13 WAYS OF LOOKING AT A BLACKBIRD:

POLITICS, POLICY, AND POWER

OF TECHNOLOGY IN

NO CHILD LEFT

BEHIND

by

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PREFACE

This research reflects the inherently political nature of all policy, education policy in particular. I would like to express my deepest gratitude to those who encouraged me to follow my interests and to take this alternative path. A special thanks to Dr. Adrienne Hyle who stepped up and agreed to chair my project and provided subsequent encouragement, advice, direction, and support. Dr. Stacy Otto validated my interests, pointed me to expanded possibilities, and gave me the courage to try. Without her thoughtful questioning, I would have never walked this particular path. To all the staff at Bristow Public Schools, thank you for listening and cheering me on through the process. I especially appreciate the reading and critique from Bristow's grammar goddess, my friend and colleague Ranay Alcorn.

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CHAPTER ONE

INTRODUCTION OF THEORETICAL QUESTION AND FRAME

In a society desperate for easy, unilateral answers to increasingly complex, multi-faceted societal issues, a mythology has arisen that implies education can solve all of society's ills. Such an attitude reflects a positivist worldview that we can change the world if we can only find the right answer. The answer is out there, just waiting for us to discover it. Taubman (2000) writes about the tendency in education to believe "that science as a method will solve our educational problem [for] … science offers surety as well as hope for the future" (p. 23). Education journals fill their pages with answers: the right standards, the right program, the right leader (principal, superintendent), the right teachers, the right teacher-preparation school and faculty. The list continues with an implicit message that if we implement the right solution, all will be well with our world. Tyack and Cuban (1995) explore the conflicting chiasma of American education policy: on the one hand, Americans have great faith in education's power and view it as the answer to all social ills; on the other hand, education, because of its very nature, cannot deliver the quick fixes that the public expects.

Many education specialists and politicians have touted new educational strategies (new math, New American Schools, new technology) as the solution for all of society's ills, and student learning has been caught in the middle of this great political debate. Society and educators clash over the purpose of education and the means to achieve that

education with policies and mandates flooding U.S. schools. In fact, as Sarason (1996) points out, "On the stage and behind the scenes mammoth struggles are going on that have more to do with power than with substantive educational issues" (pp. xiv-xv). Such vacillation has led to reforms layered upon reforms, some complementing previous reforms, some completely contradicting former attempts, leaving in their wake demoralized, disillusioned, and exhausted teachers: "the list of burned-out school reformers is very long" (Sarason, p. 357). Too often, in the past, education reform has been a "quest" for the "one golden way to intervene that would be both simple and cheap" (Schorr, 1997, p. 319).

Many directly link this "one golden way" in education reform to the tool of technology. Over the past two decades, American schools have invested substantial dollars into technology (assessments, computers, software, Internet connections, multi-media devices, etc.) without adequately investigating how these machines, tools, and/or approaches affect student learning. And, little research focuses on the value judgments that inform education reform policy decisions. Operating blindly, without seeing the values and assumptions embedded in the language of reform, narrows how education is discussed and implemented at all levels. In his study of education reform in the United Kingdom, Ball (1994) describes policy as both "text" and "discourse" (pp. 21-27). Policy is a negotiated text with multiple viewpoints converging within a single document and through specific language that takes for granted that action will result from the policy implementation. The final language penned into law cannot and never will be able to reflect the full intentions of the authors who bring "multiple (but circumscribed) influences and agendas" (p. 16). The authors, moreover, cannot control the meanings of

their texts once they are written and dispersed to other governmental entities and to local practitioners. When the policy finally reaches the local schools, it "has an interpretational and representational history" (p. 17). It, likewise, enters schools filled with "histories" that provide context for potential implementation. Within this complex process, there always exists, because of the very nature of policy, "a privileging of the policy maker's reality" (p. 19). What reality do the texts of recent reform legislation speak into being? This is an important question because policy also functions as "discourse."

Ball (1994) bases his description of "policy as discourse" upon the Foucauldian premise that discourses constitute how we think about others, our world, and ourselves and, thus, discourses control who we are and how we can think while at the same time concealing "their own invention" (p. 21). Ball's concept of policy as discourse provides a useful lens through which to analyze recent education reform legislation and to tease out its underlying assumptions and values about technology, to try to listen for the voices that formed this legislation and to uncover their political agendas (if any). This investigation is important because discourse makes our world, and education policy discourses "exercise power through a *production* of 'truth' and 'knowledge'" (p. 21). The danger or violence occurs when some voices are silenced, and others are privileged and deemed meaningful and authoritative. Such privilege points to Foucault's (1983) sense of power, and his contention that discourse empowers/disempowers certain agents to speak and to create representations.

In their analysis of the 1988 Education Reform Act in the United Kingdom, Bowe and Ball with Gold (1992) identify three areas of context for the creation and

implementation of education policy: the context of influence, the context of text production, and the context of practice. This framework provides a useful model through which to look at recent reform legislation in the United States, focusing, in particular, on the context of influence, the site where government and powerful interest groups decide the ideological and political basis of policy. Through the *No Child Left Behind Act* (2001) and other recent federal reform legislation, schools in the United States currently face a mandated school reform package that focuses heavily on common assessment (translated as standardized tests) for all students (even those with severe mental, emotional, and/or physical disabilities and even those as young as four years old) and scientifically based research practices. This *Act* has the potential to change, and, in some cases, is already changing, pedagogy, student assessment, classroom organization, local control, and teacher training, among other education practices and issues.

Purpose of the Study

This study results from an effort to uncover underlying values and assumptions about teaching, learning, and technology that influence the questions policy makers ask (and don't ask) and the eventual decisions they make as inscribed in policy. The purpose of this study is to problematize the creation of policy as text and as discourse and to deconstruct education reform policy. Using a postmodern lens to deconstruct current education reform legislation and to open potential paths that encourage education policymakers to embrace the contextual nature of change within local schools, this study will situate recent education reform legislation within the context of the American education reform movement, concentrating specifically on legislation that focuses on technology and its role in American education. This exploration will include federal

policies and United States Department of Education (USDE) documents that interpret policy decisions for state and local education agencies.

Allan (2003) identifies general approaches of most education policy research. One such approach uses systems theory to seek "universal principles and paradigms to explain the behavior of systems" (p. 46). Others look at policy formulation, adoption, implementation, and evaluation, and the resulting power dynamics among policymakers within each step. Most recent education policy research focuses on education reform and necessary policies to monitor such reform (Betts & Danenberg, 2002; Haverty, 2004; Hess, 2002). Shaw (2004) points out that traditionally, policy research has been characterized as:

1. Holding a belief in a single concept of truth (with a capital "T"),
2. Assuming that researcher objectivity is both achievable and desirable,
3. Ignoring particularities like gender, race, social class, and sexuality as unimportant,
4. Using male norms as the baseline for comparison. (p. 58)

In other words, the positivist paradigm, with its emphasis on dispassionate objectivity, reigns supreme in most policy analysis that "willfully ignores the inherently political nature of all research, and policy research in particular" (Shaw, p. 58). Such approaches are limited because they do not acknowledge the innately political quality of all aspects of policy, including the study of it: "Policy analysis [and, by extension, policy] is never value-neutral" (Shaw, p. 56).

Three lenses will serve to analyze recent education reform legislation, focusing primarily on *No Child Left Behind* (*NCLB)*: postmodernism, hermeneutics, and discourse analysis. First, a postmodern theoretical framework will be employed to inform an analysis of technology policy discourses. Second, discourse analysis will act as a tool for looking at technology's role in creating and /or perpetuating the "logic of domination" (Fleener, 2002) and its continued influence on our ways of thinking today. Through discourse analysis, the language of technologically related policy decisions can be pulled apart to see what value judgments inform them. Third, hermeneutics, "a theoretical methodology for interpretive understanding, or meaning, with special attention to context and purpose" (Patton, 2002, p. 14), will guide an analysis of the concepts of *technology* and *reform* in relationship to current education reform policy.

The recent implementation of *NCLB* with its beginning effects on schools necessitates such a theoretical study. As the *Education Reform Act* (1988) initiated several changes within British schools, *NCLB* has unleashed cascading forces upon U.S. schools. To be able to study the ensuing consequences requires a thorough analysis of the law's theoretical biases, a necessary underpinning for empirical studies. This first step, a theoretical analysis, will then serve as groundwork for future exploration and study of state, school, and individual student responses to the mandates of *NCLB.* Failing to explore the theory behind the law would make further work on the subject as arbitrary as the current implementation of *NCLB* itself. This is surely an oversight that all researchers would want to avoid.

Research Objectives/Questions

The modernist perspective that privileges scientism and the mathematization of reality influences much in education (Ball, 1994; Fleener, 2002; Kaufman et al., 2003). The objective of this research is to uncover what underlying values and assumptions about technology drive recent federal legislation, how education policy constitutes technology, and with what effects. Connected to this central problem statement are the following research questions:

- What values, assumptions, and definitions of technology emerge from the *NCLB* reform legislation?
- In what ways does the language of recent education reform legislation privilege technology?
- Ancillary questions include:
    - What definitions are revealed? How is technology represented?
    - What criteria do the policy texts set up for funding allocations and monetary penalties for schools?
    - What cultural values do they promote and support through financial allocations or penalties and/or through the programs supported?
    - What "cost" (economic, political, and social) to education comes with privilege? What knowledge and behavior is valued and rewarded?

To explore these questions requires stepping back and looking at potential influencing factors for the underlying assumptions and values embedded in the decisions.

Orienting Theoretical/Conceptual Framework

This study utilizes the theoretical perspectives of critical theory and postmodernism. Critical theory guides this work's search to uncover the political structures that function within policy to reinforce existing social hierarchies that harm students. Although naming a framework postmodern is paradoxical (since postmodern discussions question the very creation of labels, classifications, and approaches), the term used here attempts to provide an orientation for the reader, for purposes of description only; no prescriptive category with fixed, unchanging definitions is being created. Moreover, applying a postmodern perspective disrupts all notions of typical research categories and organizing principles. Although the discussions of theoretical frame and methods are separated, a postmodern approach recognizes the arbitrary nature of such separations, and throughout the study slippage occurs between the two.

Derrida (1982) analyzes the "philosophical illusion of 'truth,'" an arbitrary signifier of origins, of answers, of solutions (p. 178). For Derrida, technology could never provide solutions to modern educational problems because the solution would itself reveal further issues, further problems. For, as Foucault (1977) postulates, "What is found at the historical beginning of things is not the inviolable identity of their origin; it is the dissension of other things. It is disparity" (p. 142). To satisfy a public eager for easy answers and to gain support for their initiatives, policymakers promise that they have found THE answer. Derrida (1976) refers to our "attempt to seize" this "longed-for presence" as a "speculary dispossession which at the same time institutes and deconstitutes me" (p. 141). While Derrida speaks of the "law of language," his comment could also apply to technology and education reform in that reformers usually attempt to

articulate Truth, or a solution to "the problem of education." In the context of the above theories articulated about language, such reform attempts are futile, for the very nature of implementing a reform, "the mere presence of a spectator, then, is a violation" (p. 113). The introduction of a foreigner, or change, causes the situation to be "shaped and reoriented" (p. 113). Thus, introducing any change alters the original situation, which, in turn, necessitates a new solution, and the introduction of such a solution leads to another change that leads to another and on and on.

In such a world, no event or action is isolated, but each interacts with others creating constantly dynamic situations. Such an environment seeks continuous change, with a tacit understanding that each adjustment will not provide the answer to all of our problems but will mark a move into the spiral of change, of "institution" and "deconstitution." Creating new strategies and new approaches builds while at the same time it tears down other previous strategies and approaches that will be "deconstituted" by an ongoing process. This lens of shifting realities and continual change will provide tools for questioning education policy texts and discourses and their ostensible purposes.

Discourse analysis will serve as both frame and method in this study. Discourse analysis as frame will allow exploration of the assumptions and ideological interests of federal policy texts as revealed through language and through metaphor. Metaphor, a figurative language tool, enables us to conceptualize experience by providing structure, but many metaphors have become so thoroughly embedded in our language that they become transparent: "we look through the glass pane of metaphor, not seeing its function" (Kaufman et al., 2003, p. 67). Several metaphors embedded in American discourse promote the grand narrative of progress as unilaterally good and inexorably

forward-moving. Administrators and teachers feel the push from the business community, parents, and politicians "to stay caught up"; if "we will run faster . . . stretch out our arms farther . . ." (Fitzgerald, 1925, p. 182), we will achieve a "bold new world." Boym (2001) explores this tendency through her study of nostalgia and its connection to progress. All of these metaphors play a part in the Great American Dream of exploring, expanding, and improving. As Ulmer (1994) notes, "the frontier metaphor is in our habits, our conduct, our emotions, in curiosity itself" (p. 31). Ulmer's (1994) connection between inventions, ideas, and "the frontier metaphor" (p. 31) and Boym's explication of "restorative nostalgia" will function as a theoretical foundation for uncovering the hidden assumptions embedded in policy decision-making language.

The discourse analysis will also be guided by what Fleener (2002) calls, "the logic of domination" that infuses our language. Nathaniel Hawthorne (1978), one of the first American authors, discusses history in the context of his New England Puritan heritage in "The Custom-House" Sketch: "The figure of that first ancestor, invested by family tradition with a dim and dusky grandeur, was present to my boyish imagination, as far back as I can remember. It still haunts me, and induces a sort of home-feeling with the past, which I scarcely claim in reference to the present phase of the town" (p. 11). This nostalgic feeling associated with history, especially American history, seems to have grown more intense as life has grown more modern and complex. To move beyond this historical quagmire requires us to confront the logic of domination and its accompanying concepts of privilege and to move into the spiral—the flow—of context.

The logic of domination contains within it conceptions of privilege that serve to confer status to particular ways of thinking, or ways of seeing. This status, in turn, gives

rights, advantages, or favors. *Privilege* originates in Latin and first entered the English language as a legal term. It comes from *privas* translated as "individual, single" and "lex" or "legis" meaning "law." Or, as the dictionary suggests, a law applying to one individual. What we find, though, as Fleener (2002) takes us through an explication of the "logic of domination," is that this concept of privilege has expanded to include "ways of seeing" and to provide a means to maintain "oppressive conceptual frameworks" (p. 46).

McIntosh (1988) unpacked an "invisible knapsack of white privilege" in her influential discussion about race in American culture. She argues, "To redesign social systems, we need first to acknowledge their colossal unseen dimensions. The silences and denials surrounding privilege are the key political tool here" (p. 4). Why study history or the past? To listen for the "silences and denials." To uncover what lies hidden between the lines of written accounts. To confront the ghosts in our cultural attics that influence our every thought and decision. We cannot let go of the past without confronting it to keep it from blinding us to other possibilities and other "ways of seeing" (Fleener, 2002, pp. 135-136). Without confronting our historical "chains," the logic of domination will "haunt" us and "induce a sort of home-feeling with the past" (nostalgia), and education will continue to become more disconnected from and disharmonious with the larger system of society. Questioning this level of comfort that results from nostalgic memories averts the slide into naiveté.

My analysis is also guided by Edelman's (1988) concept of the construction and uses of social problems. Edelman proposes that "problems come into discourse and therefore into existence as reinforcements of ideologies" (p. 12). He argues that an issue identified

as a problem for some may be a benefit for others. For example, Berliner and Biddle (1995) identify income and wealth inequity as one problem that schools face. This problem for some, however, benefits others because it translates into better schools for districts with more affluent parents. Usually, ideological premises are so embedded in the language of everyday life that people accept the ideology as "the way the world is." For example, during the time of segregation, few southerners questioned its premise. In fact, some politicians talked of the "problems" as being those black students who wanted to attend white schools. As Edelman concludes, "problems are not necessarily undesirable conditions to be solved…. Instead, the uses of all such terms in specific situations are strategies, deliberate or unrecognized for strengthening or undermining support for specific courses of action and for particular ideologies" (p. 11).

Policies created in response to those identified "problems" share some common qualities. First, a policy provides a name for the problem and in so naming emphasizes accomplishment and masks inherent inconsistencies and differences: "the names of policies reflect and rationalize the dominant pattern of ideologies" (Edelman, 1988, p. 17). Second, the solutions contain contradictory and inconsistent impulses because they represent the compromise of many voices, reflecting diverse group interests. Third, the solutions identified in policy may exacerbate the condition or improve it; but, the solutions will always promote "inversions of the value formally proclaimed as the goal of the activity" (p. 16).

Two research studies also contribute to the framework for this study. First, Marshall, Mitchell, and Wirt (1989) examine the values embedded in educational policy as reflected in the language chosen to create the policy. Through careful study and

detailed content analysis of statutes in several American states, they identify four common values embedded in the language of law: efficiency, equity, choice or liberty, and quality (defined as "the best," and often referred to as "standards of excellence"). In another study, Levin and Young (2000) examine the language of large-scale reform efforts in three geographically diverse settings: England, New Zealand, and Canada. Through thoughtful analysis of official documents and parliamentary debate of major educational reform efforts, they note four common elements of the official discourse: a focus on competition, choice, excellence, and accountability. The conclusions of these two studies manifest Edelman's (1922) analysis: "For every political problem and ideological dilemma there is a set of statements and expressions constantly in use" (p. 112). The language exposed in these two studies will combine with the four themes identified in this study's review of literature associated with technology:

1. *the economic* in its focus on the puritan work-ethic with its modern focus on capital gain, and its children: control and efficiency.
2. *the political* through its language of domination and colonization.
3. *the social* in its association with progress, improvement, and perfection.
4. *the religious* with technology serving as the savior of education.

NCLB carries within it the same language as that identified above. Using these three studies in conjunction with Edelman's policy analysis, this study teases out how the language converges and with what results: what language-games does it privilege and/or conceal?

Procedures

Tradition has progressed beyond qualitative vs. quantitative debates to a recognition that researchers match research methods with research questions (Patton, 2002, p. 556). The choice of qualitative methods is appropriate for some fundamental questions about education and best fits this research question. Qualitative methods work best for questions that require depth of exploration instead of breadth, and to reach a deep appreciation for a question requires investigating its social context. This is particularly true for policy research because policy affects all aspects of society not education only. Mertens (1998) points out that a researcher's paradigm will guide him/her in choosing the method of research. For example, if researchers accept the "ontological assumption…that multiple realities exist that are time and context dependent, they will choose to carry out the study using the qualitative methods so that they can gain an understanding of the constructions held by people in that context" (p. 161). Standish (2001) also explores the concept of the "given" and its effect on educational research: "Values permeate our lives" and "what is taken as given determines the data the research student collects and her manner of interpretation" (pp. 497, 499). Such "givens" include society's belief that educational research should focus on "effectiveness," with "what works…[This] sets limits on what research concerning education can be. In the market-place of educational research the honest practicality of 'effectiveness' and 'improvement' acquires a mystique even a fetish value" (Standish, p. 501). Questioning such "givens" as they relate to education and technology provides rich research possibilities. A postmodern perspective informs and guides the research portion of this project and will challenge the notions of *effectiveness* and *improvement*.

Researcher Subjectivity

I arrived at this particular theoretical frame as a result of my almost daily interaction with and implementation of the federal policies of the *No Child Left Behind Act* (*NCLB*). Currently serving as a district administrator in a small, rural Pre K-12 school, I have spent 16 years fulfilling various roles in education: teacher, mentor, librarian, and administrator. I have taught a wide variety of classes, from fourth grade Spanish to college level classes and adult teacher training. When I have spoken with politicians who voted for *NCLB*, many are surprised at the USDE and/or SDE interpretations of the original mandates and/ or cannot recall inclusion of particular language. When commenting upon the subject of *NCLB* requirements, Oklahoma Congressman Frank Lucas said, "That's not what we intended." I could see a constant shift from creation, to articulation, to implementation. Likewise, as I have made decisions and worked with teachers to implement changes, I have noticed that the final implementation varies from teacher to teacher and from class to class.

My past training in critical literary analysis using Barthes, White, Foucault, and Derrida (theorists usually associated with post-structuralism and/or postmodernism) led me to look at how disruptions occur as I attempted to implement change. These disruptions caused me to step back, to look at how these shifts—the shifts from what I had intended—manifested themselves. This reflection led me back to my literary theory readings. I retrieved those books, articles, and notes from my attic, all containing theories that I thought I had forgotten. When I opened the pages and read Derrida and Foucault again, I realized that far from being forgotten, the theories had become so much a part of my thought processes that I no longer realized their presence. From this

experience, I recognized that if we are not intentional and self-reflective, postmodernism will become yet another *ism*, another grand narrative that replaces that of positivism. So, it is with special intent and care that I approach my topic seen through the frames—the possibilities— articulated by Wittgenstein, Derrida, and Foucault.

As stated above, much of my theoretical perspective was formed during my training in literary criticism. While serving as an adjunct instructor at the University of Tulsa in the English department, I worked with a committee to choose the "texts" for the Writing II class; we chose to read Ralph Ellison's novel *Invisible Man* and Zora Neale Hurston's *Their Eyes Were Watching God* to serve as a spring board for students to discuss and write about race, culture, and ethnocentrism.

Ellison's (1947/1990) *Invisible Man* articulates the experience of being seen only as a stereotype instead of as an individual. In exploring the ramifications for this, Ellison probes the "nature" of invisibility. Instead of seeing a man with all of his accompanying human complexities standing before them, people choose to see what they want. When confronted with something different, the "other," people create a social projection or a reflection of themselves. In this way, they attempt to make sense of the natural chaos of this world. Ellison's character concludes his story with some thoughts that seem to reflect my own personal conflict with postmodernism: "And the mind that has conceived a plan of living must never lose sight of the chaos against which that pattern was conceived" (p. 580). While Ellison's character says that he must take a "socially responsible role," he also recognizes that "all life seen from the hole of invisibility is absurd" (p. 579). Like Foucault's disparity at the origins, Ellison's character observes that "too much of your life will be lost, its meaning lost, unless you approach it as much

through love as through hate. So I approach it through division. So I denounce and I defend and I hate and I love" (p. 580). Ellison's character also reflects Derrida's assessment that all moments are moments of constitution and deconstitution: "I hope of spring. But don't let me trick you, there is a death in the smell of spring…" (p. 580). Thus it is that Ellison chooses the novel to explore the complexities of the human spirit, for such a format allows him to "tell the truth while actually telling a 'lie'" (p. xxii).

But, like the Invisible Man, I want more. I don't want to see life as absurd; I want to find a pattern in the chaos. I want to believe that socially responsible behavior can effect change. I want to believe in the ideal. I want to play the "game of 'as if,'" and recognize "its potential for effecting change" (p. xx). So, while I may play with the idea of chaos at the origin and use that theory to articulate potential problems, I choose to find patterns in that chaos that will lead me to meaning and to meaningful conclusions because I must believe that I can be a part of creating opportunities for students to change the conditions of their lives.

Methodology

A study's methodology includes the methods, procedures, and techniques valuable in collecting and analyzing information. This section provides details about the data sources for the study, the data collection approach, and the theory that will guide the data analysis.

Data sources

While recognizing the shifting nature of data and the riskiness of trying to find a meaning through analysis, I have chosen to engage in discourse analysis, always trying to keep my own biases and predispositions in the open. The primary data source is the

recent policy text called *No Child Left Behind* (*NCLB*), or *HR1* with particular focus on the Title II, Part D section that directly addresses and emphasizes technology. *NCLB* is the 2001 reauthorization of the *Elementary and Secondary Education Act (EASA).* Originally passed with bipartisan support in Congress, this *Act* has been called historic and transforming and the biggest push ever for a nationalization of public education. Policy like this is always about authority and consequently about power. With the stated intention to hold schools accountable for their students' academic achievement, *NCLB* has ushered in sweeping changes in how schools and teachers talk about student achievement. I also analyze the text as a whole to determine how other aspects of *NCLB*, in addition to Title II, Part D, create needs for technology.

Since its publication on the web in 2002, I have read *NCLB* in its entirety several times with a varying focus at different times to individual portions. I have attended state- and federal-sponsored meetings that focus on implementation of *NCLB* and have worked with our superintendent, principals, and teachers as the district representative to implement it in our local school district. I have also given presentations to our local board and teachers. Although my formal analysis of the policy has occurred only during the past year as I have been working on this research project, I have been directly involved with the policy for a long period of time, enough time to allow a thorough exploration of the discourses at work in *NCLB*.

Data collection

Positivist research method mandates the separation of data gathering and data analysis, but by the introduction of a postmodern theoretical perspective, I intend to blur these boundaries. Because the researcher is immersed in the data (the text) and makes

adjustments based on analytical judgments made during the collection, the method that best facilitates this form of inquiry is deconstruction. Assumptions that inform text-based analysis, like deconstruction, include the idea that the text, functioning as an object, stands alone, and the words within the text convey the meaning. Sedgewick and Frank (1995) identify this as one of four components of postmodern theory: "Human language is assumed to offer the most productive, if not the only possible, models for understanding representation" (p. 1). These texts are then analyzed within the larger context of the author(s), their environment, and conditions of power and domination, or the context, the underlying premise of hermeneutics. Meaning unfolds through the reading of the text and the taking apart of the text's language.

Through a discourse analysis of *NCLB*, I search for patterned regularities in the text in reference to technology and analyze not only what is stated (in language, text), but also what is not stated, for sometimes in these gaps the most significant patterns (patterns of unspoken assumptions) evolve and/or emerge. This is a key component of qualitative inquiry. The methodological inquiries of deconstruction, narrative analysis, and hermeneutics all focus on these gaps in an attempt to tease out underlying meanings within texts. Intentions/meaning and definitions emerge from the words, phrases, and/or images and metaphors that do and/or do not appear in the text.

As I read and coded the text of *NCLB*, I determined that more content knowledge was needed and, thus, expanded my review of policy texts to include precursors to *NCLB*, in particular *A Nation at Risk* (1983) and *Goals 2000* (1994).

Data analysis

Patton (2002) identifies three types of data in classic qualitative inquiry: interviews, observations, and documents. Since this study focuses on documents, discourse analysis became the natural choice for my primary method of analysis. Because my topic includes an extensive analysis of the historical tradition and American attitudes toward technology, my choice of method focuses almost exclusively on textual data analysis of both historical and modern literary and policy texts. The analysis assumes the theory articulated by Facer, Furlong, Furlong, and Sutherland (2001) that a discourse develops around a particular aspect of reality that represents specific points of view and predilections. The structure of language and the images this aspect of reality creates are formed by and form our beliefs, knowledge and values. As I analyzed *NCLB*, I explored the language employed, and its accompanying organization and images, to identify what sense of reality lies behind it and what language-games it plays.

However, this type of analysis also recognizes the difficulty of assigning a definition or category for its practice. Discourse analysis is not so much a classic method as it is a lens that a researcher can employ to think about an issue. And, discourse analysis, because of its very questioning nature, is essentially inter-disciplinary in nature drawing on long-standing traditions within modern literary criticism, classic historical methods, and emergent visual culture studies. The discourse analysis of my research problem does not provide any conclusive answers, but it has enabled me to explore the ontological and epistemological assumptions that lie behind policy decision making. Reynolds (2000) establishes three potential areas that guided the analysis and provided a useful framework: "The analysis of discourse is not to say what the discourse *means,* but to

investigate *how it works,* what conditions make it possible (its exteriority), how it interacts with non-discursive practices and how it is connected to power and knowledge" (p. 34). In the investigation of how the language in *NCLB* works, I explore two elements identified by Reynolds: 1). what makes it possible [or, what Bowe and Ball with Gold (1992) call the context of influence], and 2). how it is connected to power and knowledge by the programs and practices that it funds or the activities and/or results that it sanctions.

Hermeneutics. Hermeneutics, as a method, will facilitate interpreting policy documents to try to see what cultural values they may communicate. Hermeneutics has a long tradition in textual analysis and is philosophically and mechanically appropriate to this study and its findings. The word *hermeneutics* has been used since ancient times, taking its name either from Hermes, the god who interpreted the sayings of the Delphi Oracle, or perhaps lending its name to that messenger god. Which came first is not certain. Hermeneutics, with its stringent rules and guidelines for interpretation, is closely associated with the tradition of Judaeo-Christian theological interpretations where it rendered the "true" meaning, both spiritually and literally, of sacred scriptures (Crotty, 1998; Patton, 2002). Since these early times, hermeneutics has undergone many shifts, transformations, and re-interpretations, but it has always remained wedded to the study of language with the underlying attempt to reach understanding by discovering/manifesting/ uncovering the meanings/ messages carried in the signs and symbols of language. Crotty describes hermeneutics as "a method for deciphering indirect meaning, a reflective practice of unmasking hidden meanings beneath apparent ones" (p. 88).

At the core of hermeneutics is the search for understanding through the interpretation of language. For post-structuralist postmodernists, though, seeking such understanding is futile for meaning is slippery and can never be fixed. Derrida (1976) believes that we are forever caught in these illusions of truth, and "the lifting of the interdict…does not consist in revealing proper names but in tearing the veil hiding a classification and an appurtenance, the inscription within a system of linguistico-social differences" (p. 111). For Derrida, uncovering classificatory structures in language only reveals another form or level of classification. We can never escape the structures created through language, for unmaking one classification only creates another. This is the violence, inscribing and classifying within language. And, it is this classification that engenders hierarchy and power. He asks, "Is there a knowledge, and, above all, a language, scientific or not, that one can call alien at once to writing and to violence?" (p. 127). So, how do we as researchers escape this spiral and find meaning?

