themselves out of the contemporary West's "normal waking consciousness" and its habitual ways of ignoring and repressing the multidimensional states of consciousness all individuals are capable of achieving. In this context, Varela argues, we can learn more about consciousness and its diverse dimensions by moving from a first person perspective to a third person vantage point. Here we can begin to see dimensions of consciousness that were occluded by our immersion in the "I" of the first person. We can begin to discern more clearly the constructed and constructing nature of consciousness (Scharmer & Varela, 2000).

Adding to Varela's insights on the study of consciousness is the work of curriculum scholar, William Pinar. In his notion of *currere* (the Latin root of the word, curriculum) Pinar develops an epistemologically grounded research method for studying students' consciousness of their educational experience. In *currere* Pinar takes phenomenology and runs it through the insights of psychoanalysis and aesthetics providing us with a profoundly valuable insight into the inner world. Like Varela, Pinar is attempting to get us beyond commonsense, that which we take for granted in consciousness. As we loosen our identification and association with the substance of our socially constructed consciousness, we begin to gain a degree of conceptual distance—a meta-perspective on our psyche. In this new mindspace we are better equipped to view those modes of consciousness that are shaped by cultural conditioning and unconscious obedience to the manipulations of dominant power (Pinar, 1975, 1994, 1999). Employing our critical complex epistemology in conjunction with Varela's suspension, Vygotsky's indirect evidence of consciousness, and Pinar's *currere*, we can devise a synthesis that opens a new era of knowledge production in the study of consciousness.

Thus, a critical complex epistemology cannot separate itself from the effort to study the multidimensional nature and the social construction of consciousness. Knowledge workers guided by our epistemology employ the aforementioned methodologies along with the textual analysis of hermeneutics to gain new levels of self-awareness. Such self-awareness is important not only for its intrinsic value but also for the way it contributes to our sophistication as knowledge producers and educators. As critical complex analysts situate themselves historically and socially, they gain the ability to see things about themselves and the world never before imagined. Thus, they are empowered to make informed decisions about who they want to become and how they will cope with the imperial ideological forces that permeate hyperreality.

The Importance of Uniting Logic and Emotion in the Process of Knowledge and Producing Knowledge

A critical complex epistemology is dedicated to using both the logical and emotional dimensions of the human mind in research, knowledge production, and pedagogy. In such a synergy our logical understandings of the world take on far more complexity and insight when combined with the variety of ways humans know through affect and feeling. One of the reasons that many forms of religious fundamentalism

have experienced great success in the contemporary era is that they are unafraid of tapping into the power of human emotion. Of course, there are a multitude of factors—e.g., the belief that they and they alone have the truth—that make fundamentalism in any religion a dangerous and divisive force. But fundamentalist leaders do understand that people living in the hyper-rational, imperial world often feel a need to connect to the emotional power of human consciousness.

FIDUROD is simply unable to deal with the possibility that valuable knowledge and insight can be gained via emotional forms of knowing. Thus, Western science encounters a profound epistemological problem, as fidelity to objective, rigorous science as it is defined in the mainstream of science disallows use of some of the most powerful aspects of human perception. The ability to cultivate and make meaning from our emotional “gut” feelings, our intuition, and our imagination is central to the next stages of human evolution. In the colonial matrix constructed by imperial power, logic is the province of male Westerners from upper-middle and upper class locations who have been properly educated. Emotion, intuition, and the imagination are associated with women and non-Western peoples from colonized and indigenous backgrounds. Such ways of knowing, of course, are placed on a hierarchy of civilization with—and I know this is hard to believe—logic taking precedence over emotion (Thayer-Bacon, 2000, 2003).

The Italian critical philosopher, Antonio Gramsci was well aware of these epistemological issues as he wrote in his notebooks in Mussolini’s prisons in the late 1920s and 1930s. Scholars, he maintained, commit a profound epistemological error when they trust that a person can know without “feeling and being impassioned.” An example of connecting logic and emotion from Gramsci’s perspective involved critical scholars’ ability to “feel” the passions of the people and connect such emotions to their analyses of oppression. In this context, such an emotional connection could facilitate critical scholars’ and oppressed peoples’ efforts to appreciate the lived world impact of their location in history and the ways subjugation plays out in the construction of consciousness.

Thus, the identification of socio-cultural and political economic forces is not the only task of the critical scholar. As one identifies the structures of power, he or she must both interpret and experience their affective consequences. Without this emotional dimension I believe that it is hard to change the oppressive social order in a way that creates history. The impediments to such a transformative activity are so great, the work so hard, the personal costs so high that it is much easier for individuals to opt for an easier and more personally aggrandizing path. Even those who are originally committed to such work fall into the trap of hierarchical formality where a logic of bureaucracy shapes the relationship between “the intellectual” and “the people.” The intellectuals move to the higher rungs of the organizational ladder, in the process taking on the benefits of a higher caste (Gramsci, 1988). It takes powerful ideological *vis-à-vis* affective commitments to subvert such tendencies of privilege.

A critical complex epistemology takes these emotional/affective dynamics very seriously. In this context an evolving critical pedagogy understands that contemporary Western peoples’ incapacity to emotionally appreciate the effects of what dominant and colonial power has done and continues to do to themselves, to their less-privileged

brothers and sisters, and to the health of the planet is in many ways a form of large-scale social pathological behavior that in the long run will destroy the human species. There are many horror movie-like scenarios by which such destruction can take place—ecological disaster, nuclear war, biological calamity, unbridled terrorism, etc. The point is that as a market-driven social mobility becomes the goal of more and more of the earth's people, wealth keeps being distributed in grotesquely unfair ways, economic development takes precedence over any concern for ecological consequence, *ad infinitum*, a form of mass suicide takes place.

If we cannot emotionally feel the suffering such mass psychosis is causing and will continue to cause large groups of people then we are existentially dead. We are the human casualties of an emotional narcissism, the capacity of power to construct our ideological and affective consciousness, and FIDUROD's ability to decontextualize knowledge production to the point that we are unable to discern connections between a wide variety of phenomena and their injurious effects. A critical complex epistemology understands that it has an important role to play in the effort to reverse such frightening tendencies. As such a way of seeing reconnects logic and emotion it induces us to care about these stark realities, to overcome our individual quests to confuse the boredom of contemporary life with short term adrenaline rushes, and to tap into the libidinal energy within all of us in a critical effort to work together to avoid irreversible damage to human life.

I am often amazed by the contemporary social, political, and educational arrangements that produce boredom among children and young people. With so much to do to avoid catastrophe in the social domain, with so much creative potential combined with libidinal energy in the individual realm, there is no reason for young people or old people for that matter to be bored in their life. A critical pedagogy is dedicated to engaging affect in an effort to relieve such boredom—in the process changing the world and avoiding continuing disaster for the human species. Dominant Western power, its upwardly mobile class ambitions, its epistemological and ontological ways of seeing and being have created large-scale social problem with intimacy, an inability to connect emotionally with other people and especially other individuals in different cultures and socio-political settings.

In such a context a critical complex epistemology works to create knowledges that strike an emotional-intellectual chord in the collective consciousness of humanity. In this context feminist theorists help contribute to a critical complex epistemology's ability to critique the patriarchal dynamics that have operated to further this pathological approach to affect and emotion. FIDUROD's objectivity is directly connected to dominant forms of masculinity and its effort to not only separate emotion from both the epistemological and ontological realms but to take control over such dynamics (McClure, 2000). Thus, one of the goals of Western science has been to remove feeling/affect from the process of knowing and the process of being. The mechanistic dimensions of such central dimensions of being human are profoundly implicated in the mess in which the world currently finds itself. Indeed, the epistemological dimensions of the separation of logic and emotion rest at the core of what criticality is all about.

Chapter 10

The Conclusion Is Just the Beginning: Continuing the Conceptualization of a Critical Complex Epistemology

There is so much more to deal with relating to these issues, especially in the way that constructing new epistemologies may be central to human survival. While this is no short book, it is merely an introduction to these knowledge-related issues and their impact on numerous dimensions of human life including the production of selfhood, power relations, the dynamics of colonialism, and ecological sustainability and its implications for the planet's future. These are grandiose claims, admittedly, but I don't believe that such ostentation discredits their reality and importance. As I come to this last chapter of *Knowledge and Critical Pedagogy: An Introduction*, I realize how much more I have to write on the topic. I am already planning new books and articles that pick up where I leave off here. With these understandings in mind, I'll bring this book to a close with a description of a few more dimensions of a critical complex epistemology.

The Inseparability of the Knower and the Known

As we have discussed throughout this book, knowledge is something humans produce—it is not sent by God or by the aliens who the *National Enquirer* claimed spoke to President Bill Clinton and Brad Pitt. Beings who came from particular places and times have constructed what we call valid knowledge—these knowledge producers were individuals with many of the great strengths that humans can develop and with many of the weaknesses that afflict all of us who claim to be human. Thus, knower and known are inseparable dimensions indelibly connected to anything we call knowledge. With this in mind a critical complex epistemology understands that any rigorous knowledge work involves studying the construction of the selfhood of the knower and the impact it has on what any group of people claim to know. In this context we gain a profound appreciation of the fact that all knowledge is inscribed with temporal, spatial, ethical, and ideological factors that shape the consciousness and vision of the knower, the knowledge producer.

