

Apple, M. (1992). "Do the Standards Go Far Enough? Power, Policy, and Practice in Mathematics Education." Journal for Research in Mathematics Education **23**(5): 412-431.

Although NCTM's *Curriculum and Evaluation Standards for School Mathematics* (1989) and *Professional Standards for Teaching Mathematics* (1991) are generating considerable interest, there has been little discussion of their ideological and social groundings and effects. By placing the *Standards* within the growing conservative movement in education, this paper raises a number of crucial issues about the documents, including the depth of the financial crisis in education and its economic and ideological genesis and results; the nature of inequality in schools; the role of mathematical knowledge in our economy in maintaining these inequalities; the possibilities and limitations of a mathematical curriculum that is more grounded in students' experiences; and the complicated realities of teachers' lives. Without a deeper understanding of these issues, the *Standards* will be used in ways that largely lend support only to the conservative agenda for educational reform.

Bartolome, L. I. (1994). "Beyond the Methods Fetish: Toward a Humanizing Pedagogy." Harvard Educational Review **64**(2): 173-94.

Bartolome critiques the prevalent attachment to methods and techniques in teacher education in "serving" subordinated students. She argues that it is essential for teachers to develop political clarity in addition to content knowledge in order to use methods that allow students to move from object to subject and that allow teachers to know their students deeply. She criticizes the common deficit model, where subordinated students are viewed as deficient. Finally, she describes two approaches to potentially humanizing pedagogy: culturally responsive instruction and strategic teaching.

Belenky, M. F., B. M. Clinchy, et al. Women's Ways of Knowing: Development of Self, Voice, and Mind: 193-198.

Belenky et. al. posit that for women, confirmation and community are prerequisites to achievement and development, whereas for men they are considered final rewards. This difference has large implications in schooling and academia. The authors make the point that trust is crucial in allowing women to feel that they can become more knowledgeable, and that lack of trust is crippling. Finally the authors discuss the frequency that women feel oppressed or patronized and note that women are often suspicious of their interactions with male professors and the games that can ensue.

Boaler, J. (1998). "Open and Closed Mathematics: Student Experiences and Understandings." Journal for Research in Mathematics Education **29**(1): 41-62.

Boaler describes her large and longitudinal study at two secondary schools in the UK, Amber Hill and Phoenix Park. Teachers at Amber Hill used traditional, textbook approaches to teaching mathematics, while teachers at Phoenix Park used open-ended questions in a problem-based orientation. Boaler found that students at Amber Hill had more difficulty using mathematics in a contextual situation than the Phoenix Park students, that students at both schools did not differ significantly from each other on non-contextualized mathematics tests, and that Amber Hill students sometimes had difficulty with non-contextualized tests because cues for which rules to follow were absent. Boaler shows that flexible thinking and a willingness and ability to try different approaches were central components of Phoenix Park students' views of the nature of mathematics, whereas Amber Hill students saw mathematics as rule-bound and based on memorization. Amber Hill students also tended to think of mathematics class as boring and tedious, while Phoenix Park students felt mathematics class was noisy and interesting.

Boaler, J. (2000). "Exploring Situated Insights into Research and Learning." Journal for Research in Mathematics Education **31**(1): 113-119.

Boaler reexamines her data from the 1998 JRME article in which she focused on students learning mathematics in 2 schools. In this article, she considers a situated framework that allows the classroom community to affect understanding of how students produce and use mathematical knowledge. The behaviors and practices of these communities, she argues, are significant in understanding the production of knowledge.

Ernest, P. (2000). Why Teach Mathematics? Why Learn Maths? J. White and S. Bramall. London, London University Institute of Education.

Ernest begins with 3 theses:

- (1) school math is neither uniquely defined nor value- or culture-free,
- (2) academic math is greatly overestimated, and
- (3) the aims of teaching math cannot be meaningfully considered in isolation from their social context.

He thoroughly debunks the utility justification and focuses on three theses: mathematics as culturally produced; the overvaluation of mathematics as necessary for economic survival/success; and the ways that mathematics is embedded in society. Ernest then identifies the common aims of math education, stating the progressivist aim is disappearing and the critical theorists' is unformed. In conclusion, he suggests four aims of school math beginning with skill,

creative capabilities, social applications, and inner appreciation.

Giroux, H. A. and P. McLaren (1995). Teacher Education and the Politics of Engagement: The Case for Democratic Schooling. Breaking Free: The Transformative Power of Critical Pedagogy. P. Leistyna, A. Woodrum and S. A. Sherblom. Cambridge, MA, Harvard Educational Review: 301-331.

Authors argue that many recent reform efforts in education sidestep or backtrack from efforts to educate for a democratic citizenry. Teachers as "transformative intellectuals" can reclaim space in schools for discussions investigating the relationships among authority, teacher work, schooling, and the social order. The authors outline a teacher education curriculum that links the critical studies of power, language, culture, and history to the practice of a critical pedagogy, one that values student experience and student voice and leads to the transformation of schools into democratic public spheres.

hooks, b. (1994). Eros, Eroticism, and the Pedagogical Process. Teaching to Transgress: Education as a Practice of Freedom. New York, Routledge: 191-199.

hooks examines the split between body and mind inherent in academia and teaching, and the absence of passion in higher education. She makes the case that we cannot inhabit classrooms as disembodied spirits but must address passion in the classroom in order to be whole human beings. She believes that the force of eros in the classroom provides an energy that can be healing and invigorating for all, that can unite theory and practice, and that can allow us to find our voices. Rather than ignore the body, eros, and eroticism, hooks claims that we must allow the mind and the body to feel desire in order for education to have its greatest impact.

