

*Book Review*

# Lines of Flight in Mathematics Education and Research

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Walshaw, M. (Ed.). (2004). *Mathematics education within the postmodern*.  
Greenwich, Connecticut: Information Age Publishing.  
254 pp. ISBN 1-59311-130-4

Postmodernism brings with it a plethora of philosophical, theoretical, and social debates about the nature of knowledge, truth, subjectivity, and power. In the timely production of *Mathematics Education within the Postmodern* (2004), Margaret Walshaw presents us with a tapestry of papers which, in embracing uncertainty and the instability of language and identity, opens up potential 'lines of flight' in mathematics education and research. As a welcome discursive event, these papers collectively energise debate, and perhaps facilitate change, in an educational enterprise desperately in need of reform yet within which we are (always becoming) subjects.

Postmodern critiques offer an alternative understanding of the commonly taken-for-granted of educational change. They create a climate of challenge and inquiry in which even the seeming innocence of words can not go unchallenged (Atkinson, 2002). While there is a common perception that postmodern theoretical perspectives lack an agenda for social change, to the postmodernist the personal is political (and vice versa). Macro-structures, whether research methods, assessment regimes or corporate managerialism in its many forms, stand only as long as individual and collective need or desire sustain them. Discourses shape desire, and can be opened up to new possibilities and practices through new ways of speaking mathematics education into existence, as in *Mathematics Education within the Postmodern*. Here the deconstructive manoeuvres are educative and seditious, constituting what seems to me to be a very healthy way of being in educational practice and research. While there are many ways in which one could choose to speak to the papers in this volume, I have assembled them under the banners of a postmodern climate of challenge and inquiry, the productive power of discourse, and the de-centred subject.

## A Climate of Challenge and Inquiry

Deconstructive moves can be noted in the Valero, Meaney, and Cotton chapters where these authors enter into research clearly cognisant of the constructed nature of knowledge and identity. For example, Paola Valero attempts to reconcile how students are constructed in research as cognitive subjects, mere 'portraits' of the fleshy, human subjects, whose lives "shook [her] in significant ways" (p. 36). Revealingly, Paolo demonstrates that these are not 'schizomathematicslearners' whose historic, social, political, and economic contexts can be split off, and discarded allowing the cognitive to function alone. Learners of mathematics, Paolo reveals, are much more complex; they can not leave their social constitution behind them, and of course, we have for far too long ignored this at our peril.

Tamsin Meaney, too, cleverly demonstrates how her construction of herself as 'consultant' can be deconstructed. Tamsin participated in a curriculum development project in a small indigenous school community in New Zealand. As she says, her research caused great anguish as she began to deconstruct some of the accepted wisdoms regarding societal relationships. As she worked on the project she developed a complex understanding of the operation of power in her interactions with community members. The notion of consultant 'role' was questioned, and often found wanting. Perhaps the concept of 'positioning' would be more appropriate, indicating how discourses make possible certain subject positions through which we are able to interact with the world (Davies, 1994). Participants do not merely subscribe to roles and rules; strategies and relationships of power circulate to fabricate the narratives through which community members and Tamsin herself participated in the project.

Tony Cotton offers a critique of dominant constructs of mathematics education research and assessment practices; he reveals how postmodern thought has influenced the ways he views assessment practices and the way he writes about what he sees. Tony, as does Lyotard (O'Donnell, p. 27), abandons the classical attempt of Western philosophy to form total explanations and eternal truths. The knowledge produced is partial, locatable, critical. Research, researchers, policy and policy makers are always situated; though one can take a position there is the recognition that there is no one truth or right way to do things. Knowing this, researchers are open to new possibilities and the idea(l) of small, locatable yet potentially significant change. What Tony accomplishes, I think, is the decentring of a form of assessment that is overly conservative and discriminatory, a form of assessment that closes down, or obstructs, the proliferation of knowledge. As Butler (cited in Atkinson, 2002, p. 77) cautions:

To deconstruct is not to negate or dismiss, but to call into question and, perhaps most importantly, to open up a term ... to a reusage or redeployment that previously had not been authorised.

