

Bridging the gap? Reading the No Child Left Behind Act against Educational Technology Discourses

Alan Foley, North Carolina State University
Rick Voithofer, Ohio State University

On Jan. 8, 2002, President Bush signed into law the No Child Left Behind Act of 2001 (NCLB). This new law represents his education reform plan and contains the most sweeping changes to the Elementary and Secondary Education Act (ESEA) since it was enacted in 1965. It changes the federal government's role in kindergarten-through-grade-12 education by asking America's schools to describe their success in terms of what each student accomplishes. The act contains the President's four basic education reform principles: stronger accountability for results, increased flexibility and local control, expanded options for parents, and an emphasis on teaching methods that have been proven to work.

~ Introduction to "No Child Left Behind"

INTRODUCTION

This comparative study juxtaposes recent discourses that have emerged or have been amplified as a result of the passing of the "No Child Left Behind" Act (NCLB) including parent choice, data-driven decision making, high stakes testing with discourses that pervade ongoing approaches to educational technology supported by federal initiatives. Using Critical Discourse Analysis and Symptomatic Readings, this study examines information provided by NCLB and a supporting web site hosted by the Department of Education in relation to educational technology discourses that are identified in both the federally funded Preparing Tomorrow's Teacher's to Use Technology (PT3) grant's program (<http://www.pt3.org>) and the Enhancing Education Through Technology (Ed Tech) Program (<http://www.ed.gov/teachtech/>) established by NCLB.

This study argues that the parallels between the two discourses (i.e., NCLB and educational technology) highlight profound silences in relation to social and cultural equity that are important to articulate as educational policy and curriculum are (re)formulated around these two areas in the coming years. The topic of this study is derived from our concern that new

forms of educational inequity for students will emerge and extant forms will continue as traditional approaches to educational technology grounded in educational psychology harmonize with the policy and discursive shifts that are being brought about by a large scale policy initiative like NCLB that is directly tied to the funding of public education and educational research. These policy shifts have direct implications for what counts as knowledge in curriculum studies and approaches to teaching as the influence of NCLB infiltrates approaches to and decisions about curriculum and pedagogy.

Our underlying concern is that as research agendas in educational technology realign with the funding policies of the federal government, research methodologies that are able to articulate the complexity of the digital divide (i.e., qualitative, ethnographic, critical, and contextualized) will be displaced by methodologies that will seek consensus when there is none and homogeneity when there is difference. On a more fundamental level this study argues that the discourses generated by this legislation have the potential to create subject positions for teachers, students, and parents that do not represent the diversity of a postmodern/postindustrial society. For example, within the use of the term “data driven decision-making” there is the danger that an uncritical application of this term will make it interchangeable with concepts like “commonsense,” “rational,” and “scientific.” What is perceived to be commonsense is quite often racist, sexist, heterosexist, and limiting for students with disabilities. Additionally, because traditional research does not problematize the subject positions that it creates and studies, assumptions about the “learner” and the “teacher” are most often normed against a specific subject who is representative of a particular “group”, (i.e., White, middle class, male, and “gifted”).

BACKGROUND

The passing of No Child Left Behind in January 2002 marked a dramatic and explicit change in the philosophy of education supported by the federal government. The law, which gives states more freedom to control how they spend money on education, requires states to set standards for student achievement while holding students and educators accountable to those standards. NCLB is based on four principles:

- 1) Stronger accountability for results in the form of high stakes testing;
- 2) Increased flexibility and local control;
- 3) Expanded options for parents including the option to withdraw students from low performing schools; and,
- 4) An emphasis on teaching methods that have been proven to work through data driven decision making.

The implications of these four principles are wide-ranging because of how each principle is directly tied to the conditions under which states and schools receive funding. The emphasis on certain types of research and decision making processes set the stage for monistic forms of educational research. For example, the assumption of singular forms of research within teacher training programs, particularly those in predominantly white institutions, precludes engagement in diverse theoretical research such as, but not limited to qualitative and “non-traditional” research,” postmodern/poststructural perspectives, feminist inquiry, critical race theory, action research, and critical theory. These postpositivist methodologies will be discussed below in relation to NCLB. Thus the research programs that are most likely to thrive under NCLB will fall in line with the dissemination of information, practices, and research, that are implicitly grounded in a particular ideology that may not reflect differing and diverse constituent needs, and have not necessarily gone through the rigor of research that exist outside traditional “scientific” inquiry bounded by randomization, validity, replicability and generalizability.

Before NCLB, federally funded educational technology initiatives in teacher preparation came through the Preparing Tomorrow's Teachers to use Technology (PT3) initiative. Since 1999, PT3 has funded 441 educational consortia nationwide through two grant cycles, the first for capacity building and the second for implementation. The areas of concentration in these grants have included technology-enhanced curriculum development in teacher preparation programs; electronic portfolios for pre-service teachers, training for higher education faculty and narrowing the digital divide through increased access to educational technologies for disadvantaged students. For the purpose of this study we will focus on examining those grants that addressed digital equity in some form.