One possible answer lies in the methodological approach, what Derrida (1978) calls "active interpretation" (p. 292). The place of tension between the one interpretation that "seeks to decipher, dreams of deciphering a truth or an origin which escapes play" and "the other, which is no longer turned toward the origin, affirms play and tries to pass beyond man and humanism" (p. 292). This approach to the topic is not an attempt to find an original meaning or to pronounce the world in a certain fashion; rather, it is an effort to explain how language is functioning and with what possible effects in education. Such an approach can be facilitated by using Wittgenstein's (1958) concept of language-games.

Whatever is intelligible is accessible in and through language which calls for interpretation of how speakers and writers deploy signs, symbols, and texts to achieve meaning. Understanding is the interpretation of language, the sayings and doings that fit into some antecedent structure or pattern established by prior sayings and doings. Our words and deeds gain their significance from these prior articulations and actions. These contexts can and often do give our performances unintended meanings and values. Wittgenstein (1958) calls this complex interplay of constructed meanings "language-games." "Games" does not imply playfulness. Rather, Wittgenstein chooses the word "game" because of its connection with "board games" where implicit and explicit rules guide how players "play the game" even though there may be freedom within those rules. These tacit language rules of the culture govern the use of language. The total environment in which the language is spoken constitutes part of the language-game. Those who know the rules of the game and have the skill to decipher and decode the implicit and explicit meanings possess the power to be a player in the game. Those who do not know the rules are excluded and powerless. The study of language-games means the study of the use of language against the background and within the context "of an activity, or of a form of life" (p. 11). In other words, language-games denote attitudes and values about life that provide the rules for giving expression to our ideas and cannot be understood outside the context into which the language is woven: "It is almost as if 'seeing the sign in this context' were an echo of a thought" (p. 212).

Fleener (2002) identifies that a basic premise underlying and guiding this investigation of language accepts that the way we use language reflects a "way of seeing" (p. 135). This viewpoint comes out of the Heideggerean arm of the hermeneutic tradition

that says language is more than a means to articulate or reproduce experience; it *is* experience. We do not make our world through language; language makes our world by shaping what we are able to *see*. Prior (2004) gives an example that helps explain this phenomenon. *Norton's 2000 Star Atlas* gives readers a "picture" of the galaxy. Thus, when we gaze into the heavens we find or make the world that our eyes have been trained to *see*. Another example lies in the texts of early European travelers. When faced with native peoples of the Americas, the Europeans transferred their own sumptuary laws onto the natives. They could *see* only through their own socially-constructed frames, frames created by years of tradition and legal policies and documents. Likewise, in education, we *see* students as having varying abilities and fitting into specific categories because federal policies and regulations have identified and labeled them as such. These structures of discourse shape how we talk about education.

A hermeneutics approach helps develop a context for defining *technology* and *reform* in American education. In relationship to *NCLB*, I explore what conditions such definitions create within our discourse. I also apply a form of narrative analysis to help describe "cultural and social patterns through the lens of individual experience" (Patton, 2002, p. 115). To guide this portion of my inquiry, I borrow from Sumara and Davis (1998) who employ what they call "literary anthropology, a hermeneutic practice that works with literary fictions as focal points for investigating beliefs and assumptions" (p. 76). While they use the approach to discuss reading and education, I apply this to technology in education. As Ellison (quoted earlier) tells a truth "while actually telling a 'lie'" through fiction, I use literature to analyze American assumptions and values about technology.

The hope is that thinking in terms of language-games and asking how the language-games are taught and how they are used will allow researchers to see past certain cultural myths that trap them into particular pictures. American writer Ralph Waldo Emerson (1841/1982) contemplated that "man is, as it were, clapped into jail by his consciousness" (p. 178). Wittgenstein (1958), likewise, contends that "a 'picture' held us captive. And we could not get outside it, for it lay in our language and language seemed to repeat it to us inexorably" (p. 48). Despite Emerson's and Wittgenstein's contention that speakers cannot escape the classifications inherent in language, we should try to see past these ancient pictures. To escape the trap or to transcend these language-games completely may be impossible, but it is worth the effort, for, at least attempting to see past these myths may enable a more just and equitable way of seeing, and thus, a new way of living. Feminist author Adrienne Rich identifies this need to transcend past inequities spoken through language. Crotty (1998) notes that Rich observes the need to look back, to enter "an old text from a new critical direction," or "to know the writing of the past," so we can see it "with fresh eyes" and "know it differently than we have ever known it; not to pass on a tradition but to break its hold on us" (p. 107).

The concept of language-games can inform discourse analysis because Wittgenstein's (1958) theory emphasizes the influence of cultural and social factors on the use and interpretation of language across contexts. These cultural and social factors shape language, and language will change meaning depending upon which language-game it is being expressed in and what it is being used to do. This central concern guided the exploration of technology in federal policy texts. Hermeneutics served as one of the methods employed to uncover the messages carried in recent federal policy texts.

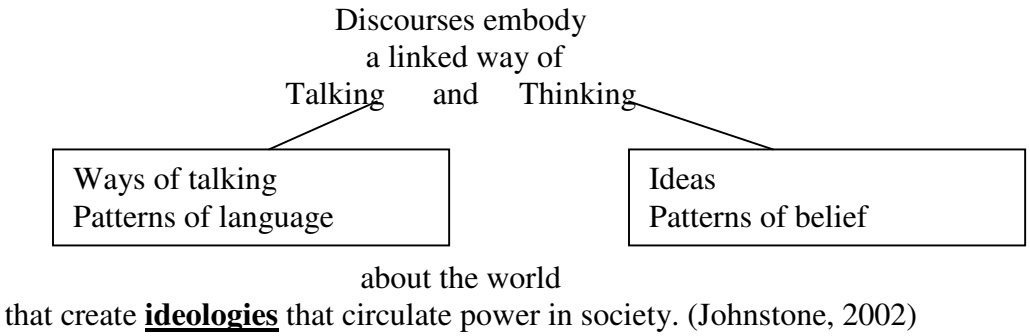
Why uncover? Not to discover a truth, or true meaning, but to see what language-games are at work in that text, to frame temporary understanding, and to uncover traditions that may be harmful.

Discourse Analysis. Foucault calls these same constructions discourses, "sets of socially and historically constructed rules designating 'what is' and 'what is not'" (Wetherall, Taylor, & Yates, 2001, p. 275). His concept of discourses provides a methodological frame for studying discourse construction. Contrary to the classical theory that meaning is based on an idea of truth that corresponds to a True fact, for Foucault, language is not autonomous, objective, and value-free; rather it is subjective, value-laden, and heavily imbued with the culture of its creation and its historical personality. Language does not spring fully formed from its creators' heads, like the classical goddess of wisdom, Athena. For Foucault, no powerful being creates us; rather, what constitutes human speakers is social power and ideology. Foucault (1972) states,

> A discursive formation is not, therefore, an ideal, continuous, smooth text that runs beneath the multiplicity of contradictions, and resolves them in the calm unity of coherent thought…. It is rather a space of multiple dissensions; a set of different oppositions whose levels and roles must be described. Archaeological analysis, then erects the primacy of a contradiction that has its model in the simultaneous affirmation and negation of a single proportion…. Its purpose is to map, in a particular discursive practice, the point at which they are constituted, to define the form that they assume, the relations that they have with each other, and the domain that they govern. (pp. 155-156)

Foucault suggests that we map how certain discourses are constituted and inter-related. This is a valuable inquiry because "discourse not only restricts, limits, and arranges what can and cannot be said about the phenomena within its domain; it also empowers (and disempowers)…certain agents to create representations, and thereby to authoritatively pronounce on the shape and form of the world" (Prior, 2004, p. 325). Tracing the historical development of knowledges and their subsequent effects on power helps to uncover the nature of power and knowledge by mapping the strategies, relations, and practices of power in which knowledges are embedded and connected.

Unlike most education research which is steeped in positivism, both epistemologically and methodologically, discourse analysis does not begin with the premise of the "knowing subject," policymakers, state and local administrators, teachers, and/or students. Rather, it begins with the texts and the discursive rules they embody and reflect and through which knowledge comes to be "produced, encoded, and displayed" (Prior, 2004, p. 319). Policy language choices are ideological choices, choices rooted in and constitutive of beliefs about what is natural and right.

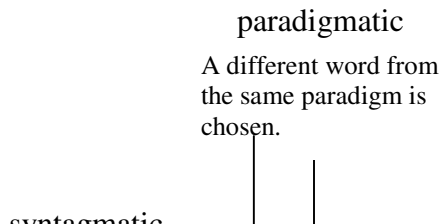


Thus, discourse analysis is more than language analysis, or any other analysis viewed traditionally as a methodology, for it is a lens, a way of investigating the power,

knowledge, and truths that circulate within a culture and come to reside in education policy. While little published education research in the United States applies this lens, or set of methods, it is not a new theory or a new methodological approach.

Three areas guide my discourse analysis: intertextuality, word choices, and classificatory systems. First, intertextuality is a term created by Kristeva (1986) as a way to describe how texts refer to and build on other texts and discourses. Horizontal intertextuality describes how writers pick up and re-use words, ideas, and particular phrasings or connections from their writing predecessors. Vertical intertextuality refers to how texts build on texts that are paradigmatically related to them. For example, education may borrow from and transform preoccupations or concerns from the natural science field or from business and industry. Both of these aspects of intertextuality make up the context of influence, and, thus, will comprise the first level of my discourse analysis. To explore the intertextuality of *NCLB*, I first focus on horizontal intertextuality and look at prior curricular and policy discourse whose influence can be seen in *NCLB*. I then turn to examine *NCLB* vertically, or paradigmatically, by looking at how the language of science and technology breathes life into the policy's requirements and recommendations and how the policy frames, presents, and discusses technology.

The second aspect of my discourse analysis involves detailed word, phrase, and sentence analysis, both syntagmatically and paradigmatically. These two terms, associated with traditional linguistic analysis, are often described visually in the context of the *x/y* axis, with syntagmatic relationships occupying the *x*, or horizontal, axis, and the *y* axis representing paradigmatic relationships.



Two famous comparisons may help explain this relationship. Barthes (1968) applies this linguistic process to analyze clothing and fashion. A syntagmatic analysis of clothing would begin at the hat and proceed down to the shoes; paradigmatically, the choice of hats would be analyzed. As different types of clothing choices send varying cultural messages, i.e. a bikini and flip-flops would signify swimwear, different language choices reflect differing purposes, values, and meanings. Culler (1986) draws a comparison to a meal. Analyzed syntagmatically, a meal would be said to include roast, potatoes, carrots, and salad; paradigmatically, the choice of meats, roast or ham, would be analyzed. Again, the choices reflect varying degrees of luxury or elegance and cultural preferences, and the choice of one excludes the choice of another, unless, of course, the family is very large and very hungry.

Texts have any number of possible constructions (particular words, grammatical structures, imagery, etc.). Putting these structures together produces specific representations of the world and communicates cultural values, or plays particular language-games. Syntagmatic analysis looks at how the *form* of the sentence contributes

to this meaning-making; paradigmatic analysis looks at how the *content* does the same. For example, through syntagmatic analysis, I pull apart the way sentences or phrases are constructed or chained together by looking at what words work together to form ideas and in what order they are presented. Employing paradigmatic analysis allows me to question the use of one word rather than another from the same paradigm set, for the choice of the word shapes the preferred meaning of the text. Although I may discuss syntagmatic and paradigmatic relations separately here, it should be emphasized that the analysis of a text has to tackle the system as a whole and that the two dimensions cannot be considered in isolation. These two types of textual analyses then inform my final area of analysis: classificatory systems.

As Wetherell, Taylor, and Yates (2001) suggest, discourse analysis employs a sort of archeological investigation, looking for points within the data where certain terms in a classificatory framework appear and disappear. Discourse analysis does not differ from traditional data analysis in this process of analysis. Rather, the difference lies in its theoretical orientation, which explains why it functions more as a lens than a method. Recognizing that discourse analysis is intricately tied to the post-structuralist assumptions about the nature of language interaction and society and the interrelationships between them, I analyze *NCLB* both paradigmatically and syntagmatically. I ask such questions as: What particular words make it into the final text? What other options were available? And, what paradigm (or classificatory system or language-game) does the chosen word(s) create?

During each reading of *NCLB*, I have made annotations in the margin. From sorting and categorizing these annotations—coding — patterns emerge. This process resembles

qualitative analytic coding used in processing fieldnotes. Emerson, Fretz, and Shaw (1995) define two types of coding: open and focused. In open coding, the ethnographer reads fieldnotes line-by-line noting ideas, themes, and issues that arise in the reading. Focused coding occurs when the researcher first identifies key categories of interest and then subjects the data (the text) to fine-grained, line-by-line analysis. Applying a smaller set of potential ideas and categories then leads the researcher to a major topic and/or themes. This definition of codes should not be confused with the term as it is used in linguistic analysis, as classification systems within a culture. This latter definition of codes relates, somewhat, to what Foucault calls discourses.

To facilitate analysis, I have employed both digital and printed copies of *NCLB*. In the digital format, I viewed the document through Adobe Reader. This program allowed me to search for specific words and phrases throughout the text. It also identifies the number of times that these words or phrases appear in the text.

Postmodernism: Postmodern research, because it views the world as messy and fragmented and calls into question categories and classification, does not promise credibility, transferability, reliability, or validity (Merriam et al., 2002). Recognizing the questions that a postmodern perspective brings to the concept of data, I have chosen to use a variation of the traditional form of triangulation to guide my data collection and analysis. The traditional definitions of triangulation include employing multiple methods, multiple sources of data, and multiple investigators (Patton, 2002; Merriam et al., 2002; Mertens, 1998). In place of this traditional method, I have chosen to follow a method of triangulation defined by Mathison (1988).

As Mathison (1988) notes, underlying the traditional definition of triangulation is an assumption that cross checking and applying multiple methods causes information to converge upon a single perspective, or a single truth about what is being investigated: "If one examines the metaphors in discussions of triangulation it is apparent that convergence on a point or object is the desired goal" (p. 15). Because my goal is not to find a particular Truth but to try to unfold the social construct of the American dream and educational funding for technology, the traditional usage of triangulation does not serve to provide any particular credibility for my study. Instead, I look at the three possible outcomes of data—convergence, inconsistency, and contradiction — which "shift focus on triangulation away from a technological solution for ensuring validity [and will] place the responsibility with the researcher for the construction of plausible explanations about the phenomena being studied" (p. 17). Because postmodernism rejects the positivist notion of "good," "proper," or "right" interpretation of texts, disconfirming evidence, internal consistency, and strength of interpretation impose as validity for the "reading" of the text. Denzin and Lincoln (1994) point out that the implication for validity in such research projects is that validity, itself, is called into question and its assumptions are interrogated and challenged. Throughout the process, I sought input from my advisor to challenge my reading and to respond to the interpretations' validity.

Significance of the Study

As American culture hurtles into the twenty-first century, education is increasingly portrayed as being caught in the chalky past. The growth of the Internet and the increasing speed and capacity and decreasing size of computers seem to reinforce the amazing growth and capacity of technology. High school graduates today have been

exposed to more information than their grandparents were in a lifetime. The glamour associated with technology, indeed the very essence of technology, enframes, [en]traps, and controls the way we see (Doll, 1999; Ellul, 1964; Heidegger, 1977; Postman, 1993). The modernist paradigm encourages us to draw clear boundaries, to compartmentalize ideas, and to label and define the world, tendencies that act as filters for how we create reality and how we recognize and define problems, how we approach problems, and how we seek possible alternative solutions. Such distinctions, though, can become limitations to our thinking and our eventual decisions. Such a stance allows technology to serve as,

> a surrogate agent, as well as a mask, for the human actors actually responsible for the developments in question…. The popularity of the belief that technology is the primary force shaping the postmodern world is a measure of our growing reliance on instrumental standards of judgment and our corresponding neglect of moral and political standards, in making decisive choices about the direction of society. (Marx, 1997, p. 8)

Naïvely accepting the taken-for-granted blinds us to the implicit and explicit beliefs that attach to the concept of technology.

Theory and Practice

One of the standing questions in education is how to apply theory to practice. This very question, though, reflects, as Taubman (2000) notes, "the desire to cure, rescue, and reform" (p. 20). He continues by expressing his desire to "offer alternative ways to think about … the relationship between theory and practice" (p. 20). He then develops the idea of moving the entire process (theory and practice combined) to the local level where each teacher looks at his/her own criteria for what it means to be educated and to develop ways to assess student-learning needs within each classroom. Such a move would change not only the concept of but also the whole power relationship between theory and practice. The typical approach views theory (or the theorist, the master creator of theory) as the puppeteer who, when he/she moves the strings appropriately, produces coordinated movements of practice. For me, though, theory and practice revolve in a much more fluid relationship, perhaps more like a river (to use another metaphor). Theory influences practice which, in turn, changes theory in a constantly swirling and shifting exchange.

Entering such a constant flow of exchanges opens up the possibility for a teacher and/or researcher to become a *bricoleur*, "someone who uses 'the means at hand,'" even those that may have been devised for another purpose, and "tries by trial and error to adapt them, not hesitating to change them whenever it appears necessary, or to try several of them at once, even if their form and their origin are heterogenous" (Derrida, 1978, p. 285). This versatility requires constant adaptability, the ability to ask hard questions and to rethink assumptions.

The notion of a *bricoleur* stands in contrast to the concept of the expert. Wheatley (1999) discounts the belief that if we "hire the right experts," we will see our future

clearly as "a great cosmic joke" (p. 39), and admits, "I have given up trying to control anything…I finally understand that the universe refuses to cooperate with my desire to play God" (p. 46). Fleener (2002) extends this concept: "Yet the answer may be, as Epstein found, not in achieving new understandings but in our ceasing to look for them and letting go of the past" (p. 186). Viewed in this way, education is a very local activity which requires each teacher and/or researcher to spend time to reflect, time to adjust, and time to create anew based on the individuality of each class and each student as he/she encounters new learning experiences. This moves education from the realm of depersonalization and separation to the circle of the familiar and the connected.

Research

A scientific worldview dictates that we approach education analytically. At another level, though, lie the "meaning structures" (MacDonald, 1995, p. 103) that guide our language and behavior in education policy making. These meaning structures circumscribe our identities. I have pulled together multiple perspectives about technology and its relationship to education and the American identity. But, like all language, or discourse, the second that I put pen to paper to write a description, or a definition, the meaning tugs and slips into another perspective, another definition, as Christian Metz (1990) said (of photography), "dead for having been seen" (Dubois qtd. in Metz, p. 158). So, instead of defining technology and education policy, I will present multiple ways of looking at, or thinking and talking about technology and education policy, and in the end, hope that I have achieved, not a coherent whole picture, but rather a cubistic collection of varying images that overlap, contradict, complement, and extend all at the same time.

Final Thoughts

Since the publication of *A Nation at Risk* (1983), calls for education reform have echoed across the American landscape. This document introduced America to the "Five New Basics," English, mathematics, science, social studies, and *computer science*, a privileging of technology in a way never before seen in education. During the last 20 years, education reform initiatives, technology strategies, and federal policy responses have bounced against each other or, many times, danced together as solutions to the education "problem." This chapter tackles the complex and multi-faceted topic of education reform legislation and technology, without simplifying it.

Using Bowe and Ball with Gold's (1992) framework for analyzing policy as discourse played out within the "context of influence," this study sets up a qualitative discourse analysis, using hermeneutics to broaden the complexity of corresponding terms. If discourse shapes how we think, then we should try to see the reality, or the language-game, that *NCLB* speaks into being and the vision of education and technology that it advances.

Although our modern world prefers drive-through fast food and rapid-fire responses and answers, this paper takes another approach, emphasizing complexity and questions: "While I do not pretend that there exist any fast answers to the big questions…I do want to insist that part of what it means to become educated…requires that we struggle with the question while accepting that there are no final answers" (Martusewicz, 2001, p. 22). In the end, we may discover that there are no answers, or perhaps as many answers as there are individual schools and individual districts. "It's as simple and as complex as

that" (Fullan, 2001, p. 115). But, we will be better travelers because of the journey; so, let us enter the process.

CHAPTER TWO

REVIEW OF THE LITERATURE

Divided into two parts, this review of literature begins with the American Dream. The first part describes the concept of the American Dream and how it has helped to shape the character of America. The second part looks at technology's role in promoting, developing, and supporting the American Dream.

Analyzing the historic tradition of the American fixation with technology in specific American literary texts and in historical contexts reveals the present tension among varying business, political, and educational interests and questions the underlying motives of current policies mandated "for the good of the kids" by exploring the rationales that have motivated and shaped policy.

The American Dream

> And as the moon rose higher the inessential houses began to melt away until gradually I became aware of the old island here that flowered once for Dutch sailors' eyes—a fresh, green breast of the new world. Its vanished trees, the trees that had made way for Gatsby's house, had once pandered in whispers to the last and greatest of all human dreams; for a transitory enchanted moment man must have held his breath in the presence of this continent, compelled into an aesthetic contemplation he neither understood nor desired, face to face for the last time in history with

> something commensurate to his capacity for wonder…Gatsby believed in the green light, the orgiastic future that year by year recedes before us. It eluded us then, but that's no matter— tomorrow we will run faster, stretch out our arms farther…. And one fine morning —. (Fitzgerald, 1925, p. 182)

New! New and improved! These phrases play frequently from our radios and televisions, "new and better" seemingly ingrained in the American psyche. Postman (1993) calls it a "lust" that "has no bounds" (p. 11). Anything new has a mystical air about it, especially if it is new AND scientific. Nostalgia theorist Svetlana Boym (2001) explores this aspect of the American character. A people who live "in the present and ha[ve] no need for the past," Americans celebrate "the spirit of the new, at once natural and progressive" (p. 17). Such a spirit of "youthful forgetfulness allowed for the nationalization of progress and the creation of another quasi-metaphysical entity called The American Way of Life" (p. 17). This American idea of progress was predicated on "improvement in the future, not reflection on the past" (p. 10). This American sense of newness carries with it a sense of adventure and discovery, of starting anew—of forging ahead. These two concepts walk hand in hand through the stories of America's history. John Winthrop (1630/1980), the first governor of the first New England settlement, reminded those early settlers that their role was to be "a city set on a hill" to demonstrate before "the eyes of all people" that their covenant had been made with God. Because they had this special status related to their new start in a "new" world, this covenant allowed that "we may live and be multiplied and that the Lord our God may bless us in the land whither we go to possess it" (pp. 13-14). That is the American promise from the

beginning as played out in early historical texts: come to the new land, possess it, and receive a material reward in return.

Thomas Harriot (1590/1972) draws this connection in his treatise written to encourage more colonizers to come to the "new" world for "particular profite and credite" (p. 5). Harriot details the commodities and natural resources available in Virginia, but his text also promises readers the possibility of more if they will only come and search: "Why may we not then looke for in good hope from the inner partes of more and greater plenty, as well of other thinges, as of those which wee have already discovered?" (p. 31). Such hopeful optimism has long been a part of the American tradition, the belief that El Dorado with all of its gold and splendor is just over the next hill or down the next stream.

Two Frenchmen wrote about this quality of American character. The first, Crevecoeur (1785/1980), articulates the American concept that hard work will improve our circumstances: Americans "are a people of cultivators, scattered over an immense territory…. We are all animated with the spirit of industry which is unfettered and unrestrained" (p. 159). Unlike in the "old" country, "Here individuals of all nations are melted into a new race of men, whose labors and posterity will one day cause great changes in the world. Here the rewards of his industry follow with equal steps the progress of his labor" (p. 161). Crevecoeur speaks for America and promises greatness and prosperity to those who come here:

> Welcome to my shores, distressed European; … If thou wilt work, I have bread for thee; if thou wilt be honest, sober, and industrious, I have greater rewards to confer on thee—ease and independence. I will give thee fields

> to feed and clothe thee; a comfortable fireside to sit by, and tell thy children by what means thou has prospered…. I will also provide for thy progeny…. Go thou and work and till; thou shalt prosper, provided thou be just, grateful, and industrious. (p. 169)

This last quote introduces the notion, the belief, that life will improve with each succeeding generation. The spiral of progress forever continues upward and onward stopped only by those who lack the vision or the industry to work and apply themselves.

Bury (1932) explores this spiral of progress. In his influential work, he develops the concept that the idea of progress is inherently positive and always forward moving, a process that will continue indefinitely. The language of the American Dream is the language of the grand narrative of progress. No one can deny the profound influence the idea of progress has had on the culture of the United States.

A second Frenchman, Tocqueville (1835/1945), tries to capture in language this American spirit of dreaming, seeking, and hoping:

> It would be difficult to describe the avidity with which the American rushes forward to secure this immense booty that fortune offers. In the pursuit he fearlessly braves the arrow of the Indian and the diseases of the forest; he is unimpressed by the silence of the woods; the approach of beasts of prey does not disturb him, for he is goaded onwards by a passion stronger than the love of life. Before him lies a boundless continent, and he urges onward…fortune awaits them everywhere, but not happiness. The desire of prosperity has become an ardent and restless passion in their minds. (Vol. 1, p. 305)

These concepts formed the basis for the Horatio Alger stories of the nineteenth century and for Mark Twain's character Huck Finn who heads out to the territory to avoid being "sivilized," and they continue to run through the discourse of American culture today.

In the twentieth century novel *The Great Gatsby* (1925), F. Scott Fitzgerald's famous literary character, Jay Gatsby embodies this American "capacity for wonder," this desire to explore, discover, and experience something new. Jay Gatsby, like the early Americans described above, is ever optimistic, always questing for a goal just out of his reach, searching, believing, hoping that perfection, satisfaction is on the next level, the next plateau. In the fifteenth and sixteenth centuries, this wonder led people across uncharted oceans to unknown territories. In the twentieth century, it took us to the moon.

For our twenty-first century desire to "boldly go where no one has ever gone before," American culture provides yet another answer: technology, the new frontier. With technology's help, the future stands like a New World, like the light at the end of Daisy's dock for Gatsby, beckoning with its riches. This mythos, often associated with the American Dream in literature and history, is what Greenblatt (1992), in his description of early European settlers, defines as "an intense dream of possession" (p. 121), capitalism at its purest. This belief that if "we will run faster . . . stretch out our arms farther . . ." (Fitzgerald, 1925, p. 182), we will achieve a "bold new world" is interwoven in the American culture from the first moment that European writers began sending letters back home to Spain, England, and France. In his discussion of the Columbus story, as it is delivered in our public schools and through our social and political institutions, Ulmer (1994) concludes, "This drive to set forth, the motive of curiosity, and not the arrival with all of its unexpected and unintended consequences, is

what counts in the folklore and legend of Columbus communicated in the cultural literacy of America" (p. 161).

Technology's Role in the American Dream

When I began investigating the "meaning structures" (Fleener, 2002, p. 12) of technology, I knew that they were many, but I never expected them to be so all-encompassing. Despite the difficulty of pinning meaning on technology, within the literature four primary themes emerge in association with technology:

1. *the economic* in its early focus on the puritan work-ethic with its modern focus on capital gain, and its children: control and efficiency.
2. *the political* through its language of domination and colonization.
3. *the social* in its association with progress, improvement, and perfection.
4. *the religious* with technology serving as the savior of education.

I recognize the impossibility of pinning a definition onto such a complex and ambiguous word full of cultural, social, and political nuances. Technology is more than what I will pen (or type), but what I write will be—not a beginning, or an ending—but an entering-in to the conversation like the early Greeks who began their stories *in medias res*, in the middle. And, so I begin.

To perform, to make something. This focus on action represents an ingrained part of our American (United States) character. Nathaniel Hawthorne (1850/1978), a nineteenth-century American writer, recounts the guilt and inadequacy he feels because he has chosen a life of contemplation instead of application. He describes his ancestors, those "stern and black-browed Puritans" as appalled that he has become a writer, "an idler":

> No aim, that I have ever cherished, would they recognize as laudable; no success of mine … would they deem otherwise than worthless, if not positively disgraceful. "What is he?" murmurs one gray shadow of my forefathers to the other. 'A writer of story-books! What kind of a business in life,—what mode of glorifying God, or being serviceable to mankind in his day and generation, —may that be?'" (pp. 11-12)

John Smith's edict "if you don't work, you don't eat" stands as an early indication of the value system the Puritans carried with them to Jamestown, an edict that preceded the infamous "starving time." This focus on work and practical application eventually translates into a privileging of technical applications. Toqueville (1840/1945), the nineteenth-century Frenchman known for his insight into the American character, describes the practical, hard-working spirit—the Puritan work-ethic—of the early European-Americans: "In America the purely practical side of science is admirably understood, and careful attention is paid to the theoretical portion which is immediately requisite to application" (Vol 2, p. 43). Science, associated with theory and thought, serves the application, the technology. This Puritan work ethic that focuses exclusively on production, or the product, can seduce us to ignore the means—the contemplation, or the thought,—that enables the end result. We are a nation of doers; we do not want to analyze what is behind the product because such a non-activity is a waste of time and produces no/thing. Sometimes, however, we need to analyze our values and assumptions, for it is only in taking a look behind the curtain that we will then be able to disrupt our old patterns or paradigms and fashion or create a new way of seeing, thinking, and talking about technology.

