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BOOK REVIEW

Transforming from the Bottom Up: A Book Review of *Mathematics for Equity: A Framework for Successful Practice*[1]

James Sheldon
The University of Arizona

Mathematics for Equity: A Framework for Successful Practice is the latest edited volume in James Banks's Multicultural Education Series published by Teachers College Press. *Mathematics for Equity* is a collection of 14 chapters, 4 are revisions of previously published work and 10 are new chapters, written specifically for this volume. Collectively, the 14 chapters tell the story of Railside High School, a school where mathematics teachers successfully transformed their mathematics department to create classrooms in which all students could successfully tackle challenging mathematics. The book is divided into four parts: Part I: The Railside Approach, Part II: Student Experiences at Railside, Part III: Teacher Learning and Professional Community, and Part IV: Moving On and Looking Forward. The book, in many ways, offers a story of inspiration and hope, grounded in research, for secondary mathematics teachers who wish to transform their own mathematics departments.

Railside High School's Journey into Mathematics Reform

Railside High School is a school that has taken on an almost mythic status within mathematics reform and has even become a target for those who seek to discredit such reform (see Boaler, 2012 for a discussion about professional and personal attacks regarding Railside High School). Jo Boaler (see Boaler and Staples, 2008, 2014) named this specific school *Railside* because it was a school that was on the "wrong side of the tracks": low-income students of color lived on one

[1]Nasir, N. S., Cabana, C., Shreve, B., Woodbury, E, & Louie, N. (Eds.). (2014). *Mathematics for equity: A framework for successful practice*. New York, NY: Teachers College Press. pp. 288, $44.95 (paper), ISBN 0807755419 http://store.tcpress.com/0807755419.shtml

JAMES SHELDON is a Sally Cassanova Predoctoral Scholar conducting research on Complex Instruction and discourse at the University of Arizona, 1430 E. Second Street, Tucson, AZ 85721, email: jsheldon@email.arizona.edu. His research draws upon queer theory and disability studies to explore how students are constructed as low-achieving and how teachers can move from looking at individual deficits to models of curriculum and pedagogy based on Complex Instruction. He is a special education mathematics teacher at the California Virtual Academies, a virtual Title I public charter school.

side of the railroad tracks while privileged families lived on the other. In the mid-1980s, during an otherwise routine accreditation process, students at Railside expressed to the visiting team of accreditors their frustrations that "they were not learning mathematics" (Tsu, Lotan, & Cossey, 2014, p. 129). The accreditors' final report, however, did not make any specific recommendations for improving mathematics instruction, leaving the mathematics department to develop its own plan to redesign mathematics teaching and learning at Railside. Teachers in the department began working with Ruth Cossey, who, at the time, was studying Complex Instruction (CI) while beginning her doctoral studies at Stanford University. Ruth introduced the Railside mathematics teachers to CI, and it became the framework for curriculum and instructional redesign.

CI is an instructional approach developed by Elizabeth Cohen, Rachel Lotan, and colleagues at Stanford University.[2] As a sociologist, Cohen was particularly interested in the ways in which classrooms tended to divide students into status hierarchies based on their perceived competence. Cohen noticed that in classrooms, teachers' and students' perceptions were that some students are competent at mathematics and others are not. Moreover, competence tended to be ascribed to students who fell into socially privileged categories, such as whiteness and/or maleness. These perceptions of competence often led to self-fulfilling prophecies: those who are perceived as competent demonstrate mathematical competence; those who are perceived as lacking competence struggle mathematically.

Cohen proposed that teachers address this issue of status by placing students in groups to work on what Lotan (2003) later named "group-worthy tasks."[3] Groupworthy tasks facilitate students' interdependence by foregrounding multiple abilities and multiple representations, requiring students to work together in solving complex mathematical problems. These tasks involve sufficient interdependence and challenge; even those students who are perceived as "advanced learners"[4] often experience difficulty completing the tasks on their own. Thus, students in a classroom based on CI are compelled to work together in productive ways to complete tasks. In the end, CI became particularly significant in the mathematics reform work that transpired at Railside High School.

[2] See http://cgi.stanford.edu/group/pci/cgi-bin/site.cgi.

[3] Lotan (2003) used a hyphen between group and worthy, but this volume follows the current convention of eliminating the hyphen, thereby spelling groupworthy as one word.

