Journal of Urban Mathematics Education
July 2016, Vol. 9, No. 1, pp. 117–123

BOOK REVIEW

Keeping the "Welcome Sign" Lit: A Review of *Building Mathematics Learning Communities: Improving Outcomes in Urban High Schools*[1]

Kayla D. Myers
Georgia State University

The unfortunate and dangerous assumption that "urban" high school mathematics students have a "deficit" continues to be held by too many educators, school leaders, researchers, policy makers, and others. Such a deficit mindset ignores urban youth's potential for mathematics engagement and achievement. Within mathematics education research, this deficit-based agenda holds a heavy, harmful focus on "achievement gap" research between middle-class, White students and Black, Latino/a, First Nation, English language learner, urban students (Gutiérrez, 2008; Parks, 2009). There is a dire need for a shift in attitude about students, teaching, and learning mathematics in urban settings—from a deficit model to one of capability.

Erica Walker's (2012) book *Building Mathematics Learning Communities: Improving Outcomes in Urban High Schools* is an example of a text that honors students' mathematical capabilities. In particular, the book is a study of Lowell High School (pseudonym), an urban high school in New York City consisting of mostly Black (41%) and Latino/a (56%) students. The purpose of her research was to explore students' attitudes, participation rates, and performance outcomes in mathematics; another purpose was to understand the impact of mathematics learning communities as well as the networks of peers, teachers, families, and others on mathematics achievement in this urban high school setting. *Building Mathematics Learning Communities* expands on Walker's findings from her 4-year research project, which used mixed methods including statistics on the school's demographics (ethnic, racial, and financial) and various test scores; teacher and student surveys on beliefs about student potential in mathematics, as well as their perceptions on peer influence; field notes and observations at Lowell High School throughout the project; and interviews of students who were chosen using teacher nomination and

[1] Walker, E. N. (2012). *Building mathematics learning communities: Improving outcomes in urban high schools.* New York, NY: Teachers College Press. 168 pp., $34.95 (paper), ISBN 0-8077-5328-9 http://store.tcpress.com/0807753289.shtml

KAYLA D. MYERS is a PhD student in the Department of Early Childhood and Elementary Education in the College of Education and Human Development, at Georgia State University, P.O. Box 3978, Atlanta, GA 30302; email: kmyers@gsu.edu. Her research interests include mathematics teacher education and development; teachers' transitions from the university setting to the mathematics classroom; and issues of power, identity, and subjectivity through discursive practices in mathematics learning communities.

snowball sampling to find high-achieving mathematics students to discuss their successes and key influences of their mathematics achievement. Using these data, Walker designed and implemented a peer tutoring collaborative at Lowell High School. She analyzed the program to assess the impact it had on teachers' pedagogical beliefs as well as students' growth in mathematical knowledge and learning. This peer tutoring program provided a space for students to collaborate with each other and with teachers, to learn from each other, and to grow in their mathematical thinking—a program that lights Walker's mathematical "welcome sign" for urban high school students.

My review of Walker's (2012) book is situated within three professional roles that inform my subjectivity. I am a former urban mathematics elementary school teacher, a doctoral student at an urban research university, and an emerging elementary mathematics teacher educator and researcher. Furthermore, I am interested in aspects of community in the mathematics classroom for young learners and the discursive practices that shape mathematics identities for students and teachers. My ideas about mathematics learning communities have been broadened in reading Walker's book, which maintains a focus on the high school setting but is easily accessible across primary and secondary education. The elementary teacher's support and facilitation of young mathematical minds through rich, engaging tasks is just the beginning, just one piece, of a mathematics learning community. The community extends to classmates, friends, family members, and any other peers or adults that a child may learn with or from. Walker writes with conviction and dedication to ensure that children in urban high schools have the means for mathematics success, are met with mathematical challenge, and engage in strong mathematical learning communities.

Building Mathematics Learning Communities – An Overview

Building Mathematics Learning Communities is organized into six chapters, each addressing various elements of urban mathematics education in the high school setting, paying particularly close attention to aspects of mathematics learning communities as identified by the teachers and students at Lowell High School. Just as Milner (2012) discusses ideas and misconceptions of the term "urban education," Walker challenges and seemingly embraces the term *urban*, discussing the rhetorical baggage that comes with it while also seeing the positivity and possibilities for urban students. Similarly, Lubienski (2006) addresses ideas and misconceptions of the term "equity" in reform mathematics education, and Gutiérrez (2006) emphasizes the need to (re)define "equity" in mathematics teaching and learning, as both seem to focus too heavily on equal as being equitable and the achievement gap as being worthy of our attention. In a similar manner, Walker (2012) redirects attention away from achievement gaps and toward equitable mathematics education op-

portunities for all students. Ultimately, Walker highlights mathematical successes by bringing these ideas (i.e., urban and equity) together—challenging the urban in mathematics education with equitable and community-based teaching and learning of critical mathematics.

