

## BOOK REVIEW

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# What if Mathematics Could No Longer Be Trusted? A Review of *In Doubt—About Language, Mathematics, Knowledge and Life-Worlds*<sup>1</sup>

Brian R. Lawler

*California State University San Marcos*

If, as a field, we are not willing to recognize the political nature of mathematics education or the fact that teaching and learning are negotiated practices that implicate our identities, we might as well give up on all of this “talk” about equity.

– Gutiérrez, 2010, p. 27

The past century of mathematics education could be observed to follow a trend initiated with efforts to reconstitute the rigor in the discipline of mathematics with an axiomatic, logical structure at its focus<sup>2</sup> (e.g., the influence of the Nicolas Bourbaki group on the new math movement), followed by a slow emergence of attention turned to the learning child (Papert, 1971/1980; Shulman & Keisler, 1966; Smock, 1976; Wittrock, 1974). This mid-1980s turn toward the learning child spawned an era, embraced widely by the mathematics education community, in which the *individual* active learner—the constructing subject—became the focus. The mid-1980s also marked another turn: “the *social turn* in mathematics education” (Lerman, 2000, p. 23). Here, meaning, thinking, and reasoning were understood as products of social activity, attending to communities of practice to

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<sup>1</sup> Skovsmose, O. (2009). *In doubt: About language, mathematics, knowledge and life-worlds*. Rotterdam, The Netherlands: Sense. 166 pp., \$39.00 (paper), ISBN: 978-94-6091-026-5 [https://www.sensepublishers.com/product\\_info.php?cPath=54&products\\_id=925&osCsid=2c51ff76b183b49c8cae763c8eaae2cf](https://www.sensepublishers.com/product_info.php?cPath=54&products_id=925&osCsid=2c51ff76b183b49c8cae763c8eaae2cf).

<sup>2</sup> Dewey’s progressive education may represent the saving balance in the U.S. context from creating a child-free educational experience, in which the full educational purpose was to indoctrinate youth with the scientific knowledge of disciplines. For example, in *The Child and the Curriculum* Dewey (1902) argued, “The case is of child. It is his [and her] present powers which are to assert themselves; his [and her] present capacities which are to be exercised; his [and her] present attitudes which are to be realized” (p. 31).

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BRIAN R. LAWLER is an assistant professor of mathematics education in the College of Education, at California State University San Marcos, 333 South Twin Oaks Valley Road, San Marcos, CA 92096; e-mail: [blawler@csusm.edu](mailto:blawler@csusm.edu). His research interests include power and privilege in mathematics education, personal epistemologies of adolescent mathematical learners, and the intellectual joy of mathematics teachers. He is a contributing author to the *Interactive Mathematics Program*.

understand children's mathematical ways of thinking and operating. For example, Fennema (1984) and Secada (1992) brought to the fore the need to understand issues of social inequity toward achieving a more egalitarian mathematics education; Reyes and Stanic (1988) set forth a powerful and lasting frame for equity research in mathematics education, based in the social activity of learning; and Bishop (1988) identified culture as an important point of orientation for mathematics education. Yet, even within these turns, the specter of a Platonic view on mathematics remained largely unassuaged within mathematics education.

At present, Gutierrez (2010), among others (see, e.g., Martin, Gholson, & Leonard, 2010), bring to focus the recognition that power and privilege are tightly entangled in the enterprise of mathematics and mathematics education. Some understanding of this entanglement was decried by critical mathematics educators well over two decades earlier (see, e.g., Frankenstein, 1983; D'Ambrosio, 1985; Skovsmose, 1985; see also Powell, 1995), many of whom drew upon the critical pedagogy inspired by Freire (see, e.g., 1970/2000), a pedagogy intended to "help students develop consciousness of freedom, recognize authoritarian tendencies, and connect knowledge to power and the ability to take constructive action" (Giroux, 2010, p. B15).

Skovsmose (1994) extended this pedagogy to posit a philosophy of critical mathematics education: "If educational practice and research are to be critical, they must address conflicts and crises in society" (p. 220). His primary influence was the distinctly German collective of critical thought, the Frankfurt School. For Skovsmose, mathematics presented itself as critical—relying on a second meaning of the term, imperative—in that it possessed both a *symbolic power* and a *formatting power*. Mathematics could be used to model aspects of life, society, and inequities. Yet it was also true that mathematics formatted our experiencing of those very occurrences—our life-worlds, and in particular the inequities of our social world. As such, mathematics education too is critical (imperative), and hence must be critical (questioning): "I see critical mathematics education as a preoccupation with challenges emerging from the critical nature of mathematics education" (Skovsmose, 2004, p. 1). Similarly, "by claiming the role of mathematics education is critical, I mean that the socio-political roles of mathematics education are both significant and indeterminate" (Skovsmose, 2005, p. 40).