2003 marks the final year of PT3 funding. Consistent with NCLB new federally funded educational technology grants will be funded at the state level through the Ed Tech grant program. According to the *Guidance on the Enhancing Education Through Technology (Ed Tech) Program*¹:

The primary goal of the Ed Tech program is to improve student academic achievement through the use of technology in elementary and secondary schools. It is also designed to assist every student – regardless of race, ethnicity, income, geographical location, or disability – in becoming technologically literate by the end of eighth grade, and to encourage the effective integration of technology resources and systems with professional development and curriculum development to ***promote research-based instructional methods that can be widely replicated*** [emphasis added].

The purpose of this program is, among other things, to increase private-public partnerships and use distance education to provide educational experiences to geographically isolated communities. Additionally, NCLB mandates detailed accountability and the evaluation of program interventions in schools, including those related to technology and demonstrating the impact that technology has on student achievement

¹ <http://www.ed.gov/offices/OESE/esea/edtechguidance.doc>

The impetus for this study emerges from our positions as educational technologists, curriculum theorists, and cultural studies scholars committed to social justice. As such, we work against essentialist language that pervades many traditional educational technology discourses. These discourses often avoid social and cultural issues in relation to the development of media based curricula and pedagogies and the integration of technology in education. Initiatives like the PT3 grants often do not take into consideration the complexity of issues related to social and cultural difference in relation to the integration of technology. Rather, they tend to focus on narrowly defined concepts of computer literacy or quantifiable goals of computer adoption (i.e., access) and integration in the curriculum. Additionally, these grants tend to be predicated on the assumption that technology is a value-neutral phenomenon, and that its insertion into diverse environments can create consistent and replicable results. In these contexts, technology is often viewed by educators in terms of what it can add or how can it supplement current educational practices rather than as a material change in the power dynamics of educational practice. Consequently, the research and projects exploring such issues as the “Digital Divide,” “equity,” or “diversity” tend to be interventionist not addressing the extant realities of students and teachers they purport to address. As instructional technologists and curriculum theorists, the authors have struggled with the limitations of existing forms of critical media literacies and traditional approaches to technology integration founded on decontextualized, artificially controlled psychology-based discourses. Often, instructional technologists do not consider the broader role of technology within society (or as a social construction) as an important component of technology integration, instead relying on narrowly defined constructions of technology as a pedagogically and culturally neutral “tool.”

As teacher educators involved in local initiatives in the Southeast and Midwest to integrate technology into teacher preparation, we are observing how federal legislation like NCLB utilizes discursive techniques that focus on mechanistic and deterministic methods of teaching and evaluation that resonate with traditional approaches to educational technology.

This inquiry confronts the troublesome and ongoing gap between social and cultural theories of power and diversity and educational practices (i.e. design, research, classroom pedagogy, etc.) identified in current national discourses surrounding education and educational technology. Through the analysis that follows we examine how the NCLB, PT3, and EdTech initiatives create subject positions for students, and teachers that are policed by the top down, standards-based, policies enacted by NCLB.

THEORETICAL FRAMEWORK

The theoretic foundations of this study are grounded in Poststructural constructions of power and discourse. Poststructuralism makes use of linguistics and textual models of culture in which subjectivities and agency are constructed by cultural and historical dynamics.

Poststructuralists believe that texts (i.e. curricula, books, web sites, legislation, etc.) resist closure (i.e. a single “correct” read[er]ing) and can be read in multiple, even contradictory ways. In a poststructural framework, individual choices, desires, and learning arise from and are regulated by discourses. Foucault (1990) offers a model of discourse in which discourses are never free of the effects of power to create power/knowledge relationships. In our project, an important component of a poststructural perspective is the social and historical location of technology, the teacher, student, and parents.

Of particular interest to this study is the way that the discourse of NCLB organizes and constructs subject positions for teachers, students, and parents. A poststructural examination of

how these subject positions are regulated by the discursive formations of NCLB suggests how social meanings and actions as they exist within the tensions presented by multiple conflicting discourses are confronted in the process of education. Poststructuralism takes social and cultural complexity seriously rather than trying to reduce or marginalize them to a set of discreet and finite independent and dependent variables.

An important component within poststructuralism is the way in which power is theorized through the techniques of discursive regulation and subject construction. Particularly significant in poststructural notions of power is that they theorize how power flows back and forth often in unpredictable ways (i.e., agency) between official discourses (e.g., NCLB act, State Standards, Content Standards, Standardized testing) and local discourses (i.e., local and classroom culture, pedagogy and learning). Poststructuralism resists a facile connection between the formation of subject positions and the lived expression of those positions.