## The Productive Power of Discourse

A discourse may poison, surround, encircle, imprison or liberate, heal, nourish, fertilise ... (Luce Irigaray, in O'Donnell, p. 26).

Several chapters in *Mathematics Education within the Postmodern* contemplate the productive effects of different form of social practice on students' and teachers' constitution as subjects. These chapters show how discourse (as a noun) and discursive practices operate to position participants in ways that can support or suppress generative participation. It is noteworthy in these chapters how the old (modern) influences the new (postmodern); the new overwrites the old, yet the old is still there as a moderating force: "Like the palimpsest of writings on an old parchment, where the old was partially rubbed out and the new overlaid on the old, the old can still be seen and shapes, at least in part, how we see the new" (Davies, 1996, p. 17). I see this as an energising process; mathematics education presents itself in these chapters as abundantly alive, opening up the old and the new to meanings and interpretations previously unimagined.

Agnes MacMillan picks up on the positive aspects of discourse where discursive practices in the classroom encourage her students to 'take up' numerate identities by explaining, reporting, arguing and being critically reflective. Communicative competence, says Agnes, is integrally related to social competence in the discourse of mathematics education. Paul Ernest and Tansy Hardy detect 'power at play' - Paul noting how "In learning to maintain the depersonalised objectified and standardised discursive style of mathematics, the learner is also subjectifying herself, that is constructing a limited and new self-identity as a mathematical subject" (p. 30). Tansy Hardy, too, shows how subjects are produced and regulated in discourse. She analyses interaction in a 'numeracy hour' interaction to demonstrate how normalising assumptions about learners and learning inevitably lead to the persistence of inequality and little change. I found Tansy's representation of not only the constituted student but also the teacher-subject as particularly thought provoking; a teacher daily achieving herself as competent practitioner is unlikely to rethink, or challenge taken-for-granted understandings that currently ground her practice. The postmodern reading of 'benign' initiatives here serves to "render the familiarity of mass education strange" (Atkinson, 2002, p. 78) and reveal its subtext and textual silences. This is not just a way of thinking; it is a medium for critical engagement with educational and social policy agendas (Atkinson, 2002).

Tony Brown, Liz Jones, and Tamara Bibby track the unpredictable identity constructions of preservice and novice teachers. Their interest is in perceptions of the 'self' and how it is represented. They found it impossible to fully appreciate and reconcile the many discourses acting through the trainee teachers, who, nevertheless buy into 'official' discourses. They, like ventriloquists' dummies, are unable to engage creatively with children's self-authored mathematical constructions. This is hardly surprising, I suppose, given the operation of the discourses through which these students have

been constituted over time; they have not been positioned as generative and agentic participants in the mathematics education (now intersecting with teacher education) discourses. Somehow, the discourse of teacher education, as a 'border pedagogy' (Davies, 2000) has to operate in ways that may make 'engaging creatively' with children possible. As St Pierre & Pillow (2000, pp. 6–7) state:

The subject of poststructuralism is generally described as one constituted, not in advance of, but within discourse and cultural practice. Some critics believe that such a subject is also determined, but Butler (1992, p. 13) explains that agency of this subject lies precisely in its ongoing constitution – the "subject is neither a ground nor a product, but the permanent possibility of a certain resignifying process".