The *Compact Edition of the Oxford English Dictionary* (*OED*) (1971) tells us that technology comes from the root Greek word, *techne* (meaning art, craft, skill, cunning, or device) combined with *logos* (word, story, tale). Even in the Greek, though, this word possesses a slippery quality. *Techne* can mean both craft, the manual dexterity or ability to make things as well as the made thing (a sword or plow), and crafty, a cunning person adept at deceiving others. Talbott (2001) recounts the story of the Greek god Hephaestus trapping his wife Aphrodite who was engaged in a promiscuous alliance with Arès. Hephaestus forges a snare with invisible bonds finer than a spider's silken threads. Arès and Aphrodite fall into the trap, and as the other gods gather around to see them so entwined, they compliment Hephaestus's craftiness: "Lame though he is, he has caught Arès by craft (*techne*)" (p. 3). Talbott contends, "Here *techne* refers indistinguishably to the blacksmith's sly trickery and his skillful materialization of the trick at his forge" (p. 3). Even its Greek origin shows the duplicitous nature of this word *technology*.

According to the *OED (*1971), the actual word *technology* first appeared in English in 1625 as a reference to a discourse or treatise on an art or arts, or the scientific study of the practical or industrial arts. It is no surprise that its early usage relates to language and discourse. According to Marx (1997), technology continued to be associated with language at the time of the Industrial Revolution and through much of the nineteenth century when it referred to a kind of book. During the nineteenth century, though, the word *technology* began collecting additional meanings and appearing in speeches and literature with greater frequency. Williams (2000), Metcalfe Professor of Writing at the Massachusetts Institute of Technology (MIT), writes that the naming of MIT represents one of the first public uses of the word *technology*. Jacob Bigelow, a Boston botanist and

physician and later an MIT trustee, first used the word *technology* in the United States in an 1828 lecture. Noble (1999) calls Bigelow the "true prophet of utilitarian science" (p. 93). At his behest, MIT used *technology* in naming its institution. These early men (I use *man* intentionally because technology has traditionally been portrayed as a masculine preoccupation) saw technology as a simple word reflecting the merging of science and art "to extend the domination of mankind over nature" (Bigelow qtd. in Noble, p. 93).

The nineteenth century was a time of intense change, social and economic, and during this time the word *technology* began to gain wider usage as detailed by Marx (1997). No words existed to describe the technical and subsequent social changes that accompanied the era historians have named the Industrial Revolution. Thus, *technology* became the term to fill the "semantic void, … a set of social circumstances for which no adequate concept was yet available" (Marx, p. 2). It became an empty vessel of a word open to a multitude of definitions and meanings. Many historians and theorists argue over its exact meaning, but *technology* has turned out to be too slippery for anyone to pin down with a single definition.

Salomon (1984) notes that "while the influence of technology is both widespread and fundamental, the term cannot be defined with any precision" (p. 115). And Bury (1932) warns that defining the term *technology*, "the supreme instrument of modern progress," is a "difficult and hazardous" task (xxii). But, this difficulty has not prevented people from attempting to assign meaning to *technology*, to find its true meaning. Leinhard (2000) expresses this desire to find technology's true meaning: "In its role as the science of making things, technology stands apart from the actual act of glassblowing or machining. It is the ordered knowledge of these things…. Our language would be a

lot clearer if we could reclaim the old Greek word *techne* and restrict its use to describing the actual act of making things" (p. 10). But, the language of technology is more—it moves beyond description, even in the original Greek as we saw above. Through language, we speak our world into being. And, the world that has shaped the word *technology* has never been simple.

Sigaut (1985) said that one French intellectual Guillerme claimed to have collected at least 600 definitions for *technology*, and Bray (1997) cited some sixteen hundred definitions of *technology* circulating within our language. As Williams (2000) points out, "To argue that the narrow definition of technology is mistaken is itself mistaken, because it assumes there is a stable concept against which "narrowness" can be measured" (p. 647). The concept of technology is anything but stable. Full of nuances, it has shifted and changed, mutated and metamorphosed. My description of this multiplicitous and slippery word serves not as a way of finding its true meaning but as a way to disrupt the official representations of technology and to move it beyond the taken-for-granted in education technology discourse.

The industrial, mechanical, economic, social, and cultural changes of the nineteenth century "created a semantic void, that is, a set of social circumstances for which no adequate concept was yet available—a void that the new concept, technology, eventually would fill" (Marx, 1997, p. 2). Language is always-already a void—no/thing; speakers and writers have to provide the meaning to fill the void. *Technology*, a recently created and employed word, represents a newly recognized body ***between*** art and science. The word also relates to "a non-existent science and to a technical reality which owes its own existence to science" (Salomon, 1984, p. 117). *Technology*, because of its in-between,

non-existent status, has been an especially attractive word to fill with various meanings. Indeed, its in-between status contributes to its very slipperiness. We have tried to fix it by saying, it is application, or it is process. But, it is all of these things, and yet none of these things. It is a process; it is an object; it is knowledge; it is a subset technology (like computer or medical technology); it is a system; it is "hybrid" (Doll, 1999, p. 1). For, it is language, a supplement "to nature…It intervenes or insinuates itself in-the-place-of; if it fills, it is as if one fills a void…Somewhere, something can be filled up of itself, can accomplish itself, only by allowing itself to be filled through sign and proxy. The sign is always the supplement of the thing itself" (Derrida, 1976, p. 145).

Within language, the modernist mindset creates binaries: science *vs.* nature, clean *vs.* dirty, thought *vs.* performance. Technology, however, is a concept that swims between these two poles. It is the art, craft, *techne*, the dirty performance of creation at the wooden work bench. But, it is also the science, the knowledge, the thought, the process with an "aura of sanitized, bloodless cerebration and precision" (Marx, 1997, p. 6). It is all of these; it is none of these. *Technology* is the word created to fill the semantic void that lies between science and craft, between abstraction and invention. Technology is the non/entity—it is no/thing—that occupies the no-man's land between these two binaries of modernist construction. As such, it is a "hybrid," a monster of our own creation (Doll, 1999). It is our Frankenstein.

Technology as economic. Technology is "reasoned application," with its defining quality being

> its relationship to activity … Science is about knowing. The purpose of technological knowledge, however, is praxiological, that is, to efficiently

> control or to manipulate the physical world, to do things. Efficiency is the end purpose of technology…technology predicts in order to influence and control activity…and to create a physical and organizational reality according to human design. (Herschbach, 1995, pp. 2-3)

This definition points to two inseparable aspects of technology: technology as a means of control and technology as a means to achieve efficiency. The term *efficiency* applied to technology is much more than cost savings; it is the best way to accomplish a task, to achieve the best results, to make the most progress, and to improve society through the least effort. *Efficiency* is, indeed, a loaded word that contains within its definition many more loaded words like "best" and "progress" and "improve." For Ellul (1964), "Technique has only one principle: efficient ordering. Everything, for technique, is centered on the concept of order" (p. 110). (Although the French make a difference between *technic* [the act of creating/making] and *technology* [the study of the art of creating/making], such a differentiation never became accepted practice in English; we use *technic* and *technology* interchangeably.) Williams (2000) agrees that technologies are "designed precisely to maximize control over human behavior" (p. 664). And, Adas (1989) views technology as "efforts to exercise a working control" over the natural environment (p. 5). Segal (1985) calls this aspect of technology as "know-how" of controlling the world (p. 13).

The first attempts at control in pre-modern human history combine this desire to make the world over for human purposes with the desire for beauty. The *techne*, or the art or craft, reflects the human desire for control and power, but it also embodies our search for the superfluous, the beautiful. Mumford (1970) tells that the builders of early

Romanesque and Gothic cathedrals "drew on the oldest parts of our technical heritage, and were associated directly, not with any utilitarian purpose, but solely with attempts to add significance and beauty to the necessitous round of daily life…. Technology itself was a means to a greater goal" (p. 135). Elllul (1964) likewise recounts how a visit to a museum reveals that swords of sixteenth-century Swiss soldiers have at least nine different forms based on the aesthetic preferences of the different smithies. Early examples of sewing machines proudly display decorations of cast iron flowers, and early tractors carry engraved bulls' heads. Gotz (2001) contends that technology comprises both what is "objectively necessary and what is objectively superfluous… all creation is superfluous and unnecessary, for it takes place in the space between necessity and human life" (p. 2). The very nature of technology is to fill the gap—the in-between space between science/thought, and invention/object. The word was born to fill the semantic void, to fill the gap, which explains why its meaning is so fluid and ambiguous.

The eighteenth and nineteenth centuries witnessed a shift, however, a shift away from the artful, decorous quality towards a greater emphasis on use and efficiency. This shift accompanied the Age of Reason with its emphasis on rationality. The embellishments of the early machines seemed wasteful because they did not contribute to precision, efficiency, and technical perfection. They served no purpose. They were human. Whereas early *techne* focused on the creator and valued individuality, technology of the nineteenth century focused on the creation, on the machine:

> In handicraft it is the worker who is represented; in machine design it is the work. In handicraft, the personal touch is emphasized, and the imprint of the worker and his tool are both inevitable; in machine work the

> impersonal prevails, and if the worker leaves any tell-tale evidence of his part in the operation, it is a defect or a flaw. (Mumford, 1934, pp. 350-351)

In the same way, the technological "progress" of the industrial revolution removed craftsmanship, making human workers interchangeable cogs in the machine of "new," "improved" industry.

Ellul (1964) points to this shift: "Technical progress today is no longer conditioned by anything other than its own calculus of efficiency. The search is no longer personal, experimental, workmanlike; it is abstract, mathematical, and industrial" (p. 74). It is in such environments, though, that people lose their humanity and sink into a bleak, dismal existence. American writer Herman Melville (1853/1980) creates such a character in *Bartleby, the Scrivener.* The main character ruminates about the violence engendered by,

> the circumstance of being alone in a solitary office, up stairs, of a building entirely unhallowed by humanizing domestic associations—an uncarpeted office, doubtless, of a dusty, haggard sort of appearance; —this it must have been, which greatly helped to enhance the irritable desperation of the hapless Colt. (p. 852)

Efficiency strives to eliminate superfluity even if, or perhaps because such elimination removes the very elements that make technological items more human.

This preoccupation with efficiency grew out of the industrial areas and the desire to simplify and systematize production. Pannabecker (1995) traces the first descriptions of efforts to transform the arts and crafts into manufacturing systems to the publication of Diderot's *Encyclopedie* (1751). Adam Smith, in his famous *The Wealth of Nations*

(1776) referred to the systematic manufacture of pins as illustrated in Diderot. Thomas Jefferson likewise relied on Diderot's work for inspiration in his support and encouragement for the American government to pursue uniformity in the manufacture of arms. Pannabecker claims that these same ideas find their way into the work of Eli Whitney and Thomas Blanchard, a nineteenth century maker of gunstock-making machinery that produced uniform stocks. This systematic uniformity allowed the manufacturers to create more product and to produce it more efficiently, an approach that Ford perfected and that became known as "the American system of manufacturing."

This concept of technology as a means to achieve environmental and social control for optimum efficiency reaches its apex in the crusade for scientific management, most closely associated with the work of Frederick W. Taylor, author of *Principles of Scientific Management* (1911) and the leader of the nationwide "efficiency craze" (Segal, 1985, p. 107). Some went so far as to say that the philosophy of scientific management, preoccupied with organizing human resources to achieve maximum efficiency, was the "pinnacle of human progress" (Segal, p. 107). Postman (1993) identifies six main presumptions of Taylor's work:

1. The primary if not the only goal of human labor and thought is efficiency.
2. Technical calculation is in all respects superior to human judgment.
3. Human judgment cannot be trusted.
4. Subjectivity is an obstacle to clear thinking.
5. What cannot be measured either does not exist or is of no value.
6. The affairs of citizens are best guided and conducted by experts. (p. 51)

Designed to apply to only industrial production environments, the Taylor System became so popular that its adherents attempted to impose the principles on "the armed forces, the legal profession, the home, the church, and education" (Postman, 1993, p. 51). Even though this system soon lost its glamour and appeal in industry, its effects insinuated themselves into the very thought processes in all facets of American thinking. It appeals to our desire for control, efficiency, and perfection: "The managerial ideology of total control, like the rationalistic ideology of artificial intelligence, responds to fantasies that distort technical development for political purposes" (Feenberg, 1991, p. 109). Here again, we fill the semantic void of the concept *technology* with our political and social desire for control. This, then, brings technology's definition back into the realm of power, as a way for one group to have power and/or control over another. "Social science generates specific principles which can be used to organize society on a rational and humane basis. This implies that technical means—mostly "invisible technologies" supervised by experts—can be designed to control human behavior and set it on the proper course" (Postman, p. 147). The concept of *technology* cannot be discussed without recognizing this political quality.

The next step in analyzing this aspect involves perceiving the self-perpetuating quality that we connect to technology as a result: "Each new technological innovation extends the processes that sustain life, thereby increasing the need for control and hence for improved control technology. This explains why technology appears autonomously to beget technology in general" (Postman, 1993, p. 10). Technology, that void that we fill with our political and social desire for control, becomes not just a means for accomplishing, but the goal itself.

At a recent Oklahoma State Department of Education meeting, the justification given for implementing a new student-management system was to fulfill the mandates of *No Child Left Behind* (2001) more efficiently. *NCLB* remains an unfunded federal mandate with the stated goal to raise student achievement as evidenced through standardized test scores. Again, the technology, the measurement—test scores—becomes the focus, the goal; and student learning, too often, is left behind in the rush to meet the technical mandate. "Again and again we see technically specific ends becoming disengaged from rational moorings and becoming ends in themselves" (Post, 1999, p. 614).

Technology as political. Language of domination and colonization accompany this concept, technology. Francis Bacon (1626/1952), technology's prophet, depicts a utopian society in *New Atlantis* where men will know "the knowledge of causes and secret motions of things; and the enlarging of the bounds of the human empire, to the effecting of all things possible" (p. 210). Descartes (1637/1952), the father of rationalism, explains: "My discoveries have caused me to see that it is possible to attain knowledge that which is very useful in life, and that…knowing the force and the action of fire, water, air, the stars, heavens and all the other bodies that environ us… we can employ them in all those uses to which they are adapted, and thus render ourselves masters and possessors of nature" (p. 61).

Carlyle (1829/1998), criticizing the dehumanizing aspect of this new machine age, speaks with the language of his time: "For all earthly, and for some unearthly purposes, we have machines and mechanic futherances . . . . We remove mountains, and make seas our smooth highway; nothing can resist us. We war with rude Nature; and, by our

resistless engines, come off always victorious, and loaded with spoils" (p. 1). Or, as the Borg on *Star Trek* intone: "Resistance is futile."

In many of the first-encounters texts, the European writers describe in detail how their scientific gadgets supposedly inspire awe among the native peoples. Two such examples exist in Thomas Harriot's (1590/1972) *Brief and True Report on the New Found Land of Virginia* and John Smith's (1624/1988) *General History*. In his passage, Harriot contends that possessing technology causes the natives to elevate him and his companions to the status of gods; technology immediately provides status:

> Most thinges they sawe with us, as Methematicall instruments, sea compasses, the vertue of the loadstone in drawing iron, a perspective glasse whereby was showed manie strange sightes, burning glasses, wildefire woorkes, gunnes, bookes, writing and reading, spring clocks that seeme to goe of themselves, and manie other thinges that wee had, were so straunge unto them, and so farre exceeded their capacities to comprehend the reason and meanes how they should be made and done, that they thought they were rather the works of gods then of men, or at the leastwise they had bins given and taught us of the gods. Which made manie of them to have such opinion of us, as that if they knew not the trueth of god and religion already, it was rather to be had from us, whom God so specially loved then from a people that were so simple, as they found themselves to be in comparison to us. (p. 27)

Captain John Smith includes a slightly different encounter but uses the same language when he describes how technology changes the course of one of his encounters with the King of Pamaunkee:

> They shewed him Opechankanough, King of Pamaunkee, to whom he gave a round Ivory double compass Dyall. Much they marvailed at the playing of the Fly and Needle, which they could see so plainly, and yet not touch it, because of the glass that covered them. But when he demonstrated by that Globe-like Jewell, the roundnesse of the earth and skies, the spheare of the Sunne, Moone, and Starres, and how the Sunne did chase the night round about the world continually: the greatnesse of the Land and Sea, the diversitie of Nations, varietie of Complexions, and how we were to them Antipodes, and many other such like matters, they all stood as amazed with admiration. Notwithstanding within an houre after they tyed him to a tree, and as many as could stand about him prepared to shoot him, but the King holding up the Compass in his hand, they all laid downe their Bowes and Arrowes, and in a triumphant manner led him to Orapaks, where he was after their manner kindly feasted and well used. (pp. 60-61)

Their stories reflect a tendency in many early American texts to describe the natives as weak and inferior, over-powered and awed by European technology.

Adas (1989) notes, "In the early phase of overseas expansion, European travelers and missionaries took pride in the superiority of their technology and their understanding of the natural world. Their evaluations of the tools and scientific learning of the peoples

they encountered shaped their general estimates of the relative abilities of these peoples" (p. 6). European travelers looked at the world through the lens of progress, a lens that privileged technology and science, and judged and evaluated everything and everyone they encountered through that lens. The gadgets of technology still inspire the American psyche today as evidenced through the continued popularity of James Bond, a popularity in part due to his reliance on sexy gadgets. Q and his handy techno-gadgets regularly rescue Bond from evil henchmen, surprising falls, and dangerous waters. And, of course, Bond is always rewarded by ending up in a passionate embrace with a variety of shapely and stunning co-stars. The siren song of progress with its handmaiden technology, promising a future utopia, still seduces us today.

Much popular technology futurist literature uses this language unself-consciously. William Knoke (1996) fills his book *Bold New World,* a work that seems to have had profound impact influencing the writings of popular sociologist Peter Drucker (1999) and others, with the language of colonialism and domination. Knoke describes the history of the world in four dimensions. The third, what he calls the "Age of Discovery," includes Columbus's "discovery" of America. Knoke then states that, if we of the fourth dimension hurry, we can be like the early explorers, or conquerors depending on the viewpoint, "who claimed the New World first, [and] got the spoils, which raised them to unheard-of world wealth" (p. 17).

Knoke's (1996) message seems clear: in this new world of technology, we must "get there first" (p. 17), even if it means stepping on the lives of those in our way. Even the book's title, a play on the phrase of Aldous Huxley's (1969) famous novel, *Brave New World*, a phrase borrowed from Shakespeare's (1623/1974) *The Tempest*, points to

the "New World" connection. Shakespeare's play, *The Tempest*, is the Bard's contribution to the exploring and colonizing spirit of his time. Probably based on a shipwrecked expedition of the Virginia Company to Plymouth in 1610, the story is set on a tropical island. Shakespeare's heroine, Miranda, exclaims about this "unknown" world, "O brave new world/ That has such people in't!" Her father Prospero remarks, "Tis new to thee" emphasizing Miranda's naiveté and narrow vision (p. 1634). She sees the world only through her lens of experience. Knoke (1996), likewise, describes the "bold new world" through an American-Eurocentric economic lens that praises technology and its potential. He only briefly identifies possible problems for those who do not buy into this value system This is a tendency we often see in those who promote technology as an answer to problems. As in Knoke, this language of setting forth, navigating uncharted territory, and conquest is associated by our society at large, with the computer, and has infiltrated every part of our lives and affects our attitudes and values and, subsequently, our decision-making.

Technology as social. "Among the ideas which have held sway in public and private affairs for the last two hundred years, none is more significant or likely to exert more influence in the future than the concept of progress" (Bury, 1932, p. xi). So opens the introduction for Bury's influential book that delineates the invasive and pervasive grand narrative of progress that has so framed our modern world and our modern way of thinking. Bury continues,

> the idea of human Progress then is a theory… based on an interpretation of history which regards men as slowly advancing… in a definite and

> desirable direction, and infers that this progress will continue indefinitely. And…a condition of general happiness will ultimately be enjoyed. (p. 5)

Early thinkers, like Bacon and Descartes, connect this idea of progress to science, a linkage that eventually extended to technology, the tools and mechanisms that would provide utility, comfort, growth, and well-being. The invention of each new comfort, each new tool of war, and each new time-saving gadget, reinforces this concept of progress. Other philosophers, like Voltaire and Condorcet of the eighteenth century, measure the march of progress with the growth of knowledge. They propose science as a means to liberate mankind from ignorance and tyranny and to lift them to perfection through moral, intellectual, and physical improvements. "An image of infinite progress…ideologically rooted in the science-based progressivism of the eighteenth century Enlightenment, this optimistic open-ended outlook was fueled by a remarkable and seemingly endless success of technological and industrial advances" (Noble, 1999, p. 104). Technical inventions provided concrete examples of the abstract philosophy of science as liberator.

> This uninterrupted series of technical inventions, proceeding concurrently with immense enlargements of all branches of knowledge, has gradually accustomed the least speculative mind to the conception that civilization is naturally progressive, and that continuous improvement is part of the order of things. (Bury, 1932, p. 322)

From our earliest beginnings, "Americans . . . fell in love with the idea of progress" (Rosen, 1998, p. 68). In fact, Americans continue to accept, promote, and fight to defend the concept of progress as developed and supported by technology. Education

reform policy and technology has been constructed from this culture. From its earliest beginnings, the common school has been the repository, the empty vessel into which Americans could pour their hopes and dreams. The working class viewed schools as avenues for upward social and economic mobility. The upper class saw them as a means of controlling crime and social unrest, a way to create good citizens and to provide workers for the industrial machine. Schools functioned as a means to an end. Traub (2000) elaborates on this principle: "Nobody believes in school the way Americans do, and no one is more tantalized by its transformative powers. School is central to the American myth of self-transcendence" (p. 3). This notion of transcendence, progress, and technology intertwine to compose a seductive song for our American ears: "This unprecedented millenarian milieu decisively and indelibly shaped the dynamic Western conception of technology" (Noble, 1999, p. 48). Technology functions as a tool to help humans conquer nature and establish heaven on earth, and education functions to help people reach perfection on earth. The two make a deadly combination.

Segal (1985) traces these attitudes through American utopian literature where the writers "made technological progress equivalent to progress itself rather than merely a means to progress" (pp. 74-75). As Marx (1996) details, the United States is an especially friendly place for playing out this linkage between progress and technology. During the nineteenth century, much land lay ready for human mastery and exploitation: "The virtually undeveloped terrain of North America, inculcated the message of progress directly, topographically, imagistically, wordlessly" through "rapidly accelerating, technologically powered improvement" (p. 209). As more and more technological inventions and innovations appeared, people increasingly viewed technology "as the

primary motor, as well as the most reliable gauge of Progress" (Marx, 1996, p. 210). This attitude became so pervasive and so fixed that over time technology, that semantic void, absorbed within itself this very concept of progress so that the two, in the modern colonial mind-set, have become inseparable:

> The modern mind-set, with its emphasis on the rugged individual and self-determination, can be traced to or evidenced by the American and French revolutions in the eighteenth century. These developments, of course, cannot be separated from the technological advances resulting from the invention of the steam engine in 1750 and the advent of the Industrial Revolution nor from the defiance of Luther and his proclamation of independence from the dominance of the Catholic Church. (Fleener, 2002, p. 19)

Modern colonialist society re-creates the material world in ways that are useful to human progress.

Technology as religious. Current literature points to the American love affair with technology and questions technology's status as the "one golden way" for education. Thompson (1991) indicates, a "quasi-religious faith in the capacity of technology to provide the good life for all" (p. 11) pervades American society. Another author described this view of technology in similarly mystical terms: "the use of computer technology has a magical air about it" (Garrett, 1997, p. 1).

In a *USA Today* insert, Louderback (2003) proclaims the science-fiction writer Arthur C. Clarke's statement: "Any sufficiently advanced technology is indistinguishable from magic" (p. 4). While such hyperbolic language may seem

surprising for something so scientific and rational as technology, connecting technology to Utopian and millennial thought has a long tradition in Western culture. Noble (1997) traces the intertwining connection between religious thought and the development of technology from medieval Europe to modern times through a close analysis of multiple religious, theoretical, and historical texts.

Bury (1932), likewise, indicates that technology, by demonstrating the inner working of the "idea of progress" allows "what was once Utopian" to become "actuality. What appears to be impossible may be surmounted" (p. xxiii). The concept of *reform* in education is also inextricably connected to the grand narrative of progress by a theology of hope. This makes the marriage of education reform and technology a natural. Both are born of the millennial expectation that people work and progress toward the "kingdom of God," a perfect world. The word *reform* is imbued with religious connotations because it always carries with it the notion of Luther's Protestant Reformation. In this context, Luther worked to bring the church back to what he considered the original tenants of Christianity. He sought to recover or restore the "real" meaning of Christianity. *Reform* in modern education has the same Utopian tendencies for the desire to return to a golden age.

This belief that "technology is good" and will help create a "perfect" school where "all children are above average," like in the fictional *Lake Wobegon* community, has prompted many school districts to invest heavily in equipment while little research reveals this equipment's actual impact on student performance and student learning. As Oppenheimer (1997) points out, "There is no good evidence that most uses of computers significantly improve teaching and learning" (p. 45). His overview in the *Atlantic*

Monthly cites numerous education professionals, from Edward Miller—a former editor of the *Harvard Education Letter*—to education policy researcher, Larry Cuban, who agree that adequate study of computers' effects on children, especially young children, is lacking. Garrett (1997) further notes that "few substantive critiques of computer advocates' assertions exist" (p. 1). In a more recent study, Cuban, Kirkpatrick, and Peck (2001) examine the assumption of many policymakers that greater access will result in more and better use of technology in education. This Stanford team, through observations, review of school documents, and surveys, found that actually the opposite occurred in the two high schools that they studied. Their data leads them to conclude that the classroom of 2050 will very much reflect the structure and practices of those today. Although this study does not analyze or question the philosophical assumptions that poured computers into the classroom, the authors, in a footnote, do articulate that they do not "assume that adopting new technologies for instruction in and of itself is an unalloyed good" (p. 831).

Branigan (2003) reports that the relative dearth of research has caused the USDE to launch a $15 million, five-year national evaluation of technology's impact on learning (p. 1). This new national push reflects a desire to go beyond the love affair the American public and business have with the computer and the vendor-driven research of the past. During the last decade, technology expenditures tripled in K-12 schools in the United States; estimates suggest that over $6 billion was spent in 1999-2000 (Sivin-Kachala & Bialo, 2000). Despite attempts to discontinue programs that had not proved effective, Congress on February 13, 2003 passed an education budget that preserved approximately $147 million in educational technology programs (Murray, 2003, p. 1) although the final

budget reflected an overall decline from previous years (USDE, 2004). This amount of money is completely targeted as technology spending. Most schools also spend other federal monies targeted for minority and/or disadvantaged students as well as state and local dollars on technology. Why do we continue to spend so much money when many researchers (Means, Blando, Olson, & Middleton, 1993; Ringstaff & Kelley, 2002; Reeves, 1998) point out that measuring the impact of technology use on student achievement is extremely problematic? One possible answer seems to lie at the very core of American culture.

Much popular American literature about the woes of education holds up technology as a savior for our problems (Buchen, 2000; Crowson, Wong, & Aypay, 2000; Davis & Botkin, 1994; Drucker, 1999; Symonds, 2001). This is a tendency we often see in those who promote technology as an answer to problems. As cited earlier, Ulmer (1994) connects this language of discovery, of setting forth, and of navigating uncharted territory with the computer, or what Papert (1993) dubbed the "knowledge machine": "The computer is responsible for the most recent 'frontier of knowledge' then, bringing into existence a virtual if not a literal new world" (Ulmer, p. 27). As Tyack (1995) points out, "Faith in electronic pedagogy has returned again and again" (p. 192). Such language associated with technology has infiltrated every part of modern lives and affects attitudes and values and, subsequently, decision-making. This connection between technology and the American dream of discovery can potentially influence policy and funding decisions.