METHODOLOGY

A methodology that complements the theoretical framework that we draw upon is Critical Discourse Analysis (CDA) (e.g., Fairclough, 1995; Chouliaraki & Fairclough, 2000; Kress, 1991). CDA focuses on the social use of language and how discourses contribute to the construction of subjectivity by asking how the changing use of language contributes to, in this case, the production of subject positions for students, educators, and parents. CDA views a text like NCLB and the PT3 web sites as multidimensional structures with layered meanings. Similarly, discursive practices within traditional approaches to educational technology create

power relations predicated on the dominance of particular perspectives such as “systems design”² of instruction and “scientifically proven” methods of instruction.

CDA allows one to take a social and cultural perspective in the study of media texts by looking at issues related to power and agency. Therefore CDA has a political motivation because it looks for inequitable representations in texts. It looks for silences by treating language as a social practice used for signification - in this context by looking at how discourses signify what counts as sound integration of technology and what counts as educational accountability. In any discourse analysis, context plays an important part in meaning making and in the case of CDA, ideology creates the context for interpretation. Ideology creates the interpretive frameworks that organize how individuals make sense of a text.

A methodology that complements poststructural approaches to CDA is the practice of Symptomatic Reading - reading a text for what is not visible or knowable and considering how that absence structures and enables what is visible/knowable (Althusser & Balibar, 1998). Rooney (1989) uses the practice of symptomatic reading to establish a relationship between two discourses (p. 43), the discourse being analyzed and the researcher's discourse. Symptomatic reading, then, looks for “a necessary silence” (p. 15). It is this silence that enables a particular practice, theory or ideology (and the texts, images, and effects they foster) to persist and develop. Attention to this silence, even the recognition of it, is to begin to trace the limits of what has silenced it. In this study, symptomatic reading offers re-readings of policy, practice, and design with attention to the silences that structure them. A broad example can be seen in the construction of the “issue” on the NCLB web site. The site acknowledges the discrepancies in achievement between low-income, minority students and higher income students, but casts the

² Systems design approaches to instruction which share many epistemological underpinnings with behaviorism are based on the premise that learning should be developed in accordance with orderly and well-defined processes, be specifically tailored to the target audience, and have measurable outcomes.

issue as a performance problem with schools. The terms “accountable,” “standard,” and “performance” are prominent in the description of a desirable education system. No mention is made of the local material conditions that might contribute to lower performance:

unemployment, malnutrition, poverty, or crime. The issue is constructed as a performance and accountability issue predicated on the omission of other potential contributing factors.

The following questions guide our inquiry in this study:

Questions

1. What are the power relationships and structuring absences between students, and teachers and how do technology discourses, curriculum theory and educational policy influence those power relationships and silences?
2. Who has influence over the material and cultural conditions in the classroom, school, and community and who does not?
3. How is student “accomplishment” constructed and assessed in educational policy discourses?
4. How is school, parent, and teacher accountability and performance framed in relation to federal guidelines?
5. What is meant by “scientifically proven” ways of teaching and assessment?
6. What knowledge and research paradigms are valued in current and emerging educational discourses?
7. How is “parent choice” constructed and delimited?
8. How do technology and the use of technology within policy and research discursive structures frame what is considered knowledge in curriculum design?
9. How do discourses in NCBLA and PT3 construct social and cultural difference as these discourses construct subject-positions for students, teachers, and parents?

DATA

The data for this study is comprised of the text presented on the “No Child Left Behind” web site including the complete text of NCLB (U.S. Department of Education, 2002a), the NCLB Desktop Reference (U.S. Department of Education, 2002b) and the information provided on the two PT3³ web sites. The NCLB is divided into ten sections or “Titles.” Our analysis focuses on Title I – Improving the Academic Achievement of the Disadvantaged, Title IV - 21st

³ <http://www.pt3.org> and <http://www.ed.gov/teachtech/>

Century Schools, Title V- Promoting Informed Parental Choice and Innovative Programs, and Title VI- Flexibility and Accountability. In the NCLB web site we analyze the language of the legislation and regulations of the act and documents and media used to support its implementation including *The Achiever* newsletter and the television programs produced by the Department of Education to inform educators and parents about NCLB. Of particular concern to this inquiry is how the discourses that support this legislation address social and educational equity.

On the PT3 web sites, we examine the guidelines and goals of the grants and the major topics (i.e. faculty development, online tools, state initiatives, etc.) communicated about the integration of technology in education. Since issues of equity represent a major concern of this study, we look at how some the PT3 grantees are approaching the Digital Divide. This study examines how NCLB indirectly influences federal funding of technology initiatives like the PT3 grants and more directly the emerging Ed Tech grants.

ANALYSIS

Our analysis begins with an examination of the text and supporting web sites of NCLB and traces how discursive formations created by NCLB construct subject positions for teachers, students, and parents in relation to social difference. We then contextualize these subject positions within scholarship and research methodologies that capture the complexity of cultural diversity and contrast these research methodologies with those advocated by NCLB. Finally, we trace how these discourses map themselves onto educational technology integration and research agendas, paying particular attention to the suggested solutions to the digital divide made by NCLB and PT3 grants.