Chapter 1 "Urban High School Students and Mathematics: Myths and Realities" provides a detailed outline of the popular beliefs about students in urban high schools, including beliefs that teachers often hold about teaching their students mathematics. Fictions and actualities about students' attitudes toward mathematics and their participation are addressed. In addition, the damaging teacher dispositions toward urban high school students associated with race and poverty leave too many in the dark, unguided due to a presumed disinterest and deficit. In Walker's (2012) documented reality, however, urban high school students want to be challenged, want to learn mathematics, and treasure those teachers that provide such a welcomed endeavor.

The next chapter examines the community constructs in place for students in urban high school settings to engage in mathematics. "Understanding Students' Communities and How They Support Mathematics Engagement and Learning," chapter 2, highlights family involvement, peer influence, and peer tutoring groups at Lowell High School. Walker (2012) argues that both low-achieving and high-achieving students report benefits of positive academic behaviors, both in and out of school, which implies the potential impact of family members, peers, and others in the non-academic community. This chapter aims to "demonstrate that it is very important for students of color to experience mathematics success in the context of working together as a group" (p. 50), emphasizing the important role of peer influence on students' mathematics success.

Chapter 3 "Facilitating and Thwarting Mathematics Success for Urban Students" explores the policies and practices of schools, their resources, and classroom dynamics. This exploration happens through analysis of student learning, achievement, student and teacher interactions, and mathematics teaching. As done in other chapters, Walker (2012) uses the student interviews to provide an intriguing lens. Students discuss their perceptions of teachers at Lowell and their teachers' practices and treatment of students as learners of mathematics. This unique and important perspective, from the mouths of students, so to speak, not only gives credibility to the words but also brings genuineness to the study. Walker acknowledges the unfortunate thwarting of mathematics success for marginalized students, but she chooses to focus on the facilitation of mathematics success, highlighting the practices and perceptions at Lowell High School as an example.

"Engaging Urban Students' Mathematical Interests to Promote Learning and Achievement," the fourth chapter, examines non-engaging and engaging mathematics experiences of the students of Lowell High School through their own voices. These actual accounts shine a light on the realities of school mathematics class-

rooms, as well as out-of-school mathematics learning experiences. Walker (2012) presents a framework to bridge these in-school and out-of-school contexts for mathematics student engagement. This framework includes four components she advocates should be included in any program aimed to promote student engagement in mathematics: "attention to rigor, attention to and validation of students' everyday experiences and interests, focus on community, and out-of-school/in-school mathematics/experience connections—content and socialization" (pp. 86–87).

Chapter 5 "Developing a Peer Tutoring Collaborative" details the development of the peer tutoring program created and instituted at Lowell High School. Included are the components of the program, general impressions from teachers and students, features of the interactions between tutors and tutees, and how this collaborative program challenged traditional models of mathematics. The effectiveness of such a program, both in its growth and continued success, serves as an exemplar for urban high schools. Walker (2012) considers the effectiveness of the peer tutoring collaborative program by analyzing students' and teachers' testimonials that illuminate the benefits and successes of the program, as well as comparing initial reactions to the results of such a peer tutoring collaborative. Again, Walker lit her welcome sign by initiating the peer tutoring program, but it was the students who kept it glowing through dedication to each other and to the mathematics.

Chapter 6, "Conclusions," leaves us with important questions to consider as urban educators:

> What opportunities are present in urban schools to build students' interest and excitement about math? What opportunities are present in urban schools to facilitate communities of learning around math? And how often are these opportunities ignored? What implications do these opportunities, and the ignoring of them, have for students' success? (Walker, 2012, p. 112)

Walker posits implications for urban teachers, teacher educators, administrators, and policy makers. After considering both phases of her case study, the early data collection and the implementation of the peer tutoring collaborative and its effects, Walker concludes with a question to push toward a reconceptualization of mathematics teaching and learning: *What is student achievement in mathematics?*

Connections

There are far too many damaging myths in existence about the ways mathematics is taught and learned, ranging from misconceptions about the abilities of young mathematics learners (Carpenter, Fennema, Franke, Levi, & Empson, 1999), to illusions of simple and seamless identity construction for prospective elementary mathematics teachers moving from the university to the classroom (Walshaw, 2004), to fictions about who can learn mathematics (Stinson, 2013). The goal is not

to prove these ideas false—after all, they are fictions—but rather, we must challenge these assumptions and (re)consider "how and where mathematics teaching and learning occur, what denotes talent and interest in mathematics, and who can be excellent in mathematics" (Walker, 2012, p. 119). By creating mathematics learning communities in urban environments, we can keep the welcome sign of mathematics well lit for all students.

My own teaching experiences in elementary mathematics learning communities feel relevant and connected to Walker's (2012) high school mathematics learning communities, specifically the peer tutoring collaborative program. For example, creating a safe space for elementary students to ask questions, much like Walker's learning communities, cultivates an open and empowering environment for maturing mathematical thinkers. Providing that space in elementary school to engage with the mathematics in collaborative and supportive ways can set a strong foundation for young learners as they develop a mathematics identity. I believe that all students can learn mathematics, and a way to promote that engagement is with positive peer, family, and teacher interactions. Walker advocates the same message throughout her book. In an effective mathematics learning community, students engage in the foundational knowledge and skills for thinking mathematically, practice problem solving and mathematical reasoning, and develop conceptual understandings of the mathematics. This community is made manifest in an environment that supports all learners as having potential for success, with peer interactions that inspire mathematical excellence as they work and learn together.