## The Decentred Subject – Critiquing Essentialism

Lacan's notion of the self embedded in the flow of language informs chapters by Margaret Walshaw and Tania Cabral. Lacan's position, as I understand it, is that unconscious processes always influence conscious intentions and experience. Margaret develops this idea powerfully as she works through a useful analysis of how constructivist, sociocultural, and situated views of learning all share a commitment to the "fundamental importance of rational thinking and to the rational, conscious thinker" (p. 126). Rather, she suggests, learning should be seen as a psychic event "circumscribed far beyond the rational autonomous knower. It is mediated by unseen, unspoken, atemporal coordinates, that serve to undermine any certain basis for reasoned learning" (p. 137). Tania Cabral goes one step further to explore and theorise how the learner is constituted in a language community. Tania asserts the relation between affect and cognition and develops the psycho-analytic notion that "it is in speaking that one learns and through listening that one teaches" (p. 147). Using Lacan's notion of transference to inform pedagogical transference, Tania provides practical examples where educators facilitate the mathematics learning of two students. Language is central in the very process of the constitution of the subject - if students are to be captured in the discourses of teaching practice then educators need to stop talking and start listening to the students.

Kristeva developed further this notion of the importance and significance of the teaching-learning relationship. Where Lacan posited what appears to me to be a rather self-centered, self-serving relationship of self affirmation and anxiety reduction, Kristeva sought a "wholesome dynamic" (O'Donnell, 2003, p. 80), a genuine relationship between relational selves. M. Jane Fleener stresses the interconnectedness of processes and relationships through Deleuzian cartography (rather than philosophy) which embraces difference and chance. The learner subject is a nomad, a subject in transition; available to her/him is "No one centre of permanence, certainty, objectivity, Truth but perpetual becomings, nonlinear relationships, organic process, emerging meanings" (p. 203). Jane's teaching becomes a process of students

developing relationships with each other, with herself and with mathematics. Value is placed on the ethic of emergence and connection. For me, Jane's teaching and research have important educational and social implications; only by recognising the learner and learning in these ways might we be able to move beyond cruel binaries and dualisms, to the positive productivity of difference, in mathematics education discourse(s). Bell hooks (1991, cited in Weedon, 1997, p. 177), for example, applauds post-modernism's legitimation of 'marginal' subjectivities and ways of knowing (Atkinson, 2002):

The critique of essentialism encouraged by postmodern thought is useful for African-Americans concerned with reformulating outmoded notions of identity. We have too long had imposed upon us from both the outside and the inside a narrow constricting notion of blackness. Postmodern critiques of essentialism which challenge notions of universality and static overdetermined identity within mass culture and mass consciousness can open up new possibilities for the construction of self and the assertion of agency.

Jim Neyland tackles the teacher-student relationship in a complementary direction supported by the thinking of Levinas, a Jewish philosopher. A key epistemological concept here is the role of alterity, the Other and how only in relationship we define our being. Jim notes that modernity's ethical-legal code at best paralyzes the ethical self, and at worst, erodes it. In regards to mathematics education, teachers are not able to act with ethical and professional autonomy when subject to procedures of scientific management. The task for mathematics education is to restore the primacy of the direct relationship of responsibility between students and teachers. There needs to be a grass roots, postmodern re-enchantment of mathematics generating a new sense of purpose, and creative spontaneity. I sense that Jim and Jane Fleener (above) could have some very productive conversations.

## Conclusion

I began this review referring to *Mathematics Education within the Postmodern* as a tapestry, evoking notions of something compelling yet complete. In conclusion, I feel I should refine my metaphor in a Deleuzian way to emphasise the potential effectivity of this text and how it may foster new linkages and alignments in mathematics education and research. Recognising the subject in transition, a "nomad" and knowledge growth as rhizomatic, rather than predictable and linear, Grosz (1995, pp. 126–127), in keeping with Deleuze, says:

Instead of the eternal status of truth, or the more provisional status of knowledge, texts have short term effects, though they may continue to be read for generations. They only remain effective and alive if they have effects, produce realignments, shake things up. In Deleuzian terms, such a text, could be described as fundamentally moving, "nomadological" or "rhizomatic".

It is in this sense that I strongly recommend *Mathematics Education within the Postmodern* to my colleagues in mathematics education and research.

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