NCLB

The introduction to Title 1 – Improving the Academic Achievement of the Disadvantaged states:

The purpose of this title 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. (U.S. Department of Education, 2002a, p. 15)

The assertion is that this goal should be achieved by accountability systems, academic assessments, teacher preparation, curriculum, and instructional materials that are aligned with state standards for student achievement. Suggesting that the target of these efforts should be, “low-achieving children in our Nation’s highest-poverty schools, limited English proficient children, migratory children, children with disabilities, Indian children, neglected or delinquent children, and young children in need of reading assistance” the title creates borders around the “advantaged” and the “disadvantaged.” The epistemological issues raised by these borders are left unquestioned in the legislation and supporting documentation. For example, the 670 pages of the legislations mention social and cultural positions multiple times including race (17), ethnicity (9) or ethnic (26), gender (32) and disabilities (112) without acknowledging that the construction of these positions influences how educational interventions are conceptualized. How these identifies are categorized is an ethical dilemma for researchers (Stanfield, 1993) because they are not neutral nor objective and are often based on Eurocentric normative and scientific principles that differ by group and context making it difficult to conduct generalizable studies that are not reductive.

These considerations impact the instruments that researchers construct for diverse populations including considerations for acculturation, ethnicity, language proficiency, or culturally specific learning strategies. Similarly, “objective” statements about ability and

disability position people within particular and often inflexible subject positions that are neither value neutral nor often accurate. While there have been significant strides in theorizing the conceptualization of disability, the vast majority of educators at all levels still conceptualize disability according to dated models that tend to view disability as a medical condition – a deficit in the person with the disability (Pfeiffer, 2002). These deficit models, cast the individual as “sick,” or “not normal.” These constructions of and understandings of race, ethnicity, gender, and disability have a profound impact on the development of educational research, the attitudes of teachers, the distribution of federal funding, and on the ways that parents are positioned and addressed.

While NCLB offers parents the opportunity to move their children out of low performing schools, the implication of such choice is that students must leave their local communities. This is a problem because education cannot be decontextualized from the environment in which it occurs. Advocates of culturally relevant pedagogy (Ladson-Billings, 1994, 1995; Gay, 2000) state that for students from culturally diverse communities to perform well academically they must be taught by teachers who understand their social and cultural history, local community, customs, and attitudes towards education. According to the basic assumptions of this research, merely moving students to better performing schools is no guarantee of increasing student achievement.

Implicated for discourses of academic achievement and parent communication are realized in the means with which NCLB requires schools to communicate student and school performance to parents. The desktop reference to the NCLB states, “Annual school ‘report cards’ will provide comparative information on the quality of schools. By doing so, they will empower parents to make more informed choices about their children’s educations” (U.S. Department of

Education, 2002b, p. 10). In terms of how these reports are to be communicated to parents, the NCLB reference states, “To the extent practicable, materials must be in a format and language understandable to the parents.” (U.S. Department of Education, 2002b, p. 38). While the NCLB does not clarify what is meant by “practicable” and “understandable,” the use of these words raises questions that link the methods that are used to collect data for the report card and the kind of information that parents are given (i.e., practicable) with the assumptions that are made about the subject positions of parents (i.e., understandable). Related to the subject positions of parents are expectations placed on teachers.

The subject positions created for teachers in NCLB constrain teachers into pedagogies supported by narrow definitions of student achievement under the guise of greater flexibility and control. Addressing teachers, Title I calls for, “providing greater decision making authority and flexibility to schools and teachers in exchange for greater responsibility for student performance” (U.S. Department of Education, 2002a, p. 16). It is difficult to see how adhering to state standards and assessments through standardized testing offers teachers greater flexibility. Indeed such requirements tend to stifle pedagogical creativity in favor of “teaching to the test.”

On a more fundamental level the structuring absences inherent in these teacher discourses reveal the tremendous and increasing responsibilities being placed on teachers while ignoring the factors besides pedagogy (e.g., rapid demographic shifts) that contribute to student success. This “teacher-blaming” practice can be seen throughout the discourse of NCLB. The following quote from NCLB web site is one example: “Ineffective teaching practices and unproven education theories are among the chief reasons children fall behind and teachers get frustrated.”⁴

In response to unproven education theories NCLB suggests projects, “supported under

⁴ <http://www.nclb.gov/start/facts/whatworks.html>

this title, using rigorous methodological designs and techniques, including control groups and random assignment, to the extent feasible, to produce reliable evidence of effectiveness (U.S. Department of Education, 2002a, p. 173).

Elsewhere in this page the following characteristics are identified for “reliable research” that is supposed to identify proven education theories.