Over the last several decades the notion of objectivity has been debated over and over again in the domains of science and philosophy. The FIDURODian concept of seeking objectivity (defined as being detached from and disinterested in a phenomenon

being studied—a state viewed as facilitating neutrality and thus helping bring about accuracy in the production of knowledge) and avoiding subjectivity (the view of a phenomenon that rests in the mind of the observer producing a view of the world grounded on individual perspectives, attitudes, and feelings on object of study not neutral facts) is central to traditional scientific notions of rigorous research. One of the points I have made throughout this book involves the notion that any epistemology must account for the interaction of the perceiver with the reality he and she encounters. Thus, this is what we mean by the interaction of the knower and the known. Numerous analysts have attempted to deal with this basic epistemological problem by maintaining that any position that fails to discern the co-construction of knower and known misses a central dimension required of rigorous, thick knowledge production.

In this effort to signify the connection between knower and known some scholars (Talbot, 1993) have avoided the use of the terms objective and subjective, substituting instead the word, “omnijective.” This brings us to one of the central issues involving knowledge and critical pedagogy—the relationship that connects knowledge, researchers, and the phenomenon being studied. Indeed, one of the key differences between FIDUROD and a critical complex epistemology involves the role of the researcher. In a FIDURODian context knowledge producers must distance themselves from a study. This could be illustrated by a group of researchers standing behind a one-way mirror observing the behavior of selected individuals in order to minimize prejudice believed to come from too much personal familiarity with the human subjects of the inquiry. A more critical approach to this interaction might be exemplified by researchers who enter into the culture of those individuals being studied working with them in relation to a problem they are facing. In the process the researcher engages the individuals being studied as co-researchers in the project, carefully considering their perspectives on the issues in question.

Obviously, these two approaches constitute very different epistemological perspectives on the interaction connecting knowledge, researchers, and the phenomenon under study. Thus, the FIDURODian researcher remains as anonymous as possible, while a critical scholar understands that his or her input into a study, his or her subjectivity, must be viewed as an important and transparent aspect of the process of inquiry. How, critical researchers ask, can we remain disinterested and anonymous when our concerns, values, experiences, ideology, language, race, class, gender, and sexuality help shape everything we do in a study. As enactivist scholars Umberto Maturana and Francisco Varela (1987) have argued, the world of phenomena is a province that is *brought forth* by the actions of the observer—that is, it is enacted by the researcher in relation to the world. Thus, in a more constructivist epistemology researcher and researched are not only part of the same process, they actually bring one another into being (Chiari & Nuzzo, 1993; Thayer-Bacon, 2000; Bettis & Gregson, 2001; Thomson, 2001; Thayer-Bacon, 2003).

Thus, in a critical complex epistemology our understanding of the nature of the relationship between knower and known adds to the quality, the rigor of both studying knowledge production and the act of research itself. Indeed, scholars and their scholarship encounter profound problems when they analyze knowledge claims without carefully studying the process by which such claims are formulated. As the

great physicist, Werner Heisenberg (1963) put it so eloquently decades ago: “what we observe is not nature itself, but nature exposed to our method of questioning” (p. 58). Implicit within Heisenberg’s observation is the necessity of studying the complex set of relationships that lead to particular methods of questioning. One could argue that such a study is called epistemology. On one level it seems obvious that what emerges as knowledge depends on the questions that are asked about a topic. This understanding is central to any critical theory or critical pedagogy, for it helps open the vault that holds covert insights into why certified scientific knowledges, disciplinary canons, and official curricula contain certain “facts” but exclude others.

Without such epistemological insights we are unaware of the way the relationship between knower and known operates to shape both our consciousness and what we perceive as the world. Without these insights we are oblivious to what we mean by the assertion that the asking of questions is a form of world making. In the vacuum left by an absence of epistemological understanding in general and the relationship of the knower and the known in particular, knowledge can never again be viewed as the uncovering of disinterested, neutral, objective truth. Concurrently, education can never be seen as the deliverer of universal truths to students. Knowing and human being come into existence only in the context of particular socio-political and cultural relationships.

And out of these complex, multiple interactions come the human judgments about the way various physical, social, cultural, political, pedagogical, etc. phenomena fit together and make sense. The nature of the interconnection between knower and known in these larger contexts makes knowledge, indeed, creates the world. “Facts” simply don’t exist without interpretation, and even if such a phenomenon were possible such data would be nothing more than a conglomeration of random and meaningless fragments until brought together by human consciousness (Capra, 1996; Hatab, 1997; Parker, 1997; Thayer-Bacon, 2000; Dougiamas, 2002; Thayer-Bacon, 2003). The nature of the knower and known, you ask. They’re cousins, identical cousins connected at the spine.

The Centrality of the Perspectives of Oppressed Peoples—the Value of the Insights of Those Who Have Suffered as the Result of Existing Social Arrangements

As discussed through out this book, the notion of criticality at its core revolves around the effort to understand the causes of human suffering and to do what is necessary to end it. A critical complex epistemology begins with the effort to internalize the nature of this suffering and to use such an understanding as a grounding for not only all knowledge that we produce but also to reshape who we are in the world. I know that I am a different person, and I see myself, the world, and my work in the world from alternative perspectives because I am constantly aware of the existence of human suffering in the world. Opening oneself up to the suffering

of others is part of the ontological process that makes us fully human. Developing a sensitivity to the causes and nature of dispossession, deprivation, and pain of our brothers and sisters in diverse social locations is a central task of a critical pedagogy. Of course, since this emotional understanding shapes all knowledge we produce, it is also a central dimension of a critical complex epistemology.

I have written extensively on the power of subjugated and indigenous knowledge in this book and other work (see Kincheloe & Steinberg, 1997; Semali & Kincheloe, 1999; Kincheloe & Steinberg, 2007) so I will make this section short. It is so essential for criticalists—especially males and individuals from North America—to listen carefully and learn from the insights of individuals who are subjugated by existing socio-political, cultural, and pedagogical relationships. A central dimension of the process of decolonizing knowledge comes from this critical listening and exposure to diverse perspectives. Drawing on Foucault (1980) and his insistence of employing these so-called “inferior” knowledges is key to the critical project. In his studies of power Foucault appreciated that power always elicits a form of resistance from those who are oppressed. In this resistance, in this insurrection of subjugated knowledge, a critical complex epistemology finds a central source for understanding the socio-political, psychological, and educational domains.

Obviously, one can uncover these subjugated knowledges around issues of race, class, gender, sexuality, ability, colonialism and even age. In this age-related context researchers have often disregarded the insights of children in larger efforts to regulate and shape children’s behavior in ways that resonate with dominant power blocs. In work on the nature of contemporary childhood (Steinberg & Kincheloe, 2004), my colleagues and I have been amazed at the way children’s voices are consistently dismissed even in an era where children’s knowledges of the world have become profoundly insightful and certainly worthy of inclusion in research on a wide variety of domains. In many ways this concern with subjugated insights brings us back to the importance of standpoint epistemologies in a critical complex politics of knowledge. Standpoint epistemologies coming from people who find themselves oppressed in some location(s) along the multiple axes of power provide critical pedagogues, critical researchers, and critical activists with initial frameworks for beginning an analysis of a particular phenomenon that leads to informed, contextualized, and pragmatic action.

In this knowledge domain researchers/scholars/activists can gain perspectives that have been erased in FIDUROD and the dominant power-saturated knowledges such an epistemology produces. Again, this notion comes with a caveat—there is no essential, final, intractable subjugated perspective on the way the world operates. Thus, there is no correct place from which such insights take us to begin our journey into subjugated knowledges and the insights they provide. With every research project, with every effort to engage in anti-oppressive labor in the world, we must explore the subjugated perspectives available and make our decision about where to start in the context at hand. Moreover, the space from which a standpoint epistemology is developed is not deterministic—that is where one stands or is placed in the web of social reality does not determine how one sees the world. A critical complex epistemology will have to analyze diverse perspectives of subjugated people

coming from basically the same socio-political, spatial, and temporal locale. This is why I call it a critical *complex* epistemology instead of merely a critical epistemology (Kincheloe, 1995; Harding, 1998; Shoham, 1999; G. Jardine, 2005).

The Existence of Multiple Realities: Making Sense of a World Far More Complex Than We Originally Imagined

The more we know about the world, the more we understand the complexity of both human consciousness and the social and physical worlds we inhabit. Because of the social construction of knowledge and consciousness, we are acculturated from infancy to discern only a tiny dimension of what our culture designates as “reality.” Our cultural context, the tacit epistemologies and ontologies to which we are exposed, and, of course, the machinations of dominant power, undermine our ability to see beyond the reality we expect to see. Thus, we are limited beings who in contemporary Western societies operate in a restricted conceptual framework that blinds us to aspects of the cosmos that fall outside our matrix. Alfred North Whitehead (1968) argued that humans need to be open to a variety of modes of evidence, for once we epistemologically close ourselves off to diverse experiences we lose touch with the encounters that may be the most valuable in helping us shape our future in a just and creative way.