[4] By advanced learner, I am referring more to the process by which the teacher, the student, and classmates attribute mathematical competence to the learner than to actual mathematical competence.

UC Berkeley Researchers Team Up with Railside Teachers

Mathematics for Equity comes out of a study that University of California, Berkeley researchers Na'ilah Suad Nasir and Nicole Louie began in 2009. Nasir and Louie teamed up with three Railside mathematics teacher leaders (Carlos Cabana, Barbara Shreve, and Estelle Woodbury) to study how the mathematics department at Railside was changing as the district "derailed Railside"[5] by doing away with block scheduling, re-tracking classes, and terminating mathematics teachers. These changes became too much for these teacher leaders to deal with and they left Railside at the end of the 2009–2010 school year. However, they continued to work closely with Nasir and Louie and the group collaborated to write *Mathematics for Equity*. Connecting with other researchers and Railside alumni, they constructed an anthology that explores the salient features of the Railside approach and shows how CI can be implemented department wide to create equity-based mathematics classrooms in which all students are positioned as mathematically competent. The book examines how the teachers in the mathematics department took the initiative to collaborate in order to create classrooms where all students were viewed as possessing intellectual and academic competence in a context where other academic departments in the school were not fully engaged in making similar changes.

Nasir, Cabana, Shreve, Woodbury, and Louie (2014) created a volume that expands earlier work by Boaler and Staples (2008), Horn (2005), and Little and Horn (2007); revised versions of these articles on Railside are included in the book and provide context and historical framing. Rather than merely compiling existing research, the authors built upon the prior work in three chapters they wrote specifically for the anthology: "Working Towards an Equity Pedagogy," "Building and Sustaining Professional Community for Teacher Learning," and "Derailed at Railside." The first original chapter offers a vignette from a Railside classroom as an overview of the core principles of the Railside approach to mathematics. The second chapter discusses how the department built a professional community and asserted its own autonomy by taking responsibility for things that ordinarily might be within administrators' purview (e.g., hiring teachers and new-teacher induction). And the third original chapter tells the story of how top-down changes at Railside derailed the use of CI and led to 4 out of 10 teachers in the mathematics department resigning by the end of the 2009–2010 school year.

Other perspectives from former Railside students and teachers were incorporated into the anthology in Part II. Railside alumnus Maria Velazquez worked with Nicole Louie to conduct a focus group with former students to examine how mathematics classes led students to recognize that everyone possessed compe-

[5] The metaphor of "derailing" Railside features prominently in the collective narrative of the anthogloy, particularly in Chapter 12, which is titled "Derailed at Railside."

tence in mathematics (Velazquez & Louie, 2014). Victoria Hand, who studied with Boaler at Stanford, contributed a chapter exploring two case studies of students actively shaping their own environment within the mathematics classroom (Hand, 2014). Lisa Jilk, a former Railside teacher, contributed two chapters. One is entitled "Everyone Can Be Somebody" and features a case study of a student who, although possessing racial, cultural, and gender identities, insisted that her key identity was being "somebody" who can contribute to the world and how this "somebody" identity was manifested in her experiences in a Railside mathematics classroom (Jilk, 2014). Together, these chapters complement existing research on Railside by demonstrating how Railside teachers' use of CI in their mathematics classrooms gave students mathematical agency.

Is Equity Always about Race?

At first glance, a book titled *Mathematics for Equity* sounds like one that would be primarily about race or culture, especially given that the volume is part of James Banks's Multicultural Education book series. These two constructs, however, do not even appear in the index. The contributing authors throughout the volume use different language around the issues of equity. For example, instead of speaking about race, the authors speak about students "taking up their space" and "being somebody"; these phrases are different ways of speaking about race and culture that were derived from the authors' experiences at Railside. Despite the lack of fleshing out concepts like race or culture specifically, a close reading reveals that Railside teachers did indeed engage in culturally sensitive instructional practices. Furthermore, although the authors suggest that Railside teachers did not organize their work around race, the fact that they created classrooms where everyone was viewed as smart challenged the racialized hierarchies of perceived mathematical competence too often found in classrooms and in society at large. Railside alumni confirm that in their mathematics classes (unlike their other classes) their fellow students perceived everyone to be intellectually competent.