- **Scientific Method**-A hypothesis about what works, or how it works, is formulated; a treatment group and control group are used in a study to try to disprove the hypothesis.
- **Replicated**-Several studies find the same result.
- **Generalized**-Study findings can be applied broadly, to students other than the ones studied.
- **Meets Rigorous Standards**-The study's design, measures, and interpretation of results meet rigorous standards of peer review.
- **Convergent findings**-Results found using different approaches all point to the same conclusion.

This quote reveals a discursive regression towards positivist understandings of educational research. By 2004, NCLB expects 75% of federally funded research to be derived from randomized sample studies. These research requirements are made in (ignore)ance of the developed criticism and scholarship of traditional objectivist and positivist research, as well as, the evolution of qualitative research. A more thorough description of how these theories and methodologies contrast with those advocated in NCLB and are more appropriate in many instances of addressing issues of equity and education follows.

We approach qualitative research, critical theory, critical race theory, action research, and feminist inquiry and from both the perspectives of educational researchers and educational technologists interested in the social and cultural constructions of technologies in education. Therefore in suggesting alternative researchers paradigms to contrast those advocated by NCLB we consider how these theories provide frameworks to understand the social and cultural

dimensions of technology and media in societies, as well as their implications for educational research.

In comparing qualitative research to quantitative research Guba and Lincoln (1989) contrast criteria of assessment for both methodologies. The differences between how these two research paradigms are judged are summarized in Table 1.

Table 1

Comparison of criteria between quantitative and qualitative research

Quantitative	Qualitative
Internal validity	Credibility
External validity	Transferability
Reliability	Dependability
Objectivity	Confirmability

Credibility establishes that the findings of qualitative research are believable from the research participant's perspective. Through member checks, prolonged engagement, triangulation, and persistent observations qualitative researchers can confirm the legitimacy of the conclusions drawn by the researcher. Transferability describes if and how the results of qualitative research can be transferred to other contexts or settings. It is the responsibility of the researcher through careful descriptions (i.e., thick description) of the context, purposive sampling and thorough reflection on the assumptions of the study not the methodologies of the research to establish generalizability. Rather than relying on reliability through replicability, qualitative research assumes that the same phenomena can't be measured twice. Instead the notion of dependability describes the capacity to which the researchers can track the research process by showing the capacity to connect conclusions with all the raw data that formed the

conclusions. This makes the researcher responsible for documenting the inevitable changes that occurred in the setting as the research was conducted. Confirmability describes how the interpretations, results, and conclusions can be corroborated by the participants or other researchers. Confirmability is conducted through careful reflection on contradictory conclusions and thorough data audits that look for bias in the data collection and analysis methods. While the description of these criteria offer some parallels to quantitative research, they are clearly intended for local and contextualized understandings that are not supported by NCLB.

Some debates in qualitative research indicate how the reification of local knowledge and experience often excludes other levels of analysis. Critical Theory helps to broaden this perspective. Originating in Germany in the early 20th century with the integration of psychoanalysis and Marxist theory in the Frankfurt School, Critical Theory is now claimed as a theoretical home for numerous scholars in education and media studies. While early research in this tradition focused on issues of class and equity, current critical researchers highlight injustices from multiple perspectives including race, ethnicity and gender studying the relationship between social structures and ideological patterns of thought. Critical theorists reject what they perceive as reductive research approaches. Some critical researchers argue that a “neutral” stance toward research can too easily play into the conservative agendas of those who would rather preserve than challenge the status quo (Ferguson and Golding, 1997). Critical theory involves the ability to criticize the ideological frames that researchers use to make sense of the world and shows how ideology as a value system can be made visible to allow multiple understandings of concepts that are taken for granted (Kincheloe and McLaren, 2000) including “academic achievement,” “teacher/school performance,” and words that describe social and cultural difference like “gender,” “ethnicity,” “class,” “disability,” and “race.”

Critical Race Theory takes up the historical emergence, development, and transformation of the concept of race as well as its relation to other concepts that underlie and explain subject positions like class, ethnicity, gender, nationality, sex, sexuality, and religion (e.g., Delgado & Stafanic, 2000; Williams, 1991). By challenging the premises of liberalism, Critical Race Theory has led to researchers render race as the object of investigation rather than regarding it as a given concept. Critical Race Theory has led disciplines like education (Parker, Deyhle, & Villenas, 1999) to investigate the ways in which their specific histories and methodologies have been influenced by and have contributed to the idea of race and racism. Through techniques of legal scholarship, symptomatic readings, and social critique Critical Race Theory provides a framework for researchers and educational practitioners alike to understand the contingent and contentious nature of the label “race.”

Complementing issues of race addressed in Critical Race Theory, feminist scholarship brings important perspectives to bear on the construction of gender on the implications of research methods in education for equity. Feminist methodologies strive for non-sexist research methods that are based on a give and take between the researcher and researched (Oakley, 1981). Giving priority to first hand experience, reflexivity, and rejecting the hierarchy of researcher and researched relationship, feminist research methods stress integration of personal experience into research (e.g., Harding, 1989; Lather, 1991; Reinharz, 1992; Richardson, 1997). Feminist perspectives complement research methodologies that are practitioner based like Action Research.

