

JOURNAL OF
MATHEMATICS
EDUCATION
AT TEACHERS COLLEGE

A Century of Leadership in Mathematics and Its Teaching

Forward-Thinking Orientations for Mathematics Education

© 2021.

*This is an open access journal distributed under the terms
of the Creative Commons Attribution License,
which permits the user to copy, distribute, and transmit the work,
provided that the original authors and source are credited.*

TABLE OF CONTENTS

PREFACE

- v *Anisha Clarke, Teachers College, Columbia University*
Nasriah Morrison, Teachers College, Columbia University

ARTICLES

- 1 **Building Thinking Classrooms: A Conversation with Dr. Peter Liljedahl**
Peter Liljedahl, Simon Fraser University
Anisha Clarke, Teachers College, Columbia University
Nasriah Morrison, Teachers College, Columbia University
- 9 **Multiplication by Sunlight: How Can a Geometric Definition be Realized in a Physical Tool?**
Justin K. Dimmel, School of Learning and Teaching, University of Maine
Eric A. Pandiscio, School of Learning and Teaching, University of Maine
Camden G. Bock, School of Learning and Teaching, University of Maine
- 17 **Modeling as Story-Building and Storytelling: Redesigning Algebra with Adolescent Girls of Color**
Kara Louise Imm, Hunter College, The City University of New York
- 31 **Gerrymandering in the High School Geometry Classroom**
Kate Belin, Fannie Lou Hamer Freedom High School
Courtney Ferrell, Bronx Theatre High School
- 43 **Hyper-Acceleration of Algebra I: Diminishing Opportunities to Learn in Secondary Mathematics**
Terrie M. Galanti, University of North Florida
Toya Jones Frank, George Mason University
Courtney K. Baker, George Mason University

Continued on next page

TABLE OF CONTENTS

(Continued)

NOTES FROM THE FIELD

- 51 Humanity and Practicality during the Emergency Conversion to Online Learning**
Christopher R. H. Hanusa, Queens College, City University of New York
- 53 COVID and the Importance of Casual Interactions in Mathematics Classrooms**
Sian Zelbo, J.D., Ph.D., The Brearley School, Stern College for Women, Yeshiva University
- 55 Meeting the Social-Emotional Needs of My Students During the Pandemic Through the Use of Activity Lists**
Michelle Longhitano, Teachers College, Columbia University
- 57 A Digital Touch to Teaching and Learning Mathematics**
Bryan Nevarez, Queens College, City University of New York
- 59 Navigating the Pandemic through Interdisciplinary Collaborations**
Estefania Hereira, Flushing International High School
- 61 Meeting Students Where They Are: A Schoolteacher’s Brief Account of Teaching in the Pandemic**
Brian Darrow, Jr., Teachers College, Columbia University

© 2021 Zelbo. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits the user to copy, distribute, and transmit the work provided that the original authors and source are credited.

NOTES FROM THE FIELD

COVID and the Importance of Casual Interactions in Mathematics Classrooms

Sian Zelbo
The Brearley School
Stern College for Women, Yeshiva University

This year presented unimaginable obstacles to learning, some obvious and others more subtle. Even when students have good Wi-Fi, working devices, and the opportunity to learn in person—which most of my students have—there are barriers to learning that leave students feeling isolated, overwhelmed, and unmotivated. The most significant obstacle in my teaching, the physical distancing in the classroom, taught me how students learn. It has clarified the centrality of social interactions to mathematical learning.

In the times before COVID, I walked around and peeked over students' shoulders as they worked together on problems. I nudged them along at times by asking questions or providing hints. In graduate school, I learned that these casual interactions among students and teachers were at the heart of students' learning experiences. Through these interactions, students construct mathematical knowledge. Researchers have known for a long time that mathematical learning is active and social. Now we have stark evidence of the profound truth of this observation. These casual interactions in the classroom happen when students notice each other's work, overhear each other's conversations and talk to their neighbors. The interactions expose students to new ideas and new mathematical representations, and they spark creativity. Students also often disagree or come to different conclusions, which challenges them to justify their views. Casual interactions also allow students to try out ideas without

committing to them fully. Students may take an intellectual risk by asking a question, showing scratchwork to a teacher, or offering a tentative idea to a neighbor.

This year, by contrast, students are tiny islands in the classroom. They are evenly distanced from each other and their teacher, sometimes with a plexiglass screen between them. There are no casual interactions. Every communication requires a deliberate, visibly raised hand and a commitment to enunciate clearly through a mask. The distancing creates a buffer that slows down the normal exchange of ideas and discourages risk-taking. Because of the effort required to speak to the other members of the classroom, only the most confident students volunteer, and they express only fully-formed ideas. It is not apparent, but the distancing discourages risk-taking even on paper. A student might use scratch paper to work out a problem in normal times, knowing that they would recycle the paper at the end of class. If the teacher saw incorrect work on a student's scratch paper, there was no problem. It was just an idea, just a draft. Now, there are no casual glances at a piece of work. Now, with every document communicated digitally, every piece of work feels more important, more permanent. Students hesitate to take a guess.

As difficult as the year has been, I am grateful for the wisdom and clarity it has given me and look forward to the opportunity to huddle and do math problems with my students once again.