Indeed, it is in our encounters with this new evidence that we begin to appreciate the diverse dimensions of existence, the multiple realities that continue to emerge as we study the world. The epistemological explosions that occur as we begin to integrate consciousness, body, context, and relationship are central to a critical complex epistemology. Such detonations of knowledge, are held in check by a variety of factors from Western colonialism, to corporatized media and its informational politics, to FIDUROD. Language as it now exists is also a limiting factor in our efforts to explore the multidimensionality of the cosmos, as we have no way of expressing the complexities that emerge when our conceptual lenses are readjusted. There is no limit to the types of languages we can develop as we break away from the socio-linguistic blinders of Western culture. Indeed, in this context we can develop new telepathies of now invisible modes of expression. The quickest way to get to these new modes of communicating, thinking, and producing knowledge is to explore the previously dismissed, to take seriously subjugated perspectives, and to dedicate ourselves to learning from difference.

Engaging in these activities we remove the numerous obstructions to connecting with and beginning to understand multiple realities coming from the perspectives of “others” and the dark alleys of the universe with which we are presently unfamiliar. A critical complex epistemology provides laser surgery to remove the epistemological cataracts from our lens of perception. The number of interpretations that creative analysts can bring to any set of scientific data reminds us of how differently diverse scholars might make sense of any single phenomenon. Understanding that these diverse interpretations exist is not a detriment but a great benefit to scholarly

rigor. There is an epistemological parochialism that insists there is one level of reality. Such parochialism is exacerbated to new level of insularity when that particular level of reality is viewed as the one constructed by the dominant power of one's particular time and place—"my reality." Advocates of a critical complex epistemology are so in awe of the *mysterium tremendum* (the overwhelming mystery) of the world, that they find it impossible to simply rule out any new terrain of knowledge or mode of consciousness because it doesn't fit existing Western ways of seeing and being.

The transgressive idea in the FIDUROD-saturated contemporary West that what passes as "reality," "consciousness," and "reason" are mere social constructions in our infinitesimally tiny spatial and temporal sliver of the cosmos is profoundly frightening to those reductionists who accept dominant "truth." The Western scientific quest for certainty has created a mindset that soothed the collective cultural consciousness with a belief that we have it all correct. Challenges from concepts such as the critical complex epistemology in this context are not represented as simply different points of view, but as threats to "our way of life" (Griffin, 1997; McClure, 2000; G. Jardine, 2005). The fact that many people are beginning to realize that "we" might not have it all right—especially when they have encountered no alternatives to the FIDURODian perspective—has the bourgeoisie running for the Prozac and the Valium. The fraternity just ordered seven kegs for Thursday night. And BTW, do crystal meth and Oxycontin ease the anxiety?

The sense that we might not have it right is enhanced when we begin to understand phenomena such as emergence and autopoiesis. In this context we realize that traditional Western science has found great difficulty dealing with the idea that various physical, biological, and social systems generate their own organization. As they constantly reproduce the organizational structure that created them in the first place, they autonomously move to new levels of complexity and capability. In this context we understand that there are multiple levels of reality that transcend traditional Cartesian-Newtonian ways of seeing the world. Not only does the interaction of observer-observed create diverse realities, but currently inexplicable forces of time, space, matter, and consciousness *interacting in autopoietic relationships* create new dimensions of reality that we are yet unable to even name. The new ordering codes in the physical, social, psychological worlds change all the rules we thought we had identified. When Westerners ignore these new domains, these multiple realities, they incorporate the pathological dimensions of FIDUROD's one-truth epistemology into their consciousness. They destroy the innate possibility and excitement that such new modes of reality make possible.

Understanding the nature of consciousness and its role in epistemology, ontology, the socio-political domain and pedagogy is a never ending quest—every year that goes by we gain new insights into consciousness and its connection to matter and what has been referred to as reality. There is much speculation among scholars from a variety of disciplines that consciousness is not bound to traditional notions of the space-time continuum. In this formulation consciousness is the grounding out of which all energy and matter arise—the reality in which energy and consciousness exist cannot be separated from consciousness. Thus, consciousness is a yet to be understood phenomenon that may consist of more dimensions than previously

understood. Western society's focus on normal consciousness as the only state of mind worth addressing and even then in the most narrow of ways is a major impediment to the development of a critical complex epistemology and its understanding of multiple realities (Goswami, 1993; Bridges, 1997; Lutz et al., 1997; Varela, 1999; McLeod, 2000; Scharmer & Varela, 2000).

The interaction of time, space, matter, the social domain, and consciousness is one of the most intriguing issues of our time. How can criticalists see the world anew, in a way that allows humans to view diverse aspects of reality hidden to contemporary Western observers? How can the new insights that come from these experiences shape understandings that allow us to take actions that profoundly change a suffering world?

There is a great potential to be found in these multiple realities, the multidimensional nature of human consciousness, and the social, cultural, cognitive, and political economic actions these dynamics make possible. These issues are directly connected to a critical complex epistemology and a critical politics of knowledge.

The relationship between mind and matter is obviously an epistemological (and an ontological) matter. Does consciousness actually shape the physical universe? *We know it shapes the social universe.* Is consciousness made of a cloth that interacts in some presently unknown way with what we now call matter? A critical complex epistemology makes sure that such phenomena in general and such questions in particular are central features of the contemporary information environment and that they inform everything that takes place in a critical pedagogy. I would not be spending the thousands of hours it takes to address these issues if I didn't believe that a critical complex epistemology helped provide us a key to discern the multiple realities obscured by Western science that can help unlock the door to a new vision of humanness and human action.

FIDUROD has placed matter as the most important dimension of "true reality." This is not surprising in an epistemology that assumes the existence of a material, mechanistic universe. What a different set of realities we encounter when we contemplate the possibility that the uni(pluri)verse consists as much of mind/consciousness as it does of matter. If this is the case, then we return to our idea that reality exists in part because we can imagine it existing in a particular way. In this context multiple realities exist because our consciousness can conceive of them. Knowing this we can create awe-inspiring avalanches of knowledges, concepts and spectacular ways of being (Peat, 1989). Foucault (1980) understood many of these dynamics as he examined the nature of epistemes and **positivites**—knowledge-related phenomena that exist on a different level of reality, an enfolded order, than our everyday encounters with information. Thus, we gain a hyperdimensional epistemological awareness—a recognition of the divergent dimensions of reality that tacitly shape human life.

Superstring theory in physics postulates that there are ten, eleven, or 26 dimensions of space-time, depending on which variant of the theory you reference. Quantum physics has taught us for decades that the world is more like an organism than a mechanism. When quantum physicists study the interaction between two electrons they find that despite the great distance that may separate them, they react

simultaneously when placed under observation. Thus, it seems obvious that the highest levels of research in the high status realm of physics reveal a pluriverse, a world of multiple realities even at the physical level (Goswami, 1993; Wolf, 1993). A critical complex epistemology understands that multiple realities also exist at the social, psychological, and pedagogical levels. In a critical complex epistemology we gain the ability to travel between different dimensions bringing the insights and concepts found in one domain to another dimension. In this way we begin to view one dimension through the logics of another. Profound advances in all domains of human endeavor can be made when we engage in this trans-dimensional travel. Just the journey back and forth between epistemology and pedagogy changes forever the way, for instance, that we conceive of the purposes of the acts of teaching and learning.

Becoming Humble Knowledge Workers: Understanding Our Location in the Tangled Web of Reality

In our epistemological ruminations we have learned that despite the FIDUROD data machine and the corporatized politics of knowledge that knowledge can never be decontextualized and separated from particular value assumptions. All significant information emerges from a particular context, from a particular location in the web of reality. With this in mind a critical complex epistemology studies the complex process by which one's location in the socio-physical web of reality helps shape the knowledges particular individuals produce in different times and places. An individual raised and acculturated in a specific temporal and spatial locale will be exposed to diverse dimensions of the natural world, divergent cultural belief structures, and idiosyncratic relationships to the numerous power blocs discussed in *Knowledge and Critical Pedagogy: An Introduction*. While critical pedagogues focusing on the politics of knowledge may clearly discern these forces at work in the socio-cultural and political economic domains, they often neglect the role of the physical environment in shaping this web of reality.

Knowledge production is inseparable from place (Kincheloe & Pinar, 1991)—indeed, in indigenous cultures, for example, we see the relationship between knowledge and land very clearly (Semali & Kincheloe, 1999). The modernist West's alienation of human beings from their physical locations has, no doubt, undermined this connection to the natural environment. Many inhabitants of Europe, North America, and other “developed” domains around the world cannot yet comprehend the sophisticated insights many indigenous people produce in regard to the physical web of reality surrounding them. Even those Westerners growing up in the most alienated urban/suburban spaces, however, are still epistemologically and ontologically influenced by this notion of place—whatever that place may be.

When the native peoples of Alaska see snow they are not inventing it. Instead, they are operating in their physical web of reality to make sense of a natural world

phenomenon that native peoples in the Torres Islands between Queensland in Australia and New Guinea, for example, don't experience. The way the Inupiat, Yupiks, Aleuts, and many other native peoples in Alaska distinguish patterns in their analyses of snow based on their numerous experiential encounters with it has constructed a invaluable body of knowledge about the phenomenon. Obviously, where these peoples stand in the web of reality helps shape their perceptions and the knowledges they produce. In this context, as I have previously maintained, where we are located in the web of reality does not *determine* the knowledge we produce or our consciousness. All peoples must use their ingenuity to construct compelling knowledges and to cultivate critical consciousnesses.