Because education is a practitioner driven field, research that is conducted by educational practitioner is crucial. Action research is the process through which educators study their own practice (Corey, 1953; Lewin, 1946; Whyte, 1991). It is concerned with the everyday practice of

teachers and is highly situated. Borrowing from participant-observer techniques in ethnographic research, the method of Action Research is generally characterized as a recursive process of problem identification, systematic data collection, analysis, reflection, action taking, and finally refining the problem to start the process over (Kemmis & McTaggart, 1982). We introduce Action Research into this study as another methodology that provides educators with the reflective tools to address and understand how they can better teach culturally diverse and socially disadvantaged students, but which may receive less legitimacy under the research discourses that dominate NCLB.

The theoretical frameworks and research methodologies that have described above are not only appropriate for addressing the complex characteristics of the populations described of as “in need” by the NCLB but are also relevant to educational technology research, curriculum and policy. As described on the PT3 website, in 2002 the authority of federally funded educational technology grants has moved from the PT3 grants to the state level under the requirements of NCLB. This move implies that the discourses that pervade NCLB will infiltrate the federally supported educational technology initiatives are funded. In the next part of this analysis we look at how federally funded grants are addressing the issue of digital equity.

Educational Technology, Equity, and Federal Initiatives

From the PT3 Website Focus on: Digital Equity⁵

The status of the “Digital Divide” - the gap between people and communities who can make effective use of online technology and those who cannot-is the subject of vigorous debate. By the fall of 2001, 99 percent of K-12 schools had computers with internet access-so does that mean the digital divide is now resolved?

⁵ <http://www.pt3.org/stories/equity.html>

This opening paragraph of from the PT3 Digital Equity page deploys definition of the term Digital Divide that focuses on access to and utilization of technology. While this is obviously one aspect of the Digital Divide, this paragraph does not address any of the reasons why this divide exists or how educators can work to minimize the impact of such a divide. Like many of the circulating discourses around equity this definition focuses on the symptom rather than a careful consideration of the sources.

This page does note that numbers of computers in classrooms cannot be an indicator of equity. It also alludes to some of the broader issues that define the Digital Divide (such as lack access to computers outside of school, and the dearth of culturally relevant content) it does so in only a cursory manner, which lessens their importance in the context of the PT3 program. Indeed, the author of the page notes that the use of computers in the classroom is “‘dumbed down’ in underserved communities, “ focusing on vocational and applied skills rather than higher order skills deemed necessary for the “information economy.” Later in the page it is noted that, “[if] future teachers are empowered to harness the wealth of online educational material at their disposal, they will be able to overcome the inequities that exist in their buildings.” While these statements do capture some of the real inequities that exist within technology practice in schools, they fail to capture the deeper ways certain uses of technology in schools reinscribe social and cultural difference. The perspective in the PT3 site casts technology as, “a hero swooping down from a transcendental perch to save failing institutions (schools included) and to rescue citizens from the slough of stasis” (DeVaney, 2002).

Hank Bromley (1998) advocates for a view of technology as a social practice that “highlights those individuals and institutions responsible for introducing the technology” (p. 3). This focus is essential in order to understand the situations, reasons, and struggles of individuals

involved in the practice of technology in education. An important focus here is the social context mediated by the technology rather than just a focus on the technology itself. This focus is absent in the prevalent PT3 discourse. This absence is significant, because it can be argued that social and material conditions surrounding the use of a particular technology impact not only the use of the technology, but the contextual ways in which the technology affects those using it. This is evidenced in the recognition that technology is often used in reductive ways with poor and minority students. What is missing, however, is the recognition that these uses reflect an ignorance of the lived realities of students, the wide-ranging effects of technology, and the effects particular uses of technology has on determining what is taught.

It is important to examine some of the concrete ways in which technology determines the form and content of the curriculum, as well as students' and teachers' interaction with it. Technology is always subject to its limitations. These limitations within the technology are a reflection of the values of those who design, implement and maintain computer hardware and software. For example, decisions to include multiple-choice assessment tools into the educational software packages are made based on a very specific set of beliefs about teaching practices and learning (or perhaps in ignorance of others). The technical limits of these tools and the values they represent shape how we think about teaching and learning with technology. The limitations serve as parameters for what is possible within particular systems, and the range of possibilities is then further narrowed by the material conditions in which the teacher, students and the curricula are situated. Of the 40 PT3 grants that addressed some of the aspect of the digital divide as defined by the PT3 web site "improving digital access by working with minority, low income, and rural communities" the overwhelming majority of the grants address some form of access to

computer hardware and training. What these grants do not address is how computer technology is culturally constructed.