Kellner, D. (2001). Critical Theory, Poststructuralism, and the Philosophy of Liberation: 5.

Kellner critiques Enrique Dussel's book on a philosophy of liberation by contrasting the Philosophy of Liberation with Western Philosophy and with Critical Theory. He notes that the Philosophy of Liberation argues that Western Philosophy is limited in scope, idealist, and subjectivist. On the other hand, there are many parallels between the Philosophy of Liberation and Critical Theory, since both are concerned with liberation from state economic and political structures, both reject instrumental rationality, and both focus on needs and suffering. Kellner goes on to consider how universal a philosophy of liberation need be and wonders about the role of philosophy in the practice of liberation. He concludes by noting that a new synthesis of the Philosophy of Liberation and Critical Theory may be fruitful.

Kincheloe, J. L. and S. R. Steinberg (1986). A Tentative Description of Post-Formal Thinking: The Critical Confrontation with Cognitive Theory. Breaking Free: The Transformative Power of Critical Pedagogy. P. Leistyna, A. Woodrum and S. A. Sherblom. Cambridge, MA, Harvard Educational Review: 167-195.

The authors illustrate how, for the most part, educational research and pedagogical theories and practices are still overwhelmingly obsessed with "innate" cognitive explorations. Contesting such limited analysis of learning and teaching, the authors critique and challenge prominent conceptions of intelligence that underlie cognitive developmental theory. Working from the premise that traditional boundaries of thinking and creativity separate logic, emotion, and context, these authors contend that educational institutions function to suppress diversity, the development of critical consciousness, and social agency. They argue in fact that schools operate and evaluate on the lowest level of human thinking - the mere ability to memorize without contextualization and understanding. Recognizing the relationship among ideology, power, and knowledge, the authors delineate features of a socio-cognitive theory, what they refer to as a post-formal way of thinking, and provide practitioners with a critical framework for reconsidering both curricular and pedagogical practices.

Kumashiro, K. K. (2001). "'Posts' Perspectives on Anti-Oppressive Education in Social Studies, English, Mathematics, and Science Classrooms." Educational Researcher 30(3): 3-12.

Kumashiro argues that to foster anti-oppressive education we cannot simply add perspectives and voices to the classroom; we must change what is considered the norm--the usual lens through which we view perspectives and voices. He suggests that unknowability and crisis are two potent forms for conceptualizing anti-oppressive education. Unknowability refers to the idea that all knowledge is partial and that a greater number of voices merely changes the story but cannot ever reveal Truth. Crisis refers to the need to experience learning as a form of crisis--a need to desire the uncomfortableness that confronting issues of unknowability and our own oppressive practices/thinking provoke. Kumashiro offers some concrete descriptions for social studies, English, and math and science classrooms that revolve around deeply questioning and learning to look critically at the production and valuation of knowledge and learning.

Lather, P. (1991). Staying Dumb? Student Resistance to Liberatory Curriculum. Getting Smart: Feminist Research and Pedagogy with / in the Postmodern. New York, Routledge, Chapman, and Hall, Inc.: 123-152.

This chapter serves to "deconstruct empirical inquiry where the methodological issues laid out in

the preceding parts of the book are brought to bear on my three-year study of student resistance to liberatory curriculum in an introductory women's studies course." She writes in an extremely self-reflective manner, one that acknowledges the extreme difficulty of saying what she means, especially as her perspectives and interpretations change over time. The result provides insight into the complexity of raising awareness of oppression in students. She speaks of "pedagogy as text," meaning it is within the actions of the teacher and the classroom discourse that the learning, on a variety of levels, occurs.

Lather, P. (1998). "Critical Pedagogy and Its Complicities: A Praxis of Stuck Places." Educational Theory 48(4): 487-498.

Lather critiques two calls for salvaging critical pedagogy, one by Peter McLaren and one by Ilan Gur-Ze'ev. She faults both for being too abstract, too sure of a single "right answer," and divorced from a grounding in work between teachers and students. She feels that McLaren's work is a return to a Marxist framework and Gur-Ze'ev's work posits a belief in a positive utopia. In contrast, Lather holds up the work of Alison Jones as a concrete example of liberatory pedagogy that yields the conclusion that members of the subordinated classes may not want to be known or gazed upon by members of the dominant classes.

Leistyna, P. and A. Woodrum (1995). Teacher Education and the Politics of Engagement: The Case for Democratic Schooling. Breaking Free: The Transformative Power of Critical Pedagogy. P. Leistyna, A. Woodrum and S. A. Sherblom. Cambridge, MA, Harvard Educational Review: 1-8.

Works to define critical pedagogy - "challenges us to recognize, engage, and critique (so as to transform) any existing undemocratic social practices and institutional structures that produce and sustain inequalities and oppressive social identities and relations." Rejects technocratic models of learning. Emphasizes power, culture, and context.

Nunes, T. Ethnomathematics and Everyday Cognition. Handbook of Research on Mathematics Teaching and Learning. D. A. Grouws. New York, Macmillan: 557-574.

Differentiating among mathematical knowledge across and within cultures must evolve not only to find differences in the mathematical practices but also the structures embedded in those practices. These structures are the logical invariants that underlie those differences and are present in school and out-of-school mathematics. With this perspective in mind and assuming that learning should be accomplished through mathematizing, Terezinha Nunes describes the cultural and logical invariants of the ethnomathematics of counting, measurement, arithmetical

operations, and modeling across several cultures through the study of the mathematical practices of schooled and unschooled children and adults. Some theoretical constructs for understanding the research results are discussed and the implications for school mathematics and instruction are suggested.