

BOOK REVIEW of Mary Q. Foote (Ed.) (2010) *Mathematics Teaching & Learning in K-12: Equity and Professional Development*. New York: Palgrave Macmillan.

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This book extends relatively recent scholarship on equity in mathematics education (e.g., DiME, 2007; Lesser, 2009) to a needed research focus on professional development of K-12 teachers. Backed by rigorous qualitative research, the book is well-suited for teacher educators and professional developers interested in learning how to make their training more effective by offering PD structures (e.g., Complex Instruction; Cognitively Guided Instruction) to help teachers go beyond color-blind generalities, stock explanations, and stereotypical metanarratives. As the chapter by Hand, Quindel, and Esmonde notes, “it is difficult for teachers to reject a deficit perspective of lower-achieving students, to view social justice as more than simply an add-on, and to get past the cultural relevance of a task to the cultural relevance of a classroom.”

This book makes clear that culture plays a role in mathematics and mathematics education. As Foote states in the introduction, “Often in the past, research in mathematics education was looked at as culture free, while issues of equity and diversity were seen as applicable uniformly across any content.” Examples in the book where culture plays a major role include: (1) In teaching children subtraction, it is more effective initially to ask “How many are you missing to get the same as the other person?” than the less culturally common phrasing “How many more does Rebecca have than you?” (2) A homework activity involving cooking measurement was ineffective (despite a Spanish-translated version) because Mexican families usually calculate *a ojo* (eyeballing) rather than using measurement tools in cooking. (3) Does a discussion about the Census include how the racial category of “Other” has changed over time? (4) How is the classroom affected by how diverse or heterogeneous it is? (5) Students who understand “cylindrical” get stuck on a problem about a silo because they can’t get past not knowing what a silo is. (6) The challenge of including interesting context in a way that still keeps the central focus on the mathematics. (7) There are many references to Gutstein & Peterson (2005), which is filled with examples.

Rubel’s chapter is a strong example of the power of community walks and how professional development often requires several iterations to get teachers closer to doing the real work of unpacking equity and diversity issues by focusing on not just changing their curriculum activities, but also developing a culturally-relevant pedagogy, which requires knowing more about students and the activities they do outside class.

Foote’s chapter shows how much can be learned even from studying a single child, which included a day of shadowing in the school setting as well as meeting with the student’s parent. From the opportunity to experience evidence of the child’s mathematics understanding outside of school mathematics, the teacher in Foote’s chapter learned that she had been underestimating the child’s skills and had new ways to access and build on

things the child could do (rather than focusing only on what the child couldn't yet do). This experience transformed the teacher's perceptions about not just the child but also about how learning can be supported by the environment outside school. A teacher in Wager's chapter had a similar transformation by seeing that students' knowledge about money often was better reflected by their out of school experiences than their in-class performance. A powerful strategy for disrupting stereotypes of what students are capable is illustrated in the chapter by Hand, Quindel, and Esmonde to have the teacher implementing group work "explicitly telling students the multiple kinds of competence that are required to solve the problem, and reminding students that no one student has all these forms of competence, but all of them have some" and reminding them that the ability to perform a particular group role (e.g., facilitator) is something learned not inborn.

As Battey and Chan's chapter makes clear, the theme of teachers building on students' full knowledge by getting to know them in a more authentic and sustained way is paralleled throughout the book by how much more successful the professional developers, in turn, are able to be by getting to know the teachers deeply, beyond what is possible in a one-shot workshop. And so, this book is a valuable contribution to the literature in terms of the practical implications of its detailed accounts and in terms of its overall inspiration for the power in education (and in ethnomathematics, for that matter) of this type of sustained engagement.

## REFERENCES

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