Skovsmose's previous work, digging into differing ways that mathematics operates, orients the reader to the significance of his most recent book *In Doubt—About Language, Mathematics, Knowledge and Life-Worlds* (2009). This book digs into the important questioning of the legitimacy of knowledge, in particular mathematics, in the context of a just, democratic, and equitable education. Skovsmose stakes a strong claim that the modern<sup>3</sup> view of knowledge, and in par-

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<sup>3</sup> This use of *modern* is meant to refer to an era of thought, obsessed with truth and certainty.

ticular mathematics, must be taken in doubt; that “the ideas of objectivity, certainty, transparency, progress, and neutrality should be considered myths, and that the modern conception of knowledge is an illusion” (p. 73). To trouble the ways in which mathematics as a form of knowledge, governs (Foucault, 1980; Popkewitz, 2004) mathematics education, puts at the fore the socio-political nature of the teaching and research practices of the field of mathematics education. Throughout *In Doubt*, Skovsmose works further to address a fundamental question that locates his work regarding “the relationship of traditionally established areas of knowledge: What is the status of [mathematics] in critical education” (Skovsmose, 1994, p. 24)?

### Introducing *In Doubt*

If pressed to capture the content of *In Doubt* in a brief statement, I would summarize the work as having two goals. First, it is an effort to cultivate a notion of mathematics as an open concept, one without unifying essentials; and second, to bring to the fore the resulting trouble that creating uncertainty in knowledge causes the knower. Throughout the book, it is clear that for Skovsmose (2009), “‘Truth’ is a most uninteresting thing” (p. 103). In the introduction, he argues that his work as a mathematics education researcher has brought him to realize the importance of addressing the “more general epistemic issues” (p. 1). In so doing, he organizes the book into four parts, deliberating on: (a) language, (b) mathematics, (c) knowledge, and (d) life-worlds.

Such an organization creates an immediate curiosity to understand the sequence of these parts, in particular the first three. Skovsmose (2009) begins with a sketch of Nietzsche’s perspectivism, providing a personal account for recognizing that one’s own way of knowing the world is one of many, and thus not definitively true. This account is followed by a review of three critiques of language, toward declaring that language does not provide a transparent tool for reporting on things. Rather, language plays a role in actively shaping our reporting of such things, and thus shapes those very things. In that, “the grammar of language is more than a reflecting device; it is a constitutive device” (p. 29). And while he acknowledges that mathematics can be considered many other things, he turns to consider mathematics as language. Thus, the dualistic nature of mathematics, as both descriptive and constitutive, can be considered; “power ... can be exercised through mathematics” (p. 35).

To further consider mathematics, Skovsmose (2009) introduces his notion of *mathematics in action* (p. 52). Because mathematizing involves a re-composition of what is described, it does not bring us to know things. Rather, mathematics works to determine our relation to things-for-us, as opposed to providing any in-

sight into things-as-such. Skovsmose then turns to the fabricating,<sup>4</sup> constructive qualities of mathematics: the fabrication of possibility, of strategy, of fact, and of contingency. He considers how mathematics helps to produce (i.e. fabricate) objectivity and life-worlds. In this fabrication, it is further evident that it is illusory to consider knowledge to operate within value-neutral territory. As such, our life-worlds are immersed in fabrication.

Having declared the modern conception of knowledge to be an illusion, Skovsmose (2009) contemplates the effects of this sort of reconstitution of knowledge in the third section. He frames the modern project as one to distill objectivity, certainty, transparency, progress, and neutrality. In this analysis, Skovsmose challenges us to consider what it could mean to fabricate knowledge about a reality that is itself fabricated.

Mathematics then, as fabricated knowledge, can be viewed as a way to show what local truths and local forms of certainty could mean. And “when mathematics is brought into action, objects emerge and truths become fabricated about these objects” (Skovsmose, 2009, p. 91). But rather than expecting a uniform notion of truth, one should expect a most varied kind. This notion leads to a recognition that knowledge, and mathematics in particular, is quite scary: it becomes complex, unpredictable, subjective, biased. Skovsmose concludes that knowledge, like mathematics, is an open concept, undefined. But Skovsmose refuses to allow that giving up an effort to define knowledge does not mean he will give up using the notion of knowledge. It will simply have to continue to mean many different things, and operate in many different ways.