A cursory⁶ analysis of the summaries of the 40 projects listed on a grant focus search for *Improving Digital Access by Working with Minority, Low Income, and Rural Communities*⁷,” finds several discursive formulations surrounding technology and equity. These formations can be grouped into two general perspectives: the interventional - those that speak almost entirely (if not entirely) to the meeting of standards or efficacy of instruction, including technology integration; and the contextual - those that hint at sociocultural or systemic change. There are very few of the latter. For example, there are only 6 instances of language that hints at a broader approach to technology and equity than just meeting standards within the 40 grant projects surveyed. Conversely, there are 28 instances of language that speak directly to meeting standards, improving instruction, or integrating technology into teaching.

By far the most prevalent discourse was the interventional and within that almost 70% of the instances noted involved technology integration into teaching. The preponderance of this concept within grant projects that are identified as working to improve access suggests an additive approach to the problem of failing schools. In this sense, the mere injection of technology into a particular environment ameliorates other issues. It is important to note that this analysis is not looking closely at the projects, but rather their summaries. It is possible that more contextual work is occurring within the space of these projects, but it is not immediately visible if it is occurring.

The following is a good example of the projects on technology integration into teaching:

⁶ This is an initial and fairly informal survey of this data. Additional research will include more robust coding and analysis using qualitative analytic software, and more detail examination of the grant projects beyond their executive summaries.

⁷ Using the search function on the PT3 site, http://www.pt3.org/project_search.php3

The project will prepare 30 candidates to receive a master's degree in elementary education with a concentration in educational technology, thereby helping close the digital divide and alleviating a shortage of state certified teachers. (Implementation - P342A010120)

Within the grant projects surveyed, a number of digital divides were presented including those between students, schools, and between new and veteran teachers. What none of the grant projects in the interventional category mentioned was any non-school based intervention. These projects focused on the teachers and students within well-defined school based environments. This particular example is notable because it does not mention what digital divide is being closed, but the assumption that a concentration in educational technology will help close the digital divide is a common theme in this category of projects. This discursive bloc aligns closely with calls within NCLB for proven teaching methods.

Another concept notable in the interventional projects was meeting standards/improving performance. This was the second most common discursive occurrence after technology integration. Almost entirely these projects focus on the raising of academic achievement to meet a certain set (usually state) of standards. These projects explicitly state their goals of improving achievement on standardized measures:

The prime objective is to improve student performance so that over 70 percent of all students in the region pass Virginia's Standards of Learning tests. (Implementation - P342A990048)

The alignment of these projects with the language and philosophies of NCLB seems fairly tight most notably accountability for results.

In contrast, there are few projects that could be categorized as falling within the contextual (those that hint at sociocultural or systemic change) formation of technology and equity. This initial analysis identified 6 projects that contained language that could be construed as falling outside the narrowly defined borders of NCLB. Specifically, there were 3 projects that

mentioned systemic change, one invoking the empowering potential of technology within schools, one focused on providing social and technical supports for parental and community groups, and one which mentioned efforts for social change. Again, it is important to note that this is a cursory analysis based on readings of the project summaries; therefore, it should be noted that further analysis is warranted to determine if these projects actually operate within alternative spaces within the NCLB or if this language is merely superficial.

In noting and critiquing how these grants construct and address digital equity, we maintain that the limitations of the perspectives that are taken by the grants are to a large degree influenced by the grant requirements and that the sacrifices to robust theories of social and cultural diversity must be made in order to acquire federal funding. The potential danger is that this trend will be exacerbated as federal technology funding is disbursed through NCLB supported Ed Tech program.

The Enhancing Education Through Technology (Ed Tech) Program, moves the funding of educational technology to the state level to consolidate technology programs into a single “performance-based technology grant program.”⁸ The goals of the Ed Tech grants are to:

- 1) Send more dollars to schools for technology especially those schools in rural and low income areas;
- 2) Reduce paperwork and increases flexibility be streamlining the distribution of e-rate funds and giving schools the flexibility to use funds based on local needs including hardware, software, infrastructure and training;
- 3) Allow funds to be used for Internet Filters in support of the Children’s Internet Protection Act of 2000;

⁸ <http://www.ed.gov/offices/OESE/esea/nclb/partx.html>

- 4) Focus funds on proven means of enhancing education through advanced technology that link state standards to student achievement; and,
- 5) Offer matching grants for community technology centers to create Community Technology Centers in high poverty areas.

Goal four is the most relevant goal to this study and the one that will require the greatest future scrutiny as it is implemented and the one that we plan to monitor in subsequent research.

CONCLUSION

This study has shown how the gaps created by discourses surrounding particular educational policies and educational technology discourses have profound impact on the quality and equity of education practice. Our analysis has shown how the structuring absences within NCLB, the PT3 grant program and the Enhancing Education Through Technology (Ed Tech) Program construct subject-positions for teachers, students, and parents that are geared towards narrowly defined constructions of student achievement and educator efficiency. These positions do not lead to the creative and flexible thinkers with technology necessary to prosper in the age of digital literacy but instead lead to homogenized results in accordance with standards movements that are structured by the absence of social and cultural difference.