Is It a Book for Practitioners?

The back cover of *Mathematics for Equity* sells the book as "invaluable reading for teachers, schools, and districts" interested in pursuing a focus on equity in their mathematics programs. The book offers useful suggestions and resources for practitioners, particularly those working in "urban" mathematics classrooms by demonstrating how Railside mathematics teachers used groupworthy tasks in ways that valued what all students brought to the table both culturally and mathematically. As a high school mathematics teacher, I refer to the book frequently, both as a source of inspiration and as a guidepost as I refine my own

teaching practice and interact with my colleagues as we confront issues of equity in our school.

Nevertheless, I do want to caution those looking for a "how-to" guide about CI. Although the book offers many useful resources for practitioners, it is a collection of research studies, not a how-to book. Mathematics educators, administrators, and other educational leaders looking to immediately start using these techniques in mathematics classrooms might be better served reading a practical guidebook like Featherstone and colleagues' (2011) *Smarter Together!* or Cohen and Lotan's (2014) *Designing Groupwork*—both provide a more nuts-and-bolts approach.

Once teachers have advanced to using CI in their classrooms, *Mathematics for Equity* offers a useful resource for fine-tuning their instructional practices and for adjusting CI to specifically meet the needs of their students. *Mathematics for Equity* demonstrates how to use CI in a way that takes into account multiple identities without subsuming them under a singular category such as race. It offers both a vision and a pragmatic agenda for those who believe that groupworthy tasks are not just for those with privilege in society and that every student, regardless of their background, is able to tackle and should be provided access to challenging mathematics.

What this book offers to urban practitioners that other books do not is a sense of what CI "looks like" beyond an individual classroom. *Mathematics for Equity* paints a picture of what these instructional practices look like when they are implemented in an entire department, and discusses how Railside teachers built structures of collaboration and support as they made these changes in their department. Rather than simply making their classroom tasks groupworthy, the teachers learned how to make their own departmental conversations groupworthy. They worked together to solve problems of mathematics instruction, structure, and curriculum. This collaboration required interdependence and intentionality in combining their multiple abilities in department meetings. This collaboration paralleled what they expected their students to do in the context of their mathematics classes. Applying CI to the problems that a department encounters is something unique and intriguing about the Railside approach. The chapters in Part III on Teacher Learning and Professional Community offer critical insights to practitioners about how this groupworthy decision-making process played out in the mathematics department at Railside.

An Inspiration for Bottom-Up Change

I came to this book from a fairly unique perspective; I teach pre-algebra and algebra to special education students. Seeing the perpetual struggles my students have had with mathematics and how many of them were failing to succeed, I real-

ized something needed to change. Approximately four years ago, I started to look at how special education students were being denied opportunities to critically engage with mathematics problems and to learn how to develop their own solutions. I studied the literature related to mathematics reform and special education and had a vague sense that what we needed was more "problem solving" for students with dis/abilities, but I was not sure how to go about it. *Mathematics for Equity*'s vision of a mathematics curriculum in which all students can find their own entry points into problems has inspired me as I have worked to find ways to focus on my students' strengths rather than on their dis/abilities. Using this book as a guide, I have begun to transform my own teaching and to incorporate groupworthy tasks into my instruction. Although this has not always gone as smoothly as I might have liked, my students have risen to the challenge and worked to tackle the problems I give them in their groups. Inspired by the Railside teachers' assertions of their own departmental autonomy, I have worked with other teachers in my department to make similar bottom-up changes within our school. Together, teachers at my high school have made strides in moving the discourse from a narrative of "here's what administrators would like us to do to work toward equity" to a narrative of "here's what we would like to do to work toward equity."

What I take away from *Mathematics for Equity*, therefore, is a continued faith in the ability of teachers to create bottom-up change. There is no one-size-fits-all solution to reforming a mathematics department. These changes at Railside were not the result of someone telling teachers what to do but rather Railside teachers had to confront the challenge and invent a mathematics department from the ground up. If we are to create (urban) mathematics classrooms and (urban) schools that truly enable all students to develop mathematical competencies, it will have to come from the bottom-up. Using this book as a guide, mathematics educators will need to accept the challenge and engage in perhaps the most groupworthy task of all: working within their departments to design mathematics curricula and instructional practices that enable all of their students to succeed mathematically.

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