In Skovsmose’s (2009) consideration of language, mathematics, and knowledge, he uses the formatting power of language to press the reader to reconsider the univocality of mathematics. The example of mathematics, in particular mathematics in action, as an open concept becomes an instantiation of knowledge refusing a knowable truth. In the final section, Skovsmose turns his attention to *life-worlds*, one’s lived reality. In particular, what solace might one find in a life-world that embraces a view that knowledge is an open concept? Within this flood of uncertainty, one is “doomed to address *something* [emphasis added] while submerged in all kinds of assumptions, presuppositions, misunderstandings and understandings” (p. 131). Here Skovsmose introduces the term *prosoché* as the notion that we do address elements within this flood. We can and do pay attention to something. In fact, this may be what constitutes our freedom; “we are free, and we are doomed to be free” (p. 133). Skovsmose concludes that acknowledging this freedom, and that our actions emerge from our decisions, means that we ourselves own the responsibility for our life.

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<sup>4</sup> See Lawler (2008, 2010, in press) for discussion of mathematical knowledge fabrication both as construction and as untruth.

While this freedom may give us a hope, a space to stretch and take ownership, it may be difficult to acknowledge this freedom, to own this responsibility. It may be a much more comfortable position to allege lack of responsibility for an action by claiming to be forced, in some way, to do what one did. This trouble seems to leave the reader, and Skovsmose (2009) himself, with a future project:

When we talk about, say, mathematics in action and the fabrication of contingencies, who, then, is the acting subject? Are we operating with notions of action and fabrication that have lost sight of ‘acting subjects’ and, as a consequence, eliminated the possibility of talking about responsibility? Is the acting subject a community of researchers, a community of professionals, a company, an organization, a trend, a paradigm, a discourse? (p. 135)

Skovsmose leaves us with heavy, yet emancipatory questions: Where does responsibility lie for the oppressions of mathematics education? And what freedoms *do* exist to conduct critical research, engage in emancipatory pedagogy, and embrace a scholarship of engagement?

### **Interacting with *In Doubt***

As is evidenced in much of Skovsmose’s influential works, *In Doubt* reflects the philosophical orientation he takes toward mathematics education. The text resides in questions of epistemology, while navigating philosophic traditions of metaphysics, logic, and ethics. Skovsmose is a social philosopher, observing and attending to peoples. Yet he draws heavily upon existential perspectives, such as those of Nietzsche and Sartre. He is rooted in the tradition of analytical philosophy, characteristic of Western thought, influenced by logical positivists such as Frege, Russell, and Wittgenstein. In fact, he observes that much of *In Doubt* was written as he studied Husserl’s and Nietzsche’s responses to positivism.

Nietzsche refused the possibility of an absolute knowledge: “Truths are illusions about which one has forgotten that this is what they are” (as cited in St. Pierre, 2000a, p. 497). Nietzsche’s perspectivism concerns truth, refusing the potential of a god’s eye view and hence no privileged perspective. There are many eyes, and hence many truths. But Nietzsche recognized that such a statement is also made from a particular perspective and, in this way, embraces a form of relativism.

Skovsmose (2009) works hard throughout *In Doubt* to develop an open status for knowledge, one that concurs with Nietzsche’s refusal of certainty; yet, he remains troubled by the potential calamity of a relativist position. Each time he may near a claim of absolute relativism, he catches himself, stating this is not what he intends:

Certainty of a mathematical truth becomes a discursive construct. This, however, does not imply that anything goes [a reference to Feyerabend (1975)] and that there are no criteria of proofs and truths. Instead, we can see mathematics as showing what local truths and local forms of certainty could mean. But this observation does not automatically lead to absolute relativism. (pp. 90–91)

One could assume that giving up searching for a general definition of knowledge would bring us to a radical form of perspectivism, if not into absolute relativism. (p. 102)

The avoidance of being comfortable within an absolute relativism is also evident in the logical positivism of Skovsmose's philosophical roots. Skovsmose, I believe, would prefer to locate some ways of thinking as better—more egalitarian, or democratic—than others. An oppressive truth régime cannot be better than, let alone equal to, an oppressed way of knowing.

Husserl's phenomenology was a response to trends in positivist thought moving toward relativism; he expressly sought certainty in epistemic matters, remaining a Platonist, maintaining an a priori objectivity. Yet he embraced the notion that people experience phenomenon differently, claiming that through suspension of one's own knowing, one could understand phenomena as they appear to any knower. While rejecting Husserl's tight grasp on certainty, Skovsmose (2009) finds solace in Husserl's concepts of *prosoché* and of life-worlds. It is in the *prosoché*, the attending to certain things, and embracing the associated responsibility, that restrains against the slippage into relativism.