Understanding is always connected to tangible circumstances, embedded in cultural contexts shaped by historic hermeneutic conventions, and affected by the power relations of the moment. A critical complex epistemology is acutely aware of these dynamics and knows that moving to a higher level of insight and knowledge production demands that we appreciate the way they operate in our lives. Any geo-politics of knowledge, any critical complex epistemology, and any critical pedagogy account for and act upon these realities. In such accounting and acting critical workers know that there are benefits and liabilities to seeing the world from a particular location in the web. The salient point here is that to be unaware of these epistemological dynamics is to ensure that limitations will outweigh the benefits of our "standpoints." If we are unaware of how our experiences and situations shape our knowledges and insights, we will undoubtedly be oblivious to the ways that dominant power insidiously works its black epistemological magic. In our conceptual coma there is no challenge to oppression and the human suffering it ensures (Rouse, 1987; Capra, 1996; Harding, 1998; Mignolo, 2001; D. Smith, 2006; Leisty, 2007).

Ignorance is a more subtle concept than Westerners have traditionally understood it to be. "Ignorance of what" becomes a very important dimension of how ignorance is designated. In a FIDUROD-based epistemology ignorance is typically used to denote a deficit in relation to a universal body of knowledge—a corpus of information that does not include data from one's immediate surroundings, one's appreciation of her place in the web of reality. Moving from the epistemological to the pedagogical, we can begin to discern profound implications for teaching and learning. A critical complex epistemology grounds a critical pedagogy that understands that all individuals bring particular knowledges to the educational table. In such a context criticalists believe that teachers should be aware of such information and use it in every way they can to move the students to an awareness of the knowledges that others bring to the same table. Here we come to appreciate again the benefits and liabilities of our own vantage point in the tangled web of reality.

As a critical complex epistemology focuses on specific occurrences, unique individuals, and the places people inhabit, it concurrently seeks to understand their interconnections, their mutual influences on one another, and the knowledges that emerge in this interaction. Criticalists ask what happens when we place these dynamics within the larger contexts of physical, social, cultural, political economic, and other dimensions of the world. Thus, the particular and the whole are both valued in a complex epistemology, but always within a historical context. Individuals

informed by a critical complex epistemology understand these ways of seeing and use them to enhance their analytical abilities. As they improve their ability to make meaning they always do it in a way that manifests their humility—their understanding of the limits of their perspective. Indeed, the more we understand the web of reality and the ways we are enmeshed within it, the more we appreciate that humans are incapable of gaining a providential perspective on the cosmos and themselves.

We must all kneel at the epistemological alter and confess our subjectivity, the idiosyncrasy of our perspective, the shortcomings of our knowledge. Without such epistemological supplication to our students, our readers, our fellow cultural workers, critical educators will be caught in the bear trap of the vanguard intellectual, the *man* with the answers, the expert, the arrogant being who calls for an abstract notion of equality, but who treats those below him or her on the status ladder as the unworthy. Professing new perspectives, not truth, humble criticalists work toward social justice and the elimination of human suffering. Such critical scholar-teachers are mindful that any interpretations they might offer are tenuous because they don't have access to the long view of history, knowledge of yet unidentified patterns of which they are unconsciously a part, and the power influences of which they are unaware (Levy, 1997; Harding, 1998). We are all affected by our particular location in the Great Cosmic Spider's web of reality. And as the half human, half fly insectman cried out from the spider web in the 1958 version of the movie, "The Fly": "Help me, help me." Don't worry insectman, a critical complex epistemology is on its way.

Standpoint Epistemology: Locating Ourselves in the Web of Reality, We Are Better Equipped to Produce Our Own Knowledges

The feminist theoretical notion of standpoint epistemology helps advocates of a critical complex epistemology better understand their location in the web of reality and produce thicker, more rigorous, and more usable knowledges. Drawing on subjugated knowledges, the ways of seeing of those who have been oppressed by dominant power blocs, standpoint epistemologies provide critical perspectives not only on patriarchy but also whiteness, capital/class elitism, heteronormativity, colonialism, and other forms of oppression. With these perceptions at the front burner of a multilogical critical consciousness, new cognitive and conceptual domains are provided to knowledge producers. Such insights change their ways of seeing and being and open new intellectual and activist vistas for their analysis. A critical complex epistemology uses these perspectives to initiate dialogues with various forms of Western knowledges—especially the so-called "northern" critiques à la the Frankfurt School of critical theory, feminism, critiques of racism, **queer theory**, poststructuralism, and other transgressive discourses from the European tradition.

As one would anticipate, standpoint epistemologies arise at a particular historical moment in a specific socio-cultural location. While they address particular issues

of their *Zeitgeist*, they produce ways of seeing that may have relevance in diverse places far into the future. Of course, one accounts for the origins of such epistemologies and the knowledges they support—but a critical complex epistemology maintains that this is a key feature of all knowledge work. Criticality's use of such ways of seeing exert a huge difference in the nature of knowledge production, as they force researchers and educators to begin their information work—their research and curriculum development—somewhere other than from the center of oppressive power. In such a context the knowledge frameworks used in a variety of contexts come from women, queer individuals, colonized and indigenous peoples, and the targets of racism, class bias, and religious hatred. With standpoint epistemologies we return once again to Hegel's attention to what the slave has to say about the master and the workings of chattel system in general.

In many ways standpoint epistemologies are not as unusual as the Western scientific eye may assume. While there is no doubt that they are local epistemologies and knowledges, a critical complex epistemology asserts that all knowledges are to a major extent local. Indeed, mainstream science is always appropriating local knowledges to extend its intellectual and socio-political objectives. An obvious question arises: where does FIDUROD's universalistic science end and local knowledge begin. Because of the local dimension of all knowledges and the problems with the effort to universalize such knowledge, the question is impossible to answer. The "borderlands" dimensions of standpoint epistemologies that lead to interactive conceptual frameworks—to a bricolage of different perspectives—help us specify the principles, benefits, frameworks, and discursive practices that shape the modes of knowledge production that dominate our historical and spatial moment. In a critical complex epistemology this is an invaluable service. Indeed, in this context we begin to understand that a standpoint is not only a perspective but also a form of critical political labor to understand and challenge the hidden constructs that structure macro-social realities and the phenomenological lived worlds of individuals.

Thus, we are back to our central point: standpoint epistemologies help us understand the interrelationships between diverse knowledges and power matrixes that form the web of reality. It helps criticalists develop the 3-D vision to see through the lead walls of power that hide the structures shaping social life. In this context our ability to produce knowledge in ways that resonate with our beliefs and concerns is enhanced, as we become better informed of the power inscriptions on the methodologies, designs, conceptual matrixes, etc. that shape hegemonic forms of research. Concurrently, of course, these same dynamics are used to help construct and justify socio-political and educational realities often created to serve the needs of the elites who occupy dominant power blocs. Standpoint epistemologies from racial, class, gender, sexual, colonial, and many other perspectives grant us insights into the tectonics of culture that can be used to produce information that can propel critical pedagogies and socio-political movements.

In indigenous cultures we recognize the existence of standpoint epistemologies in the stories that are passed down from generation to generation. In this context, the indigenous storyteller maintains control over the production of information—not the outside researcher. The recognition of the need for indigenous storytellers

to maintain their epistemological power is profoundly important in a colonial world that continues to oppress the indigene (Harding, 1998; L. Smith, 1999). At the same time, it is essential in a critical complex epistemology that indigenous storytellers and criticalists engage in a synergistic dialogue that helps generate new and more successful ways to undermine colonial oppression while imagining new ways of being human in the hyperreal globalized world. Sandy Grande (2004) makes this point brilliantly in her book, *Red Pedagogy: Native American Social and Political Thought*. Such negotiations—though they are always complex, delicate, and multidimensional—can change all of our lives for the better. In the process of such negotiations we all come to ask questions never before imagined. The possibilities made possible by such intersections of different conceptual frameworks and ways of life are infinite.

As we better understand the web of reality—the multiple webs of reality—we are empowered to employ the new frameworks we encounter and construct to produce forceful new information. Teachers in the twenty-first century era of standardization and deprofessionalization are in dire need of the ability to produce their own knowledges about their work. The despotism of expert, neo-positivist knowledges about teaching and learning coming from the centers of power is, simply put, destroying the educational profession. Thus, as I have argued elsewhere many times (Kincheloe & Steinberg, 1998; Kincheloe, 2003a) teachers (and students) must become researchers if critical educational reform is to become a reality. Indeed, in much of my earlier work I argued that critical teachers had a responsibility to become researchers, knowledge producers, and critical complex epistemologists—and, importantly, the duty to share these abilities not only with their students but also with the general public. When this happens a critical pedagogy grounded on a critical complex epistemology will have begun to realize its potential.

Constructing Practical Knowledge for Critical Social Action

The knowledges that emerge from a critical complex epistemology are action-oriented modes of practical cognition. Such knowledges depend on a rigorous knowledge of a phenomenon and the contexts that shape it rather than a set of abstract rules developed to solve neatly formed and abstract problems. Thus, going back to Chapter 1, a critical complex practical knowledge is directly related to a critical complex epistemology of practice. The lived world in general and in education in particular is far too complex to simply lay out universal step-by-step solutions to particular dilemmas. If a critical complex epistemology is to be of any help to critical educators and other cultural workers, then it must understand the complexity of everyday life and the multiple realities we all must confront. Of course, a central assertion of *Knowledge and Critical Pedagogy: An Introduction* has involved the concept that FIDUROD's disinterestedness and the inaction that surrounds it is viewed in the regressive epistemological context as a virtue. Acting on a radical love or a compassionate spirit is not a part of the FIDURODian ethic.