Those who promote technology have had such a loud voice partially because education is not without its faults and problems, some imposed from without, some perpetuated from within. Educators have been guilty, as Tyack and Cuban (1995) point

out, of making too many promises—at peril. One local politician recently told me that "it's cheaper to support education than to build prisons." While this is true, it also oversimplifies the issue and falls into the tradition of two hundred years of "statements assuming the power of formal schooling to eliminate or ameliorate poverty,… [and] to the extent that we keep expecting schools to solve all our social problems, we are overestimating their power" (Dorn, 2000, p. 2). This overestimation, moreover, does not address another aspect—those individuals who do not want to be educated: "The greatest obstacle… resides in those mandated to receive the services. Not all adults want to be literate, compete in a global economy or exercise the rights and responsibilities of citizenship" (Knudsen & Morrisette, 1998, p. 3). This is especially relevant since many of the "problems" in schools result from inequities in employment and gross disparities in wealth and income. Additionally, the "quick fixes" that the public demands require "basic institutional changes or the eradication of deep social injustices" that would take a generation or more to reform (Tyack & Cuban, p. 7). Tyack and Cuban trace the history of reform, describing such early reforms as indoor plumbing and blackboards and detailing the public's desire for constancy within education, what they call the "grammar of schooling" (p. 85). They conclude by pointing to the importance of individual teachers in individual classrooms: "Schooling is being reinvented all the time…Good teachers reinvent the world every day for the children in their classes" (p. 133).

Final Thoughts

Two recent news statements caught my attention, one on early morning news television and the other in an online newspaper. On the television station, the weather person describing the coming night's change in temperatures, said, "If the cold front

arrives on time, you will need to take your coats to the football game tonight" (Aydelott, 2003). This statement assumes that weather fronts arrive according to human incarnations of mechanical time, an entity that can be controlled and measured as clocks symbolize. The next statement involves a similar assumption. The morning after daylight savings time kicked in, an online newspaper stated: "The sun came up an hour early this morning — if you remembered to set your clocks back last night, that is" ("From…," 2003). Such statements demonstrate how our language, indeed our very thought processes, have become regulated, conditioned, and scientized. Of course, we know that we cannot control the weather or the movement of our planet around the sun, but our technological gadgets allow us to predict with some precision these natural phenomena thereby investing "time" with its importance.

This inspires people, then, to believe that technology does give them control. Such control, though, is an illusion, an illusion created by the belief in objectivity, efficiency, expertise, standardization, assessment, and measurement. Such an attitude influences the world of education. Perhaps, though, just as technology cannot control the timely arrival of the cold front or the rising of the sun, it cannot fulfill the promise and potential that enthusiasts pour into it. This review of literature sets up the background for developing the concepts of *technology* and *reform* and for analyzing recent reform legislation through the lens of postmodernism (if it can be an "ism"): technology as economic, political, social, and religious.

While I have entered in the middle of the conversation about technology to analyze these four themes, the next step is to analyze how these four qualities, characteristics, tendencies, or voices play out in educational policy discourse. As I move through these

various meanings, I want to also explore the moral and the ethical aspect of education, an area not absorbed or reflected within technology, for the moral and the ethical constitute the very essence of humanity.

CHAPTER THREE

PRESENTATION OF DATA

In previous chapters, I have described the purpose of this study and have given the theoretical background necessary to place the research in context. This chapter presents background for the text of *NCLB*, the intertextuality. I begin with a general overview of curricula and policy decisions in the twentieth century. Then, I present a summary of *NCLB*. This section gives the data with minimal analysis; the detailed analysis will follow in Chapters Four and Five.

Intertextuality

The first aspect that I will explore includes what makes the *NCLB* Act possible, what its context of influence is, or what social and political milieu generates it. Although *NCLB* has been touted as a complete and sweeping reform of education, it actually follows a path begun in the 1980s, if not before.

Johnstone (2002) identifies some basic questions that are a part of discourse analysis:

1. What is the text about? Who wrote it? What motivated the text?
2. How does it fit within its particular setting?
3. How does it fit into larger structures of sets of texts?
4. What does the language encourage speakers and writers to do? (pp. 8-9)

These questions reflect two underlying assumptions of discourse analysis:

1. Discourse is shaped by prior discourse, and discourse shapes the possibilities for future discourse.
2. Discourse is shaped by purpose, and discourse shapes possible purposes. (p. 9)

These assumptions derive partially from Kristeva's (1986) concept of intertextuality: "Any text is the absorption and transformation of another" (p. 37). In other words, all texts refer to and build on other texts and discourses. In politics, all policies always carry the trace of others. Kristeva's concept of intertextuality accepts that words and texts can embody multiple meanings, for language carries within it histories and contexts. American poet Conrad Aiken (1931/1970) captures this concept in his poem *Watch Long Enough and You Will See*: "Speak: and the ghosts of change, past and to come,/ Throng the brief word" (p. 292). Kristeva's sense of intertextuality will inform this first section of analysis of *NCLB* as I endeavor to situate *NCLB* into sets of policies that have constituted education reform.

As a text, *NCLB* contains within it influences of prior discourses. These "ghosts" of prior articulations "throng" *NCLB*, and an archeological genealogy, to borrow Foucault's term, of education reform will help trace back and map an emerging educational technology discourse within the discourse of education reform. Remember, the discourse of education reform has been the discourse of the American dream, a discourse of hope and potential, waiting for the right solution, the quick fix. The discourse of educational technology emerges from this promise.

Arising out of Taylor's Scientific Management movement, the curriculum of social efficiency grew from *The Curriculum* (1918) by John Franklin Bobbitt of the University

of Chicago. As Ravitch (2000) writes, this book established two antagonistic schools of thought in curriculum studies: the traditionalists, who advocated knowledge for the sake of knowledge, and the utilitarians, who focused on teaching practical applications that students would use to fulfill their role as future workers in a capitalistic society. As such,

> Bobbitt believed that schools were agencies of social progress and that they must endeavor to overcome and prevent deficiencies in the social order. If agricultural production falls off, he thought, the schools must provide better agricultural education. If factory production is inefficient, the schools must teach industrial education. When studies show the cost of ill health, the schools must provide health education. If large numbers of men are unfit for military duty, the schools must give military training. When traffic accidents become common, the schools must offer safety training. Everything taught in school must have a purpose. (Ravitch, pp. 165-166)

Education then becomes a technology, a carefully crafted system "to influence and control activity… and to create a physical and organizational reality according to human design" (Herschbach, 1995, pp. 2-3). This school of thought positions education as a tool for exerting social control.

Another advocate of a utilitarian curriculum was W.W. Charters of the Carnegie Institute of Technology. According to Ravitch (2000), Charters recast every school subject in terms of its relationship to activities that were useful in adult life and promoted developing the curriculum based on lists of "ideals" and "activities" related to a student's future work. Such an approach was deemed "modern and scientific" (p. 169). Ravitch

concludes, “Long after [Bobbitt’s and Charters’] names had been forgotten, public school administrators were dutifully cobbling together elaborate lists of goals and objectives to justify their curricula” (p. 169).

These same tendencies emerged almost 40 years later when the Russians made a successful preemptive launch of their spacecraft Sputnik in 1957. The Russian success led to collective hand-wringing as the American press and scientific community castigated public schools for allowing American preeminence and technical superiority to slide. As Ravitch (2000) notes, “Sputnik became an instant metaphor for the poor quality of U.S. schools” (p. 361). Although President Eisenhower was reportedly puzzled by the Sputnik-induced panic, he worked with Congress to pump dollars into defense and education, and in 1958, passed the *National Defense Education Act* (*NDEA*) (1958) providing aid to education in the United States at all levels, public and private. Instituted primarily to stimulate the advancement of education in science, mathematics, and modern foreign languages, the NDEA also provided aid in other areas, including technical education, area studies, geography, English as a second language, counseling and guidance, school libraries and librarianship, and educational media centers. Through programs focused on these areas, this act gave federal support for improvement and change in elementary and secondary education. It also provided funds for low-interest loans to students. Despite providing federal funds and support, the act contained statutory prohibitions of federal direction, supervision, or control over the curriculum, program of instruction, administration, or personnel of any educational institution, a gesture to the continued public desire to believe that local schools were under local control. This *Act*

directly responded to the call that the United States was falling behind and was spurred by a "need" to stay caught up.

It is here that we see the unfolding of a "problem" that will eventually find full voice in federal legislation. Edelman (1988) points out that ideologies create and define "problems." It is at this point, historically, that we begin to see articulation of a colonialist ideology: the United States has a right, in fact, it is our destiny to dominate in a global economy. Since the economy is influenced by the schools, and we are experiencing a declining way of life, the schools must be in a state of crisis. A part of this assumption believes that the capitalistic system will provide jobs for all. If jobs do not exist, the system cannot be at fault, so the fault must lie with the workers who lack the skills to fulfill the jobs that will then drive the economy.

During this same time, Admiral Hyman Rickover, known for the invention of the nuclear-powered submarine, expressed a fear that the Sputnik episode crystallized: because the U.S. school system lacked rigor and left young students unprepared, the United States could not compete with the Russians for "technological supremacy" (Ravitch, 2000, p. 362). Echoes, or ghosts, of Bobbitt's call for the school to fix the nation's economic problems combined with the colonial, imperialistic language of the American dream to create a new twist in the discourse of education reform. This call for a "return" to technological and global dominance finds its full voice in the next major document promoting education reform, *A Nation at Risk* (1983).

A Nation at Risk opens with the concern that the United States's preeminence in commerce, industry, and technological innovation is at risk of being "overtaken by competitors throughout the world" (p. 9). The first paragraph makes clear that the

commission's concern results from the threat of losing U.S. economic and political dominance: "Others are matching and surpassing our educational attainments" because "we have, in effect, been committing an act of unthinking, unilateral educational disarmament" (p. 9). This martial metaphor clearly evokes language of weapons and war and firmly places this document in the political discourse of colonialism. It continues by invoking "American's destiny" for dominance and cautioning that such a destiny is at risk from the Japanese, South Koreans, and Germans, citing two of our past enemies of World War II. The language in *A Nation at Risk* manifests what Boym (2001) has identified as "restorative nostalgia."

In her analysis of nostalgia, Boym describes two tendencies: restorative and reflective. She argues that restorative nostalgia "puts emphasis on *nostos* and proposes to rebuild the lost home and patch up the memory gaps" (Boym, 2001, p. 41). People under the influence of this type of nostalgia "believe that their project is about truth" (p. 41), recovering what was lost from the past, and restoring the "good old days." This tendency thrives and gains more strength as life changes more swiftly and becomes more complicated: "The more rapid and sweeping the pace and scale of modernization, the more conservative and unchangeable the new traditions tend to be…and…the more selectively the past is presented" (p. 42).

My 13 year-old daughter introduced me to a current popular song that captures this desire, this longing for golden days past:

> Sometimes it feels like this world is spinning faster
> Than it did in the old days
> So, naturally, we have more natural disasters
> From the strain of a fast pace
> Sunday was a day of rest
> Now it's one more day for progress

And we can't slow down 'cause more is best
It's all an endless process

I miss Mayberry
Sitting on the porch drinking ice-cold Cherry Coke
Where everything is black and white
Picking on a six string
Where people pass by and you call them by their first name
Watching the clouds roll by. (Smith, 2002, Track 4)

This writer captures the out-of-control feeling that modern life has brought to many, "spinning faster," and responds with a lament for the ultimate world of nostalgia, Mayberry, a created world of black and white television. As Boym (2001) argues and this song demonstrates, "One is nostalgic not for the past the way it was, but for the past the way it could have been. It is the past perfect that one strives to realize in the future" (p. 351). Otto (2006) analyzes this nostalgic tendency in current media portrayals of educational landscapes. She suggests that confronting the restorative nostalgic trap will free us from the burden, indeed, the "nightmare" (Joyce, 1922/1986, p. 28) of history: "We can be presently in the past, we can be warmed and accompanied by the past, but the past does not ask us to return. A worthy past does not imprison us; it frees us" (Corder qtd. in Otto).

A Nation at Risk (1983) embodies this restorative nostalgia, a desire for a past perfect without recognizing the past flaws. One item in the list of proofs that public education is failing refers to an unbroken decline in SAT scores from 1963 to 1980. An outspoken critic of public education, E.D. Hirsch (1996), places the golden years of education between 1942 and 1966, a time before integration, when many students dropped out, and few attended college (thus few took the SAT). Is this the past perfect that education wants restored? Hirsch notes that remedial centers in universities today

are used primarily by "foreign students or affirmative action students" (p. 60). Is this version of the world the past perfect that education wants to realize in the future?

To help Americans overcome their sense of loss and to stay caught up, *A Nation at Risk* (1985) defines five areas for improvement: standards and expectations, content, time, teaching, and leadership and fiscal support. The section on Standards and Expectations specifies eight recommendations as schools adopt more "rigorous and measurable standards, and higher expectations, for performance and student conduct" (p. 24). As Boym (2001) predicted, as change accelerates, the response of "invented tradition" intensifies through political manipulation of "newly created practices … with the aim of reestablishing social cohesion, a sense of security and an obedient relationship to authority" (p. 42). The discourse of accountability with its reliance on rigorous and measurable standards introduces a tradition that is simple, direct, and easy to monitor. Most of the eight recommendations deal with textbook content and adoptions processes. Number three, however, calls for standardized tests of achievement "at major transition points from one level of schooling to another" (p. 25). Number eight promotes that "new educational materials should reflect the most current applications of technology in appropriate curriculum areas" (p. 25). In *A Nation at Risk,* technology becomes the fifth New Basic, as important as the traditional basics of English, math, science, and social studies. Such a new focus is required because "without a deep, sturdy science and technology foundation, U.S. needs cannot be met" (p. 41).

In 1989, President George H.W. Bush convened the nation's governors at an education summit, his response to the continuing and rising tide of criticism initiated by *A Nation at Risk.* As Ravitch (2000) writes, Albert Shanker, president of the American

Federation of Teachers, tried to persuade the gathered group to include a requirement for a national system of standards and assessments. He pointed to other nations who required students to pass examinations as a qualification to move to the next level. For example, the United Kingdom, in 1988, had just passed their *Education Reform Act*, which implemented a national curriculum for all schools and periodic assessments for all students. Shanker believed that, like in other countries, U.S. high schools would have to implement ability grouping to accommodate those students who planned to go to college and others who wanted technical careers. The governors, led by Governor Bill Clinton of Arkansas, agreed to adopt six national goals by the year 2000. This document, *America 2000* (1991), encouraged voluntary national standards to describe what children should be expected to learn in each grade in every subject area. The primary aim, as quoted in "Information…" (1994) was "individually, to promote higher levels of individual student achievement, and collectively, to build a globally competitive American workforce" (p. 3).

After he defeated President Bush, President Clinton's first major education legislation, *Goals 2000* (1994), enacted most of what had been drafted in *America 2000* (1991) and provided funds for states to develop standards and assessments. Again, the espoused goal was to make sure that American students became competitive on international tests and in the global economy. The impetus for the document remained economic. The Act also specified that one of its purposes was "promoting the use of technology to enable all students to achieve the National Education Goals" (p. 60). In fact, Title III of *Goals 2000* focused entirely on technology with the stated purpose of infusing technology into "all education programs and training," promoting "awareness of

the potential of technology for improving teaching and learning," and demonstrating "ways in which technology can be used to improve teaching and learning, and to help ensure that all students have an equal opportunity to meet State education standards" (pp. 57-58). *Goals 2000* established an Office of Educational Technology with the stated mission to "provide leadership to the Nation in the use of technology to promote achievement of the National Education Goals and to increase opportunities for all students to achieve State content and challenging State student performance standards" (p. 64).

NCLB (2001): An Overview

Since *A Nation At Risk* (1983), our nation has seemed to march a path embracing greater reliance on scientific principles and measures to gauge education failure and success. *A Nation At Risk,* under President Reagan, *America 2000* (1991) under President G.H.W. Bush, and *Goals 2000* (1994), under President Clinton, all established standards and accountability with their accompanying emphasis on objectivity, efficiency, expertise, standardization, and measurement in the education landscape. The 1994 reauthorization of the *Elementary and Secondary Education Act (ESEA)* signaled a nationwide commitment to standards-based reform by requiring states to develop content and performance standards for K-12 schools.

So, what motivated the creation of the text *NCLB*? The "manufactured crisis" of *A Nation at Risk,* as Berliner and Biddle (1995) have named it, has displayed a constant specter of educational failure before the eyes of the American public through various stories of failures in individual schools and communities. Again, Edelman (1988) points to the ideological basis of all problems, and the ideology that seems to be at work in this

problem's creation stems from a strong belief that the capitalistic model of competition is appropriate and should prevail in the public school system.

Inundated with this constant criticism, the 107th Congress and the 43rd President responded with *NCLB*. *NCLB* is the reauthorization of the *Elementary and Secondary Education Act (ESEA)* first passed in 1965 as a part of President Johnson's War on Poverty. Since its inception, the *ESEA* has provided federal funding to states and local schools to help improve the educational opportunities of traditionally disadvantaged students. *NCLB* declares as its mission "to improve student achievement and change the culture of America's schools" (U.S. Department of Education, 2001, p. 9). And, summary reports proclaim that experts agree *NCLB* fundamentally has changed the way education is done and funded in this country (Aid for Education, 2004, p. 3). As President George W. Bush proclaimed in his press conference heralding *NCLB*, we all know "things must change" (p. 1). He continues by citing the same data listed in *A Nation at Risk*: perceived increasing illiteracy and international comparisons of student achievement with U.S. students failing to score at the top level.

As discussed earlier, Edelman (1988) identifies three common qualities of policies that respond to these created problems. First, the policy provides a name that emphasizes accomplishment and masks inconsistencies. *No Child Left Behind* is such a name. "Borrowed" from Marian Wright Edelman's Children's Defense Fund (CDF), it puts extreme pressure on everyone to comply. Who can say that they want to leave a child behind? At a local board meeting where I presented an overview of the new *NCLB* Act, an elder African-American citizen caught me afterward to express concern and offense to the idea that we ever intentionally left children behind. As many writers have said, no

one wants to come against a law so-named; it would seem un-American. The CDF has been a strong voice for American children and can rightfully claim to "Leave No Child Behind," a phrase that they have now trademarked since the government swiped a version of it for an Act that does not live up to its claim.

The high rhetoric of the name *No Child Left Behind* not only neutralizes political disharmony and dissent, but it also covers the inner inconsistencies present in the law. For example, within the second year of implementation, the government voted not to fulfill the funding requirements to ensure equitable implementation of the law. This move came as no surprise to veteran educators who have lived with increasing federal regulations through another mammoth federal law*, Individuals with Disabilities Education Act* (*IDEA*) (1975). The federal legislative directives continue to descend on schools even though the government still funds it at only 19%, significantly less than the 40% originally promised at the law's inception. Moreover, the sanctions for failure to meet the requirements of *NCLB* will harm poor schools and poor students the most, an issue that will be discussed later in greater detail. A third contradiction is reflected in one comical turn of phrase now being bandied about by educators. Instead of *NCLB*, the law is called No Vendor Left Behind because it channels money to private companies for supplemental services, "scientifically based research" programs, and school ownership and management (Dobbs, 2004; Murray, 2003). As Edelman (1988) contends, the name for this current reauthorization of the *ESEA* certainly reassures us until we dig below the surface to view the disturbing inconsistencies that such a flowery, high-intentioned name hides.

Although *NCLB* does not explicitly mention the economy or the need for a competitive edge, much of its content can be directly tied to an influential "white paper" written by Andrew Rotherham of the Democratic Leadership Council's Progressive Policy Institute. Rudalevige (2003) notes that Alexander "Sandy" Kress, a Dallas attorney and school board member, helped craft Republican presidential hopeful Bush's education policy for which he "borrowed widely" from the Rotherham white paper. The Rotherham (1999) paper opens with a call for schools to graduate "students prepared for the new global economy" (p. 1). To accomplish this goal, he argues that the government must "update *ESEA* for the Information Age" (p. 2). He then proceeds to contend that this update must be predicated on standards, assessments, and accountability. The Brookings Institute also published research that promoted standards-based accountability (Goldberg & Traiman, 2001).

NCLB declares as its mission: "To close the achievement gap with accountability, flexibility, and choice, so that no child is left behind" (p. 1425). Early in *NCLB*'s implementation, the U.S. Department of Education maintained that it had five goals:

1. By 2013-2014, all students will reach high standards, at a minimum attaining proficiency or better in reading/language arts and mathematics.
2. All limited English proficient (LEP) students will become proficient in English and reach high academic standards, at a minimum attaining proficiency or better in reading/language arts and mathematics.
3. By 2005-2006, all students will be taught by highly qualified teachers.
4. All students will be educated in learning environments that are safe, drug-free, and conducive to learning.

5. All students will graduate from high school.

Two years into its implementation, with a gathering storm of criticism hanging over it, the U.S. Department of Education now describes *NCLB* in the context of four areas, what they call four pillars: increased accountability for States, school districts, and schools, greater choice for parents and students, more flexibility for States and school districts in the use of Federal education dollars, and a stronger emphasis on reading. These will be useful for providing a general overview of the Act.

First, *NCLB* promotes accountability by requiring States to implement statewide accountability systems covering all public schools and students. These systems must be based on challenging State standards in reading, mathematics, and eventually science; annual testing for all students in grades 3-8, and in high school at the end of instruction for English, math, and science; and annual statewide progress objectives ensuring that all groups of students reach proficiency within 12 years, what is called Adequate Yearly Progress (AYP). The law requires that assessment results and State progress objectives be disaggregated by poverty, race, ethnicity, disability, and limited English proficiency. School districts and schools that fail to make AYP toward statewide proficiency goals will, over time, be subject to improvement, corrective action, and restructuring. Schools that meet or exceed AYP objectives or close achievement gaps will be eligible for State Academic Achievement Awards.

The accountability portion focuses almost entirely on these high-stakes tests, setting the same standards for all students. Through this emphasis, proponents of the law claim that equity will be achieved by providing needed resources to disadvantaged children to enable them to break out of the cycle of poverty. They believe that setting high

expectations through high standards will help close the achievement gap between whites and blacks, whites and Hispanics, and affluent and/or middle-class students and students who fall below the poverty line.

Second, *NCLB* purports to increase choices available to the parents of students attending Title I schools that fail to meet State standards. Local school districts must give students attending schools identified for improvement, corrective action, or restructuring the opportunity to attend a better public school, which may include a public charter school, within the school district. The district must provide transportation to the new school and must use at least five percent of its Title I funds for this purpose, if needed. Most rural states, like Oklahoma, are populated with communities that have only one school within their district, so this law has limited applicability. For students attending persistently failing schools (those that have failed to meet State standards for at least three of the four preceding years), schools must provide low-income students with Title I funds, so they can obtain supplemental educational services from a public- or private-sector provider of the student's choice. Providers must meet State standards and offer services tailored to help participating students meet challenging State academic standards.

Third, *NCLB* claims to give greater flexibility for states, school districts, and schools. This flexibility, however, focuses only on the ability to transfer funds within the money appropriated to four of the grant programs. States and schools can transfer up to 50 percent of the funding they receive under Teacher Quality State Grants (Title II, A), Educational Technology (Title II, D), Innovative Programs (Title V), and Safe and Drug-Free Schools (Title IV) to any one of the programs, or to Title I. While trumpeted as

providing great flexibility and local control of funds, this provision exerts minimal actual effect at the district level.

Any increased flexibility is offset by the increased federal control of educational policy and practice. Because the *ESEA* requires states to coordinate curriculum standards and assessments and establishes specific sanctions for states and local school districts that do not make AYP, it establishes undue federal influence on state and local policy and practice. For example, all reading-related professional development programs and materials purchased with Title I, Reading First, or Early Reading First grants have to be grounded in scientifically based research, as defined by the law (i.e. experimental or quasi-experimental design studies only). This gives the U.S. Department of Education significant power in deciding what products and programs will be implemented. In fact, at some meetings, specific products have been recommended even though the law directly prohibits such promotion. The law also has caused some states to abandon or significantly change their already-adopted accountability systems. For example, the state of Oklahoma revamped their accountability system and changed state law to become compliant with *NCLB*.

Fourth, *NCLB* strives to ensure that every child can read by the end of third grade. The law attempts to promote this achievement through increased Title I funding, a narrow definition (scientifically based research) of allowable reading programs, and competitive reading grants to states and school districts.

NCLB also changes, somewhat, other major *ESEA* programs. For example, the new law combines the Eisenhower Professional Development and Class Size Reduction programs into a new Improving Teacher Quality State Grants program (Title II) that

focuses on practices grounded in scientifically based research to prepare, train, and recruit high-quality teachers. *NCLB* provides a very narrow definition of a "highly-qualified" teacher. According to standards delineated in Title II, A, highly-qualified teachers must be fully certified by the state to teach the classes they are assigned and must demonstrate subject matter mastery either through an academic major in the degree (bachelor's or higher) or through passage of a subject-matter test. Rural schools have the challenge of certifying teachers responsible for related but separate subjects, such as biology, chemistry, and physics (all sciences, but each a separate course for certification purposes).

Title II, D focuses on technology and provides the primary material for this study. Since *A Nation at Risk* added it as the fifth basic skill, technology literacy has become a key component of major reform legislation. *NCLB* is no different; it calls for technology literacy for both teachers and students, an impulse that arises from the desire to maintain American economic dominance in the new global economy. Title II, D: Enhancing Education Through Technology opens by identifying eight purposes that fall into four categories: use, access, evaluation, and communication. This section of the *Act* promotes teacher and student access to and use of technology to increase student achievement, ongoing evaluation of its success, and increased communication to foster parental involvement in education.

NCLB also combines categorical bilingual and immigrant education grants. Other changes support State and local efforts to keep schools safe and drug-free, while at the same time ensuring that students—particularly those who have been victims of violent crimes on school grounds—can transfer to a safe school. States also must report school

safety statistics to the public on a school-by-school basis, and school districts must use Federal Safe and Drug-Free Schools and Communities funding to implement drug and violence prevention programs of demonstrated effectiveness. A brief outline of each program with its applicable title number is located in Appendix A for reference.

No Child Left Behind (2001) has spawned multiple publications and texts. The law itself comprises a massive document, weighing in at 670 pages. The U. S. Department of Education sponsors a *No Child Left Behind* website that contains 15 hyperlinks connected specifically to *NCLB*. These 15 hyperlinks then drill down multiple times to sub-pages. One hyperlink example includes the *NCLB Guidance* hyperlink that has 25 items to choose from; the subsequent *Highly Qualified* hyperlink has a two-page summary of this section of the law. The *NCLB is Making a Difference* hyperlink has a map of the United States. A click on a specific state brings up a fact sheet of what *NCLB* has created in that state. Most hyperlinks on the main page drill down at least five clicks without ever arriving at a final page. This information about *NCLB* provides a continuous stream of interpretation and representation of the law.

The USDE has also produced many other interpretational resources, including a 181-page *Desktop Reference*, a two-page *Executive Summary*, a 76-page *Teacher's Toolkit*, and a 44-page *Parent Guide*. The Oklahoma State Department of Education has a *Title I* website that contains additional information on *NCLB*, and they have produced a 26-page summary of the law. As a district administrator, I have read much of this information and have presented an overview for the board and staff in the form of a powerpoint and a two-page summary (Appendix A). I have also directed teachers to explore more about the law at the *Education Week NCLB* site, sponsored by Pearson Professional

Development, or at the *Education Commission on the States* website that summarizes and analyzes state implementation of *NCLB*. These are only two examples of a myriad of resources that have cropped up to help practitioners try to interpret the 670-page tome. A query for "no child left behind" on *Google* produced 1,470,000 webpage results.

As this listing of multiple sources demonstrates, the incarnations of *NCLB* are numerous. As Ball (1994) points out,

> Policies are represented differently by different actors and interests…. At all stages of the policy process we are confronted both with different interpretations of policy, and with what Rizvi and Kemmis (1987) call 'interpretations of interpretations.' And these attempts to represent or rerepresent policy sediment and build up over time; they spread confusion and allow for play in and the playing off of meanings. (p. 17)

The very ubiquity of interpretations emphasizes the far ranging effect of this law. And, many times, the teachers and students, those most affected by the law, have the least access to the information or a very abbreviated version of it.

Final Thoughts

This chapter presents the background for the text of *NCLB*, the intertextuality. After a general overview of curricula and policy decisions in the twentieth century, I then summarize *NCLB*. Included in this summary is an exploration of *NCLB* through the lens of Edelman's (1988) problem creation and his first component of all policies: naming. Some key assumptions and themes that have emerged from the education reform literature discussed above and that seem to thread through education reform policies include the economic, the organizational, the political, and the technological.

Since the United States gained dominance in the world economy during the last century, it is now assumed that the United States has a right, in fact, it is its destiny to dominate in a global economy. A corollary to this assumption directly connects education to economic prosperity and says that the schools influence the economy. A third assumption builds on the two previous: All schools are in a state of crisis.

Organizational assumptions also abound in education literature. The first identifies that a single set of standards should apply to all students even though they have unique learning needs. Tied to this is another belief that the education process is simple and linear: teacher delivers ⇨ student absorbs ⇨ student regurgitates. Such a premise also accepts that education practice can be copied and replicated without considering context and that tests accurately reflect what students have learned and thus what teachers have taught. The political assumption uncovered in this review of data demonstrates a predilection and appreciation of state monitoring and surveillance, even on the individual student level. This aspect is one of the more disturbing movements encouraged through the precursors of *NCLB*. The remaining assumptions coalesce around technology and its ability to improve delivery of education, to simplify the educational process and make it more efficient, and to improve access to opportunities and thereby increase equity in education. The next chapter will study the content of *NCLB* to look for traces of these and other assumptions woven throughout the law.

