Potentialities of a Narrative Approach for Critical Mathematics Inquiry

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Theme: Critical issues in STEM and STEAM education.

Abstract

Philosopher John Dewey's (1916, p.155), question as to why "children are so full of questions outside of school" and yet often demonstrate a "conspicuous absence of display of curiosity about the subject matter of school lessons" is still pertinent, especially in the area of school mathematics, whose practices are notorious for producing apathy, math phobia, disengagement and negative attitudes among a significant number of students (Tobias, 1993; Hersh& John-Steiner, 2011). Research suggests that this is a result of ignoring students' interests, pedagogies based on routines, the dominance of trivial activities and tasks, the increased disconnection of the subject matter from students' everyday knowledge and experience, and the perceived irrelevance of mathematics to students' lives (e.g. Well, 1999, Boaler, 2002). Deeper analysis of widespread student disassociation from mathematics points to the discursive nature of mathematical texts, which cultivate "prescription readiness"—that is, they prepare students to participate in the labor market by following prescriptions (Skovsmose, 2011). And Ernest (2010) argues that current forms of schooling socialize students from an early age into acquiring an object-oriented language, and accepting decontexualization and the separation of mathematical processes and products from experience as a fact of life.

This paper explores the potential inherent in an approach to teaching and learning mathematics through the use of *narrative*, in the form of texts that open a space for the introduction of students' personal experience into the classroom conversation, and which explore meaningful connections between mathematics and the broader culture. We argue that such a discursive space allows and encourages students to problematize and interrogate the practice of mathematics in the context of their own experience, and to "re-figure" (Holland et al, 1998) the relationships between both mathematics and society, and mathematics and self. The utilization of narrative, as opposed to (or along with) expository texts is a crucial dimension of this initiative. The latter are monological, linear, and prescriptive: a set of answers to questions that the learner has not posed. The former are dialogical, polyvocal, based on questions rather than answers, grounded in lived-world contexts, and they model the inquiry they are designed to stimulate, such that the reader/listener is encouraged to internalize the thinking processes they demonstrate in their depiction of the dialogue between multiple voices. They allow for the ambiguity and the situatedness of the thinking process, and encourage students to rely on their own capacity to reason. As Matthew Lipman (2003) put it, "[The text] should be brimful of the child's experience . . . it should dramatically depict the encounter of the minds of the children with the subject matter of instruction" (p. 85).

The use of a narrative approach in mathematics education is not a new idea (e.g see Brown, 1985), but its full potential is far from realized. In this paper we propose to: 1) map the theoretical frameworks associated with narrative traditions in education (Bakhtin, 1981; Bruner, 1986; Lipman et al, 1978; Lipman, 2003; Haroutunian-Gordon, 2009; Sprod, 2011); 2) describe the methodology of one particular tradition (Philosophy for Children) that we use to utilize narrative texts for the specific purpose of triggering collective and critical inquiry into contestable questions that are generated by the students on the basis of their reading; and 3) offer an example of such a text written specifically for use in the middle school mathematics classroom.

A classroom communal inquiry employing a narrative approach can invite students to ask questions of their own about mathematics, both in its internal relations and in its relation to the world, and by implication encourages students to enter into dialogue with its epistemological assumptions, and thereby take steps towards demythologizing mathematics and reconstructing student beliefs. Furthermore, such structured deliberative dialogue promise to afford a larger space for inquiry for the students –one that is more holistic, more connected with experience, and with other disciplines, which can serve to build bridges between the student and the collective, the student and the curriculum, and the student and the social and cultural world.

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