Of course, what we are talking about in a critical complex epistemology is making education something that really matters in challenging knowledges that perpetuate injustice while also understanding and helping to end human suffering. These are obviously action-oriented, practical goals. Thus, criticality is not interested in producing spectators, taciturn bystanders who are afraid to act. A critical complex epistemology is devoted to praxis, to informed action that moves individuals and groups to make and remake history—and in the process shape the future. As a scholar-teacher working in this context I want to produce compelling knowledges that are strategically valuable in the struggle against racism, sexism, homophobia, class bias, religious intolerance, and colonialism and for new ways of seeing and being in the world. As a critical complex epistemology constructs new levels of awareness and reveals the defects of mechanistic views of the physical and social worlds, it realizes that these worlds are more amenable to reinvention than previously imagined.

Thus, a critical complex epistemology promotes a form of practical knowing, a knowing-in-action that initiates praxis. This practical knowing is intimately connected to developing a precise sense of purpose for our knowledge work and the actions it makes possible. FIDURODian descriptions of purpose such as producing accurate knowledge of the world are not sufficient in a critical complex epistemology. We must go farther in carefully considering the use value of our knowledge in a critical theoretical context. Criticalists produce dangerous knowledge, which by nature imply knowledges that take action in the world as they challenge existing dominant power relations. This notion of the use value of knowledge takes us back to the pragmatic test often referenced by John Dewey (1916): what is the consequence of the knowledge we produce. Adding criticality to Dewey's pragmatism, we ask what is the consequence of our knowledge in helping those in need, those who are suffering.

Thus, practical knowledge leads us to critical epistemologies of practice that recognize the purpose of what we are attempting to accomplish, the forces that may undermine our success, and the complexity of producing knowledges that lead to recognizing and solving idiosyncratic and ill-defined problems (Rouse, 1987; Peat, 1989; Blackler, 1995; Lomax & Parker, 1996; Geeland & Taylor, 2000; Reason & Bradbury, 2000; Bettis & Gregson, 2001). In this context we turn again to the power of difference and the insight of indigenous knowledges. Linda Tuhiwai Smith (1999) writes about Maori ways of knowledge production, maintaining that such research is based on concepts of decolonization, healing, transformation, and mobilization. These dynamics inform all Maori ways of seeing and speak to the practical outcomes of this indigenous form of inquiry. The implications of these four dimensions of Maori research can be discussed in the great dialogue between indigeneity and criticality that Sandy Grande (2004) constructs. In this context critical knowledge producers gain new insights into what it means to produce practical information.

As we understand Maori and other indigenous epistemes as well as the ways of seeing of a wide diversity of other cultures, we begin to develop not only more practical knowledges but also new ways to protect ourselves from the tacit epistemologies and ideologies of dominant power blocs (G. Jardine, 2005). In this

context we refuse to become prisoners of the socio-political constructions of our time and place. We are episto-bandits on the lam, escaping to new ideological hideouts where we can unite with our collaborators in our dangerous work. We will not be conceptually incarcerated by the hegemonic epistemological system and, thus, will not produce the data it demands of us. Here a critical pedagogy constructed on a critical complex epistemology imparts an intellectual understanding of these dynamics and an affective desire to use them in the struggle against oppression and suffering. In this way we embrace a hyper-praxis—the best-informed critical action we can presently construct.

In a critical pedagogical context the phenomenological complexity of the educational act is missed by FIDUROD-based research—and, importantly, the policies and practices that emerge from them. The fact that such reductionistic researchers often tell their audiences that “the scientific research tells us that we must teach mathematics in this particular way” is particularly disturbing in its distortion of the lived complications of educational life. Such an epistemology neglects the necessity of questioning the relationship between professional information and the vague precincts of practice illustrated by infinite complications and complexities. The knowledge critical pedagogues produce in such confines have to be sensitive to these dynamics. If they are not, educational practitioners will simply ignore critical knowledge in the same way they have had the good sense to ignore positivistic/FIDURODian knowledges. Practical knowledge is sensitive to the idiosyncrasies, ambiguities, and Mickey Spillane twists of everyday life.

Complexity: Overcoming Reductionism

A central point I have made throughout the book and a key aspect of a critical complex epistemology is that the world is much stranger than science has ever imagined. From quantum realities and fractiles to complex emergence, it's really quite extraordinary out there. We have entered into an era where with every year that passes our understanding of the complexity at the physical, epistemological, ontological, psychological, and cosmological levels grows more acute. At this point we understand that any dimension of the cosmos will defy human efforts to present a *complete* description, for the world is far more multifaceted than our ability to understand it and express it in our limited languages. Classical physics, for example, maintained that the world was made of tiny particles that divide reality into its discrete components.

Such separation and fragmentation of the world's phenomena does not provide a sufficiently complex view of the way the physical, social, psychological, and pedagogical worlds are constructed. The fragmentation of such traditional Cartesian-Newtonian-Baconian ways of conceptualizing reality neglect the connections and relationships between what are considered separate segments. Appreciating the nature of these connections is central to gaining new insights into the way things often work in this pluriverse. The electron, for example, contrary to the way

we were all taught about it in physics and chemistry classes is no longer considered a particle that exists continuously in the way we are accustomed to phenomena existing in “normal” reality. As we observe it, it comes and goes, appears and disappears, while performing other “irregular” actions. Physicists have realized for a long time that we cannot begin to understand the activities of even an electron if it is not viewed in relation to the totality of space-time—a dimension from which it is inseparable (Bohm, 1987; McClure, 2000).

This interconnectness is what Foucault (1980, 2002) is talking about in his explanation of how meanings of words are understandable only in the context of the prevailing episteme. Because of the embeddedness of all linguistic concepts in the interrelated network of information, he posits that a human being cannot comprehend a unitary, abstracted free-floating sliver of knowledge. The definitions and certainly the connotations of words are constantly changing. Gail Jardine (2005) insightfully articulates this Foucauldian concept when she writes:

Foucault argued that you cannot know what something is unless you know what else it connects to that gives it a place in the world, what else it involves and reflects when it comes into being, and what involves and reflects it (p. 99).

Thus, in some unexpected ways language is like an electron—one has to understand both in the context from which they emerge and how they change in relation to such a framework.

In this zone of complexity chaos theory offers two different approaches to comprehending what appears to be random behavior: (1) nonlinear dynamic systems and the way they help elucidate order behind chaos—the study of constantly changing systems based on recursion (repeating processes, patterns within patterns); (2) complexity theory and the way complex adaptive systems emerge as complexity increases. Both of these dynamics are central to the move to a more complex science. The tendency of systems to develop new modes of behavior as they complexify is an amazing phenomenon. Such a capacity indicates that the world is not lifeless, static, and mechanistic—as in the Cartesian-Newtonian-Baconian model—but a complex cosmos that develops agency, acts on its own prerogative as it self-organizes. This complexity operates in diametrical conflict with FIDUROD’s reductionism. It indicates we live in a living, active universe that develops organizational frameworks without a central identifiable authority dictating what it does.

Epistemology in such a strange, conscious cosmos can never be viewed the same way again. As argued throughout this book knowledge in a critical complex context is not resting out there somewhere until one of us humans stumbles upon it. Such knowledge in the FIDURODian context is an entity that researchers have extracted from the complex web of reality with all of its processes, contexts, and relationships—those dynamics that give it meaning. The FIDUROD-based “normal Western way of seeing” is so comfortable with these “extracted abstractions” that Westerners of diverse stripes trust that meaning rests in the fragment of data as opposed to the framework from which the information has been removed. Not to be hyperbolic, but this ontological understanding fundamentally changes our conception of the world, our role in it, knowledge, and who we are. We begin to realize how Matrix-like

(in the movie sense) our world is. I hope that such a realization leads us to rethink the nature of that world and how we can reshape ourselves in ways that undermine the fecal reality in which we're often enmeshed.

Poststructuralist discourses with their emphasis on ambiguities, diversities, ruptures, the problems with universalism, and omissions enhance our understanding of complexity. One profoundly important dimension of a poststructural critique involves its emphasis of diversity in the context of subjugated knowledge. Here poststructuralism insists that there is no universal "oppressed" perspective that should unproblematically guide criticalists in their epistemological inquests. Critical theorists/pedagogues have to be extremely careful in their privileging of subjugated knowledges, for there are so many of them. This understanding rests at the heart of critical complexity: we most definitely start our explorations with oppressed knowledge, but we make sure we don't **essentialize** the meaning of such information. This adds to the difficulty of the critical task, but makes it far more useful in the process.

The complexities, complications, and difficulties inherent in the act of knowledge production, as a study of complexity theory reveals, come from numerous directions and diverse factors. One of the most important dimensions of this complexity in a critical complex epistemology involves a rather straightforward feature of complexity: complexity as its base is linked to the ontological complexity of every dimension of the cosmos surrounding us—the physical, social, psychological, and pedagogical. All of these domains are heterogeneously structured, making the attempt to understand them and act critically within them that much more complicated. As we understand the necessity of contextualization in any efforts at meaning making, we better appreciate the ever changing and erratic arrangements of interests and viewpoints that shape phenomena. The FIDURODian notion of a fixed and invariant cosmos, seems almost childlike in its simplicity and reductionism.