CHAPTER FOUR

ANALYSIS OF DATA

In the previous chapter, I examined the construction of a problem in education by analyzing the intertextuality of *NCLB*, the reauthorization of the federal *ESEA*. Now, it is time to turn attention to the details of the policy itself, the content of *NCLB* and its use and treatment of technology.

After I instituted a full document search of the word *technology* with the Adobe Reader search feature, I thoroughly examined each page and section of the law that explicitly used the word to study the context and the language surrounding *technology*. Next, I wrote open codes in the margins of the text and sorted based upon identified themes. Afterwards, I narrowed the information to three inter-related themes. I, then, looked at these themes in the context of Levin and Young's (2000) study of reform rhetoric; Marshall, Mitchell, and Wirt's (1989) analysis of common language in American state policies; and the four areas (the economic, the political, the social, and the religious) identified in my review of the literature to open up points of convergence, inconsistency, and/or contradictions and to situate this study in the context of other works. Table 1 contains a chart tracing the language connections between the three studies and *NCLB*. These words will serve as one organizational tool for presentation of the data analysis.

Next, I conducted similar searches, coding, and analysis of words that frequently appeared in relationship to *technology*. After coding the information, I determined that two primary aspects of technology influenced components of *NCLB*: technology as system and technology as machine. A word created to signify the creations of people in addition to the way they use their creations to satisfy their needs and desires, technology embodies many qualities as explored in Chapter Two. To review, within the literature four primary themes emerge in association with technology:

1. *the economic* in its focus on the puritan work-ethic with its modern focus on capital gain, and its children: control and efficiency.
2. *the political* through its language of domination and colonization.
3. *the social* in its association with progress, improvement, and perfection.
4. *the religious* with technology serving as the savior of education.

A common element that ties these themes together includes the human need to gain control over nature and in so doing build a better, a "civilized," way of life. Connected to control is efficiency, the best way to make the most progress and to improve society through the least effort. Efficiency connotes the sense of "the best," "progress," and "to improve."

Heidegger (1977) explores the essence of technology in his generative essay "The Question Concerning Technology." In this essay, he discusses one aspect of technology:

> Technology is a way of revealing …. The revealing that rules in modern technology is a challenging [Herausforder], which puts to nature the unreasonable demand that it supply energy that can be extracted and stored as such…This setting-upon that challenges forth the energies of

> nature is an expediting [Fordern]…that…is always itself directed from the beginning toward furthering something else, i.e., toward driving on to the maximum yield at the minimum expense. (pp. 13-15)

Heidegger traces technology in its essence from the ancient Greek word for "art" with all its breadth: *techne* referring to "the activities and skills of the craftsman, but also for the arts of the mind and the fine arts" (p. 13). The word technology encompasses both machines and approaches, tools and systems. Heidegger claims that technology is a mode of revealing, of bringing out, or of transforming that "comes to presence in the realm where revealing and unconcealment take place" (p. 13).

Heidegger (1977) expresses the essence of modern technology as what he names a challenging-forth or challenging-revealing. This challenging sets upon what is in nature, the vision of the individual and his/her relationship to the world with the purpose of transforming what is into something useful. This sense of challenging has a violent quality because it challenges or demands that what comes out of nature be altered or transformed efficiently for use and consumption, shaped according to human needs or desires. To explain the contrast between challenging and revealing, Heidegger gives an example from the Rhine River. Early technology provided the sawmill on the river as a tool to direct the river's flow into the turning wheel for human advantage and appropriation. The design for such use considers the river's flow and force, its bends, its banks, depths, and meteorological history, for without such consideration the sawmill cannot function. This is technology as revealing. The hydroelectric dam, on the other hand, challenges forth. It demands dramatic alteration, change, or transformation. The scope of the river is altered and dammed into the requisite domain. The challenging of

the hydroelectric plant reveals the river not with its history or its contours or what lies upstream. Rather, it eliminates all of these characteristics and transforms the river into a hydroelectric source. On one hand, modern technology promises progress, improvement, even perfection. On the other, it seeks domination, control, and efficiency.

This brief review of Heidegger somewhat simplifies his essay, but it serves here to summarize the essence of technology as explored in Chapter Two and to provide a segue into analyzing technology as it weaves through *NCLB*. Although *NCLB* gives a very narrow definition of technology as used within the law (technology as machine), I will first explore the broader, more abstract notion of technology (technology as system) to explore how this aspect of technology influences the language of *NCLB*. Then, I will turn my attention to the more direct definition of technology as provided in *NCLB*. Within both of these analyses, the language of *NCLB* converges with Marshall, Mitchell, and Wirt's (1989) and Levin and Young's (2000) studies. These studies, in addition to the literature reviewed in Chapter Two, will serve as a frame for analysis.

Table 1 identifies the language designated in each study and demonstrates how they overlap. Most of these words have operated as working guidelines for analyzing the data of *NCLB* with the exception of choice. Choice is addressed only peripherally because it does not directly relate to the themes concerning technology that emerged in the review of the literature. This analysis will concentrate on what I have named the discourses of accountability, the quick fix, and the stay-caught-up-mentality (scum).

Table 1

Marshall, Mitchell, & Wirt (1989)	**Levin & Young (2000)**	**Review of Literature**	***NCLB* (2001)**
Efficiency	Accountability	the economic in its focus on the puritan work-ethic with its modern focus on capital gain, and its children: control and efficiency.	Accountability (standards and assessments)
Quality (the best, standards of excellence)	Excellence	the social in its association with progress, improvement, and perfection.	The quick fix
		the religious with technology serving as the savior of education.	No Child Left Behind (the lost sheep)
	Competition	the political through its language of domination and colonization.	Stay-caught-up-mentality (scum)
Equity			Close the achievement gap; No Child Left Behind
Choice or liberty	Choice		Flexibility and choice

Discourse of Accountability

Technology as System

Accountability, standards, assessments: directly linked throughout *NCLB*, the three cannot be separated, and together they constitute the discourse of accountability. Using accountability, standards, and assessments to describe the purposes, goals, and activities in *NCLB* promotes certain ideological biases. A closer inspection of these three words exposes that they arise from similar impulses.

Exploring the ghosts of meaning that throng these words serves to unveil some assumptions embedded within each word. In the section of *NCLB* labeled "Accountability," the *Desktop Reference* (2002) declares, "The *NCLB* Act is designed to help all students meet high academic standards by requiring that states create annual assessments that measure what children can know and do in reading and math in grades 3 through 8" (U.S. Department of Education, p. 9). It is not clear how the assessments will "help" students, but the text assumes that they are interconnected and form a linear progression: standards + assessments = accountability. Below, I analyze the discourse of accountability, which includes standards and assessments, to uncover what concept of knowledge such a game empowers. What "truth" does it speak into being? What "way of knowing" (Pickstone, 2001) does it create and promote?

Accountability

First, this analysis focuses on accountability; the discourse of accountability absorbs into itself qualities that come out of the tradition of the American Dream and the nature and value of progress. I will trace these tendencies through the law looking at how they are constituted through both a paradigmatic and syntagmatic analysis of the language.

These forms of analysis are not separated; rather, analysis of each in concert provides a method for uncovering the language-games at work in *NCLB*.

The human desire to employ systems and structures (technology) to control efficiently manifests itself in *NCLB* through the discourse of accountability. Derivations of *accountability* appear in *NCLB* 97 times, but its spirit breathes life into every aspect of the law. The first statement that appears at the top of the title page announces, "An Act to close the achievement gap with accountability, flexibility, and choice, so that no child is left behind" (p. 1425). The words *accountability, flexibility*, and *choice* connect this Act with language of similar reform movements in England, New Zealand, and Canada. In their study of education reform, Levin and Young (2000) found that reform movements in these three geographically disparate countries shared "a common language and possibly a common way of thinking…. All these governments used some of the same language—words such as competition, choice, excellence, and accountability recur in all settings" (p. 204). *NCLB* reflects its connection to the world-wide reform movement by its focus on accountability and choice. Flexibility reveals the political compromise required to pass the Act, a nod to Republicans who purportedly want to keep the national government out of local schools. The flexibility component is merely that, a rhetorical nod with no real substance. The flexibility and local control rest entirely in the local schools' ability to transfer money among various federal programs.

The opening statement of the title page uses a rhetorical series to identify the three important components of the law: accountability, flexibility, and choice. Of these, accountability is listed first in the series, emphasizing its primacy. To understand the discourse of accountability, we should first analyze the word *accountability*, for words

function as more than mere abstract representations, or significations; they point to something beyond themselves. As such, they are translucent bearers of meaning. To look at the history of a word is to search out its latent meanings, to seek out what was spoken in the word at its first recording and what has been and is heard in it since that first recorded utterance. Although particular meanings may change over time, nuances, those ghosts of meanings past, remain alive within a word and must be heard. Ignoring this aspect of words makes us unable to discern the meaning structures that enframe and entrap us and, by turn, embolden us.

Accountability flows from the language of money and judgment. The *OED* (1971) tells us that *accountability* comes from the Latin word for account, to calculate, and was first associated with giving a reckoning of money received and paid at the final judgment seat of God. Having the suggestion of liability, giving account, and answering for the discharge of duties, responsibilities, or conduct, its use places it firmly in a combined tradition of numbers and counting + judgment. Someone (God or some other figure of authority) serves as the arbitrator who establishes the basis for determining worth or importance, and then the ledgers are compiled to keep track of performance (good deeds, money received and paid, etc.). On the day of reckoning, the arbitrator compares the ledgers of performance against his established standards and passes judgment. The concept of accountability oozes with the very essence of logical positivism with an underlying negative assumption that people will not do what they are supposed to do if left on their own. A higher authority must be always looking over their shoulder to make sure they stay on the correct path, promising redemption at a price. Those who can pay receive blue ribbons, congratulations, and status; those who cannot, pay the price.

Accountability does not appear in connection with education much until the second half of the twentieth century. The word does not appear in *A Nation at Risk* (1983); *Goals 2000* (1994) uses it only five times. While early incarnations of accountability reform focused on standards-based accountability, the current wave represented by *NCLB* presses the standards into service for assessment-based accountability. Although assessment-based accountability includes standards, the assessments determine the resulting labels of success or failure for schools, teachers, and students. As Carnoy, Elmore, and Siskin (2003) note, until the early 1990s, accountability was traditionally based on local determinations as represented by local school boards although the latter half of the twentieth century witnessed an increasing call for educational accountability from politicians and policymakers. In the late 1960s and early 1970s, accountability became more prominently used in educational circles. It briefly fell into the background but re-emerged in the 1980s and has continued to swell in popularity up through the recent turn of the century. This desire to make school systems, schools, teachers, and students more and differently accountable has occurred at a time of a changing economy, an increasing gap between the rich and poor, a boom in new technology, and decreased confidence in government. All of these elements combine to create a climate favorable for demanding accountability from schools.

Accountability, as applied in education, can convey varying meanings. Carnoy, Elmore, and Siskin (2003) differentiate between internal and external accountability. They posit that three different qualities contribute to internal accountability:

1. the individual's sense of accountability, or *responsibility*;

2. parents', teachers', administrators', and students' collective sense of accountability or *expectations*; and
3. the organizational rules, incentive, and implementation mechanisms that constitute the formal accountability system in schools. (pp. 3-4)

This concept of internal accountability relates tangentially to Schein's (1992) discussion of culture in organizations, but his analysis can help to elucidate the first two qualities listed above. According to Schein, culture is built upon the unconscious assumptions based on past history (successes and/or failures while encountering problems or change) that control behavior and actions within organizations. Although Schein points out that organizations may have artifacts (visible structures and processes) and espoused values (strategies, goals, philosophies), the "basic assumptions" (the unspoken, assumed group values) really drive a company (pp. 16-27). Wheatley (1999) also explores the effect of non-material organizational forces, "culture, values, vision, ethics" (p. 54). These elements all interact in intangible and unseen spaces within a work environment, spaces that she terms "fields." Messages within these fields exert control and create power and influence. Any attempt to work within an organization without an analysis and understanding of these unseen motivators and controllers will fail or succeed only as a matter of chance.

Wheatley (1999) and Schein (1992) agree that organizations should examine culture, for "what is meaningful to a person, group, or organization is the first essential task" (Wheatley, p. 149). To discover what is meaningful, Wheatley contends that people within organizations should develop an "observer self," so they will understand what motivates them, for only in understanding themselves and what motivates them can they

can begin to understand and appreciate others. These statements correspond with Schein's careful analysis of the power of basic assumptions and the need for leaders to help organizations to develop, discover, or dispose of their embedded culture "so that the normal flow of work is not interrupted by cultural misunderstandings" (p. 122). While internal accountability provides unseen, but very strong, hidden pressures within a work environment, external accountability usually brings only visual changes.

External accountability requires schools and students to meet standards determined externally (by government or private entities) and applied to the school from outside the local district. *NCLB* is the grand culmination of the U.S. education accountability movement that encourages external accountability. At the beginning of Title I, the largest component of the *Act*, the law states that twelve items can accomplish its purpose, improving the academic achievement of the disadvantaged. Item one claims that student achievement will improve by

> ensuring that high-quality academic assessments, accountability systems, teacher preparation and training curriculum, and instructional materials are aligned with challenging state academic standards so that students, teachers, parents, and administrators can measure progress against common expectations for student academic achievement. (pp. 1439-1440)

The law continues in item four by connecting student achievement to "holding schools, local educational agencies, and States accountable for improving the academic achievement of all students" (p. 1440). Further, item six identifies that "improving and strengthening accountability, teaching, and learning by using State assessments" will "ensure that students are meeting challenging State academic achievement and content

standards and increasing achievement overall, but especially for the disadvantaged" (p. 1440). While this item reflects an attempt to include elements that affect student achievement (teacher preparation and training curriculum and instructional materials aligned with standards), the statement's structure uncovers its primary emphasis (assessments and accountability systems, listed first) used for the purpose of measuring progress against common expectations: standards + assessments = accountability. As DeLissovoy and McLaren (2003) point out, the discourse of accountability posits a series of equations and assumptions that are never interrogated "(learning = absorption of testable material; standardized testing = authentic assessment; accountability = standardized testing)" (p. 132).

Standards

As discussed above, the nuances of *accountability* infer a call for reckoning in front of an authoritative arbitrator. *Standards* contains similar latent meanings. The word *standards* originates from the Middle English and Old French word "standard" and evokes a world of knights, horses, banners, and wars for a "just" cause. A standard designated a banner flown as a rallying point during battles of the Middle Ages, the personal flag of a nobleman designating his gentility and his birthright of land ownership and its accompanying privilege. He designed the standard because he had the God-given right, the divine destiny, to decide the banner design and to determine into what battles and for what cause it would appear. According to the *OED* (1971), in early instances, the standard of measure was always either expressly or by implication called "the king's standard." To this day, the Queen of England flies the Royal Standard, providing the touchstone for determining how a banner should be, the Standard for the standards.

From this same general time period came the codification and eventual imposition of the Sumptuary Laws, laws that defined standards restricting what clothes people could wear based on class, income, or occupation. By setting standards of acceptable dress, these laws seemed to have served two purposes: to maintain class distinctions and to serve economic (protectionist) or political ends. For Renaissance Europeans, clothes clearly indicated a person's profession and social status, for "people carried their fortunes on their backs" (Hansen, 1972, p. 128). Those whose dress strayed beyond the prescribed boundaries of acceptance for their social class were fined or incarcerated. King Henry VIII reflected this European preoccupation with sumptuous costumes and even competed with the King of France for the finest dress. When Elizabeth ascended the throne, she continued this tradition of splendor and ostentation in her dress, and it is estimated that she had a wardrobe of some 500 costumes (Davenport, 1948). For the European mind, this extravagant exhibition of dress, "gorgeous gem-encrusted costumes, richly inlaid armour, and multi-coloured plumes, … proclaim[ed] to every onlooker that these people are superior beings" (Strong, 1969, p. 29).

Because their clothes were so intimately tied to this image, when European explorers encountered a lack of "normal" clothing on the indigenous peoples of North and South America, they immediately applied their own sartorial rules that the more voluminous the costume, the more superior the person and, consequently, the naked natives were construed as inferior. The Elizabethan world "picture," their language game associated with clothing standards, did not allow them to "see" beyond their own socially constructed categories: one such example of the inability to "see" that had disastrous consequences as our nation's bloody early history confirms. This example also reflects

the western predisposition for the visual, for connecting the outward appearance with the inner person.

The word *standards* comes out of this tradition and cannot be separated from this context of colonialism. The word provides a sense of something permanent, fixed, or stationary, and that "some-thing" is fixed and defined by the king, the royal authority. The standing measure of the king serves as the basis by which all measures are framed. His designation is arbitrary, as were the standards of the Sumptuary Laws, but his designation becomes the accepted standard, the law. Likewise, the current notion of standards in education is increasingly based on appearances and, by extension, superficialities.

Since at least *A Nation at Risk,* if not since the Taylor movement of scientific management first touched public schools, the education world has been awash with the "Standards Movement," an approach that "focuses on efforts to create more goal-oriented, efficient, and effective schools by introducing systematic management procedures" (Carnoy, Elmore, & Siskin, 2003, pp. 16-17). Table 2 below marks the evolution of standards, assessments, and accountability in federal legislation.

Table 2

Federal Standards and Accountability Legislation Leading to the No Child Left Behind Act

	STANDARDS			ASSESSMENT			SANCTIONS		
	Standards Established	Deadline for Proficiency	Disaggregation of Performance	State Testing	High-Stakes National	Adequate Yearly Progress	School Improvement Plans	Restructuring of Schools	Public School Choice
Reagan administration/ George H. W. Bush administration (1981-1992)	Yes, voluntary standards	No	No	No	Proposed, NAEP as benchmark (not passed)	No	No	No	Proposed, tuition tax credits and Title I vouchers (not passed)
103rd Congress (1993-1994)	Yes, for Title I students	No	No	Yes, three tests between grades 3 and 12	No	Yes, but vague	Yes	No	No
106th Congress (1999-2000)	Proposed, for all students (only passed the House)	Proposed, ten years (only passed the House)	Proposed (only passed the House)	Yes, three tests	Proposed, voluntary (implementa-tion banned)	Proposed (only passed the House)	Proposed (only passed the House)	Proposed (only passed the House)	Proposed not passed
George W. Bush presidential campaign (2000)	Yes	No	Partial	Yes, annual tests for grades 3-8	Yes, NAEP as benchmark	Yes	Yes	Yes	Yes
No Child Left Behind Act (2001)	Yes, mandatory for all students	Yes, 12 years	Yes, by race/ ethnicity, LEP, disability, and Title I students	Yes, annual tests for grades 3-8, one in 10-12	Partial, NAEP required but not linked to funding	Yes	Yes	Yes	Partial, plus supplemental services vouchers

SOURCE: Author

(Rudalevige, 2003, p. 2)

Montano (2001) points out that education reform advocates and the general public seem to "define" standards differently. In education reform literature, *standards* play a part in the discourse of accountability. The general public, on the other hand, interprets *standards* as a return to traditional, back-to-basics education, an end to social promotions, with stricter discipline and clear standards for promotion and graduation. Both approaches, though, reflect a nostalgic stance that education simplified will solve education problems.

The word *standards* appears 432 times in *NCLB*. In fact, the first paragraph of the Title I section proclaims that its Statement of Purpose "is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state

academic assessments" (p. 1439). Even though the *NCLB Desktop Reference* notes that schools and districts "work best when they have greater control and flexibility" (U.S. Department of Education, p. 9), the Act begins by privileging State-identified standards. Springing from logical positivism and the discourse of accountability, standards set up a hierarchy of knowledge (some information is more important than others) and confers privilege. The world spoken into being through the discourse of accountability assumes that the right answers are out there; they just need to be transmitted to the students, who can then regurgitate them onto the bubble-sheet of the standardized tests.

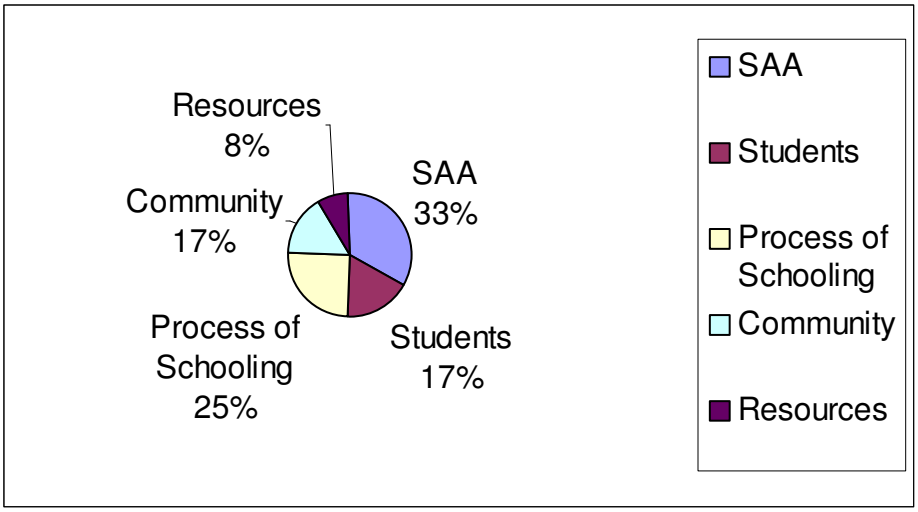
NCLB defines two types of standards. The first includes "challenging academic standards" that "specify what children are expected to know and be able to do, contain coherent and rigorous content, and encourage the teaching of advanced skills" (p. 1445). Second are "challenging student academic achievement standards that are aligned with the state's academic content standards" (p. 1445). At this level, the law then specifies how the achievement standards will look:

> The student academic achievement standards will describe two levels of high achievement (proficient and advanced) that determine how well children are mastering the material in the State academic content standards; and describe a third level of achievement (basic) to provide complete information about the progress of the lower-achieving children toward mastering the proficient and advanced levels of achievement. (p. 1445)

The same standard applies to all children: the highly diverse urban districts of Los Angeles, the wealthy districts of La Jolla in Orange County, and the small, rural districts of northern California.

After stating the purpose identified above, the *Act* then proceeds to identify 12 main items that will help achieve this statement of purpose. Of these 12 items, one-third focus on alignment of standards, assessments, and accountability (SAA); the remaining two-thirds include students and community involvement, the process of schooling, and resources. Figure 1 illustrates this alignment.

Figure 1



The first identified item of the 12, thus the one given primacy or the status of top priority, pronounces that schools can accomplish the statement of purpose by "ensuring that high-quality academic assessments, accountability systems, teacher preparation and training, curriculum, and instructional materials are aligned with challenging State academic standards so that students, teachers, parents, and administrators can measure progress against common expectations for student academic achievement" (pp. 1439-1440). As stated earlier, *assessments and accountability systems* come first in the sentence,

occupying a position of supremacy and importance. These tools will serve to measure progress "against common expectations for student academic achievement." "Common" among whom, determined and defined by whom? And, who will provide the measuring stick? Who determines the standard's worth? The nobility, because of their might and wealth, determined the standards of the Middle Ages; the king's court defined the Sumptuary Laws of the fifteenth and sixteenth centuries. Seen today as arbitrary standards tied to a desire to identify social classes and to flaunt England's wealth and intelligence, the mightiness of their Empire, and their swift ascent (in their own minds) to almost celestial beings, these laws established hierarchy of power and shaped how the English described their world; these laws painted the Elizabethan world picture. Who decides the standards of educational worthiness for the twenty-first century? By speaking the discourse of accountability, what educational world picture do we paint?

Assessments

As demonstrated in several quotes above, embedded within the discourse of accountability is also a reliance on assessments. According to the *OED* (1971), *assessment* comes from the Old Latin term for *assess*, *assessus*: to sit beside, or assist in the office of a judge. Its original use was associated with the official estimation of property value for the purpose of taxation. Again, as in the definition of *standards*, the judge, or authority, settles, determines, or fixes the value. *Assessment* has entered our education language, trailing clouds of positivism and providing an unquestioned authority that renders fixed answers to settle value. *Assessment* also derives meaning from financial and economic principles, property and taxes, commodities and their assigned worth. All of these qualities are at work in *NCLB* and its use of the term *assessments*.

In education, assessment is often used interchangeably with testing. A narrow definition of testing, though, may focus on the actual process of measurement to gain certain results, whereas assessment includes the gathering and integration of data using multiple tools including tests. The question of *NCLB* is: does it use the terms interchangeably or does it allow for multiple assessments? The answer seems to be "yes" and "yes." First, I will address the latter.

The word *assessments* appears 440 times in *NCLB*, slightly more often than *standards*; the ubiquity of both emphasizes their importance in this law and its firm adherence to logical positivism and the discourse of accountability. The details of the assessment requirements begin with a Statement in General:

> Each State plan shall demonstrate that the State educational agency, in consultation with local educational agencies, has implemented a set of high-quality, yearly student academic assessments that include, at a minimum, academic assessments in mathematics, reading or language arts, and science that will be used as the primary means of determining the yearly performance of the State and of each local educational agency and school in the State in enabling all children to meet the State's challenging student academic achievement standards, except that no State shall be required to meet the requirements of this part relating to science assessments until the beginning of the 2007–2008 school year. (p. 1449)

The legislation does not require standardized tests, but "academic assessments." In fact, the law identifies 15 areas of further description about the requirements for the assessments. Item six (vi) reads, "Such assessments shall involve multiple up-to-date

measures of student academic achievement, including measures that assess higher-order thinking skills and understanding" (p. 1450). Such a statement seems to encourage schools to seek assessments other than multiple-choice, standardized tests. Thus, "other assessments" could include classroom-based assessments—provided that they show student progress in light of standards and are sufficiently reliable and valid. Ostensibly, a state could take a substantially different approach to assessment than to rely entirely on standardized tests, but that is not the case as will be explored further in Chapter Five.

In this chapter's first section, I have analyzed how the technology of efficiency and control manifested through the discourse of accountability holds a tight-fisted grip on every aspect of *NCLB*. I will now turn my attention to the more concrete definition of technology (technology as machine) and will explore the place of this aspect of technology in *NCLB*.

Technology as Machine

NCLB repeats the word *technology* 204 times and provides the following definition: "The term 'technology' means state-of-the-art technology products and services" (p. 1966). This narrows the definition of technology considerably by including only technology components like computers, networks, and the Internet while at the same time establishing the innovation, newness, and cutting-edge quality of technology (state-of-the-art). I will now analyze *NCLB*'s concrete, straightforward use of the term and the discourses that such use promotes.

NCLB identifies that technology's primary goal is "to improve student academic achievement through the use of technology in elementary and secondary schools" (p. 1671). This goal reflects one of the primary assumptions about technology that weaves

throughout *NCLB*: technology serves as an important source of support for teaching and learning and will improve student academic achievement. In the Comprehensive School Reform section, the law advocates that "a comprehensive design for effective school functioning" must include aligning "the school's curriculum, technology, and professional development into a comprehensive school reform plan" (p. 1604). Such a statement manifests technology's place in the education landscape. Flanked rhetorically on either side by two historically core components of education, curriculum and professional development, technology grounds the sequence and, thus, establishes its place in the "grammar of schooling" (Tyack & Cuban, 1995). Technology now has an assumed place in the educational landscape.

Title II, D may be a good place to begin looking at data because it is the portion of *NCLB* designed for "Enhancing Education Through Technology," and it provides some further clarification concerning how technology will improve teaching and learning as described in *NCLB*. Again, analyzing the name of this portion of the Act may help us to uncover the values that influence its purpose. The title reads "*Enhancing* education…," [italics added] yet the designated purpose and goal focus on *improving* student academic achievement. While these two words may seem interchangeable, an archeological dig of their historical usage reveals subtle differences, differences that point to some key contradictions within the law.

Enhance comes from a combination of the French words for "in" and "high." Consequential usage relates to lifting, or setting or raising up to the level of the ground. It embodies a sense of motion, of raising something higher, like a flag or banner (a standard) on the field of battle. Chaucer used it to designate someone who wanted to

exalt himself/herself in dignity or rank. It also includes a sense of elevating spiritually or morally, or magnifying.

Improve has some similarities but also some subtle differences that may hint at a tension within *NCLB*. *Improve* comes from the language of progress, or the perfectibility of man. From its Latin root, it carries a negative connotation, from "improbare," to condemn, reject, or disprove. This negative connotation turned positive within the context of agriculture. To improve was to make one's profit or to avail oneself by enclosing and bringing into cultivation land that was formerly considered wasteland. So, someone who refuted a land's worthlessness or who proved such an evaluation wrong was said to have improved the land. This eventually led to *improve's* being associated with turning something to profit or good account.

This word acquired a spiritual meaning in the 1600s, when *improve* was associated with turning a person to account for spiritual profit. It even became the word to denote preaching and speaking that took place to edify. Thus, the meaning today evokes the quality of advancing or raising to a better quality or condition, to increase the value or excellence of, or to make or produce something better, more perfect, or to an excellent condition. The underlying implication embodied in the word, though, determines that this something that is to improve would be subject to condemnation or rejection without the intervention.