Using discourse from a variety of sites including the NCLB, Ed Tech, and PT3 web sites; NCLB legislation, and grant projects funded by the PT3 program we demonstrated the correspondences between the discourses of contemporary educational reform efforts and legislation the implementation of technology in schooling. By analyzing these discourses for the absences that facilitate them we illustrated the continuing social and cultural inequity often prevalent in research and practice grounded in monolithic and narrow epistemologies.

References

- Althusser, L., & Balibar, E. (1998). Reading capital (B. Brewster, Trans.). London: Verso.
- Bromley, H. (1998). Introduction: data-driven democracy? Social assessment of educational computing. In M. W. Apple & H. Bromley (Eds.), Education, technology, power : educational computing as a social practice (pp. 1-25). Albany: State University of New York Press.
- Chouliaraki, L., & Fairclough, N. (2000). Discourse in late modernity (critical discourse analysis). Edinburgh: Edinburgh University Press.
- Corey, S. (1953). Action research to improve school practice. New York: Teachers College, Columbia University.
- Delgado, R., & Stefancic, J. (Eds.). (2000). Critical race theory: The cutting edge (2nd ed.). Philadelphia: Temple University Press.
- DeVaney, A. (1998). Will educators ever unmask that determiner, technology? Educational Policy, 12(5), 568-585.
- Fairclough, N. (1995). Critical discourse analysis. London: Longman
- Ferguson, M., & Golding, P. (eds.) (1997): Cultural Studies in Question , Thousand Oaks CA: Sage.
- Gay, G. (2000). Culturally responsive teaching : theory, research, and practice. New York: Teachers College Press.
- Guba, E. G., & Lincoln, Y. S. (1989). Fourth generation evaluation. Newbury Park, CA: Sage Publications.
- Guidance on the Enhancing Education Through Technology (Ed Tech) Program. (2002). Retrieved April 6, 2003, from <http://www.ed.gov/offices/OESE/esea/edtechguidance.doc>
- Harding, S. (1989). Is there a feminist method?. in N. Tuana (ed.) Feminism and Science. Bloomington, IN: Indiana University Press.
- Kemmis, S., & McTaggart, R. (1982). The action research planner. Victoria, Australia: Deakin University Press.
- Kincheloe, J., & McLaren, P. (1994). Rethinking critical theory and qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds.), The landscape of qualitative research: Theories and issues. Thousand Oaks, CA: Sage, 195-220.

- Kress, G. (1991). Critical discourse analysis. Annual Review of Applied Linguistics, 11: 84-99.
- Ladson-Billings, G. (1994). The dreamkeepers: Successful teachers for african-american children. San Francisco: Jossey-Bass.
- Ladson-Billings, G. (1995). But that's just good teaching! The case for culturally relevant pedagogy. Theory Into Practice , 34(3), 159-165.
- Lather, P. (1991). Getting smart: feminist research and pedagogy with/in the postmodern. New York: Routledge.
- Lewin, K. (1946). Action research and minority problems. Journal of Social Issues, 2(4), 34-46.
- Morrow, R. A., & Brown, D. D. (1994). Critical theory and methodology. Newbury Park: Sage.
- Oakley, A. (1981). Interviewing women: A contradiction in terms in H. Roberts (ed), Doing feminist research. Routledge & Kegan Paul, London.
- Parker, L., Deyhle, D., & Villenas, S. (1999). Race is...race isn't: Critical race theory and qualitative studies in education. Boulder, CO: Westview press.
- Pfeiffer, D. (2002). The philosophical foundations of disability studies. Disability Studies Quarterly, 22(2), 3-23.
- Reinharz, S. (1992). Feminist methods in social research. New York: Oxford University Press.
- Richardson, L. (1997). Fields of play: Constructing an academic life. Piscataway, NJ: Rutgers University Press.
- Rooney, E. (1989). Seductive reasoning: Pluralism as the problematic of contemporary literary theory. Ithica, NY, Cornell University Press.
- Stanfield, J.H. (1993). Epistemological considerations. In J.H. Stanfield & R.M. Dennis (Eds.), Race and ethnicity in research methods (pp. 16-36). Newbury Park, CA: Sage.
- U.S. Department of Education. (2002a). No Child Left Behind Act of 2001. Retrieved 2/14/2003, 2003, from <http://www.ed.gov/legislation/ESEA02/107-110.pdf>
- U.S. Department of Education. (2002b). No child left behind act: A desktop reference. Retrieved 2/14/2003, 2003, from <http://www.ed.gov/offices/OESE/reference.pdf>
- Whyte, W. F. (ed.) (1991). Participatory action research. Newbury Park, CA: Sage Publications.
- Williams, P. (1991) The alchemy of race and rights: Diary of a law professor . Cambridge, MA: Harvard University Press.