Thus, a critical complex epistemology is devoted to a complexification of research, knowledge production, even the concept of science itself. The multilogical epistemology advocated here explores a diversity of knowledges—data from diverse cultures, ideological perspectives, ancient sources, and, of course, indigenous and subjugated informers. Defining research methodology as a theory and interpretation of how knowledge production works, we begin to gain new frameworks from which we can better devise and frame the questions we ask of the world. With ontological complexity in mind and the critical complex need for multiple vantage points on the different domains of study, one can easily discern the need for the bricolage that Norman Denzin and Yvonna Lincoln (2005), Shirley Steinberg (2006), Kathleen Berry (2006) and I (Kincheloe, 2001; Kincheloe & Berry, 2004) have theorized over the last few years. All issues are multidimensional and need to be viewed from diverse perspectives. All the dimensions that intertwined with critical pedagogy—the physical, social, political, psychological, and educational—are far more complicated than researchers had originally conjectured (Capra, 1996; Harding, 1998; L. Smith, 1999; McClure, 2000; Nowotny, 2000; Bettis & Gregson, 2001; Mignolo, 2001). It is time to get to work in rethinking our view of the world, knowledge, and how we teach about it.

Knowledge Is Always Entrenched in a Larger Process

Basic to a critical complex epistemology is the notion that knowledge is always situated in a larger process(es). The processual epistemology of criticality understands FIDUROD's epistemological and ontological tendency to see the world and knowledge about it as made up of separate and unconnected entities. In such a construct researchers study these unconnected dynamics in isolated laboratory settings and focus on the categorization of their component parts—much like the way a tenth grade biology class dissects a frog. In a critical complex epistemology multiple realities and human consciousness are viewed a parts of larger process, always interacting with other dynamics and other processes. In these relationships they are never stationary but ever morphing and evolving. Thus, again we are reminded of the regressive FIDURODian concept of the intractability of a monolithic, Western-constructed reality.

Thus, the natural world, human subjectivity, consciousness, and, obviously, knowledge is always changing. In such a context contemporary standardized pedagogies transmit inert knowledges, enacting in the procedure a dead epistemology that chases final forms of universal knowledge like a kitten chases a shadow. A critical complex epistemology of process alerts us to the fact that little in the universe is as it seems to be. Abstracted data, knowledge removed from the processes of which it is a part, things-in-themselves can be profoundly deceptive. Indeed, there are serious flaws in the epistemological assumptions and the knowledge that emerges from FIDUROD. As historical contexts and situations change, what is considered true today may be considered primitive belief tomorrow. Today's maps may give us a profoundly misleading view of how to drive from Moncton, New Brunswick to the Sunnyvale Trailer Park in Nova Scotia.

Indeed, such a map may change not only because geographic and transportation-related dimensions of the area are altered. It may change as our consciousness evolves, as we develop new concerns, research methods, new understandings of multiple realities, etc. The point is that when we view knowledge in a new context(s) complexity and ambiguity deepen and reductionistic answers become more and more irrelevant to the exigencies of the moment. For example, if we view schooling as part of a larger process of dominant power's effort to regulate and discipline a workforce for a corporatized world, we understand particular events in classrooms in profoundly different ways. The stench released by the arrogance of FIDURODian epistemological and curricular standardization creates a new level of regulation in twenty-first century pedagogy. Politicians who play the role of corporate lap dogs and their allies in journalism and school curriculum development gain a Texas death grip on pedagogy and consciousness construction in this ideological/epistemological context (Capra, 1996; Harding, 1998; Thomas & Kincheloe, 2006).

As critical pedagogues employ a critical complex epistemology's concept of process to their knowledge production and curriculum development they come to value the often obscured dynamics that situate the physical, socio-political, psychological, and educational domains in an ever-changing terrain. FIDUROD-based knowledge work and the pedagogy that emerges from it typically grant still pictures of a phenomenon. Such a static image represents a particular instant in time and

space—a view that is not without value. But it is a figurative photograph that is too often unaware of the significance and gravitas of the greater process in which it is positioned—a process that works to provide previously overlooked meanings and possibilities for praxis. When we view our “still life with woodpecker” as a phenomenon embedded in a larger process, critical complex epistemologists gain an appreciation of how entities transcend their distinctiveness while simultaneously retaining their uniqueness. This is an ontological concept that applies to all things-in-the world, human beings included.

This process-grounded orientation of a critical complex epistemology helps educators and researchers move into a multidimensional mind space that operates with an understanding of the inviolable connection between knowledge and context, mind and body, consciousness and the social-political milieu, facts and values, and the physical and the social. A critical complex epistemology’s concern with difference, with multiple perspectives can be viewed very clearly in this context. The Buddhist concept of impermanence and a constant state of change confronts Westerners with their comfortable notion that the permanent, abstracted self is a social construction. The self—like all other phenomena in the cosmos—is always in process. The Western effort to remove the self from these processes, to essentialize it, is to ensure great pain and suffering. To live, to move to a new, more comfortable domain the self must always be changing. If it doesn’t, boredom and psychological distress develop. Thus, FIDUROD not only provides a misleading view of the world, it is in part responsible for the unhappiness and world-weariness that afflict contemporary Westerners.

In this context the critical concept of articulation becomes profoundly relevant to our discussion of epistemological process. The Italian critical theorist, Antonio Gramsci (1988) maintained that the transformational concept of articulation referred to the notion that any socio-political construct involves a lengthy historical process of connections and disconnections. Simply put, it can only be understood in the process(es) that shaped it. The effort to understand social, cultural, political, psychological, and pedagogical phenomena cannot be removed from the complex historical processes that have brought them into existence. Informed by Gramsci’s concept of articulation, criticalists understand that process is a fundamental dimension of the multiple dimensions of the world in which we operate. Processes as part of the ontological status of the cosmos, inform all epistemological activities. Knowledge of these processes subverts the reductionism of FIDUROD’s fragmented conception of the phenomena in the world.

A critical complex epistemology cannot conceptualize knowledge without considering its past and future. Such an epistemological stance understands that any phenomenon we encounter is viewed at a specific point in its longitudinal being-in-the-world. Criticalists go as far as to argue that when information is abstracted from the process(es) of which it is a part, it is no longer able to be understood. When the epistemology of FIDUROD engages in this abstraction, what it claims to know is often a chimera—a figment of a socially constructed fantasy, a way of operating that leads us down a path to disaster. The human catastrophe that awaits us is fed by a form of knowing that strips away the complications, the complexities that provide insight

and meaning (Hall, 1986; Capra, 1996; Marshalidis, 1997; Pickering, 1999; Varela, 1999; Clifford & Sanches, 2000). We don't have to wait for the educational calamity—it is here, staring us in the face. As we observe the test-driven, hyper-reductionistic policies that destroy the concept of a rigorous, pragmatic education, we are watching a FIDUROD-incited rampage of rational irrationality. A critical complex epistemology with its understanding of process gives us a way to address such social insanity and possibly save the planet.

The Centrality of Interpretation: Critical Hermeneutics

A critical complex epistemology is particularly interested in producing research and knowledge that are more open-ended, less finalized, more creative, performative, and more rigorous. In critical pedagogy we want to accomplish all of these things and do them in a more accessible and reader friendly way. In this context hermeneutics plays a key role in this effort to make our way through the smoky forest, the foggy night of the mysterious world to which we are connected. In the smoke and the fog our critical complex hermeneutic goal is not to provide a **mimetic** image of what our ethnographies see or our histories uncover. Instead, criticalists are interested in moving from FIDUROD's correspondence epistemology to an interpretation of relationship, significance, and relevance for action. This critical complex hermeneutic mode of knowledge production is an epistemological Juan Gris as opposed to a FIDURODian Norman Rockwell. A critical complex hermeneutics asks what meaning do phenomena hold for humans, other species on the planet, and the planet itself. Positivism and its FIDURODian progeny are not interested in such questions and concerns. Employing the genius of hermeneutics, criticalists extend their efforts to make meaning—that leads to emancipatory action—about humans and the physical and the social surroundings in which they live. Of course, these physical and social surroundings are inseparable from whom we are as human beings—they are not separate entities.

In a critical complex epistemology the nature of the hermeneutics we are dealing with here come under the larger category of philosophical hermeneutics. In this context, knowledge producers working in the domain of an evolving criticality try to conceptualize and elucidate the circumstances in which interpretation, meaning making, and understanding occur. The critical complex mode of hermeneutics advocated here fashions a form of knowledge production that moves to what is labeled "normative hermeneutics." Such a normative dimension raises questions concerning the objectives and practices of the interpretive act. Thus, in this normative hermeneutic context critical theory/pedagogy knowledge workers labor to construct a mode of cultural criticism that exposes power relations and oppression.