Thus, *enhance* carries the connotation of taking something from where it is and raising it higher without any sense of condemnation or prior worthlessness; it involves taking it to a higher level only for greater visibility. An outside force may lift or raise it, but this lifting does not involve major alterations of intrinsic qualities. *Improve*, on the

other hand, implies taking something condemned or censured, something bad like a worthless piece of land, and having the lord of the manor apply his expertise to make it better. The locus of control resides not within the thing being improved, which is passive, but originates in the expertise then applied to the object/entity needing improvement. The land improves not because of what lies within it internally, but because of what is done to it. *Improve* is to change or transform as a result of an outside source; *enhance* is to supplement what already lies within.

Within *NCLB*, enhance appears 89 times, improve 476. By focusing on improvement, the law exhibits a "Ghostbuster" mentality. This popular movie of the 1980s introduced a question into the American lexicon: "When in trouble, who ya' gonna call? Ghostbusters" (Reitman, 1984). Although this quartet of bumblers sometimes made the situation worse, the implication was that if a problem exists, the experts must be called in to administer their expertise and solve the problem. *NCLB*'s language is a part of this tradition. It implies the firmly positivist stance that the answers are out there; we just need the experts to come in and apply their expertise to improve the situation, to transform a worthless system into something profitable.

In addition to the primary goal quoted above, Title II, D's first designated purpose provides for "assistance to States and localities for the implementation and support of a comprehensive system that effectively uses technology…to improve student academic achievement" (p. 1671). This statement, combined with the stated goal above, immediately places the entire focus of technology on improving "student academic achievement." Since "student academic achievement" so closely intertwines with

technology's identified purpose, I will now turn to *NCLB*'s definition of student academic achievement as I try to uncover how the law circumscribes technology's role.

The phrase "student academic achievement" first appears in the opening portion of *NCLB*, Title I. States have to adopt challenging student academic achievement standards, align all aspects of education (assessments, accountability systems, teacher preparation and training, curriculum, and instructional materials) to these standards, "so that students, teachers, parents, and administrators can measure progress against common expectations for student academic achievement" (p. 1440). As I continue to follow this language trail a little further, Title I defines these challenging student academic achievement standards. They

> (I) are aligned with the State's academic content standards;
>
> (II) describe two levels of high achievement (proficient and advanced) that determine how well children are mastering the material in the State academic content standards; and
>
> (III) describe a third level of achievement (basic) to provide complete information about the progress of the lower-achieving children toward mastering the proficient and advanced levels of achievement. (p. 1445)

The next mention of student academic achievement standards occurs in the context of Adequate Yearly Progress (AYP). AYP "measures the progress of public elementary schools, secondary schools and local educational agencies and the State based primarily on the academic assessments described in paragraph (3) to meet the State's student academic achievement standards" (p. 1446). Paragraph (3) reveals that academic assessments are defined as,

> high-quality, yearly student academic assessments … that will be used as the primary means of determining the yearly performance of the state and of each local educational agency and school in the State in enabling all children to meet the State's challenging student academic achievement standards. (p. 1449)

Following this trail uncovers the direct connection between technology (as machine) and the discourse of accountability (technology as system), for within *NCLB*, technology's number one purpose and primary goal both focus on "improving student academic achievement" (p. 1671) through the use of technology. And, as we see above, *NCLB* defines student academic achievement as the annual standardized tests that students must pass and that schools and States will use to hold teachers, administrators, schools, districts, and states accountable. This connection is further forged in purpose four of Title II, D: "To promote initiatives that provide schoolteachers, principals, and administrators with the capacity to integrate technology effectively into curricula and instruction that are aligned with challenging State academic content and student academic achievement standards" (p. 1671). Technology (the machine) becomes an instrument that supports technology (the system): technology begets technology, just as Postman (1993) predicts. The Education Commission of the States (ECS) in a study funded by the Bill and Melinda Gates Foundation, affirms this connection: "Technology is poised to become an integral component of education accountability" (Bacon, 2003, p. 1).

Discourse of The Quick Fix

How does technology improve student academic achievement? For the most part, that answer remains unclear, for the law simply assumes that technology use will

positively affect student achievement. Time and again, the law specifies the need for technology integration to improve teaching and learning. (See Appendix B for examples). In the Title II, A (Preparing, training, and recruiting high quality teachers and principals) portion of the law, *NCLB* requires that states describe how they will "ensure that teachers are trained in the use of technology so that technology and applications of technology are effectively used in the classroom to improve teaching and learning in all curricula and academic subjects, as appropriate" (p. 1623). This definition sets up two aspects that the law repeatedly connects to technology training: effective use and improvement of teaching and learning. In fact, in one instance, the law implies that being in the mere presence of technology (and libraries) will improve teaching: "improve [mathematics and science] teachers' teaching skills through the use of sophisticated laboratory equipment and work spaces, computing facilities, libraries and other resources that institutions of higher education are better able to provide" (p. 1643).

The law also promotes teacher training and instructional materials to support student learning and academic achievement. While technology is a kind of training (using it) and a type of instructional material (software, Internet sites), the law adds a phrase that specifies the applicability of using technology and, in this way, highlights technology's desirability. Below are three excerpts that include a phrase that specifies technology as a desired option:

- ensure that teachers and highly qualified paraprofessionals, and, if appropriate, principals have subject matter knowledge in the academic subjects that the teachers teach, *including the use of computer related technology to enhance student learning* [italics added] (p. 1634)

- provide materials and methods of instruction [in Civics education], including teacher training, that utilize *the latest advancement in educational technologies* (p. 1663)
- improving the instruction programs for limited English proficient children by identifying, acquiring, and applying effective curricula, instruction materials (*including materials provided through technology*) [italics added] and assessments that are all aligned with State and local standards (p. 1709)

By specifying its inclusion, the law emphasizes technology's worthiness. What seems an afterthought or marginal is, in fact, central. Because it is spoken, technology is placed at the top of the hierarchy of preferred methods or materials. Instead of being after-thoughts, such parenthetical comments actually provide clues to what is truly important in the text (Culler, 1982).

Data-driven decision making

Another way the law claims that technology will improve teaching and learning involves providing a means for data gathering, storing, and analysis. In the quest for measurement and accountability, this becomes an extremely important capability. The law awards grants to "provide guidance and technical assistance … in developing and maintaining management information systems through which such agencies may develop program performance indicators to improve services and performance" (p. 1595). Title II, A directs the use of technology to track student performance by "encouraging and supporting the training of teachers and administrators to effectively integrate technology into curricula and instruction, including training to improve the ability to collect, manage,

and analyze data to improve teacher decision making, school improvement efforts, and accountability" (p. 1626). Title II, B expressly links using technology for instruction and assessment: grants awarded under this subsection may include support for "implementing programs that support effective teacher use of education technologies to improve instruction and assessment" (p. 1721).

Title II, D, likewise, encourages the State to train teachers to use technology to "access data and resources to develop curricula and instructional materials" (p. 1680) and "to collect, manage, and analyze data to inform and enhance teaching and school improvement efforts" (p. 1681). Additionally, Title III specifies allowable activities as "developing and using educational technology to improve learning, assessments, and accountability to meet the needs of limited English proficient children" (p. 1710). The law promotes that prospective teachers, likewise, become efficient consumers of data. In addition to helping prospective teachers learn about technology resources and ways to integrate, the grant for *Preparing Tomorrow's Teachers to Use Technology* will enable teachers "to use technology to collect, manage, and analyze data to improve teaching and learning" (p. 2083). Technology allows for convenient, efficient production and management of data and devours highly complex tasks with ease as long as the data fits well into existing categories. Such apparent ease, thus, promotes data's becoming the source for driving instruction without questioning the pre-existing categories embedded in the software. The tool, the means for evaluating student academic achievement, creates a need for itself. Again, technology begets technology, and, in a sense, technology will provide the means for verifying its own effectiveness.

In March 2004, the USDE sponsored a technology summit that supports this move. Pierce and Murray (2004) describe this meeting, called "Empowering Accountability and Assessment Using Technology." This government-sponsored summit provided "technology assistance to help state and local school leaders identify technology tools and resources to support the accountability, student information, and data requirements of *NCLB*" (p. 1). To help them transition to data-driven decision making, this meeting encouraged schools to "enter into business agreements with leading technology companies, in which solution providers supply the technology and training necessary to meet the school system's needs" (p. 2). Instead of Ghostbusters, they are "solution providers" who will meet the technological needs that have been created by the technology itself.

NCLB repeatedly and unquestioningly advances the *use* of technology to improve teaching and learning. It also advocates increased teacher *access* to and training with technology, with the implied promise that such access and training will improve teaching and, thus, learning.

Access

Access to technology comprises one of the primary issues directly connected to technology that threads throughout *NCLB*. As stated earlier, of Title II, D's eight identified purposes, four focus on access, two on use, and one each on evaluation and parental involvement. This section of the Act promotes teacher and student access to and use of technology to increase student achievement, ongoing evaluation of its success, and increased communication to foster parental involvement in education. This focus on access underlines the ongoing assumption throughout *NCLB* that technology will improve

teaching and learning: the key is to provide access and training. Title II, D's purposes include:

> (2) expanding "initiatives, including initiatives involving public-private partnerships, designed *to increase access* [italics added] to technology,"
>
> (3) assisting "in the acquisition, development, interconnection, implementation, improvement, and maintenance of an effective educational technology infrastructure in a manner that *expands access* [italics added] to technology for students (particularly for disadvantaged students) and teachers,"
>
> (5) enhancing "the ongoing professional development of teachers, principals, and administrators by providing *constant access* [italics added] to training and updated research in teaching and learning through electronic means," and
>
> (6) developing and using "electronic networks and other innovative methods, such as distance learning of delivering specialized or rigorous academic courses and curricula for students in areas that would not otherwise have *access* [italics added] to such courses and curricula, particularly in geographically isolated regions." (p. 1671)

This focus on access is also supported by encouraging training and use in distance learning programs, for such programs theoretically provide access to areas, like those listed above, that otherwise would not have opportunities. Title II, B promotes "professional development activities, including supplemental and follow-up activities, such as curriculum alignment, distance learning, and activities that train teachers to utilize technology in the classroom" (p. 1646). It also seeks to establish "distance learning programs for mathematics and science teachers using curricula that are

innovative, content-based, and based on scientifically based research that is current as of the date of the program involved" (p. 1646). This physical access, though, does not address the important and imperative access to technical support. Experience dictates that schools can put technology in schools, but expensive machines and extensive connections will lie unused and useless in closets or on desks unless both teachers and students have training and support to use these tools intelligently and successfully.

Digital divide

This focus on access reflects its emphasis among technology advocates who see the digital divide, the separation in the United States between those who have access to computers and the Internet and those who do not, as a growing civil rights issue. In 1999, the U.S. Department of Commerce reported that the "digital divide" widened based on income, location, ethnicity, and education. Households with incomes over $75,000 are twenty times more likely to have Internet access. People living in urban areas are twice as likely to have Internet access as those with the same income but located in rural areas. Black and Hispanic households are two-fifths as likely to have access as Whites, and households with a college degree or more are ten times more likely to have access than those with only a high school diploma. People with a disability are one-half as likely to have access (Carvin, 2000; First & Hart, 2002).

The language of *NCLB* supports the notion that the World Wide Web is the great equalizer: technology and the Internet allow greater access to more information because it is an age of "everything, everywhere." Those concerned about the digital divide ask, what of those who do not have access to this great equalizer? What are the ramifications for children and adults who do not have access to the technologies that shape the way we

learn, work, and play? The rich and socially enfranchised, who can afford to buy the new technologies, become increasingly productive and therefore even richer while the poor and disenfranchised stand still and are left behind. Because of the access inequities, information technology creates an information literacy gap and increases economic disparities, essentially by empowering people already empowered to communicate and be educated and have access to this new world of information and technical skills. Such language and attitudes promote technology as a necessity, indeed, as a right. The best evidence that affirms this attitude lies in the trend toward on-line voting. Citizens must have access and technological knowledge to participate in a democracy equipped with such "conveniences."

The Discourse of Stay-Caught-up-Mentality (SCUM)

Another aspect associated with technology feeds on the human fear of falling behind and the subsequent human drive to stay caught up. In this discourse, technology represents the best, most innovative, up-to-date resources available. If inventors can put cameras in phones, then it must be done. If it is possible to be hooked up and wired in 24/7, then that person or business will have the advantage. Technology's promises stand beckoning us onward, a wisp of a dream just out of our grasp. But, we must keep grasping because we must stay caught up, or be left behind. This is the stay-caught-up-mentality (scum) directly connected to the modern notion of progress.

NCLB explicitly defines technology as "*state-of-the-art* [italics added] technology products and services" (p. 1966). The law encourages using technology for "timely access through electronic means" (p. 1671). Teachers of limited English proficient students are encouraged to participate "in electronic networks for materials, training, and

communication, incorporating information derived from such participation in curricula and programs" (p. 1709). *NCLB* also promotes that States fund professional development that integrates "advanced technologies, including emerging technologies, into curricula and instruction and in using those technologies to create new learning environments" (p. 1679). This language associates technology with the latest, most progressive, and sophisticated approaches or products, and, as a result, expresses the desire to stay caught up, perhaps even to surpass, competitors.

In *Preparing Tomorrow's Teachers to Use Technology*, the law repeatedly states that teachers should be prepared to use "advanced technology" (pp. 2081-2083). It also identifies that funds should be expended to help potential teachers "learn the full range of resources that can be accessed through the use of technology" (p. 2082). It further refers to "educational technologies and their *potential* [italics added] for use in instruction" (p. 2083). This portion of the law additionally promotes "developing alternative teacher development paths that provide elementary and secondary schools with well-prepared, technologically proficient educators" (p. 2083). This seems to imply that people in fields other than education, like in business and industry, are more technologically advanced than traditional educators. Therefore, bringing in alternative certified teachers will inject needed outside expertise and allow schools to catch up with other facets of the economy. Just as their technology denoted that the colonists were superior beings, from the gods even, today technological knowledge confers status.

In an unusual turn today, we see the language of colonization being applied to the educational landscape. Education is the "third world" that needs to be saved by the ingenuity of business and industry, in general, and technology in particular. Educators,

or teachers, are set up as technological illiterates who must be subjected to extensive training to bring them up to speed, to improve them. In the very first paragraph of his screed against public education, Hirsch (1996) identifies the prevailing attitude that has found a voice in *NCLB*: "Although our political traditions and even our universities may be without peer, our K-12 education is among the least effective in the developed world" (p. 2). And, of course, when he says "universities" exhibit quality, he excludes "education" faculty from that, for they originated in lowly "Teachers Colleges." Hirsch describes education professors as "lesser breeds," downright charlatans," and "kitten[s] that ought to be drowned" (pp. 15-126). These "slink[ing]," "wounded," and "isolated" shells of humanity focus on form and pedagogy because subject matter was taken from them when they were incorporated into larger, "real" universities (p. 117). Just as early Europeans depicted indigenous Americans as helpless and desiring help, teachers and administrators today are represented as incompetents who need to be "saved" by private industry or alternative certified individuals.

In the rush to stay caught up, the law also encourages parents to learn and apply technology skills. First, it advocates employing the Internet and modern technology to educate students and their parents about Native American contributions and issues (pp. 1845, 1847). Second, it directs schools to help parents learn to access and operate the technology applied in their children's education (p. 1859). The first is a fairly traditional direction, employing the tool of technology to deliver information content. This is also promoted in Title II, D, purpose seven: "to support local efforts using technology to promote parent and family involvement in education and communication among students, parents, teachers, principals, and administrators" (p. 1671).

The second goal points to another issue, however: the need for parents to stay caught up with their technologically advanced students. The section on migrant education addresses the need "to provide materials and training to help parents to work with their children to improve the children's achievement, such as literacy training and using technology as appropriate, to foster parental involvement" (p. 1504). This is a unique rhetorical turn that reflects a "stay-caught-up-mentality" (scum) defined in two ways: 1. the need to stay caught up with students who already can use computers better than adults and 2. the need to stay caught up with the technology in the "real" world, so students (children) can compete in the work place.

Embedded in scum is the notion that schools must stay caught up with the other technology that students use daily. Because students have grown up immersed in a technological world, it is assumed that they are much more proficient than most teachers. Schools compete with entertainment, video games, television, and the Internet. Technology is so ubiquitous that adults must contend with it and use it in school. This is an attitude described by Facer, Furlong, Furlong, and Sutherland (2001) in what they term "the mythical child who is already moving into the digital future" (p. 96), a child that is *Growing Up Digital* (Tapscott, 1998) with a "passionate and enduring love affair with the computer" (Papert, 1993, p. ix). In this world, the children use computers naturally and, in fact, with superiority to their parents and teachers: students are ahead of teachers.

A second way that schools must stay caught up is to prepare students to enter the technological work place. This connects to the call for literacy. A technological world necessitates that schools keep students moving ever upward in the spiral of technological

progress, to stay caught up. Exposure to technology is assumed to benefit students in the long run because they will be computer literate and more prepared to go out into the "real" world. This sums up the conflict present in many schools. Administrators and teachers feel the push from the business community, parents, and politicians "to stay caught up"; if "we will run faster . . . stretch out our arms farther . . . " (Fitzgerald, 1925, p. 182), we will achieve a "bold new world." Again, as Ulmer says, "The frontier metaphor is in our habits, our conduct, our emotions, in curiosity itself" (p. 31).

Since *A Nation at Risk* added it as the fifth basic skill, technology literacy has become a key component of major reform legislation, a focus that is a by-product of scum. *NCLB* is no different; it calls for technology literacy for both teachers and students, an impulse that arises from the desire to maintain American economic dominance in the new global economy. The language of the "new global economy" functions as an attempt to create all others in the image of the American market economy. Constructing an identity for all students as always-already consumers of technology is one result of this impulse. Such a construction manufactures a social reality of the future, a future of increasing technological dominance where students and teachers must have technological literacy to function: the future perfect.

First, *NCLB* promotes reforming teacher and principal certification to ensure that "teachers have the subject matter knowledge and teaching skills, including technology literacy, and principals have the instructional leadership skills, necessary to help students meet challenging state student academic achievement standards" (p. 1625). States must also create plans to ensure that teachers and principals "are technologically literate" (p. 1676). In a third excerpt, the law provides for training "[principals and] teachers to

integrate technology into curricula and instruction to improve teaching, learning, and technology literacy" (pp. 1629, 1632). This last example does not clarify for whom technology literacy applies, teachers or students. What is important, though, is that the sentence structure gives technology literacy equal standing with teaching and learning. So, how does the law define teaching and learning? Do not both teaching and learning encompass multiple skills, reading and math literacy, for instance, as well as technology literacy? Specifying and including technology literacy calls attention to and highlights technology's importance and, therefore, privileges it.

Title II, D directly addresses student literacy by calling on schools "to assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability" (p. 1672). In addition to this requirement, local applicants for the competitive Title II, D grants must describe "how the applicant will use Federal funds…to improve student academic achievement, *including technology literacy* [italics added], of all students" (p. 1677). As a recent report commissioned by the U.S. Department of Education concludes, "The level of emphasis placed on education technology in the legislation [*NCLB*] reflects a growing consensus among educators and the public at large about the importance of technological literacy" (Culp, Honey, & Mandinach, 2003, p. 1).

Final Thoughts

This chapter introduces the data from *NCLB*, including what relates to technology as system and technology as machine viewed through the lens of three areas, categories, or discourses: accountability, the quick fix, and stay-caught-up-mentality (scum). The

concept of accountability with its focus on standards and assessments is comprised of man-made mechanisms designed to control the school environment and set it on its proper course. Seen in this light, the discourse of accountability is primarily a socio-political discourse that focuses on not only achieving perfection but also providing the data to prove it, data that is defined, determined, and deployed by humans. As the Edwards Deming slogan, now popular in education circles, asserts: "In God we trust—All others must bring data." The discourse of accountability with its focus on standards, assessment, measurement, and efficiency is not only a technology (as system), but it also pulls technology (as machine) into itself to support and prop it up. This is a great irony that demonstrates technology begetting technology.

Technology as machine within *NCLB* exposes similar inclinations. The emphasis on data-driven decision making shows another layer of technology begetting technology as well as the efficient ordering of all student knowledge into numbers. These three areas—accountability, the quick fix, and scum—instead of representing three self-exclusive categories, each encapsulates the other, almost like matryoshkas, Russian nesting dolls. Brightly painted, hollow wooden figures, these dolls come in a set, and each has roughly the same shape, typically humanoid, but a different size. When the set is assembled, the biggest doll contains the second-biggest doll, the second-biggest contains the third-biggest, and so on.

Like the matryoshka, which looks quite simple but is full of unexpected surprises, the discourses of *NCLB* have many layers. Of the three discourses identified in *NCLB*, their differences lie in how they are configured. While each can be a separate linguistic discourse, they each borrow from and live off the metaphors and assumptions buried in

another. Accountability will help us stay caught up; it is the quick fix. Of the many quick fixes, accountability is one that will fulfill that role for education and will help students and teachers stay caught up. Accountability subsumes into the quick fix fixation that subsumes into the stay-caught-up-mentality. As Wittgenstein (1957) says, "The meaning of a word surrounds the working of language with a haze that makes clear vision impossible" (p. 4). While this analysis of the words and categories within *NCLB* may not clarify the law, I hope that it, at least, has demonstrated the multiple layers of complexity present in the law. The next chapter will turn to the contradictions and inversions that arise out of this complexity.

CHAPTER FIVE

CONTRADICTIONS AND INVERSIONS

> "I know what you're thinking about," said Tweedledum; "but it isn't so, nohow."
>
> "Contrariwise," continued Tweedledee, "if it was so, it might be; and if it were so, it would be; but as it isn't, it ain't. That's logic." (Carroll, 1896/1960, p. 158).
>
> "Gentlemen! You can't fight in here. This is the War Room."
> *Dr. Strangelove* (1964)

In the famous Stanley Kubrick (1964) film *Dr. Strangelove: or How I Learned to Stop Worrying and Love the Bomb*, the President utters these words of great irony when he admonishes advisor General Turgidson, played by George C. Scott, and a Russian who come to blows while in the War Room. Another key moment in the film shows American troops battling each other at Burpelson Air Force Base in front of a large sign that reads "Peace is our Profession." This movie takes a serious and frightening premise, the potential of nuclear war and the obliteration of the human race, and puts a humorous twist on it by showing the absurdity of the situation, the contradictions and inversions inherent in the logic that says we deter nuclear war by building more nuclear bombs; we accomplish peace by fighting wars.

NCLB addresses another hauntingly serious topic: equitable opportunity for American students. This law unintentionally shares some similarities to the cold war film classic, as, I suppose, Edelman (1988) would contend that all policies do. Couple the

contradictions inherently present in policies with the inversions that always accompany technology, and irony reaches its full potential in *NCLB*. In this chapter, I will analyze the contradictions and inversions present in *NCLB*, viewed through the frames of accountability, the quick fix, and stay-caught-up-mentality (scum).

Contradictions

NCLB, instead of reflecting coherence and wholeness, mixes many contradictory voices. These contradictions uncover the social embedding and incoherence in the discourses of accountability, the quick fix, and scum. Such contradictions destabilize the text and negate its claim to scientific rationalism. Contradictions stand as negations, and such discrepancies present a reality based on lies. To distract readers from this incoherent undertone, the law must repeat the hollow refrain of "scientifically based research" to try to create a false sense of order, harmony, and cohesion. Listening to the contradictions, though, allows the voices that proclaim the law's instability to be heard.

Accountability

As the data presented in Chapter Four makes clear, the key component of accountability within *NCLB* is assessments, and here rests one of the primary contradictions within the law. While the repetition of *assessments* (plural) multiple times seems to represent an attempt in the law to allow a broad interpretation, the result has been a very narrow interpretation by states, a resulting contradiction that Edelman (1988) identifies as inherent in all policies. Except for the state of Nebraska, which has received permission for a portfolio assessment (Kjos, 2004), every state has implemented standardized, multiple-choice tests. Some have even adopted a Norm Reference Test (NRT), which has little connection to their state standards and can never show the

Adequate Yearly Progress (AYP) required in the law because of the very nature of an NRT (Darling-Hammond, 2003). Such a narrow interpretation should come as no surprise, though, especially since the Texas system with its high-stakes standardized tests served as a model for *NCLB* and since the current President and congressional leaders articulate such a narrow definition. President Bush (2001), in a press conference soon after the signing of *NCLB*, stated,

> Real education reform reflects four basic commitments. First, children must be tested every year in reading and math. Every single year. Not just in the third grade or the eighth grade, but in the third, fourth, fifth, sixth and seventh and eighth grade … states should test each student each year. Without yearly testing, we don't know who is falling behind and who needs help. Without yearly testing, too often we don't find failure until it is too late to fix. (p. 2)

Rod Paige (2001), Bush's Secretary of Education, followed up with an article in *The Washington Post* titled *Why We Must Have Testing*. His article opens by evoking the discourse of *A Nation at Risk* that says our education system is in crisis, but, he implies, testing will fix the problem: "Anyone who opposes annual testing of children is an apologist for a broken system of education that dismisses certain children and classes of children as unteachable. The time has come for an end to the excuses, for the sake of the system and the children trapped inside" (p. B07).

Despite repeated reference to plural *assessments* in *NCLB*, a single interpretation for the word exists in law as well. Under its General Provisions, the *Act* identifies that determination of student achievement level shall be based on "identifying the knowledge

that can be measured and verified objectively" (p. 1903). Further, the assessment and accountability provisions are written with standardized tests as the operating assumption, the norm. For example, in the excerpt above, the law directs that the yearly academic assessments in reading or language arts, math, and science will serve as "the primary means of determining the yearly performance" of the education establishment's (state and local) success or failure in "enabling all children to meet the State's challenging student academic achievement standards" (p. 1449). Such language awards the one-time, one-shot annual assessment primacy, for it alone will determine whether the school succeeds or fails.

In a "Special Rule" section, the law specifies that "additional measures" may be employed as assessment, but

> may not be used in lieu of the academic assessments required under paragraph (3). Such additional assessment measures may not be used to reduce the number of or change, the schools that would otherwise be subject to school improvement, corrective action, or restructuring under section 1116 if such additional indicators were not used, but may be used to identify additional schools for school improvement or in need of corrective action or restructuring except as provided in paragraph (2)(I)(i). (p. 1452)

This statement sets up two assumptions: all assessments are created equal, but eerily, as George Orwell (1956) said in *Animal Farm*, "some are more equal than other" which is to imply that all states will be trying to cheat the system. The law allows the additional measures to be used to punish but not to reward (by removing a school from the school

improvement "list"). Such an approach seems to flow from one of the underlying assumptions embedded in the essence of accountability: A higher authority must always be monitoring to make sure that everyone stays on the correct path. In this example lies an assumption that States will try to cheat if schools are identified as failing. Even more disturbing, this emphasis on surveillance and control neutralizes or dismisses the most valuable components of the education process: what teachers know about students, knowledge that is content- and context-specific and experiential, not scientifically based.

Moreover, the law indicates that these assessments should "enable itemized score analyses to be produced and reported, consistent with clause (iii), to local educational agencies and schools, so that parents, teachers, principals, and administrators can interpret and address the specific academic needs of students as indicated by the students' achievement on assessment items" (p. 1452). Not only does the single assessment determine the success and failure of the school and, by extension, those individuals that reside within it, but it also quantifies student needs by reducing students' knowledge or deficiencies into itemized score analyses.

The Quick Fix

Contradictions exist within the context of the quick fix as well. *NCLB* promotes access to and use of technology to improve teaching and learning although the law recognizes that proof of such a connection does not exist; the quick fix is not a guaranteed fix, after all. One purpose of Title II, D points to this disjuncture. The *Act* will "support the rigorous evaluation of programs funded under this part, particularly regarding the impact of such programs on student academic achievement, and ensure that timely information on the results of such evaluations is widely accessible through

electronic means" (p. 1671). Likewise, an additional goal encourages "the effective integration of technology resources and systems with teacher training and curriculum development to *establish* [italics added] research-based instructional methods that can be widely implemented as best practices" (p. 1672). This statement reveals one of the big silences or gaps about technology that exists in *NCLB*. Title II, D further instructs states that they can "assist recipients of funds under this subpart in providing sustained and intensive high-quality professional development based on a review of relevant research in the integration of advanced technologies" (p. 1679). One phrase is absent from this statement, a phrase that comprises a part of all other references to professional development: the requirement that it be grounded in scientifically based research.

Two additional portions of the law point to this disjuncture. First, the definition for professional development includes 15 activities. One acceptable activity involves advancing "(vii) teacher understanding of effective instructional strategies that are (I) based on scientifically based research (except that this subclause shall not apply to activities carried out under part D of title II)" (p. 1963). Second, Title II, B advocates partnerships between common and higher education to create opportunities for professional development that promote "strong teaching skills…including integrating reliable scientifically based research teaching methods and technology-based teaching methods into the curriculum" (1645). These two examples represent portions of the law, in particular, where the language becomes very problematic. The law operates on the assumption that technology will improve student achievement while at the same time it sets up the means to gather data on effective practices. Yet, it exempts technology from

the scientifically based research requirement, a requirement that applies to all other activities and programs funded under the law.