As an emerging teacher educator and novice researcher at an urban research university, I understand the need to prepare mathematics teachers to dismiss negative dispositions toward urban students and adopt the empowering attitudes illustrated in *Building Mathematics Learning Communities*. I reiterate that my work in preparing elementary teachers to teach mathematics is undeniably connected to secondary mathematics preparation. While mathematics content knowledge is important, pedagogical content knowledge and teaching mathematics effectively require so much more (Hill, 2010). All teachers need to be prepared to challenge all students, to set high expectations for student achievement and success, and to focus on positive attitudes and beliefs about mathematics learning, especially teachers in urban settings. Therefore, I would recommend this book to those looking for ways to trouble the achievement gap in urban schools—whether elementary or secondary—and cultivate a mathematics learning community for all students.

Conclusions

All students want to engage in challenging mathematics. Throughout *Building Mathematics Learning Communities*, there are numerous examples of innovative and effective mathematics teaching practices, and the model of the peer tutoring

program is relevant for urban (and non-urban) mathematics educators and administrators. Walker's (2012) insightful ideas are an attempt to free teachers and students from the negativity surrounding achievement gap rhetoric, instead striving for building mathematics learning environments that support the potential for all learners. These communities, similar to the one built at Lowell High School, promote collaboration, eradicate hierarchies, and encourage budding mathematicians of all sorts. As an advocate for such a collaborative, I was left feeling a joyous respect after reading such raw and truthful endorsements for a peer tutoring program that relies on student volunteers.

Walker (2012) calls for a reconceptualization of mathematics teaching and learning, specifically for urban high schools. This involves a reconsideration of urban mathematics students, which Walker initiates by emphasizing the strong student interest in arduous mathematics at Lowell High School. Furthermore, contrary to extant damaging ideas of urban school communities, Walker's urban students "come from communities and networks that are committed to their education and mathematics development… [which] have gone unnoticed and unacknowledged" (p. 112). Equitable mathematics education means focusing on students' strengths and their possibilities and potential for success rather than on perceived weaknesses and deficits to which the achievement gap pays so much attention.

What happens when we leave the gap-gazing behind us (Gutiérrez, 2008; Parks, 2009)? In *Building Mathematics Learning Communities*, Walker (2012) challenges us to abandon the gap-gazing fetish and summons teacher practitioners to infiltrate urban schools and positively influence mathematics teaching practices. As a novice researcher, I wonder about the potential impact of Walker's research on practice and scholarship. Yes, teachers and researchers should abandon the achievement gap negativities and adopt philosophies of all students' potential for mathematics success, but how do we silence those negativities and bring voice to those who abandon it? Overall, Walker highlights the effect of this abandonment within one school, and I agree that we should employ such an ideological shift in all teachers. With regard to urban settings, where are these gap-gazing fetishes originating, and how do we move beyond them? How can we, both teachers and researchers, illuminate the mathematics welcome sign for *all students* when too many urban students often find that light burned out? Walker's book holds the potential to be a beacon in this search for such a light by refusing to gaze at the achievement gap and instead working to build up urban mathematics teaching and learning.

References

Carpenter, T. P., Fennema, E., Franke, M. L., Levi, L., & Empson, S. B. (1999). *Children's mathematics: Cognitively guided instruction*. Portsmouth, NH: Heinemann.

Gutiérrez, R. (2006). (Re)defining equity: The importance of a critical perspective. In N. S. Nasir & P. Cobb (Eds.), *Improving access to mathematics: Diversity and equity in the classroom* (pp. 37–50). New York, NY: Teachers College Press.

Gutiérrez, R. (2008). A "gap-gazing" fetish in mathematics education? Problematizing research on the achievement gap. *Journal for Research in Mathematics Education, 39*(4), 357–364.

Hill, H. C. (2010). The nature and predictors of elementary teachers' mathematical knowledge for teaching. *Journal for Research in Mathematics Education*, *41*(5), 513–545.

Lubienski, S. T. (2006). Research, reform, and equity in U.S. mathematics education. In N. S. Nasir & P. Cobb (Eds.), *Improving access to mathematics: Diversity and equity in the classroom* (pp. 10–23). New York, NY: Teachers College Press.

Milner, H. R. (2012). But what is urban education? *Urban Education, 47*(3), 556–561.

Parks, A. N. (2009). Doomsday device: Rethinking the deployment of the 'achievement gap' in equity arguments. *For the Learning of Mathematics, 29*(1), 14–19.

Stinson, D. (2013). Negotiating the "white male math myth": African American male students and success in school mathematics. *Journal for Research in Mathematics Education, 44*(1), 69–99.

Walker, E. N. (2012). *Building mathematics learning communities: Improving outcomes in urban high schools.* New York, NY: Teachers College Press.

Walshaw, M. (2004). Pre-service mathematics teaching in the context of schools: An exploration into the constitution of identity. *Journal of Mathematics Teacher Education, 7*(1), 63–86.