Educators informed by this form of hermeneutics fashion connections between reader and text, text and its producer(s), historical situations and the contemporary moment, and one phenomenon and another. Pulling off such activities is no easy

matter but one that with practice and understanding is certainly doable. Researchers with these normative/critical insights push knowledge workers of all stripes to identify and analyze the interconnective dimensions of compelling and pragmatic interpretations of knowledge production and culture. Making these connections and then using the insights gained to address and help end human suffering in the world, of course, brings us back to the roots of criticality itself. Hermeneutics, I believe, is an invaluable tool in this effort (Rouse, 1987; Gallagher, 1992; Kellner, 1995; Kogler, 1996; Rapko, 1998; Kincheloe & Berry, 2004).

The data stored in books is in a sense not really knowledge—it is only information until human interpretation and understanding turn it into knowledge. In a hermeneutic context we are reminded that so-called facts are inseparable from the world of phenomena and the discursive cosmos of language. Concepts emerge when the mind discerns a connection between the phenomenal and linguistic dimensions of data. In the critical complex hermeneutic zone knowledge simply does not exist independently of interpretation. Hermeneutics entered Western scholarship as one dimension of epistemology—and in our critical complex version of hermeneutics, we retain that historical relationship. In this context we understand that hermeneutics presents a challenge to a traditional positivist and a contemporary FIDURODian epistemology. Originally, hermeneutics was designed to reveal insights into social and cultural life that were unreachable via traditional scientific methods.

In the world of complex emergence, quantum physics, and superstring theory, critical complexity believes that hermeneutics has a role to play in all human knowledge production. Indeed, as previously mentioned, as a piano player I understand that hermeneutics is the jazz of scholarship. A keyboardist who can play jazz can play anything, for there is so much music theoretical insight and technical expertise required to play jazz well. Any scholar/activist who can perform hermeneutic analysis is so well versed in social theory and interpretive insight that she can apply such proficiency to virtually any domain. Thus, a critical complex epistemology draws heavily on hermeneutics in its larger effort to provide a more rigorous alternative to FIDUROD. As positivism and FIDUROD have produced explanations from which observation statements are derived, a critical complex hermeneutics constructs understandings from which action can be developed. Such understandings serve as guides to new inquiries about the nature of science, social relations, ideology, and colonialism, and education (Rouse, 1987; Geeland, 1996; Parker, 1997; Harding, 1998; Grande, 2004).

Hermeneutics is a Western discourse emerging from thinkers such as Martin Heidegger, Edmund Husserl, Maurice Merleau-Ponty, as well as Michel Foucault and Jürgen Habermas that maintains that numerous forces mitigate how we interpret diverse types of texts and the world around us. We come to the interpretive act speaking some language, with a view of humans and the ways they act in the world, armed with a lifetime of experiences, and exposure to a particular range of knowledges contingent on the time and place of our existence. And all of these—and many more—factors shape our interpretation of diverse types of texts and the world around us. As many hermeneutists have described it over the last century, our interpretations of

the world always rest on previous understandings of the socio-cultural domain in which the phenomena in question and our ways of seeing were inscribed with meaning (Gadamer, 1989). Such a perspective flies right into the face of FIDUROD's consistent effort to remove such socio-cultural and basically human dynamics from the knowledge production it supports. Indeed, such processes by which human subjectivity is shaped have traditionally be swept under the epistemological rug of positivism.

Thus, in a critical complex hermeneutics we understand the new knowledge we encounter through lenses colored by our existing knowledge of the cosmos. In such a context it is easy to understand how meaning making and knowledge production in the West so easily falls into the trap of a parochial Eurocentrism. New interpretations and the knowledge they construct are always integrated into a previously existing epistemological/hermeneutic framework. Knowing this, a critical complex hermeneutics can never support pedagogies that presume that knowledge is a discrete entity that can stored in a box and later be removed in an unchanged condition. It will have aged, reintroduced to a new *Zeitgeist*, a new socio-cultural context. If a different person removes it from the storage box, she will have idiosyncratic experiences that move her to interpret its meaning in a new way. Knowledge is always inscribed by temporal and spatial factors, never timeless and local—culturally mediated, never independently constructed (Chiari & Nuzzo, 1993; Geeland, 1996; McLaren & Kincheloe, 2007).

Obviously the hermeneutics employed in this discussion of epistemology and the politics of knowledge is a critical complex hermeneutics—critical in the sense that it has engaged in a dialogue with the tradition of critical theory, and complex in that it has engaged with complexity theory. As maintained throughout this book critical theory is always focused on the ways power operates, the ways various power blocs and organizations position power in the effort to get by in the world, shape behavior, gain dominance over others, or, in a more productive vein, end human suffering and upgrade human life. Understanding that power is not merely one important force in the socio-cultural and political process, critical theory posits that human are the historical products of power. A critical complex hermeneutics emerges in the interaction among hermeneutics, critical theory's concern with power and social action, and the insights of complexity theory (D. Jardine, 1998; Kincheloe et al., 1999; D. Smith, 1999; McLaren, 2000; Kincheloe & Berry, 2004).

Hermeneutics in this context is an exercise in developing the interpretive ability, the scholarly facility of knowledge workers in any domain. In this integrated context critical hermeneutics advances interpretation to new levels, moving beyond what is visible to the ethnographic eye to the exposure of hidden structures and intentions that shift events and construct the lived world. As a critical complex hermeneutics studies the intersection of power and ubiquitous, pre-reflective social and cultural meanings, a nuanced and rigorous understanding of the cosmos emerges. A critical complex hermeneutics propels the concept of **historicity** to a new conceptual level, as it specifies the nature of the historicity that helps produce cultural meaning, the consciousness of the researcher, the construction of the research process, and the formation of human identity/subjectivity and transformative action

in the world. In this interpretive context critical theoretical concerns with praxis-based notions of socio-cultural transformation are more easily addressed, as social action informed by thick description and rigorous understanding of a social and political circumstance is made possible (Zammito, 1996; Lutz et al., 1997).

The New Frontier of Classroom Knowledge: Personal Experiences Intersecting with Pluriversal Information

Drawing on our hermeneutic insights that often involve observing one phenomenon in the presence of another, one entity in light of the horizon (the context) in which it is encountered, we apply our critical complex epistemology to the knowledges students deal with in classrooms. Thus, somewhere in the interaction of phenomenological direct experience and theoretical contemplation rests the essence of critical complexity. Indeed, here rests a central feature of *Knowledge and Critical Pedagogy: An Introduction*—our critical complex epistemology and our critical politics of knowledge bring us into a contextualized present. This contextualized present is what critical pedagogues strive to create in the classrooms they construct. With this in mind we explore the new frontier of classroom knowledge, helping students and teachers juxtapose their personal experiences with multiple types of knowledge in our epistemological pluriverse.

In classrooms shaped by standardization and test score performance the significance of the fragmented data that students stuff into their memory boxes is irrelevant. The stories, the genealogies, the DNA left behind by power that saturate every fragment of data included in the mainstream curriculum are so profoundly revealing but so totally ignored in most mainstream Western classrooms. It is irrelevant, for in such thanocentric places no one is rewarded for exploring profundity in the everyday, the larger meanings that emerge from our attention to what is going on around students and teachers in the school. These everyday educational power plays call on critical teachers grounded on a critical complex epistemology to help turn these seemingly minor details in a unique view of the whole, into the stuff of emancipation. The regulatory dimensions of contemporary schooling, the standardization, the scripts, the testing, the surveillance, etc. are the constructions of dominant power. Learning to identify the workings of larger processes of power in these contexts is a key dimension of being a critical educational researcher and, of course, a critical teacher and student.

Phenomenology and hermeneutics in their critical articulation operate in the tension between particularity and generality—with generality focusing on power blocs and their insidious operations. This epistemological principle is basic to the intersection between student experience and pluriversal knowledge. The direct experience to which phenomenology connects us is one that is always in need of a form of critical interpretation that reminds us that we make sense of it from our particular locale in the web of reality. It provides us in this context with access to one—but a damned important one—of the multiple realities we have discussed

throughout the book. This contextualized present is powerful in its ability to move us to new domains of understanding. Not only is the present—the experience and the insight that comes from it—important, but also the connection of such experience with the generality of the critical is profoundly emancipatory. Such a positioning of personal experience and social theory/pluriversal knowledges is a key path to our larger goal of the decolonization of knowledge.

Here we engage in an epistemological severance between Western socio-educational and political hegemony and the construction of our consciousness. We begin in this critical phenomenological and hermeneutic project to monitor the way our own perspectives replicate the viewpoints of those in the West who dictate the “universal truths” that oppress so many in the world. As we uncover the plethora of ways that dominant power blocs colonize the mind, we begin to understand the intersection of personal experience and pluriversal knowledge anew. We become better students of how power operates, as we enumerate the ways it has shaped our own ways of seeing and being. Criticalists become more adept at exposing the hidden dimensions of Western colonial power in all of its racialized, capital-driven and class-biased, gendered, religious, and sexual articulations. In every domain, education in particular, we have to examine the power of neo-liberal markets and their impact on the politics of educational knowledge. Pluriversalism and critical multilogicality in this domain listen especially carefully to those on the “other side” of the colonial border—those who have lived in geographical areas where European powers have colonized for centuries and neo-colonized for decades (Van Manen, 1991; Mignolo, 2001, 2005).