In the second textual excerpt above, combining the two phrases with the conjunction *and* sets them up as two separate entities, binary opposites, and, as such, positioned within a system of hierarchy. The preferred teaching methods constituted in *NCLB* include scientifically based research **and** technology-based teaching methods. This uncovers the text's subversion of its explicit declarations. While pieces of the law express a desire to establish scientifically based research studies of technology, an underlying assumption suggests that technology, because it is so innovative, new, and amorphous, transcends the established standard. It will be interesting to follow the law's implementation to see which impulse will dominate or if they can continue to coexist.

Why would science's favored child, technology, be exempt from fulfilling the scientifically based research requirement? The answer, partially, may lie in the push vendors have made to bring technology into the schools, resulting in situations that allow for questionable corporate relationships (David & Branigan, 2004; Hansen, 2003). Title II, D, subpart 2 sets up the requirement for a National independent, long-term study using:

> scientifically based research methods and control groups or control conditions—
>
> (A) on the conditions and practices under which educational technology is effective in increasing student achievement; and
>
> (B) on the conditions and practices that increase the ability of teachers to integrate technology effectively into curricula and instruction, that

> enhance the learning environment and opportunities, and that increase student academic achievement, including technology literacy. (p. 1682)

This research hypothesis assumes that technology will enhance education (as the title of this portion states). The researchers' task is to discover the best conditions and practices.

It also assumes that integrating technology will benefit the classroom, for the hypothesis focuses on the conditions and practices that increase a teacher's ability to integrate. The role of researchers is to uncover how technology best helps: not if, but how. A second assumption is that teachers do not integrate because they lack the ability. So, an understood linear progression present in the *Act* looks something like this: proper training and understanding of how to use technology = greater use = increased academic achievement. The four categories identified earlier—use, access, evaluation, and communication—reinforce this primary assumption: access + use = increased academic achievement. Technology's exemption from the scientifically based research requirements reveals a tension in the law between encouraging what is considered new and cutting-edge and demanding more rigorous evaluation of what works.

Not only does it exempt technology from this requirement, but the law also exempts those programs that align with the current administration ideologically. Money has flowed to groups that promote school privatization, computer programs to monitor implementation of *NCLB*, alternative forms of teacher certification, home schooling, and school choice (Dobbs, 2004). None of these recipients have been required to adhere to the scientifically based research requirement, but each has received millions of dollars in funding from the federal government.

Stay-caught-up-mentality (SCUM)

Contradictions also exist in scum. The main contradiction lies within the language and structures promoted by *NCLB*. Although it calls for literacy and skills so teachers and students can stay caught up with the demands of the changing technological economy, the law itself is based on old hierarchal systems and ways of knowing. While the law tries to gesture to the future, the very structures of its language and its promoted educational practices cause it to remain mired in the constructs of the past.

A section from the latest *Harry Potter* (2003) book may help to clarify this tendency. The *Harry Potter* stories focus on the misadventures of a boy growing up in two worlds—modern-day London during the summers and a fantastical private school for wizards in the other three seasons. In *Harry Potter*, readers find a story of struggle, magic, and adventure while discerning the important aspects of life. With five books now completed, in each succeeding version, Harry and his friends, Hermione and Ron, encounter increasingly dangerous predicaments and end up saving the wizard world in five different ways from a variety of evil villains.

In the latest novel, *Harry Potter and the Order of the Phoenix* (Rowling, 2003), Harry, Hermione, and George confront a new sort of monster that they must overcome and defeat: the government education agent dispatched to their school by the Ministry of Magic. When she arrives in the class as a replacement professor, Professor Umbridge taps her wand on the blackboard, and the following course description appears: "Defense Against the Dark Arts: A Return to Basic Principles" (p. 239). She then proceeds to criticize the previous instructors who have not "followed any Ministry-approved curriculum, [which] has unfortunately resulted in your being far below the standard we

would expect to see in your O.W.L. year." (p. 241). When questioned about any hands-on experiments that the students might perform during the course of the class, Professor Umbridge replies, "It is the view of the Ministry that theoretical knowledge will be more than sufficient to get you through your examination, which, after all, is what school is all about" (p. 243).

This excerpt from a popular children's novel points to the conflict and contradiction present in *NCLB*. While the language encourages innovation and promotes student skills for the twenty-first century workplace, the single assessment-based accountability system promoted by *NCLB* evolves from old systems and ways of knowing. Based on Foucault's work, Pickstone (2001) describes three ways of knowing that have influenced science, technology, and medicine in the modern age: describing and classifying, analyzing, and experimenting. He contends that these three ways of knowing have influenced, and continue to influence, how people view the world. *NCLB* embodies elements from each of these ways of knowing. By deconstructing their presence, we can uncover how these ways of knowing influence education policy directly and education practices indirectly.

First, seeing as a natural historian causes us *to describe* ways of doing things; recipes and how-to books of today fall into this tradition. Through the *NCLB*-required What Works Clearinghouse, the USDE (2004) provides the recipe book for successful education. Their website notes,

> The What Works Clearinghouse (WWC) gathers studies of the effectiveness of educational interventions (programs, products, practices, and policies). We review the studies that have the strongest design, and

> report on the strengths and weaknesses of those studies against the WWC Evidence Standards so that you know what the best scientific evidence has to say. (¶ 1)

The underlying assumption is that the cake recipe for classroom success can be described and replicated.

This way of viewing the world can generally be traced to the 1600s, and it is from this viewpoint we have inherited museums and branches of science that focus upon the *classification* of plants, animals, and even humans themselves. Sixteenth century scholars believed "that the essence of a thing could be revealed by the discovery of the word which truly signified it…. The seventeenth century set before consciousness this apprehension of Differentness as the problem to be solved [through] categories of order and measurement" (White, 1978, p. 241). Pagden (1982) describes the basic human need of early European travelers to understand and assign meaning to their new surroundings by naming: "Those who went to settle in this new world had to come to closer grips with the intellectual problems it presented. The most immediate of these was the need for some system of classification, for without such a system…no true description was possible" (p. 11). He goes on to relate that when descriptions and relational analogies proved inadequate, people resorted to the museum and the curiosity cabinet. Mullaney (1983) points out how collectors of the sixteenth century displayed their curiosities gathered from travels to exotic places in these curiosity, or wonder cabinets. The name *wonder cabinet* itself seems to license a difference, a sense of the exotic, whereas Western museums categorize and interpret cultural artifacts according to western standards. Reflecting a movement towards a greater codification of the strangeness

allowed in the wonder cabinets, the seventeenth century exhibits what Clifford (1986) discusses as "the emergence of an ideal self as owner," where collecting is "an exercise in how to make the world one's own" (pp. 217-218). Foucault (1983) discusses this method of "objectivizing" subjects through "dividing practices. The subject is either divided inside himself or divided from others" (p. 208).

These dividing practices thrive in *NCLB*. While the law hints at an appreciation for uniqueness and individual student learning differences, especially in sections that deal with education for Native American students, the law emphasizes possession and control of all students by funneling their differences into the same standards measured by a single assessment. Individual child development, cultural relevance, and children's potential contributions to classroom knowledge and interactions become irrelevant and pushed out by the language (and practice) of the standardized test. By assuming that all students are the same, facing the same issues, the law participates in the reification of the structure of imperialism by refusing individual students subject-status and, thus, their very essence of individual humanity.

Creating categories of achievement divides students and schools from others, and establishes a place where students become improved once they are categorized and controlled within the assessment-imposed hierarchy. Combine these notions with the twentieth century belief that all of nature and humanity can be numerically signified, and the result is the preeminence of the standardized test, a test that provides a single number to stand for, or signify, a student's knowledge and learning and, by extension, the students themselves. These numerical signs then fall into three categories: advanced, proficient, and basic (*NCLB*, p. 1445).

NCLB directs that States shall "publicize and disseminate to local educational agencies, teachers, and other staff, parents, students, and the community the results of the State review, including statistically sound disaggregated results" (p. 1487). Transforming students and their test scores into showpieces allows the government to possess them; they become a part of the collection of the national museum, permanently installed, knowable, but perfectly unknowable, in American education's vast wonder cabinet. By publishing school results, *NCLB* falls within the colonialist tradition of setting up the other as a spectacle, the freak for anyone to ogle, advertising a place to view the inferior other. The opposite also occurs. The dividing practice of identifying schools as failing or succeeding reinforces the succeeding schools' sense of superiority: "Of those schools meeting the criteria described in paragraph (2), each State shall designate as distinguished schools…Such distinguished schools may serve as models for and provide support to other schools" (p. 1500).

Identifying school failure (based on student and therefore teacher failure) offers opportunities for controlling the behaviors and the language of large numbers of people who wield little power (poor students, minority students, LEP students, teachers). Focusing on these failures reinforces established inequalities because it detracts attention from the funding inequities inherent in existing economic and social institutions. Failure serves not only to control and classify students but also to justify the unspeakable but thinly veiled secret that U.S. schools support a social hierarchy as disclosed in the classic Bowles and Gintis (1976) work *Schooling in Capitalist America*, which detailed the evolution of the modern-day social reproduction theory in education. Examining funding

inequities remains unpopular because such an examination could threaten existing power structures, challenging their inequalities. As Darling-Hammond (2003) explains,

> Because this nation has not invested heavily in teachers and their knowledge, the capacity to teach all students to high levels is not widespread. Furthermore, because of funding inequalities, low-income and minority students are routinely taught by the least experienced and least-prepared teachers in schools where curriculum resources are inequitable as well (Ferguson, 1991; National Commission on Teaching and America's Future, 1996; Oakes, 1990). Investments in teaching quality will be required before changes in assessment strategies result in more challenging and effective instruction for currently underserved students. (p. 5)

The seventeenth century desire to sort and classify manifests itself in *NCLB* in many ways.

Associated with the 1800s, the second way of knowing described by Pickstone (2001) focuses on analysis, of breaking down an entity into its component parts. Logic common to this way of thinking maintains that breaking something down and then assembling it again creates the same item over and over again, for the whole *is* the sum of its parts. This way of knowing focuses on inputs, outputs, and by-products that could affect large savings. The concept behind standards is that learning and knowledge can be broken down into its component parts: Input knowledge (transferred from teacher to student); Output test score (a number that represents the student's and/or school's

worthiness). This aspect has already been covered in some detail in Chapter III's discussion of standards.

Pickstone's (2001) third way of knowing, experimentalism, has reigned supreme during the twentieth century. Seeing the world through the eyes of an experimenter presumes the primacy of physical science that is justified by virtue of its mathematical sophistication, theoretical rigor, and experimental accuracy. These three components of modern thinking prevail in *NCLB*, which promotes best practices, accountability through standards and assessment, and scientifically based research. *NCLB* uses the term *scientifically based research* 65 times. Looking at this bias in the law would be another research project entirely, but my point here is that *NCLB* speaks the language of modernism with its structures of classification, rationalization, and experimentation. Such language completely contradicts the language of innovation, newness, and state-of-the-art. It also fails to fulfill the need supposedly at the core of this initiative: to allow disadvantaged students to stay caught up by preparing them for the twenty-first century.

A recent report by a coalition known as the Partnership for 21st Century Skills (2004) lists six key elements that students need to be prepared for the twenty-first century economy. At a recent Oklahoma Leadership Conference, Oklahoma State Superintendent Sandy Garrett (2004) summarized these six recommendations:

1. Core Subjects: Students must understand the core academic content.
2. Key Skills: Students must know how to use their knowledge and skills by thinking critically, applying knowledge to new situations, analyzing information, comprehending new ideas, communicating, collaborating, solving problems, and making decisions.

3. 21st century tools: Schools must incorporate information and communication technologies into education.
4. 21st century context: Schools must connect to students' lives beyond the classroom by using authentic, project-based learning.
5. 21st century content: Students should have global awareness, financial, economic, and business literacy, and civic literacy.
6. 21st century assessments: Schools should move beyond standardized testing as the sole measure of student learning and use a cocktail of assessments to develop a full range of skills in students.

Deconstructing the language of this list would be another project entirely, but it does serve to illustrate the major contradiction and irony within *NCLB*. Instead of providing the means to close the achievement gap for disadvantaged students and prepare them for a twenty-first century work environment, the requirements of *NCLB* drive an even deeper wedge between the haves and the have nots by focusing on assessment-based accountability.

Inversions

As Edelman (1988) points out, the third shared quality of "problems" addressed through policies, laws, and regulations offers a guarantee: although some of the actions required by policy may improve the condition of the constructed problem that has been identified, and some may actually make it worse, the policy will promote "inversions" of the value formally declared in the policy. An inversion creates a result that actually exacerbates the problem it attempts to correct. Tenner (1996) calls this the "revenge effect." In his medical example, he explains that the revenge effect differs from a side-

effect. A cancer drug's side-effect may make a patient lose her hair. If, on the other hand, the cancer drug causes a different but equally lethal cancer, this is a revenge effect. The inversions, or revenge effects, within *NCLB* are many. To review, the formally declared value of *NCLB* is "to close the achievement gap with accountability, flexibility, and choice, so that no child is left behind." I will now analyze the inversions in the law in the context of the three identified discourse constructions: accountability, the quick fix, and scum.

Accountability

Technology represents the human drive to master and control everything through objectivity. Objectivity, in this sense, means to take things and arrest them, objectify them (turn them into an object), and then compare them in relationship to humanity. This comparison demands that we attach a definition, representation, or signification to what has been objectified. The objectification can be any sort of entity, nonhuman or human. It is the role of technology, then, to impose order on this objectification, to process it, and to devise solutions that fulfill the ultimate desire for control.

In the discourse of accountability, knowledge is objectified and represented as singular, uniform, inert, and quantifiable; it can be identified, defined, articulated, and transmitted:

> There is an assumption that disciplinary knowledge, theories, and specific practices (reduced to skills), consist of and can be broken down into substantive units of various sizes, that they have an inherent logic and sequence and that if such knowledge or such theories, or such practices or

> skills that transmit the knowledge are worthwhile or excellent, they are so for all times, for all people, in all situations. (Taubman, 2000, p. 24)

Viewing knowledge as inert provides the first step towards reifying knowledge: "once knowledge is reified in this way, it can be manipulated and described in the same fashion that one is accustomed to manipulating and describing products (commodities) of all kinds" (De Lissovoy & McLaren, 2003, p. 133). Therefore, at one level, knowledge is objectified as what students learn or consume.

The next level of objectification occurs when students are denied subject status. Gunzenhauser (2003) details how identifying and defining standards serves to "normalize" students: "It is the task of the examination to determine deviations from the normal and to remake the individual as a set of examination scores" (p. 3). The ultimate purpose for standards and assessments involves "measur[ing] progress against common expectations" (*NCLB*, p. 1440). Through assessment, or examination, "The individual takes shape as a set of measures" (Gunzenhauser, 2003, p. 4). *NCLB* uses a version of the word *measure* 134 times in relationship to progress within schools as demonstrated by annual academic assessments.

Postman (1993) tells of the first instance of assigning a number to student knowledge. When William Farish gave a quantitative value to human thoughts, it was "a major step toward constructing a mathematical concept of reality … [and] our psychologists, sociologists, and educators … believe that without numbers they cannot acquire or express authentic knowledge" (p. 13). Postman proceeds to declare that it is peculiar that we expect more work from someone with an IQ of 134. Such numbers make sense to us, though, "because our minds have been conditioned by the technology

of numbers, so that we see the world differently" (p. 13). We see the world as quantifiable, and our students as itemized scores "to be produced and reported" (*NCLB*, p. 1452).

Increased reliance on standardized tests historically has been connected to early American social engineers' attraction to IQ tests. The tests served as useful "scientific" props by ignoring the inequality of the political economy and "blaming those inequalities on individuals and groups with low test scores" (Price, 2003, p. 717). Gould (1981) researches the beginning of the IQ test and its connection to craniology and the search for biological determinism. Baker (2002) extends this study as it applies to the modern eugenics movement, its effect on testing in schools, and the subsequent labeling of students as disabled. When students are divided and labeled, they are transformed into objects. They lose their individuality, their basic humanity. Dividing, ranking, and labeling students and schools ensures that *all* students will not succeed. Even though *NCLB* uses the rhetoric of equity, its singular definition of success (standardized testing), mired as it is in biological determinism, supports existing hierarchies and certifies failure.

Reducing students to a single number also provides a sense that we are able to classify and organize the world and to control its natural variance, chaos, and unpredictability. Echoing Taylor's crusade for scientific management, these elements of *NCLB* become seductive to politician's ears because they form a "transparent technology of control" (Gunzenhauser, 2003, p. 4). Let us look again at the six main presumptions of Taylor's work, presumptions that underlie the discourse of accountability, and ultimately control, within *NCLB*:

1. The primary if not the only goal of human labor and thought is efficiency.

2. Technical calculation is in all respects superior to human judgment.
3. Human judgment cannot be trusted.
4. Subjectivity is an obstacle to clear thinking.
5. What cannot be measured either does not exist or is of no value.
6. The affairs of citizens are best guided and conducted by experts. (Postman, 1993, p. 51)

The accountability movement's intractable link to the technology of testing appeals to our desire for control, efficiency, and perfection:

> Like colonialism before it, the activities associated with education assessment and testing have steadily advanced during the twentieth century to a point, where, at the present time, there can be no country and no mainstream school that is not subject to its sway nor any pupils, teacher or families who do not accept its importance. It is a remarkable conquest. (Broadfoot, 2000, p. ix)

Although it has become "the unquestioned arbitrator of value" (p. xi), the danger lies in the meaning assigned to the numbers generated from the tests. Gunzenhauser (2003) points out the "power" of measurements: "People now believe that it is possible to determine how well a teacher teaches, how well students learn, and therefore the quality of a school" (p. 4). Technology as system commandeers the natural world, transforms it for human use, objectifies it, and by objectifying, takes control of it. The next step in the process moves beyond the objectification itself and focuses entirely on its use—the challenging forth, that Heidegger describes. The "technology" so enframes us that it configures all things only in the possibility of their use. In such a move, the object

disappears, and all that is left is the potential use—the transaction between the constructing subject and its constructed object. The focus and value then lie in relation, a relationship that the subject has defined, inscribed, and controls. Meaning and value result only from the entities being able to serve some end that will itself be directed toward getting everything under control. As popular newspaper columnist Raspberry (2004) reports, one friend said of our current political state: "we're slowly eroding our fundamental humanity. We've become so merchandized that no one even gives a genuine damn about people anymore" (p. A19).

In the technology of the test, dangerous consequences lie in the human response. Instead of recognizing the test and its resulting numbers for what they are, people assign value that then has profound and lasting effects upon those who have been so signed: "Tests do not simply measure existing realities but, instead, literally create them" (Hanson, 2000, p. 68). How students perform on these tests can have lasting effects through school and through life as the students struggle to fulfill the label that has been applied. Defined only by their potential "usefulness," students understandably feel useless and worthless. Education accommodates the technology as system by confining, limiting, and defining what is possible within the construct of what technology makes allowable. In other words, we are ourselves transformed into the instruments of our own technologies. The technology of data gathering and analysis both extends and restricts. For example, through technology data can be quickly gathered and instruction immediately individualized based on revealed needs. The only restriction lies in the design of the assessment and/or the software program. The design controls what kind of data is gathered and how the results are configured. Sometimes, users forget that

"testing, like every other technology, is a human artifact, an artificial construction whose design reflects a limited set of prior technical constraints and a limited set of values within a particular world view" (Madaus & Horn, 2000, p. 52). Erasing the human creative component from the testing equation sets up a false sense that science—clean, pure, and uncomplicated—produces results free of human bias and subjectivity. This illusion serves to mask the test's white, western, upper middle class slant.

It is at this level that we see the most pernicious quality of the accountability discourse of *NCLB*: The focus on tests reinforces and reifies a multi-tiered educational system. The tests cannot adequately represent what students need to know to succeed in college or in other post-secondary opportunities. While mostly wealthy districts will continue to provide enriched opportunities for their students, other districts, with fewer resources and mostly serving low-income families, will tend to narrow the curriculum and instruction to test preparation in desperate attempts to avoid sanctions, public censure, and extinction—all under the guise of increased quality, equity, and results. This is the most dangerous aspect of the law. Proclaimed to be a law to equalize opportunity, the very ideology upon which it is based ensures that the exact opposite will occur. The Texas example (Editorial, 2003; Klein, Hamilton, McCaffrey, & Stecher, 2000) and the Arizona State study (Amrein & Berliner, 2002) illustrate this inversion. Additionally, Darling-Hammond (2003) provides sobering details of the standards/testing debacle in Georgia, Florida, Massachusetts, and New York. Already, as Darling-Hammond reports, "In states where 'high stakes testing' is the primary policy reform, disproportionate numbers of minority, low-income, and special needs students have failed

tests for promotion and graduation, leading to grade retention, failure to graduate, and sanctions for schools" (p. 1).

Despite these indications, the discourse of accountability conceals its very essence, entrapping by disguising itself as a "revealing" of school, student, and/or teacher success. The order that it sets into place, test scores as representation or signification of student knowledge and, thus, of teacher and school effectiveness, actually blocks the desired enabling—the opening up of knowledge. The danger lies in that all other options and possibilities are driven out by one single signifier, one single Truth, narrowing the very definition of humanness, which becomes sucked up into the essential number, valuable only as an instrument ready for use or to be discarded because it is not proficient.

The Quick Fix

Carnoy, Elmore, and Sisken (2003) describe "more assessment and greater accountability as a 'political quick fix'—a means of demonstrating to taxpayers that they are getting reasonable value for their educational dollar" (p. 15). An assumption associated with the quick fix reflects the language of social progress and efficiency. Title II, A supports "the development of proven innovative strategies to deliver intensive professional development programs that are both cost-effective and easily accessible, such as strategies that involve delivery through the use of technology, peer networks, and distance learning" (p. 1623). A second such reference follows: "development and use of proven, cost-effective strategies for the implementation of professional development activities, such as through the use of technology and distance learning" (p. 1632). This drive for cost-effectiveness directly contradicts the extensive amount of money that is now being spent on technology in schools. As the review of literature in Chapter II

illustrates, during the last decade, technology expenditures tripled in K-12 schools in the United States. Also, the very nature of technology as it now exists requires constant updates that then necessitate new expenditures needed in order to stay caught up.

Moreover, technology, as system or as machine, can never fulfill this promise because of its very nature. The more powerful systems become, the more human time it takes to maintain them. This is one important and ironic hidden catch of technological improvement: the promise of speed and efficiency, of a quick fix, cannot be fulfilled through technology. Computers and state-of-the-art technology can never be efficient, as *NCLB* insists, because the hardware that supports technology constantly implodes in value. The retail value of computers is listed as "salvage" or "surplus" within three years. Resale value drastically declines in a short period of time, but the price for replacement does not decline. Entry-level computers may have decreased in price, but if a school or district wants the "state-of-the-art" product, it will still pay around $1,500. Of course, cheap computers today can do what the $1,500 computer of yesterday could do—and then some. But, the cheap computers also come with increased risks because they can quickly become socially obsolete, resulting from new standards and capacities, and be unable to efficiently run new, updated releases of software. This obsolescence (be it planned or otherwise) can occur within a year, if not within months. Sometimes, too, upgrades disappoint because they bring with them potential problems that slow down use or require additional maintenance.

Requiring and utilizing data also defy the insistence upon efficiency. As Tenner (1994) points out, when IBM convinced corporations to modernize their bookkeeping in the 1950s, such a move did not translate to cost savings. IBM was able to downsize the

accounting staff, but costs increased in another area: They had to hire more programmers and technicians to care for the new systems. Technology always has a built-in need for care and maintenance. Today, in education, schools and States are adding Accountability Officers (directors, assistant superintendents, etc.) and staff to input and manage the data necessary to feed the insatiable requirements of *NCLB*. Teachers and administrators now spend a significant amount of time performing clerical functions that actually result in a decline in effectiveness and productivity. Additionally, States and school districts are investing in data management systems to help them keep track of each individual child as required in *NCLB* (Data management, 2004; Murray, Nov/Dec 2003; Top 10, 2004). Other expenditures include the millions of dollars invested in expensive systems of testing, test design, test contracts, training for test implementation, test security, realignment of curricula to match the tests, and the production of test-prep materials and software. Price (2003) describes this industry as "rolling across America like a fleet of ambulance chasers pitching textbooks, worksheets, and bric-a-brac designed to help districts more effectively teach the test" (p. 718).

So, while technology may promise a quick fix through efficient simplification of student results, it is actually an addition of all kinds of programs, files, and their logistical problematics hidden behind an organized façade. This is not to deny that technology does not simplify some tasks and allow more to be done than could have been before. That would be a naïve claim. But, assuming technology's guaranteed efficiency is equally naïve.

Besides, "fixing" can never be accomplished. Discontent with experts who promise the quick fix through change, improvement, or progress depends upon a sense of

entitlement to progress, the fulfillment of the American dream. When promised fulfillment does not follow (which it never can), it yields impatience, indignancy, and disappointment. As quoted earlier, too often, education reform has been a "quest" for the "one golden way to intervene that would be both simple and cheap" (Schorr, 1997, p. 319). However, as Sarason (1996) points out, "changing any important feature of the school culture is no easy affair, a conclusion that may well be the understatement of the century" (p. 333). Education reform is not quick, and education's "problems" will never be fixed.

SCUM (Stay-caught-up-mentality)

Since *A Nation at Risk* (1983) added it as the fifth basic skill, technology literacy has become a key component of major reform legislation, a focus that is a by-product of scum. *NCLB* is no different; it calls for technology literacy for both teachers and students, an impulse that arises from the desire to maintain American economic dominance in the new global economy. A recent ETS study calls for better preparation of K-12 students, for without it "America's premier economic position and global competitiveness could be in jeopardy" (Ewing, 2004, p. 1). Global, in this sense, translates as the process of spreading objects, experiences, indeed, whole ways of life to people worldwide. This colonization and the resulting homogenization of the world has traditionally destroyed pre-existing cultures and local eccentricities and is best emblemized by GE, McDonald's, and Wal-Mart. The move to include technology literacy, a "civilizing" influence, into the traditional curriculum comes out of this discourse. The dominant culture gives the "other" what they need to make them civilized, to help them get caught up with the more advanced civilization. The resultant

collective self-image reflects the definition that technology makes a person better, more marketable, and more productive. Staying caught up will deliver on the promise to maintain the American way of life, to provide life, liberty, and the pursuit of happiness.

In *NCLB*, however, we find something completely antithetical to this. Instead of life with all of its complexities, the world of *NCLB* offers the cold exactitude and resulting exclusivity of numbers. Instead of liberty, it circumscribes students as numerical scores and potential technology users and consumers to serve the economic machine of capitalism. Instead of the pursuit of happiness with its multiplicity of individual meanings, it promotes the pursuit of unattainable perfection—modeled on a system of competition and classification, a model that guarantees winners and losers. Although the law proclaims no child left behind, its reliance on standardized tests reinforces a hierarchy based on merit, a meritocracy. Within a testing meritocracy, when everyone begins to succeed in meeting the arbitrary standard that designates success, the bar is raised; the level of the cut score is increased. After all, such an approach embodies the very essence of the American dream. If it were possible for everyone to succeed at this arbitrary level, what then? If the dichotomy of winner/loser, colonizer/colonized were to collapse, would the American dream fall apart?

Instead of freeing all students to learn and achieve, such a "brave new world" enslaves them (and, by extension, society) by squeezing them into preordained categories: advanced, proficient, basic. Schools cannot serve by providing a disservice, by promoting perfection instead of recognizing the role that failure can play in helping to promote change and growth. The Botox version of education smoothes out the ugly wrinkles of human difference by subsuming all of student diversity into a single,

numerical signification that is then categorized into a hierarchy of perfection; schools must look beyond the cosmetic if they truly want to help all students.

Final Thoughts

Based on a desire to ensure equitable opportunities for all students regardless of race, socio-economic status, gender, or language proficiency, the goal and purpose of *NCLB* is noble: to close the achievement gap with accountability, flexibility, and choice, so that no child is left behind. However, while some may see this policy as a civil rights document and a call to action, the contradictions and inversions within the law defy such a description.

To review, the law first claims to provide accountability through assessments that help to identify student needs. However, the law's firm focus on single, annual, standardized assessments contradicts this goal. Second, the law promises to close the achievement gap through scientifically based, research-proven methods. The exemption and privileging of technology from that requirement undercuts the law's credibility. Third, *NCLB* promises to cross the digital divide by providing necessary skills for all students to stay caught up, so no child is left behind in the twenty-first century economy. Using language and systems mired in the modern, hierarchal ways of knowing defeats this effort and keeps the law stuck in a system that promotes inequality and biological determinism.