Skovsmose's (2009) locus of critique sidesteps the ontological, a priori status of knowledge. He leaves knowledge as an "open concept," seemingly fearing to accept a radical relativism. Although rejecting know-ability, Skovsmose remains subsumed in a drive to know, uncritically working from an omnipotent standpoint. But Nietzsche (1968) claimed: "It is our needs that interpret the world; our drives and their For and Against. Every drive is a kind of lust to rule" (p. 267, §481). In the end, Skovsmose, I fear, appears to ignore his positioning as an all-seeing, driven observer. I caution him to be wary of that to which he holds most tightly.

#### *Why Should You Read In Doubt?*

For the reader looking to Skovsmose for greater clarity toward stating what mathematics *is* or what a critical mathematics education *is*, they will find disappointment. Any sort of contemporary epistemology, declare Larochelle and Désautels (1991), is more useful by focusing "more on the process of the production of scientific knowledge, instead of uniquely on its products" (p. 376). Skovsmose (2009) is by no means attempting to hide such definitions from view, but neither does he seek such definition. It is not for Skovsmose to wonder such

things. Rather, he strives to consider how mathematics operates (cf. Bové, 1990), to understand “*mathematics in action*” (p. 53). Instead of considering mathematics as a static knowledge, Skovsmose engages knowledge as action, and as such mathematics does not bring us to know things, rather it may “determine our human ‘relation to things’” (p. 53). In that, “mathematics supports the modulation and constitution of a wide range of social phenomena, and in this way mathematics becomes part of reality” (Skovsmose, 2005, p. 90).

Read *In Doubt* to be pressed to consider the production of mathematics knowledge. Read to engage in critical thought about the ways in which mathematics and mathematics education operates, through reconstituting the modern notions of mathematics and knowledge. Skovsmose works to cause the reader to “ask different questions that might produce different possibilities” (St. Pierre, 2000a, p. 484).

*And So, How Should You Read In Doubt?*

To satisfactorily engage with this text, the reader must turn off the relentless drive to reason, to name, to know. Such a practice is difficult given both that Skovsmose writes, and we, as the reader, think “within the language of humanism, our mother tongue, a discourse that spawns structure after structure after structure—binaries, categories, hierarchies, and other grids of regularity” (St. Pierre & Pillow, 2000, p. 4). Here, work to read with an “incredulity toward metanarratives” (Lyotard, 1984, p. xxiv). Recognize that “absence rather than presence and difference rather than identity produce the world” (St. Pierre, 2000a, p. 484); place your emphasis not on the presence, but the absence of meaning—that which escapes meaning (Derrida, 1974/1997).

Throughout *In Doubt*, it seems as though Skovsmose heeds the advice of St. Pierre (2000b) to “keep educational research in play, increasingly unintelligent to itself, in order to produce different knowledge and produce knowledge differently” (p. 27). That is the challenge today for mathematics education, one that embraces the socio-political context of mathematics education, and one that takes mathematical knowledge to mean many different things and operate in many different ways.

*And Finally, Should You Read In Doubt?*

This book has a significant place in mathematics education today, especially if we take seriously Gutierrez’s (2010) call for mathematics education to make the socio-political turn. In particular, the socio-political turn invites a deconstruction of the truth régime that is mathematics<sup>5</sup> to reconcile and re-own the notion of

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<sup>5</sup> As we should the truth régime that is mathematics education, as recognized by Martin (2011).

knowledge, in particular mathematics as a fabricated knowledge. Prior ascription of truth and certainty to mathematics can no longer be trusted. This philosophical and introspective character of *In Doubt* will be of particular interest to mathematical and educational philosophers, and also of interest to those who have followed the Skovsmose's research agenda, in particular his ever-evolving agenda toward a Critical Mathematics Education.<sup>6</sup> Yet this could also be a highly frustrating read for the reader who seeks answers or absolutes. Don't read *In Doubt* looking to walk away with an ability to state clearly what mathematics is or how mathematics education ought to be. Instead, expect to trouble the infallibility of mathematics as a given and particular truth. And expect to be troubled by this realization.

Skovsmose (2009) welcomes you to join him in this ambiguity. Being in doubt very well might be (is?) "a human condition" (p. 137).

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<sup>6</sup> For the reader interested in an elucidation of Skovsmose's epistemological ideas through contexts more closely tied to the mathematical experiences both internal and external to classrooms, the recent *Travelling through Education: Uncertainty, Mathematics, Responsibility* (2005) may be a more pragmatic read.

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