When educators dismiss the intersection of personal experience with multiple knowledges, they take an important step toward constructing education as a mode of stupification. Universal knowledges constructed in the interest of Western power brokers float like the smell of rotten meat through the hallowed halls of education. As I study the curricula ensconced in contemporary schools, I read and listen to textbooks, curriculum guides, and teachers imparting gallant fictions about brave national leaders executing valiant and just feats, of governments that work outside the boundaries of power blocs for the good of all. The conscious notion in contemporary Western and Western-inspired schools that such data has anything to do with one’s personal experience is unthinkable in the minds of most students. These universal knowledges work primarily at a tacit, unconscious level to colonize the consciousness of those with whom they come into contact.

Thus, the decolonization impulse in the critical new frontier of classroom knowledge is omnipresent in this context. A critical complex epistemology works hard to support a critical pedagogy that helps students and teachers extricate themselves from social and interpersonal patterns of thinking and behaving. A critical complex epistemology’s dedication to examining questions of meaning, liberation via ideological decolonization, and focus on the hidden practices of the production of selfhood transcends the mimetic knowledge production and the rote pedagogies of the contemporary era. The critical pedagogy emerging in this epistemological context is always struggling with educational purpose in changing times and places while concurrently wrestling with questions of freedom, authority, social action,

and student dignity. It is constantly looking for tacit modes of colonialism that teachers and students in the schools of dominant culture do not yet understand.

Thus, a critical complex epistemology helps us ask new questions, to develop new cognitive abilities, to see through the walls of colonialism and the ways the empire has shaped our interpretations of our own experiences. At the level of the individual we gain the empowerment to reinterpret our lives in relation to the monster of dominant power. In this activity, students—especially those marginalized by issues of race, class, gender, sexuality, ability, religion, and colonialism—discover new dimensions of their genius and insight often quashed by colonial power. At this point the new frontier—an anti-colonial frontier, I might add—opens up. It is a frontier of great possibility where the knowledge of school can intersect with personal experience and insight to allow for the production of new knowledges (Harding, 1998; Mignolo, 2001; Valenzuela, 2006). Such knowledges allow new epistemological and ontological insights to emerge in a manner that produces new identities and new understandings of the damage the various Western power blocs are inflicting on a variety of oppressed peoples.

Constructing New Ways of Being Human: Critical Ontology

We can become more than we are now via a critical complex epistemology, a critical politics of knowledge, and a critical pedagogy. As we develop new ways of understanding knowledge and the way it constructs the world, we construct new ways of producing our identities, our subjectivities. A key dimension of our critical identity involves our ability to imagine—our ontological imagination of what we might become as individuals and as a species. As linguistic, imaginative entities we can transcend what are believed to be innate biological tendencies and change violent and destructive behaviors that threaten other human beings and the planet in general. In criticality societies possess immanence—a sense of moving from what is to what could be. In a critical ontology that sense of immanence moves to the realm of who we are and who we can be as human beings. To me, one of the most exciting dimensions of being a critical theorist and engaging in a critical pedagogy entails opening ourselves up to a passionate imagination, where we constantly remake ourselves in light of new insights and understandings.

We are lost if we are not imaginative, exploring entities. Yet, schools in the Western empire of the twenty-first century often seem intent on quashing this very quality. A critical complex epistemology works to create conditions that cultivate the imagination, that promote a highly rigorous yet imaginative body of knowledges shaped by encounters with diverse peoples and places. And since “who we are” is inseparable from “what we know,” new articulations of selfhood are possible in such an epistemological context that respects “otherness” and difference. In my own life I could never be the same after living and working with the Rosebud Sioux (the Sicangu people) and learning the ways they saw the world, white people,

humor, research, and numerous other dynamics. Denying or discouraging students from having contact with otherness and difference is another dimension of dominant power's social control. As long as power wielders can epistemologically and ontologically isolate Western societies' "abstract individuals," they can subvert tendencies to question the one-truth ways of seeing and being.

Central to a critical ontology is the critique of the individual as the fundamental social component out of which other groups and interpersonal interactions materialize in Western societies. The notion of the abstract individual is central to traditional Western philosophies and Western religions. Indeed, the individual-society relationship has persisted as a central dilemma in Western thought. Critical ontology with its understanding of the social construction of selfhood and its never ending embrace and respect for otherness and difference helps Westerners escape from the pathologies of abstract individualism. The narcissism that emerges from a system of ideas that focuses primarily on the autonomy, self-centeredness, and economic self-interest of the individual produces anti-social behaviors that undermine the well-being not only Western societies themselves but of diverse peoples around the world. An examination of the history of Western education reveals that this egocentric dynamic has been the foundation on which the curriculum has rested (L. Smith, 1999; Spring, 2001; G. Jardine, 2005).

In a Western world gone mad with egocentrism, materialism, status-seeking, and mutating forms of colonial exploitation, critical ontology's notion that humans can be more intelligent, ethical, imaginative, environmentally sensitive, and interpersonally adept is viewed as a profound threat. Once we have jumped through the critical ontological looking glass and seen our reflection in the crystal amaryllis of criticality, we begin to understand the complexity of human existence in previously unimaginable ways. The reality Westerners have been taught via the tacit pedagogy of the omnipresent epistemology/ontology of FIDUROD begins to appear as merely one construction of a much grander schema. Concurrently, the view of the individual we have absorbed from this same conceptual framework seems woefully impoverished. In the ontological realm of being human, the scourge of egocentrism undermines our hope for a critical pedagogy, for a radical love.

It is difficult for us to deal with the global disparity of wealth, environmental degradation, colonial violence, understanding the abuses of power, ad infinitum when individuals are too busy pursuing status to attend to the needs of the group, in this case their species, other life forms, and the planet in general. The abstract individualism of Cartesian-Newtonian-Baconian epistemology/ontology keeps us from constructing a critical community of interconnectedness. Even those who study these dynamics and intellectually understand the critique offered here are sometimes so pathologically committed to Western egocentrism that they cannot emotionally commit to such interpersonal interconnectedness. Knowing is inseparable from being—epistemology is inseparable from ontology. Some of my saddest moments over the last 40 years of working toward critical goals have involved observing the pathological egocentric/merciless behavior of those who pay lip service in their scholarship and social activism to many of the values expressed here. Thus, a critical ontology understands that a logical understanding of criticality is

often not enough. Such insights have to be accompanied by a reconstruction of selfhood with affective and emotional investments in the tenets of criticality.

Obviously, a critical ontology does not mean that we simply abandon the notion of individualism for the collective. In this context we walk a tightrope between developing a commitment to the group and the needs of individuals (Kincheloe, 2007). Just as in a critical phenomenology, we are very concerned with the particular event, the life of the individual, and the local circumstance—we value all of these dimensions for their intrinsic significance but concurrently know they are socially constructed entities that must be appreciated in the larger contexts and processes of which they are parts. We have much work to do at both the individual and the social levels. Honestly, I'm not particularly happy with the "way 'we' are" in Western societies at the end of the first decade of the twenty-first century: the hierarchies, the ways men treat women, the heterosexism, racism, class bias, the competition, the fear of "taking a hit," the neo-bourgeois low affect "cool," the humorlessness about particular topics, etc. Yes, I admit it—I want to see not only a social and pedagogical revolution but an epistemological and ontological revolution as well.

Knowledge production and research always rest either consciously or unconsciously on some notion of the self. In the West from Greek philosophy on to the present, human beings have been viewed as existing outside of naturalistic constructions of selfhood in humanistic explanations of the phenomenon of subjectivity. Naturalistic descriptions focused on the unity of nature and human life, while humanistic perspectives abstracted people from the world, situating them as superior to the animals and plants because of their language and rational ability. This humanistic abstraction and hierarchicalization has throughout the history of Western philosophy often operated to subvert our sense of connectedness to the universe and to one another. In many ways such an epistemological/ontological perspective has rendered humans as existentially lost in the universe, unaware of the diverse connections inherent in being in the world and being in relationship. Human beings have culturally and biologically evolved *in relationship* to unique circumstances—we are who we are in part because of our interconnections. Humans are separate entities, no doubt, but also parts of the irreducible wholes of society, cultures, and the physical world.

Transformations in things-in-the-world are always connected to pattern constructing dynamics located spatially and temporally. A critical complex epistemology, critical ontology, and critical pedagogy are pattern-constructing dynamics that ultimately change who we are. Thus, the caution: if you want to stay exactly who you are right now, do not study these critical dynamics. Unless, you are committed to resisting any authentic connection with the new experiences such criticality produces, you will return from the encounter with new patterns, processes, and contexts as a different being. Engagement with subjugated and indigenous knowledges, different ways of viewing knowledge and its production, and the notion that we are things-in-relationship not simply things-in-themselves jettisons us into new domains, new mindspaces, new modes of seeing, being, and acting. I hope you find this as exciting and exhilarating a process as I do.

Glossary

- Historicity** the human state of being in the world, our place in space and time and the way it shapes us. Such a concept is very important in critical and enactivist theory.
- Mimetic** having to do with the actual reality of human experience. Mimetic knowledge reflects “true reality.”
- Positivites** unified bodies of knowledge constructed via specific principles.
- Queer theory** though the term is often used to describe the fields of gay and lesbian studies, it also deals with the notion that sexual and gender identity are in part socially constructed. In this context queer theory asserts that people cannot simply be categorized using words such as homosexual, heterosexual, woman, or man.

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