Not only do elements of *NCLB* generate inner contradictions, but some aspects also completely destroy the policy's entire premise and actually encourage practices that harm students. Instead of lifting disadvantaged students out of their circumstances, elements of the law push them further down into failure and despair. First, narrowing all of student

potential into a single numerical signifier objectifies and dehumanizes them. Second, a quick fix is an illusion of reform that panders to our American desire for fulfillment, completion, and closure. Promising efficiency through technology (as system and machine) is always an empty promise, for technological fixes reliably introduce other problems, issues, or results that then have to be paid for and resolved. Third, technology cannot prepare us for an unknown future because the competitive drive to stay caught up will never be satisfied. The future opens endlessly as a deferred presence that can never be anticipated. The Greeks give us the story of Tantalus, the man perpetually doomed to crouch submerged in water but never able to take a drink, to stand almost within reach of luscious fruit, but never able to partake. Like Tantalus, America's cultural desire to stay caught up is an illusion always just out of reach. Promising destinations or final answers will always disappoint and then the hope for the future perfect will wave us on to the next horizon.

CHAPTER SIX

DISCUSSION & RECOMMENDATIONS

> Thinking can never be…a closed system. Rather it is the traveling of a road. Each thinker goes along a way that is peculiarly his own. In a fundamental sense it is the way and not the individual that assembles what is thought, that provides bounds and lets everything stand in relation to everything else. (Lovitt, 1977, p. xv)

The objective of this research was to uncover what underlying values and assumptions about technology drive recent federal legislation, how education policy has constituted technology, and with what effects. Connected to this central problem statement were the following research questions:

- What values, assumptions, and definitions of technology emerged from the *NCLB* reform legislation?
- In what ways does the language of recent education reform legislation privilege technology?
- Ancillary questions include:
  - What definitions are revealed? How is technology represented?
  - What criteria do the policy texts set up for funding allocations and monetary penalties for schools?

- What cultural values do they promote and support through financial allocations or penalties and/or through the programs supported?
- What "cost" (economic, political, and social) to education comes with privilege? What knowledge and behavior is valued and rewarded?

To explore these questions, I employed discourse analysis to look at potential influencing factors for the underlying assumptions and values embedded in the decisions.

Past policy study has focused on predicting possible outcomes to enable policymakers to choose the most efficient course of action. Discourse analysis provides a methodological and analytical tool that redirects the focus from prediction, efficiency, and control to complexity and chaos. I have conducted this study not to provide definitive answers to educational problems but to generate dialogue about the complexities of policy and change and to promote greater awareness of policy as discourse among those involved in policy creation and implementation. While such textual analysis does not include the actions that create consequences in local schools, it does provide the necessary analytic and theoretical foundation upon which to base such an investigation. Indeed, a study of policy implementation would build on the theoretical groundwork laid out here and would naturally be the next step for such a study. Since policy solutions construct particular identities for students, another research study might examine how such policies define, constrict, and essentialize student identity in prescribed categories.

This method of analysis directs attention to the production of Truths and the privileges afforded these Truths. Such an analysis traces and describes the processes involved in policy formulation. Instead of generally accepting that "influence" shapes

policy, discourse analysis investigates and illustrates the deployed modes of argument including compromises, contradictions, and inversions. For example, the calls for standards and accountability have increased both in volume and frequency over the past decade. Since *NCLB* solidifies and privileges these calls, it will be interesting to watch the unfolding research projects over the next decade. Will subsequent studies increasingly narrow the focus of education? What questions will be silenced and why?

By encouraging both educators and policymakers to understand the broader context in which policy is developed and enacted, this study opens the door for uncovering various policy elements that can create particularly onerous barriers for classroom success and for analyzing how policies can potentially disadvantage the very group of students that they intend to protect. This lens could provide the means for exploring how other policies, like the Pell grant or student loan legislation, may actually function to discourage student participation or to privilege and promote particular areas of study over others. An important question remains, "whose interests are served?"

Discussion

Because the process demands it, this chapter brings me to an end. I entered the conversation about education policy and technology *in medias res*, and now I will exit from the path without a sense of closure, finality, or ending, for the conversation about education reform shall continue to flow onward. While in the conversation, I pulled together multiple perspectives as I looked at *NCLB* and the discourses it produces, promotes, and thus privileges. For this exploration, I borrowed a technique from Wallace Stevens, a twentieth century American poet who was also a man of law. I suppose living a life of such plurality provided a useful framework for his famous poem "Thirteen Ways

of Looking at a Blackbird" (1970). Like a cubist painting, each of his poem's 13 stanzas displays one aspect and/or perspective of the blackbird: the eye, the beak, its whistle, a shadow, etc. William Faulkner (1977), Nobel Prize for Literature recipient, refers to this poem in one of his conversations with students at the University of Virginia:

> I think that no one individual can look at truth. It blinds you. You look at it and you see one phase of it. Someone else looks at it and sees a slightly awry phase of it. But taken all together, the truth is in what they saw though nobody saw the truth intact . . . . It was, as you say, thirteen ways of looking at a blackbird. But the truth, I would like to think, comes out, that when the reader has read all these thirteen different ways of looking at the blackbird, the reader has his own fourteenth image of that blackbird which I would like to think is the truth. (pp. 273-274)

Like Stevens, I have presented multiple ways of looking at, thinking about, and talking about education politics, policy, and power, and technology's role in each of these.

The result does not present coherence or singularity, for in this project viewed through my chosen theoretical frame, such a result is neither possible nor desirable. Rather, it focuses on convergence, inconsistency, contradictions, and inversions. The data converges upon three main areas, which I named the discourses of accountability, the quick fix, and the stay-caught-up-mentality (scum). A fourth area identified in Marshall, Mitchell, and Wirt's (1989) study that converged with the language of *NCLB*, equity, weaves in and out of the three discourses explored in this study and exposes inconsistencies and contradictions within the law. While claiming to be a law enacted to

ensure equal opportunities for all students, certain components of the law contradict and, at times, completely undercut this stated goal.

Looking at *NCLB*'s language and analyzing its stated goals and purposes has exposed the processes through which policies practice, operationalize, and support the values inherent in such discourses. The discourses of accountability, the quick fix, and scum designate what is and what is not acceptable and appropriate in education by privileging both technology as system and technology as machine. Unfortunately, this privileging ultimately increases inequities for children and supports an unjust educational system. A law that proposes embracing all children in a cloak of achievement instead smothers their individuality by reducing their achievement into a single numerical signifier, the standardized test score. These scores then become the signifier of student achievement and produce student identities. As Apple (2003) reminds us, "The state produces policies but it, too, 'produces' people. How do we counter the identities being produced?" (p. 17). In *NCLB*, all knowledge has been essentialized, and students are objectified and transformed into future potential for the market economy, as future users and consumers of technology. To demonstrate their potential success, they are further essentialized and transformed into a series of numbers representing success and failure on standardized tests. As Ball (1994) predicts, "we take up the positions constructed for us within policies" (p. 22).

E. B. White's famous essay about his identity defined through numbers comes to perverse fruition in *NCLB*. White, probably better known today for his children's novels *Stuart Little* (1945) and *Charlotte's Web* (1952), also wrote a considerable number of essays and articles on a wide range of social issues for periodicals such as *The New*

Yorker and *Harper's*. One such essay, "About Myself" (1966), builds a self-portrait that consists almost entirely of government classifications, serial numbers or codes which sort and regulate him, his family, and/or the goods and services they use:

> My Selective Service order number is 10789. The serial number is T1654. I am in Class IV-A, and have been variously in Class 3-A, Class I-A (H), and Class 4-H. My social security number is 067-01-9841. I am married to US Woman Number 067-01-9807. Her eyes are gray. This is not a joint declaration, nor is it made by an agent; therefore it need be signed only by me—and, as I said, I am a man of medium height. (p. 95)

Written a few years before the publication of Orwell's *1984* (1949), White's essay evokes the depersonalized expressionist dystopia present in Karel Capek's robot play *RUR* (1923). Delivered in a terse, monotone style, the essay confronts the growing loss of self in society and the increasing anomie of the constructed consumer self standing on the edge of the postmodern abyss. White's narrator may struggle to assert an identity throughout the essay by speaking through the personal *I* and reiterating the slightly ridiculous characteristic that he is of "medium height," but the piece's conclusion reflects the triumph of categories, classifications and numbers and the defeat of individualism:

> In 1918 I was a private in the Army. My number was 4,345,016. I was a boy of medium height. I had light hair. I had no absences of duty under G.O. 31, 1912, or G.O. 45, 1914. The number of that war was Number One. (pp. 97-98)

White's self-description illustrates how numbers can render our lives sterile by removing all individual personality and flavorings. Constituting students as numbers, as test scores,

creates unequal, exploitative relationships and transforms the students into specimens lying bare on the research table for scrutiny, judgment, and comparison.

Why would a law with such pernicious results be viewed by some as a civil rights issue? With its focus on all children and its requirement to disaggregate achievement results, *NCLB* does represent a noble attempt to uncover pockets of underachievement within specific sub-groups of students: those students living in poverty, classified with disabilities, or designated by particular ethnic groups. Looking at average achievement scores does hide the underperformance of such groups. Arguing this oversight, however, plays out only within the discourse of accountability because it assumes that the test score should function as the single signifier of achievement.

It is not that those promoting *NCLB* are evil people with evil purposes. Rather, the siren song of progress, technology, and capitalism heavily imbued with historical promises plays so sweetly in American ears that we fail to search behind the melodious assumptions. Technology, with its plentiful promises, props up and promotes the grand narrative of progress, the American Dream, throughout *NCLB*. As Kerr (1996) points out, "We started with enormous expectations" (p. 3) about technology and what it could do for education. These expectations, more than anything else, have led to an embracing of anything technological or new: "A faith in the powers of technology—as both hardware and knowledge—to ameliorate human life and solve the basic problems of modern society has been one of the central features of Western, not simply American, culture" (Segal, 1996, p. 39). These expectations seem to follow a path to even greater aspirations, aspirations of perfection, because technology has become culturally imbued with the characteristics of being foolproof and beyond human error.

The perfection of technology, of data-driven decision-making removes the teacher from the student, and takes the learning process into the laboratory where experts begin to manipulate the learning process from behind protective windows of surveillance and control. The exam results become a shield, a way to scrutinize and monitor education and to ensure that humans do not contaminate the clean, cerebral process. Computerized assessment, teacher-proof curricula, and scientifically based research: all take the person out of the equation. Willson-Quayle (1997) reminds us, "Since the early seventeenth century, education theorists have longed for a time when technology would…free us from the difficult task of having to make troubling decisions" (p. 7). Postman (1992) traces the movement in the medical profession toward technological reliance to create an illusion of foolproof medical practice. Machines and/or tests make and define diagnosis; the doctor only reads what they provide. The movement towards data-driven decision making reflects this same kind of transition in education.

The cool, perfect world of machines stands in contrast to the messy, fragmented, imperfect world of humans: "Technology conjures up images of clean, well-educated white male technicians in control booths gazing at dials, instrument panels, or computer monitors" (Marx, 1997, p. 6) where "the very efficiency of technology inspires men and women to emulate the perfection of the working machine" (Segal, 1985, p. 27). In such a clean, efficient environment, failure is not considered an option, even though we know that the notion of failure itself is socially constructed.

Harpold and Philip (2000) explore this desire for perfection within the context of making computer micro-chips with a detailed description of the cleanroom. Because microprocessors are so small, smaller than a U.S. penny, they are extremely vulnerable to

physical damage. To avoid getting a single speck of dust, a contaminant that would make it unusable, in the microprocessor, manufacturers take great care to insure the cleanliness of the manufacturing environment in carefully controlled cleanrooms. With closely monitored, carefully regulated temperature control and multiple means for air filters, the rooms are extremely clean and filled with only necessary, coated, highly polished, non-porous synthetic surfaces. In such a super-controlled, technically clean environment,

> The primary sources of contaminants … are the human agents who supervise the machinery and ferry the delicate ships through the stages of manufacture: a human body can slough off from five to ten million particles of skin, hair, and dirt every minute. (p. 13)

To avoid contaminating the environment, workers must wear specially designed "bunny suits." The authors then detail the rigorous and precise process for putting on the bunny suit and blasting away all contaminants from the human worker, the primary source of contamination. Through this process, the worker becomes "subject to principles of cleanliness in keeping with the demands of a machinic order" (p. 14). Ironically, the machine has to be saved from the contamination of the human, a great irony since it is the human who (literally and figuratively) makes it.

NCLB strives for this same perfection. In a perfect world, all children will meet high standards. Translation: All children will demonstrate learning on standardized tests that value only western thought and western performance standards. Technology so enframes American culture that it entraps its citizens into believing that they can create this perfect world; they can master and control, by analyzing, calculating, and ordering all aspects of education. Early explorers and colonizers of America believed they could work hard and

create a Utopia, a heaven on earth. This optimistic confidence that man is perfectible, capable of indefinite improvement tied to the discourse of progress, continues to influence America's discourses on education: "Life may be messy and complex, but technology is not" (Williams, 2000, p. 660). This idea of perfection links back to the language-games of efficiency and control and power: "The desire for power over others and the violence it entails is a cultural and psychological monster fed by the belief that we ought not be imperfect" (Martusewicz, 2001, p. 61). In a perfect world, education through technology, including scientifically based research practices, will prepare everyone for the global economy and the good life: the American Dream come true. Unfortunately, John Smith's attempt to achieve Utopia through the edict "if you don't work, you don't eat" led to the infamous "starving time." Are American schools perched on that same precipice with the illusive perfection promised by fulfilling the edicts of *NCLB*?

Recommendations

These restrictive constructions of reality emerge from prevailing conceptual systems, a speaker's, writer's, or researcher's toolbox for thinking and writing. Modern eyes trap and blind thinkers by insisting that they grasp reality through these imposed conceptual frames. Writer's become dependent on such systems because these frames allow them to fix reality and, thus, *see* it. The danger arises when these conceptual systems are seen as Reality instead of as tools that allow *seeing* in a certain way. These modern frames demand that technology provide precision instead of possibilities, options, and consequences. Politicians in search of a quick fix want exact numbers instead of ranges. They want a central Truth that will apply to all schools and all students everywhere

instead of local control and flexibility. They want the idealized modernist visions of Bacon, Descartes, and Newton to rule the world instead of the postmodern messiness that reigns. They want to predict and then control the stability of the future without worrying about the imponderables of human culture and behavior. Taubman (2000) critiques this "belief that science as a method will solve our educational problems" (p. 23). Such blind faith covers our eyes, so we do not *see* other ways of thinking, instead of "fantasiz[ing] final solutions" (Taubman, p. 32). Human nature wants to declare, "Mission accomplished." It is finished. Such inclinations, though, uncover frames used to see the world, frames that restrict rather than expand.

Not questioning the discourses of accountability, the quick fix, and scum with their reliance on technology as machine exposes education to the same dangers of the famous ship that engineers and sailors said could not sink, the *Titanic*. Tenner (1996) tells how some have said that *belief* in the ship's safety created the greatest hazard for its passengers' survival, even greater than the multi-ton icebergs themselves. Crews in passing vessels might have been able to rescue the passengers, but they believed that the *Titanic's* distress flares had to be celebratory rockets, not an emergency. Their frames of reference, a ship declared technologically unsinkable, prevented them from seeing the emergency.

To transcend the old frames typically employed in discussions about education is like looking over an abyss, anxious to leap to new ground, to think in fresh ways, but held back by the ropes of classification, analysis, and experimentation that prescribe the way the world is. What is truly freeing is coming to see with different eyes, with eyes that see the language-games that enframe language and thought and by so seeing, open a way to

bring about change. It is not that thinkers should abandon particular meaning structures, or ways of seeing, but by seeing how they are deployed, educators can then work to disrupt the parts of the structures that damage students and schools, those that are not just and equitable. Since the old frames of Regis Philbin's "final answer" cause us to see in ways that harm our children, perhaps we could invent new ways of seeing by wearing a new set of frames, or adopting frames appropriate to the questions being asked. I would like to propose that educators adopt a new set of frames for looking at and thinking about education that will help to build a bridge, so all can pass safely over this new postmodern space.

Proposed Frame #1: School improvement is not about discovering one central Truth; it is what is discovered in the process.

So much of language is consumed with origins and arrivals. Projects always want to find the origin of their topic. Who sang the first rock and roll song? Was it Muddy Waters or Elvis? *NCLB* paints a Reality of arrival, of mission accomplished, or as Oklahoma's State Department of Education Title I Director proclaimed, "The reading wars are over." School change, however, will not benefit from this search for an education "holy grail," the one right answer, or solution, to the multitude of society's, and thus education's, problems. Instead, education could benefit from an acceptance that education and its practices embody ongoing, continuous change. Such a perspective is not comfortable because it calls for all students, parents, teachers, administrators, indeed entire communities, to enter the spiral of change where new strategies and new approaches fold into previous efforts creating dynamic environments. Pea (1985) summarizes this spiral of change: "Our productive activities change the world, thereby

changing the ways in which the world can change us. By shaping nature and how our interactions with it are mediated, we change ourselves" (p. 169). This change leads to the realization that improving some problems may be creating others. Educators deal with complex social issues; more effectively communicating this complexity to the public will help them understand that promoting and nurturing knowledge and character in our children is not a precise, factory-model process.

Proposed Frame 2: Chiastic change = Synergy

What if we saw change and reform through the structure of a literary trope, the chiasmus? As Grothe (2004) explains, a chiasmus is "a reversal in the order of words in two otherwise parallel phrases" (p. 1). One famous example of a chiastic construction comes from Mae West: "It is not the men in my life; it is the life in my men." In this example, *life* ends the first part and begins the second part of the sentence with two similar yet different meanings. *Men* begins the first part and ends the second, serving as the anchor on each end of the whole statement. The change occurs in the middle of the chiastic construction where the sentence's meaning shifts, alters, and transmographies into something new and different yet similar. Two other famous examples further demonstrate this quality of the chiasmus:

- Pleasure's a sin, and sometimes sin's a pleasure. (Byron)
- Ask not what your country can do for you: Ask what you can do for your country. (John F. Kennedy)

The links between the two parts of the chiastic form disrupt the main line of logic. Such a construction can occur within plots, too, to create surprise, transpose plots, and encourage role reversals. Its structure suggests convergence, conflation, and combination

of opposites. When the opposites converge, they may undergo drastic change or even disintegration of identities to form something new.

In the chiasmus, the synthesis of two or more entities folds into something different, something where the whole is greater than the sum of its parts. Covey's (1989) *synergy* accomplishes this same goal, for communicating "synergistically" simply means "opening your mind and heart and expressions to new possibilities, new alternatives, new options" (p. 264), taking something old and folding it into something new. Covey's theories and principles focus very personally on the individual and "the task of creating effective, useful, and peaceful lives" (p. 318). For Covey, human principles are primary, and the system, or organization, is secondary. But, his human principles, if employed, will affect the system, and "what results is almost miraculous. We create new alternative —something that wasn't there before" (p. 262). Employing such a frame in education would allow educators to recognize the continuous, and sometimes contradictory, quality of school change.

Such a shift recognizes that no Ghostbusters work here; no easy answers or quick fixes exist. Instead of trying to "rescue" students, educators might focus on collective social change, an approach that recognizes the complexity of the educational process and its role in communities. Historically, the chiasmus relates to the crossroads or boundary crossings in general. This is synergy at its best, emphasizing change and the ease with which powerful forces can slip in and out of balance. Through reversals, it emphasizes how quickly the world can turn upside down. Such a negotiated situation de-centers domination and focuses on the local nature of each educational encounter. The teacher becomes the *bricoleur*, the jack-of-all-trades, who pulls from her tool box multiple

strategies and fashions something new, something that applies to one child at one moment in one particular classroom. This agility and versatility demands that each teacher practice (and be allowed to practice) professional discretion in plying her craft for the benefit of each child. In such a synergistic environment, the teacher becomes an active agent for change and growth in the classroom instead of an object circumscribed by state monitoring and control.

Senge (1999) describes how "positive synergies around the interdependencies" among peers removes the need for a "Solomon" in organizations by creating collaborative environments that can develop quality decisions. He indicates that the "Solomon" role usually "tends to lead to arbitrary and uninformed decisions, because the underlying complexities are not addressed in the information brought up the hierarchy" (p. 410). Analyzed through the lens of complexity, *NCLB* represents such an arbitrary and uninformed decision. Synergy, with its focus on constant, metamorphosing change that evolves through a process over time provides a much richer metaphor for discussing education than does either accountability, the quick fix, or scum.

Final Thoughts

Education plays a powerful role in promoting the general welfare of our nation. As Fullan (2000) postulates, "A strong public school system … is the key to social, political, and economic renewal in society" (p. 1). And, like Sarason (1996), I believe that the fates of democracy and the American way of life depend upon public schools. In an increasingly complex, technological world, the United States' education system cannot fail its students, or it will author a story of its own demise. However, many students enter schools ill-equipped to learn, arriving from homes steeped in poverty, illiteracy, and

failure. Schools have not created these problems, and schools alone cannot work on these complex social issues.

One way that schools can meet these increasing needs is by establishing "new partnerships in which entire *systems* are the focus of change: schools, families, neighbourhoods and cities in concert" (Fullan & Hargreaves, 1998, p. 113). Sarason (1996) first spoke of the need to look at "the changing interconnections between schools and communities" (p. 18), to look at the "system" of the school. It is only by understanding this complexity that people concerned with education (and society) can then take the next step and devise strategies to evoke change that affects student learning and achievement.

Building these communities of support is essential. Focusing on students and discarding old territorial attitudes and blame games is one potential option in the process for building support. Instead of businesses blaming higher education that blames common education that blames parents who blame . . . , all entities working together might build a world with greater economic equity and social justice. Each plays a partnership role in building the future by expanding the minds of young students. How idealistic is this? Very!! But, if those concerned with education lose their idealism, their belief that they can help others and make a difference, where will that lead? As Fullan and Hargreaves (1998) remind readers, "Every child is one teacher's hope for the future" (p. 57). No one ever changed the world by accepting the status quo.

My values of justice and equity, my "moral purpose" (Fullan & Hargreaves, 1998; Fullan 2000) color everything that I do. I suppose my beliefs sometimes err on the side of fanaticism because I want everyone to join me in my quest to provide students the

opportunity for both excellence and equity in education, and consequently, in life. Again, how idealistic is this? Very! But, it is educators' responsibility not to be cynical but to see the world, as Don Quixote says in *Man of La Mancha* (1972), "not as it is, but as it should be." The responsibility for all parts of society is to join hands around the common goal of the future, the children. It is the responsibility of adults to abandon petty politics and work to make a better world for the children. I will work to build a better educational environment because if I do not, who will? "We can because we must" (Schorr, 1997, p. 302).

The idealist in me reads *NCLB*, with its stated desire to provide equitable opportunities for all students, with great enthusiasm and excitement. I want to rise up and meet the challenges of this new millennium; I want to believe that technology will help to improve education for our children. Despite the content of this study, I am not against technology. In fact, as a teacher, I was an early promoter of technology, teaching computer short courses in the 1980s that helped students employ word-processing to facilitate writing. I also promoted threaded discussions on disk before such technology became widely available on the Internet. Technology will continue to influence in ways that cannot, as yet, be conceived. Furthermore, technology can play a valuable and significant role in children's education and for the systems that support that education. However, these beliefs must be analyzed through a lens that allows for and encourages great complexity.

To see the world through a lens of complexity requires an exchange of calls for finality and certainty with the voices of difference and dialogue. Whitehead (1929) warns that "Education with inert ideas is not only useless: it is, above all things,

harmful" (p. 2). It is time to unfreeze the old positivist notions privileged in the discourses of accountability, the quick fix, and scum and move into the spiral of chiastic change. The pragmatist in me recognizes that all change has consequences and that many people probably will see the dazzling world implied in *NCLB* only from a great distance. However, I do possess enough of that American belief that if "we will run faster...stretch out our arms farther..." (Fitzgerald, 1925, p. 182), American educators can achieve a world where the best education is available for all.

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Appendix A

SUMMARY OF *NO CHILD LEFT BEHIND* (2001)

NO CHILD LEFT BEHIND

Ready Reference for the 2001 Reauthorization of Elementary and Secondary Education Act Programs (P.L. 107-110)

Title I: Improving the academic Achievement of the Disadvantaged

Purpose:

1. Ensure that high-quality academic assessments are aligned with challenging State academic standards
2. Meet the educational needs of low-achieving children
3. Close the achievement gap between high- and low-performing children, including minority students
4. Hold schools, school districts, and States accountable for improving academic achievement of all students
5. Distribute and target resources where needs are greatest
6. Improve and strengthen accountability, teaching, and learning by using State assessments systems to ensure that all students are meeting challenging State academic achievement and content standards
7. Provide greater flexibility to schools and teachers in exchange for greater responsibility for student performance
8. Provide children and enriched and accelerated educational program that increases the amount and quality of instructional time
9. Promote schoolwide reform through scientifically based instructional strategies and challenging academic content
10. Provide staff with substantial opportunities for professional development
11. Coordinate services under all parts of *ESEA* with other educational services and other agencies
12. Afford parents substantial and meaningful opportunities to participate in their child's education

Part A: Improving Basic Programs
Part B: Student Reading Skills Improvement Grants
Subpart 1: Reading First
Subpart 2: Early Reading First
Part C: Migrant Education
Part D: Neglected and Delinquent
Part E: National Assessment of Title I
Part F: Comprehensive School Reform

Title II: Preparing Training and Recruiting High-Quality Teachers and Principals

Part A: Teacher and Principal Training and Recruiting Fund
Part B: Math and Science Partnerships
Part C: Innovation for Teacher Quality
Subpart 1(A): Troops to Teachers
Part D: Enhancing Education Through Technology

Title III: Language Instruction for Limited English Proficient and Immigrant Students

Part A: English Language Acquisition, Language Enhancement and Academic Achievement

Title IV: 21st Century Schools

Part A: Safe and Drug-Free Schools and Communities

Part B: 21st Century Community Learning Centers

Title V: Promoting Informed Parental Choice and Innovative Programs

Part A: Innovative Programs

Title VI: Flexibility, Accountability, and Rural Education Initiative

Part A: Improving Academic Achievement

Subpart 1: Accountability

Subpart 2: Funding Transferability for the State Department of Education and local school districts

Part B: Rural Education Initiative

Subpart 1: Small Rural School Achievement Program

Subpart 2: Rural and Low-Income School Program

Title VII: Indian, Native Hawaiian, and Alaska Native Education Programs

Part A: Indian Education

Title VIII: Impact Aid Program

Title IX: General Provisions

- Flexibility in the use of administrative and other funds
- Coordination of programs; consolidated state and local plans/applications
- Waivers
- Uniform provisions (participation of private school children, maintenance of effort, and nonsupplanting)

Title X: Repeals, Redisgnations, and Amendments to other Statutes

Part C: Education for Homeless Children and Youth

Appendix B

EXCERPTS FROM *NO CHILD LEFT BEHIND*

IMPLYING THAT TECHNOLOGY INTEGREATION

WILL IMPROVE TEACHING AND LEARNING

p. 1623	(B) A description of the comprehensive strategy that the State educational agency will use, as part of such coordination effort, to ensure that teachers are trained in the use of technology *so that technology and applications of technology are effectively used in the classroom to improve teaching and learning* in all curricula and academic subjects, as appropriate.
p. 1626	(11) Encouraging and supporting the training of teachers and *administrators to effectively integrate technology into curricula and instruction, including training to improve the ability to collect, manage, and analyze data to improve teaching, decisionmaking, school improvement efforts, and accountability*.
p. 1629	(6) A description of how the local educational agency will integrate funds under this subpart with funds received under part D that are used for professional development *to train teachers to integrate technology into curricula and instruction to improve teaching, learning, and technology literacy*.
p. 1632	(A) innovative professional development programs (which may be provided through partnerships including institutions of higher education), including programs that *train teachers and principals to integrate technology into curricula and instruction to improve teaching, learning, and technology literacy*, are consistent with the requirements of section 9101, and are coordinated with activities carried out under part D;
p. 1634	(1) professional development activities in core academic subjects to ensure that— (A) teachers and highly qualified paraprofessionals, and, if appropriate, principals have subject matter knowledge in the academic subjects that the teachers teach, *including the use of computer related technology to enhance student learning*;

p. 1677	(b) CONTENTS.—The application shall include each of the following: (1) A description of how the applicant will use Federal funds under this subpart *to improve the student academic achievement,* including technology literacy, of all students attending schools served by the local educational agency and to improve the capacity of all teachers teaching in schools served by the local educational agency *to integrate technology effectively into curricula and instruction*. (2) A description of the applicant's specific goals for *using advanced technology to improve student academic achievement*, aligned with challenging State academic content and student academic achievement standards.
p. 1721	(4) implementing programs that support *effective teacher use of education technologies to improve instruction and assessment*;
p. 1895	(2) Teacher professional development, including programs that *train teachers to utilize technology to improve teaching* and to train special needs teachers.
p. 1963	(xi) to the extent appropriate, *provide training for teachers and principals in the use of technology so that technology and technology applications are effectively used in the classroom to improve teaching and learning in the curricula and core academic subjects* in which the teachers teach;

VITA

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Doctor of Education

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